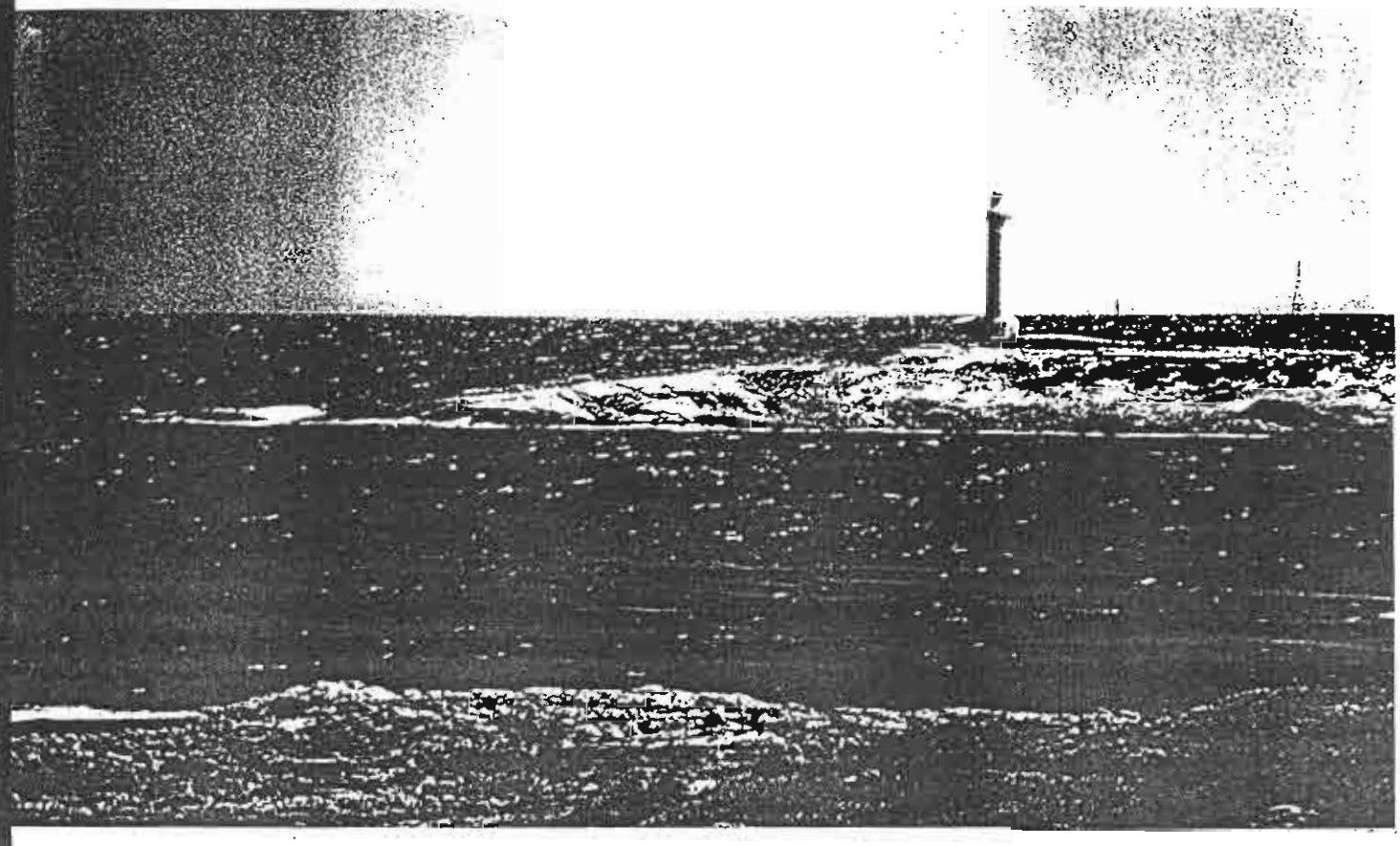
Lighthouses on the Western Australian coast and off-shore islands



By: D.A. Cumming, M. Glasson & M. McCarthy

November 1995

With contributions from

M Coleman, M. Komesaroff, M. Lorimer, C. Miller, J.Winston-Gregson, G. Walker, A Wolfe, P. Worsley,

Report: Department of Maritime Archaeology, Western Australian Maritime Museum, No: 100

This study is dedicated to the memory of
Denis A. 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).

Frontispiece: The Cape Leeuwin light-station. Photograph, Jon Carpenter, Western Australian Maritime Museum

ACKNOWLEDGEMENTS

The Heritage Council of Western Australia
Mr Ian Baxter (Director)
Mr Ian Kelly
Mr Gerry MacGill
Ms Jenni Williams
Ms Sharon McKerrow

Mr Ross Chisholm

Australian Maritime Safety Authority

Mr Morris Glasson
Mr Gil Walker

The Institution of Engineers, Australia
Mr Bruce James

Mrs Dorothy Austen-Smith

Mr Mike Lorimer
Ms Cecily Miller
Mr J. H., Winston-Gregson
Mr Adam Wolfe
Mr Peter Worsley

CONTENTS

BACKGROUND TO THE LIGHTHOUSES STUDY

In March 1993 the Department of Maritime Archaeology at the Western Australian Maritime Museum, applied under the *National Estate Grants Program*, for funding to enable it to employ staff and a qualified external consultant to undertake a survey of Lighthouses and Navigational Aids on the coast of Western Australia. A sum of $13500 was sought as a grant, to be supplemented by a contribution of $22800 from the Maritime Museum and its ancillaries, bringing the total budget for the survey to a sum of $36300.
In presenting the grant in February 1994, the Director of the Heritage Council of Western Australia indicated that the grant was allocated in order that the Museum would 'survey the history and physical remains of historic lighthouses and other navigational aids on the coastline of Western Australia'. One year was allowed for the completion of the study.
Mr M. McCarthy, the grant applicant on behalf of the Museum, was appointed the project manager. His task was to oversee the study and to facilitate its progress. The consultant, Mr Denis Cumming, had been selected by the Museum prior to making the application for funding. He was to conduct the study assisted by volunteers, local historians and other specialists.
Mr Cumming was eminently suitable for the task of consultant. Already involved as chief consultant to the Museum, on a port-related structures study, he was a retired engineer, lecturer, author, founding Chair 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.
The grant was subsequently approved and accepted, with the project timed to commence at the end of the April 1994. In accepting the terms and conditions, the Maritime Museum requested 18 months to complete the work, citing a prior commitment to a 'Port-related Structures Study' which also involved Mr Cumming and the project manager.
The proposal was accepted by the Heritage Council, making a target date of 30 November 1995. Research work commenced and sites as far afield as the Kimberley and Albany were examined. The project was proceeding satisfactorily towards the target date of November 1995, when on 28 January 1995, Mr Cumming died of a heart attack whilst engaged in a yacht race off Fremantle.
It was a major blow, not only to his family, but also to those involved with Mr Cumming on this and many other heritage projects. A delay occurred while Mr Cumming's personal notes and computer records were compiled by his family, assisted by Mr Bruce James of the Institution of Engineers, Australia. The photographs, notes and computer discs were duly handed over to the project manager and a start was made on their assessment, and compilation.
At a meeting on 20 June 1995, the Heritage Council requested that the project manager expedite the Lighthouses Study and to expand it to provide details of lights and light stations on offshore islands, though these were not part of the original study. Notwithstanding the setback caused by the death of Mr Cumming and the demands on the Maritime Museum at the time, it was agreed to expedite the work. It was accepted that the stations on off-shore islands would not be examined however and that only an historical/photographic record would be produced for those sites. A revised target date of 15 September for the production of an interim report and November 30 for the final, was then agreed upon. The project manager involved further specialists such as Mr Maurice Glasson, the Depot Manager, Australian Marine Safety Authority, Fremantle and other scholars and historians such as Mr Peter Worsley of Geraldton, Ms Cecily Miller of Carnarvon and Mr Adam Wolfe of Albany.
Existing reports are also referred to or, if appearing as unpublished working files, are reproduced in full.

EXECUTIVE SUMMARY

AIMS

Under a general brief to 'survey the history and physical remains of of historic lighthouses and other navigational aids on the coastling of Western Australia', a study has been undertaken chiefly by the late Denis Cumming on behalf of the Department of Maritime Archaeology at the Western Australian Maritime Museum.
The project commenced in June 1994 and aimed to complete the following tasks :

i) *To document the historic lighthouses and navigational aids on the coast of Western Australia and research their individual and collective history.*
ii) To compile a photographic record of each and to prepare an information database on each and the subject in general.
iii) To survey the physical remains of lighthouse and navigational aids on the coast.
iv) To prepare and present nominations for the National Estate.
v) To provide an interim report to the Heritage Council of Western Australia on these structures and on those found on off-shore islands by September 15, 1995.
vI) To provide a final draft by November 1995.

RESULTS

i) It was found that those lighthouses and other navigational aids previously listed by the Heritage Council of Western Australia (HCWA) or the Australian Heritage Commission (AHC) Database or Register of National Estate (RNE) included the following.

Adele Island lighthouse, AHC Database 019841
Anchor (Besseries) Island lighthouse, AHC Database 019840
Babbage Island quarters, HCWA 0462, AHC Database 014522, RNE
Bathurst Point lighthouse and quarters, HCWA 0517, AHC Database 100054
Bluff Point lighthouse and quarters, HCWA 1074, AHC Database, 009589, RNE
Breaksea Island lighthouse, HCWA 3353, AHC Database 019842
Broome Jetty and light, AHC Database 18074
Cape Inscription, lighthouse and quarters, HCWA 3261, AHC Database 019865, RNE
Cape Leeuwin lighthouse and quarters HCWA 0104, AHC Database 09399, RNE
Cape Naturaliste lighthouse and quarters, HCWA 2914, AHC RNE 016693, RNE.
Dongara obelisk, HCWA 1242; AHC Database 09663
Foul Bay lighthouse AHC RNE 019844, RNE
Fremantle lighthouse, North Mole, AHC Database 016653
Fremantle lighthouse, South Mole, AHC Database 016638
Gantheaume Point lighthouse, AHC Database 018832
Jarman Island lighthouse and quarters, HCWA 2337, AHC Database 010086, RNE
Legendre Island lighthouse, AHC Database 019843, RNE
Point Cloates lighthouse and quarters, AHC Database 019863, RNE
Point D' Entrecasteaux lighthouse, AHC Database 019861, RNE
Point King lighthouse, HCWA 3212, AHC Database 018832, RNE
Rottnest Island, lighthouse and quarters, HCWA 3254, AHC Database 019860
Vlaming Head, lighthouse and quarters, HCWA 0837, AHC Database 010795, 100799, RNE
Woodman Point, HCWA 0507, HCWA 0508

ii) This project identified three additional structures on the mainland[1] with heritage significance. These were:

Point Moore Lighthouse, built 1878
Cape Bossut Lighthouse, built 1911.
Cape Leveque Lighthouse, built 1911.

While nominations were being prepared for these three sites, one the Cape Bossut light-tower, was demolished.

iii) In addition to these three structures the tower at Quobba Point, north of Carnarvon, a white round concrete structure built in 1950, supports an historic lantern and stairs taken from the original Point Cloates light.

iii) A considerable mass of references, photographs, reports, plans, maps, and charts related to lighthouses and light-stations on the coast and on the off-shore islands has been accumulated and presented in these pages and in the appendices and working files. These will prove of benefit to scholars and to site managers.

In presenting this work, the Maritime Museum recognises the contibution that the late Dennis Cumming has made to the preservation of the industrial heritage of Western Australia.

Michael McCarthy
Lighthouses Study, Project Manager
Curator of Maritime Archaeology
Western Australian Maritime Museum
December1995.

[1] As indicated, though this study gives details of lights and lightstations on both the coast and off-shore islands, structures on off-shore islands have not been visited. A seperate study is envisaged to complete this work.

STUDY FORMAT

A) *Geographical and alphabetical listing and site details*

The study begins with a chronological account of significant engineering events in Western Australia, including the commencement of the various lights and light-stations. This is followed by a geographical and an alphabetical listing of lighthouse and navigation aid on the coast and islands of Western Australia. Brief details of each light then appear with references. A small number of photographs have been selected, though others appear in the working files. This listing is designed to allow the reader to become familiar with the subject on both a general and site-specific level.

B) *Appendices*

From the beginning made in A) above, the reader is directed to the various appendices and then to the two working files Files #1 and # 2, for further details. Working file #3 provides a selection of material held by AMSA, yet to become generally available in public repositiories.[2] The appendices are as follows:

Appendix 1) by D.A. Cumming.
a) Lighthouses of Western Australia in date sequence
b Early lighthouses in other states

Appendix 2) by D. A. Cumming
A catalogue of photographs copied from *Offshore light-stations of Western Australia*

Appendix 3) from J.H., Winston-Gregory
a) Lighthouse Type Profiles
b) Lighthouse and tower typologies

Appendix 4) by D.A. Cumming
a) Archive location data
b) Plans and charts of lighthouses

Appendix 5) by M. Lorimer
A cultural resource management strategy for lighthouses in Australia

Appendix 6) by Margaret Coleman
Inscriptions on the lightstations of Western Australia and other material

---

[2] The Maritime Museum acknowledges the efforts of AMSA staff, notably Mr Maurice Glasson in preserving historic documents and material held at AMSA.

 # C Working files

Working file #1
The material from the various contributors above also appears in full and with additions and supplementary notes in an 'Individual site details and nominations section'. This working file (File #1) is arranged in alphabetical sequence.
Material from all the sources mentioned above and below appears under each alpha entry, allowing the scholar to focus on each individual light. A number of stations, e.g., the Jarman Island Light, the Cape Leeuwin Light have been the subject of a detailed conservation study and in these instances the cover and contents pages of the relevant report is included for further reference. The reports themselves are housed at the Fremantle Depot of the Australian Marine Safety Authority (AMSA). Also appearing are individual entries from an alphabetical card index maintained at AMSA, giving details of the equipment used at each station and its movements.

Working file #2
A combination of two working documents
1) entitled Light Stations of Western Australia Volumes (1) & (2). This document, a compilation of details, illustrations, charts 'mudmaps' and diagrams of the lights and their surroundings was prepared to enable the master and crew of the lighthouse tenders *Cape Otway* and then *Cape Don* to safely access the sites. It is an important historical document in its own right and was located by Mr Gil Walker, former Assistant Manager Navigational Service of AMSA, and Mr Maurice Glasson, Depot Manager, AMSDA, Fremantle and presented for copying.
2) A similar, but untitled working document which is again a compilation of details, illustrations, charts, 'mudmaps' and diagrams of the lights and their surroundings. This was apparently prepared not only to enable the master and crew of the lighthouse tenders to access the lights, but also to provide some historical background. Again, these are important historical documents in their own right and were located by Mr Maurice Glasson, Depot Manager, Navigational Service of the Australian Marine Safety Authority, Fremantle and presented for copying.

Working File # 3 (Material housed at AMSA Fremantle (Prepared by Mr M Glasson)

i) A plans and drawing index
ii) An historical photographs index
iii) A catalogue of plans and related charts (by M. Coleman)
iv) Formation and early development of the Commonwealth Lighthouse Service (by M. Komesaroff)

Figure 1
The Western Australian coast

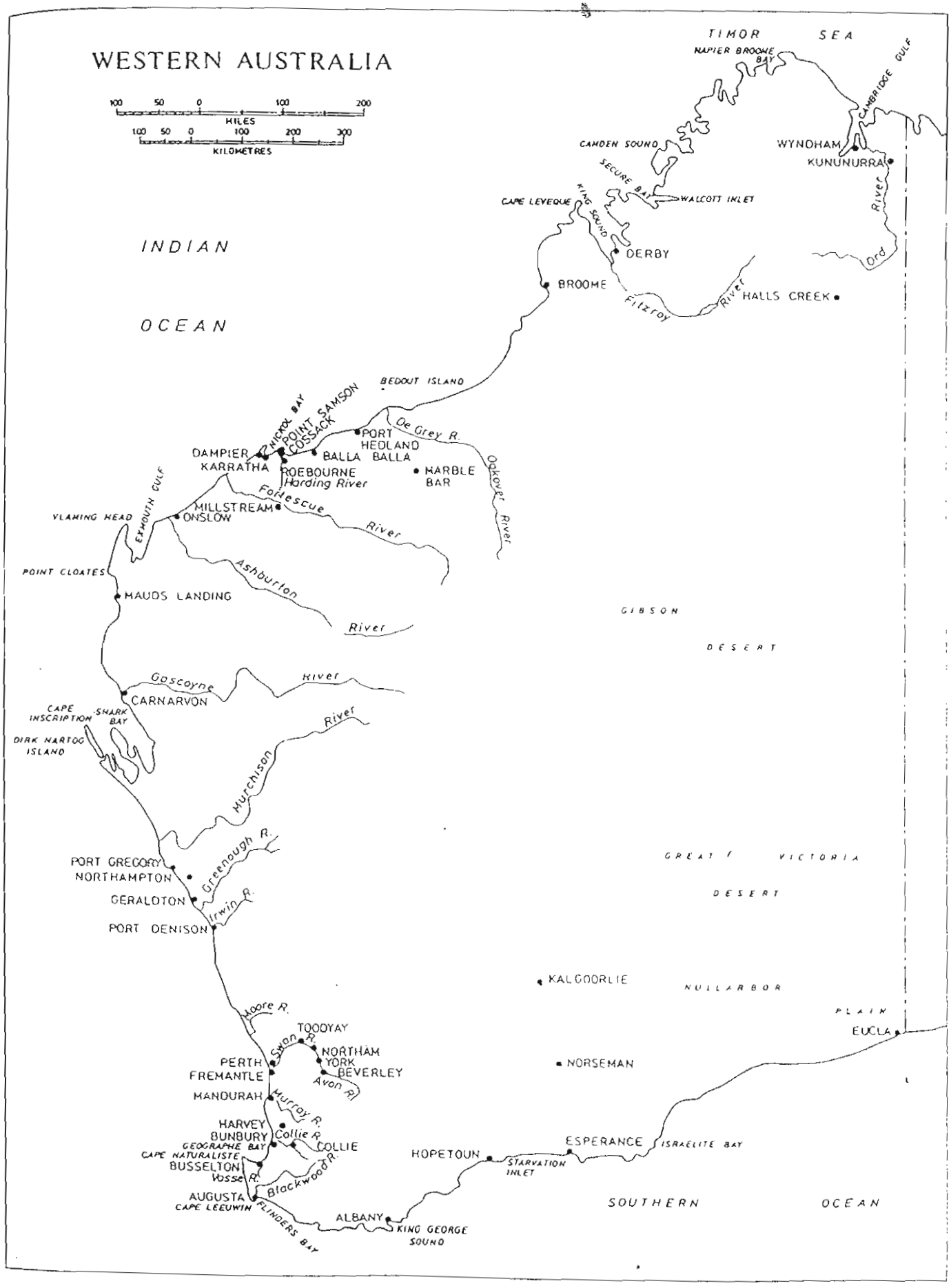
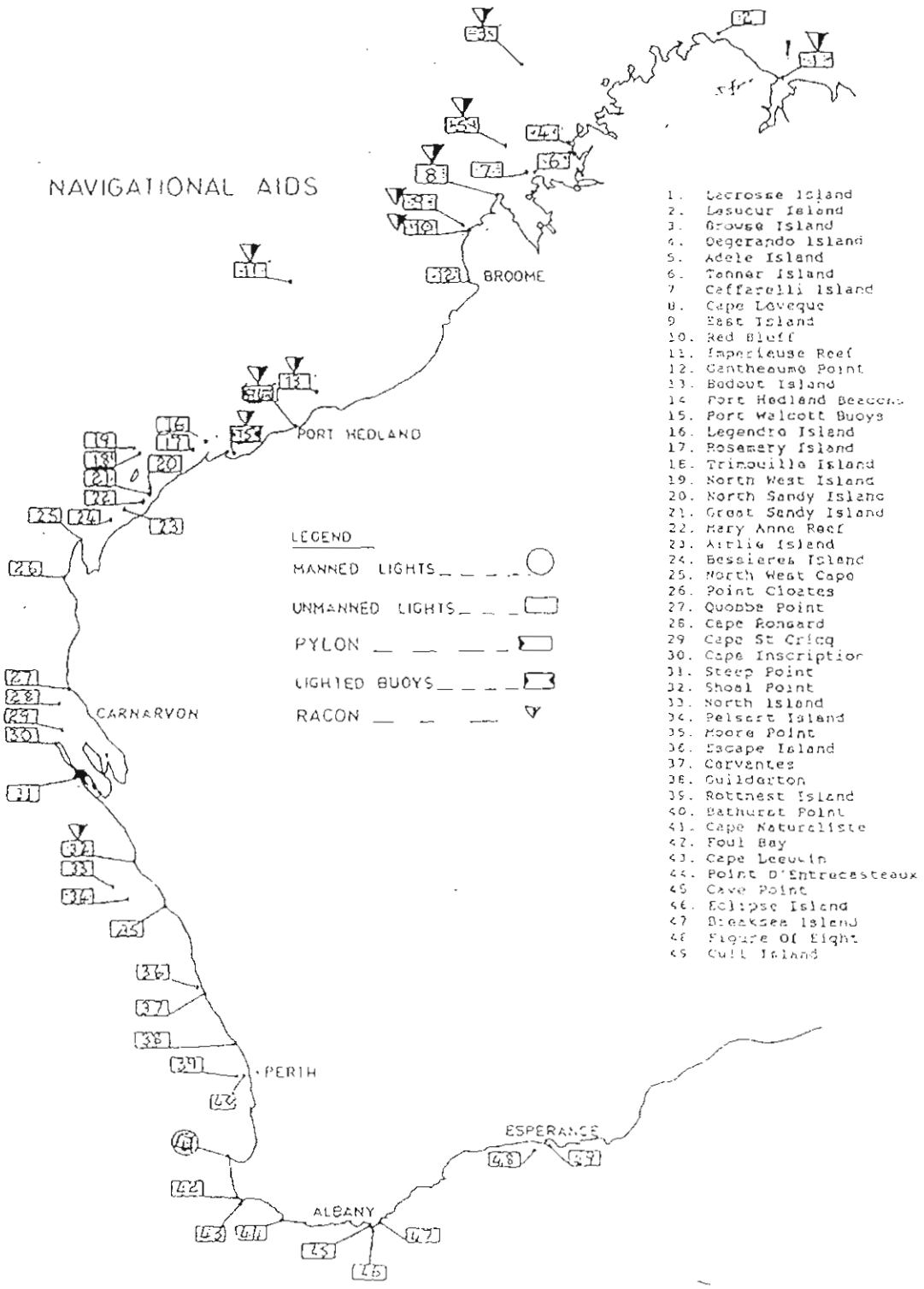


Figure 2
LIGHTSTATIONS ON THE COAST OF WESTERN AUSTRALIA
Including in-shore islands
in geographical sequence [1]



[1] Provided by the Department of Marine and Harbours

LIGHTHOUSES ON THE COAST OF WESTERN AUSTRALIA

Including in-shore islands

in alphabetical sequence

Adele Island
Airlie Island
Anchor Island
Arthur Head
Babbage Island, Gascoyne Road
Barrow Island
Bathurst Point (Rottnest Island)
Bedout Island
Bessieries Island
Black Rock (King Sound)
Bluff Point Leading Lights (Geraldton)
Breaksea Island
Broome Jetty
Browse Island
Buckland Hill
Bunbury, Casuarina Point
Busselton
Caffarelli Island
Cape Bossut
Cape Cuvier
Cape Inscription
Cape Leeuwin
Cape Leveque
Cape Naturaliste
Cape Peron
Cape Ronsard
Cape St Cricq
Cave Point (Albany)
Cervantes Island
Cockatoo Island
Cooke Point, Port Hedland
Cull Island (Esperance)
Degerando Island
Denham leads
Derby Jetty
Dongara Jetty
Double Islet
East Island
Eclipse Island
Entrance Point, Broome
Escape Island
Esperance Jetty and breakwater
Figure of Eight Island
Foul Bay
Fraser Island
Fremantle, North Mole Head
Fremantle, South Mole Head
Freshwater Point
Gantheaume Point
Geraldton Jetty
Great Sandy (Beagle) Island
Guilderton
Hamelin Island

Hopetoun leads
Houtman Abrolhos
Hummock Island
Imperieuse Reef, Rowley Shoals,
Jarman Island
Lacepede Island
Lacrosse Island
Lagoon Point
Legendre Island
Lesueur Island
Malus Island
Mardi (decca)[2]
Mary Anne Reef
Mount Blaze
Moore Island
Munda (decca)[3]
North Sandy Island
North-West Island, Monte Bello Islands
Onslow
Pelsaert Island
Point Cloates
Point D'Entrecasteaux
Point King (Albany)
Point Moore
Point Samson
Quobba Point
Red Bluff
Rosemary Island
Rottnest Island
Shoal Point
Steamboat Island
Steep Point
Stewart Island
Tanner Island
Trimouille Island
Troughton Island
Vlaming Head
White Hill
Woodman Point
Wyndham

[2]Though not a light-station, both Mardi and Munda decca (radio-navigation) stations are included here as they are listed under light-stations in some sources.
[3]See note 2.

Guide to the reference code [4]

AASG, Australian Archives, Subject Guide No1. *Lighthouses in Australia*, September 1991.
ADM, *Admiralty Chart.*
ALOL, *Admiralty List of Lights and Fog Signals, Volume K. - South of the equator.*
AP-V, *Australian Pilot, North, North-west and West Coasts, Torres Strait and Cape Leeuwin.* HMSO, London. (2e, 1923; 4e 1948).
AUS, *Australian Chart.*
BA, *Admiralty Chart.*
CHM, *Chief Harbour Master's Report.* (with date).
COL1, Coleman, Margaret, *Histories of a selection of Western Australian light-houses* Department of Transport, Perth, 1983.
DT73, Department of Transport, *Submission* 1973.
DWKK, *Lighthouses, do we keep the Keepers.*, Commonwealth of Australia, Parliamentary Paper, No. 375, 1983.
GG, *Western Australian Government Gazette*, Perth.
H&LD, *Harbours and Light Department Report*, (with date)
PHIL, Phillips, Valmai, *Romance of Australian Lighthouses* . Rigby, Adelaide, 1977.
LPG, Le Page, J., *Building a State.* Water Authority, Leederville, 1988.
REID, Reid, Gordon, *From Dusk till Dawn.* Macmillan, Department of Transport and Communication, 1988.
RPWD, *Report of Public Works Department* , (with date).
Uhe, P, *Survey of railway heritage in WA, north of the 26th parallel,* National Trust of Australia, (WA) Perth, 1994.
WA 29, (Map), *Western Australia, showing proclaimed ports lighthouses and jetties*, 1929.
LSWA, *Light Stations of Western Australia*, Australian Maritime Safety Authority, Perth.
LPG, Le Page, J. *Building a state, the story of the Public Work s Department* . Water Authority, Perth, 1986.
LTP, Winston-Gregson, J.H. *Lighthouses type profile.* Access Archaeology, 1988. (Australian Heritage Commission, Canberra).
REID, Reid, Gordon, *From dusk till dawn, a history of Australian Lighthouses.* Macmillan, South Melbourne, 1988.

[4] Presented to Mr Cumming's preferred format.

A chronology of the maritime industries of Western Australia with the commencement of each light-station emphasised.[5]

1616 Dirk Hartog landed on Dirk Hartog Island.
1618 The *Zeewulf* sighted North-West Cape.
1622 The *Tryal* was wrecked in the Monte Bello Islands.
1629 The *Batavia* was wrecked on the Houtman Abrolhos Islands.
1656 The *Vergulde Draeck* was wrecked near the Swan River.
1688 William Dampier landed at Cygnet Bay
1712 The *Zuytdorp* was wrecked at the foot of cliffs north of Kalbarri.
1727 The *Zeewijk* waswrecked on the Houtman Abrolhos Islands Survivors from the ship built a 60 ft sloop in which they sailed to safety.
1792 D'Entrecasteaux entered and named Esperance Bay.
1801 Nicholas Baudin named Geographe Bay, and Matthew Flinders arrived off Cape Leeuwin to begin a survey of the southern coastline.
1826 A military settlement was established at King George Sound (later Albany).
1829 The settlement was established on the Swan River.
1831 The 'Round House' was built at Fremantle, and a monthly boat service was established on the Swan River between Fremantle and Guildford.
1834 Ferries were operating across the Swan River at Fremantle, Preston Point, Mount Eliza and at Guildford. Five ships including the dandy *Isabella* of 22 tons, were registered at Fremantle.
1836 The *Lady Stirling* was built at Fremantle. Capt. Grey visited the North-West.
1837 The Whaling Company built the tunnel under the 'Round House' at Fremantle, HMS *Beagle* arrived for coastal surveys, and communication was established by road between Perth and Albany at which a small jetty was built.
1841 The American whalers *Samuel Wright, North American* and *Governor Endicott* were wrecked in Koombana Bay, and a regular mail service began between Perth and Albany.
1842 Mill Street Jetty was opened in Perth, and H. Trigg began building Rottnest Lighthouse.
1843 The first Causeway Bridge was completed across the Swan River.
1844 The brigantine *Emma Sherratt* of 92 tons was built at Torbay.
1846 The first steamship HMS *Driver* reached Fremantle.
1847 The barque *Merope* of 311 tons was registered at Fremantle, and the schooner *Emu* of 21 tons was built at Leschenault.
1848 The State's population reached 4,600. The schooner *Pelsart* of 30 tons and the ketch *Endeavour* of 11 tons were built at Fremantle.
1849 Lead ore was discovered on the Murchison River, and attempts by H. Trigg to blast the bar at Fremantle failed.
1850 The population numbered 5,900 persons, over 15,000 tons of shipping arrived, and Capt. Henderson, RE. arrived with the first convicts and pensioner guards. Five tons of lead ore were exported from Port Gregory, and guano was discovered in Shark Bay.
1851 The first lighthouse on Rottnest Island and a lighthouse on Arthur's Head at Fremantle were completed. A coaling depot was established at Albany for mail steamers from England. Lt. Wray, RE. arrived with the 20th Company of Sappers and Miners.
1852 The first regular mail steamer the *Australian* owned by the Royal Australian Mail Steamer Company called at Albany. The P. & O, Steam Navigation established a regular mail service with the *Chusan* and the *Formosa* sailing from Galle.
1853 The Convict Establishment completed the South Jetty at Fremantle. Bay whaling began at Port Gregory and 53 tons of pig lead were exported .

---

[5] Compiled by D. A. Cumming.

1854 The Convict Establishment completed the North Jetty at Fremantle, and the unsuccessful steamer *Speculator* was launched on the Swan River.

1855 H. Yelverton established sawmills at Quindalup and began exporting sawn timber.

1856 The first steamboat the *Les Trois Amis* of 42 tons arrived from Adelaide and was established on the Swan River.

1857 The steamboats *Pioneer* and *Lady Stirling* of 38 tons made their first trips on the Swan River. The iron-hulled steam schooner *Les Trois Amis* sailed regularly between Fremantle and Geraldton (Champion Bay). Her engines were removed in December 1858.

1858 Lighthouses were lit at King Point and on Breaksea Island near Albany. The mail service by steamship was interrupted by the Crimean War.

1859 The P&O Steam Navigation Company built a coaling jetty at Albany.

1860 The population exceeded 15,000 persons.

1861 F.T. Gregory reported favourably on the Ashburton, Fortescue, De Grey and Oakover rivers and pearl shell was discovered in Nichol Bay.

1864 W. Forrest built the first jetty at Bunbury. An unsuccesful settlement was made at Camden Harbour.

1865 Fremantle Harbour Board was established, and H. Yelverton began the first jetty at Busselton. A Victorian pastoral company attempted a settlement near Camden Harbour, and others a settlement near Roebuck Bay. Commercial pearling began in the North-West.

1866 Roebourne was surveyed and the first town lots sold. Fremantle road bridge was opened.

1868 The population reached 22,700 persons, the last imperial convict arrived, and a jetty was completed at Dongara. C.E. Broadhurst and partners introduced the 'hard hat' to the pearling industry out of Nickol Bay

1869 Prince Alfred, Duke of Edinburgh, arrived at Fremantle on board HMS *Galatea*. A telegraph was established between Fremantle and Perth.

1870 A cyclone at Nichol Bay wrecked three pearling boats and killed two persons. Copper ore was discoverd south of Roebourne.

1871 The WA Timber Company built its railway inland from Lockeville Jetty and Mill, and imported the locomotive 'Ballaarat'. Mason & Bird opened a railway from Canning River to the Canning Timber Station. Fremantle Town Council was established.

1872 A cyclone destroyed every building in Roebourne, and major floods occurred on the Swan River. The iron-hulled SS *Xantho* arrived on the coast for use in the pearling industry and sank in the same year.

1873 New jetties were built at Fremantle and at Geraldton. The SS *Georgette* of 337/212 tons was placed in service between Albany, Fremantle and Geraldton.

1874 The telegraph reached Geraldton.

1875 A cyclone destroyed the pearling fleet in Exmouth Gulf. The Suez Canal was opened.

1876 The telegraph reached Esperance from Albany, and the contract for carrying mails by the SS *Georgette* ended when she was wrecked south of Cape Naturaliste.

1877 Strong winds drove several ships ashore on Lacepede Islands, and the Orient Steam Navigation Company began regular services to Australia via the Cape of Good Hope. The telegraph reached Eucla from Esperance, and connected Western Australia to South Australia and the rest of the world through Darwin.

1878 The telegraph reached Northampton, and new lighthouses were lit on Arthur's Head at Fremantle and on Point Moore at Geraldton. The government advertised for a shipping service to the India and the Strait Settlements, and the SS *Rob Roy* of 393/231 tons began a regular service between Champion Bay and Albany. Two destructive cyclones hit the North-West.

1879 The Government opened its railway from Geraldton to the mines at Northampton, E.J. Stuart was appointed Inspecting Engineer of Steam Vessels, and the SS *Otway* of 446/271 tons joined the SS *Rob Roy* on regular sailings between Geraldton and Albany.

1881 The Government opened its railway from Fremantle to Guildford through Perth. Trinder Anderson and Company, with offices in London, began a shipping service from Great Britain to Fremantle.

1883 Broome and Derby were declared townships, the SS *Glenochil* of 1581 tons arrived in Fremantle, and the SS *Macedon* of 826 g.tons was wrecked near Rottnest Island. The Adelaide Steamship Company began a four weekly service betwen Adelaide and Albany with the SS *Franklin* of 730/395 tons.

1884 The SS *Natal* of 734/458 tons began a regular service between Fremantle and Singapore which continued until 1887.

1885 Gold was discovered in the East Kimberley's and Wyndham and Derby became entrance ports. The SS *Rob Roy* and SS *Ferret* of 445/ 246 tons were improved, and the SS *Perth* of 499/288 tons and SS *Albany* of 878/794 tons were rebuilt from the *Penola* and the *Claud Hamilton.*

1886 The first jetty at Derby was begun, and the West Australian Steam Navigation Company Ltd. was formed to operate the SS *Natal* and SS *Australind.*

1887 Baillie, Davies & Wishart built a jetty at Eucla, and a gold field was proclaimed in the North-West centered on Hall's Creek. The pearling industry was established at Broome, and a cyclone near Condon wrecked 18 pearling luggers and killed 140 people. The West Australian Steam Navigation Company began a regular service with the *Australind* of 1019 tons from Perth up the west coast to Singapore. The SS *Perth* was wrecked at Point Cloates.

1888 The telegraph reached Wyndham, Jarman Island Lighthouse was lit and the horse tramway was completed from Roebourne to Cossack. The Western Australian Land Company built a jetty at Albany, and began constructing a railway connecting to Beverley.

1889 The telegraph reached Derby, and a submarine telegraph cable reached Broome from Java. The SS *Saladin* of 1990 tons joined the *Australind* on the coastal route to Singapore.

1890 The Ashburton and Murchison Goldfields were proclaimed, and shipping services to the North-West were improved.

1891 Fort Scratchley and a gas works were opened at Albany, and gold was discovered at Cue. The population reached 50,000 persons.

1892 Construction of Fremantle Harbour and the wharf at Cossack, began. The value of gold produced in the state exceeded £200,000.

1893 Gold mines were opened at Coolgardie and Kalgoorlie, Esperance was proclaimed a township, and the jetty at Geraldton was rebuilt.

1894 F.W.S. Reid began building the Town Jetty at Esperance, the Ocean Steamship Company registered the SS *Saladin* of 1999 g.tons at Fremantle, and the SS *Eddystone* of 2040/1313 tons was wrecked off Depuch Island. The value of gold produced exceeded £1,000,000.

1895 The barque *Arabella* of 759 tons began a regular service along the North-West coast and to Great Britain, and the SS *Scud* a ferry service on the Swan River. The Ocean Steamship Company and West Australian Steam Navigation Company registered the SS *Sultan* of 2063 g.tons in Fremantle.

1896 Lighthouses were lit at Cape Leeuwin and on Babbage Island near Carnarvon, and the second on Rottnest Island.

1897 Fremantle Harbour was opened when the WASN Co. *Sultan* berthed, The WA Steam Navigation Comany registered the *Karakatta* of 2091 tons in Fremantle, and the construction of the breakwater at Bunbury began.

1898 Two triple-expansion steam engines began supplying piped water to Fremantle from wells in the prison compound, and the Fremantle Smelting Works were built. The SS *Lubra* was wrecked in Jurien Bay. The Melville Water Park Estate ordered the SS *Scud* of 3.12 g.tons, the SS *Lady Ord* of 8.3 g.tons, the PS *Harley* of 32.2 g. tons and the PS *Helena* of 32 g.tons.

1899 G.P. Stevens experimented with radio communications to Rottnest Island.

1900 The population exceeded 179,000 persons. Royal Mail Steamers began calling at Fremantle, Bathurst Lighthouse was lit and a submarine telephone cable was laid to Rottnest Island. The London & West Australian Investment Company took over the Melville Water Park Estate.
1901 A jetty was constructed at Hopetoun, and Perth was connected to Cape Town by telegraph cable. The SS *Karrakatta* of 2091/1271 tons was wrecked on the North-West coast.
1902 Gage Roads (Woodman's Point) and Bunbury Mole lighthouses were lit.
1903 The two moles at Fremantle, and the breakwater at Bunbury were extended. Lewis & Reid built a jetty for Cossack and Roebourne at Point Sampson. Fremantle Harbour Trust was constituted.
1904 Dunsborough Lighthouse on Cape Naturaliste, and lighthouses at Casuarina Point at Bunbury and on the North and South Moles at Fremantle were lit. The value of gold produced at Kalgoorlie exceeded £4,000, 000.
1905 The Fremantle Tramways and Power House were opened. Gantheaume Point Lighthouse was lit near Broome.
1908 R.O. Law built a jetty at Port Hedland for the railway to Marble Bar, and a cyclone destroyed the pearling fleet near Broome.
1910 Lighthouses were lit at Cape Inscription and at Point Cloates. The RMS *Pericles* was wrecked off Cape Leeuwin and the SS *Colac* of 1479/958 tons near Derby, without loss of life.
1911 The population exceeded 282,000 persons. A lighthouse was built on Cape Leveque, and Busselton jetty was extended to 2000 m (6000ft).
1912 Applecross Radio Station was opened for coastal communication, the SS 'Koombana' disappeared in a cyclone, and the West Australian State Shipping Service was formed. The railway reached Marble Bar from Port Hedland, and Vlaming Head Lighthouse at Exmouth was lit.
1913 Cape Bossut lighthouse was lit.
1917 The Trans-Continental Railway was opened from Kalgoorlie to Port Augusta.
1918 The Government completed the jetty at Whyndham.
1919 The Government built a meatworks at Wyndham.
1921 West Australian Airways began operating in the North-West.
1922 WA Airways began regular airmail services between Geraldton and Derby.
1926 The Commonwealth built its first lighthouse in Western Australia on Eclipse Island off Albany. The Fremantle Railway Bridge collapsed in a flood.
1927 The railway reached Esperance from Salmon Gums.
1928 Fremantle Fishing Harbour was opened.
1929 West Australian Airways began regular flights with DH 66 Hercules airliners between Perth and Adelaide.
1931 Concrete berths were opened in Geraldton Harbour.
1932 Facilities for bulk handling wheat were opened at Fremantle.
1935 A Flying Doctor Base was opened at Port Hedland, and Esperance Jetty was completed.
1936 The Comet Gold Mine was opened at Marble Bar.
1941 A meatworks was established at Broome, and improved roads reached Eucla and Esperance from Norseman.
1942 The 2000 ton slipway was completed at Fremantle.
1947 The population reached 500,000.
1948 Air Beef Pty Ltd. was formed to fly beef to Wyndham.
1950 BHP opened its open-cut iron mine on Cockatoo Island. (It was closed in 1984) Lighthouses were opened at Quobba Point and on South Barrow Island. The redevelopment of Albany Harbour began.
1951 Lighthouses were opened on Adele and Tanner islands.
1952 An atomic device was exploded in the Monte Bello Islands.
1953 WAPET struck oil in Rough Range No.1 Well. Export of manganese from Woodie Woodie and dredging in Cockburn Sound, began.
1954 Super-phosphate works were opened at Albany, and South Fremantle Power Station began burning oil.

1955 BP Australia Ltd. opened its refinery at Kwinana, and dredging of Cockburn Sound was completed.
1956 The Broken Hill Proprietary Ltd. opened its steel rolling mill at Kwinana, and the grain terminal was opened at Albany.
1957 The second berth in Albany Harbour was completed.
1963 Processing of ilmenite began at Bunbury, and ALCOA began producing alumina at Kwinana.
1964 The satellite tracking station was established at Carnarvon, and oil was discovered on Barrow Island.
1966 The first iron ore from Mount Tom Price was exported from Dampier, and the deep water jetty at Broome was completed.
1967 Production of oil began on Barrow Island, and the first iron ore from Mount Newman was exported from Port Hedland.
1968 BHP Ltd opened its blast furnace at Kwinana, and the pelletising plant at Dampier was opened. The 'Glomar Tasman' began drilling near Legendre Island.
1969 Salt production began at Dampier and at Port Hedland, and the standard earth station for INTELSAT was established at Carnarvon. Dampier I and Madeleine I, North-west shelf gas and oil discoveries
1970 Western Mining Corporation opened its nickel refinery at Kwinana.
1971 The causeway to Garden Island was completed, the *Glomar Tasman* began drilling near Scott Reef, and the North Rankine Gasfield was defined. Lacepede I, Leveque I, North Rankine & Goodwyn, North-west shelf gas and oil discoveries.
1972 Angel, North-west shelf gas and oil discoveries. The aluminium refinery at Pinjarra was opened.
1973 West Tryall Rocks, North-west shelf gas and oil discovery
1975 SECWA agreed to build a gas line southwards from Dampier.
1976 No.2 Iron Ore Processing and Loading Facilities were opened at Port Hedland.
1977 Bulk export of sorghum grain from Whyndham, and planning began for the development of the North Rankine Oil and Gas Field.
1980 A new LPG gas plant at Albany, and two wind generators (50 & 22 KW) on Rottnest Island, were commissioned.
1981 Diamond mining began in the Kimberley's.
1982 North Rankine Jacket was placed in position.
1984 The first gas from Rankine came ashore.
1985 Design of the LNG facilities, and strengthening of the foundations of the Rankine jacket began.
1989 *Northwest Sunderling* entered Dampier Harbour to collect LNG.

Light-stations in alphabetical sequence[6]

ADELE ISLAND 15° 31'S, 123° 09'E.#[7]
A 30.3m bolted steel framework tower was built on Adele Island, north-east of Cape Leveque at the entrance to King Sound, in 1951. It holds a white flashing light which was originally acetylene powered with a lantern house and drum lens. The house and lens were replaced by a solar-powered small self-contained rotating beacon type FA 251 in 1985. A Racon beacon was established at tthe same time.[8]
Concrete foundations located near the light tower relate to an NDB (non-directional beacon used by direction finding equipment on vessels for position fixing) which was removed in 1993. The NDB had a second tower with an aerial between it and the light tower. There is also an automatic weather station on the island. The station is registered in the database of the Australian Heritage Commission (AHC).
LSWA 2, 5. PHIL pp. 149, 152. ALOL 1981, 1640. REID p. 160. AASG p. 131. LTP 11.3U.
CHARTS - ADM 475, North-West Coast of Australia, with off lying islands and reefs, 1880 lc 1928 sc 1974, 1:1,916,000. AUS 323, Adele Island to Lacepede Island, 1:300,000, 1967. AUS 731, Yampi Sound to Champagny Island, 1:150,000, 1949.
MAPS - Camden Sound SD 51-15, 1:250,000. Adele 3566, 1:100,000.

HERITAGE LISTING: AHC Database 019841

AIRLIE ISLAND 21° 19'S, 115° 10'E.#
Commissioned in 1913 at the western end of Mary Anne Passage south of Barrow Island, this 18.3m steel tower held a light made by Chance Brothers of Birmingham, UK, which was fuelled by dissolved acetylene. It was replaced with a stainless steel lattice tower 17.5m high with tube columns, carrying an NAL 1 lantern in 1980.[9] The light was converted to solar power in 1987. Construction photographs are available at AMSA, Fremantle. The tower also once carried radio aerials for Telecom as the link to Barrow Island.
The original tower was one of a number constructed by the PWD under a set of drawings labelled the 'North-west lights. These are housed at AMSA.

CHM 1912. PWD 1913, p. 15. LSWA 1, 17. ALOL 1981, 1698. LPG p. 351. REID p. 109. AASG p. 165. LTP 11.4A.
CHARTS - AUS 328, Monte Bello Islands to North-West Cape, 1:300,000, 1968,1972. AUS 743, Barrow Island to Onslow, 1:150,000, 1970,1979.
MAPS - Onslow SF 50-5, 1:250,000. Airlie 1955, 1:100,000

---

6 To convert feet (ft) to metres (m) multiply by 0.3048.

7 # Indicates that an inspection has not been made.

8 A RACON is a radar trisponder which gives a morse signal on a vessel's radar screen.

9 NAL is the type of lantern house in which the light is housed and does not refer to the light and its details.

Figure 3
Adele Island light-station in 1987[10]

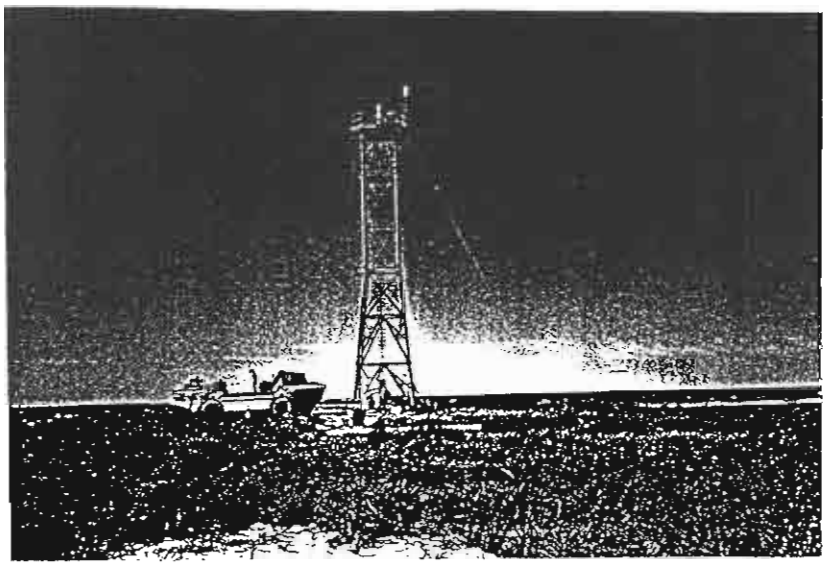
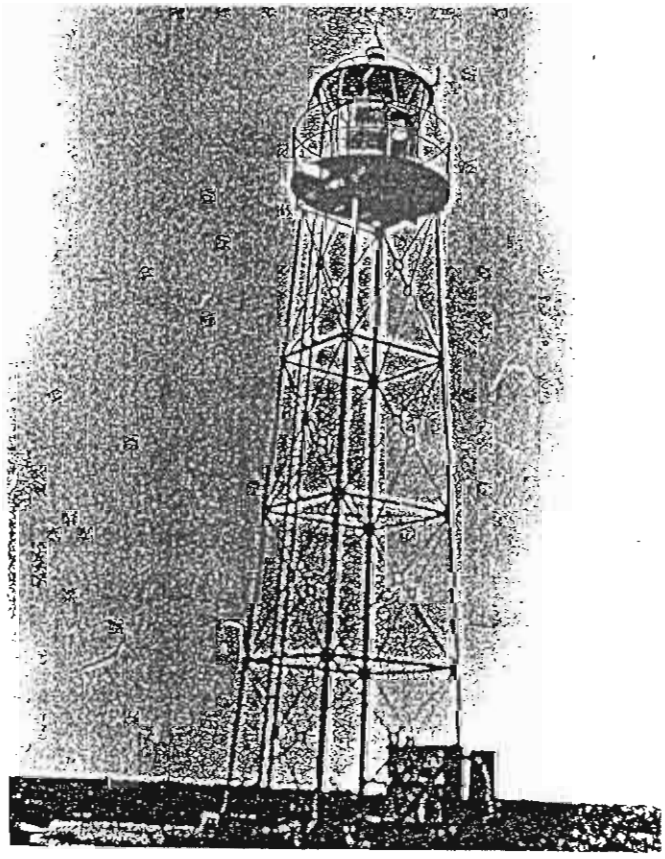


Figure 4
The original Airlie Island Light (WS A4-04)



[10]Donated by Geoff Bywaters, of Rockingham, March 1994

ANCHOR (now Bessieres) ISLAND 21° 32'S, 114° 46'E. #
Lighting the the approach to Onslow, this light was commissioned in 1913. It consisted of a 55ft pyramidal, open lattice steel tower supported a light of 1580 candle power at an elevation of 20 m with dissolved acetylene as its fuel. Made by Chance Brothers of Birmingham, UK, it was demolished prior to 1980 and replaced with a 4m high double height size 3 GRP cabinet around 1992.[11] The foundations are still visible. The light was converted to solar-power in 1985.[12]
CHM 1912. PWD 1913, p. 15. LSWA 1, 16. PHIL p. 145. ALOL 1981, 1702. LPG p. 351. REID pp. 109,179. AASG p. 165. LTP 11.3C
CHARTS - AUS 743, Barrow Island to Onslow, 1:150,000, 1970,1979. AUS 774, Exmouth Gulf approaches, 1:150,000, 1955, 1967. AUS 328, Monte Bello Islands to Morth-West Cape, 1:300,000, 1967, 1972.
MAPS - Onslow SF 50-5, 1:250,000. Tubridge 1854, 1:100,000.

HERITAGE LISTING - AHC Database 019840.

ARTHUR HEAD, Fremantle
Henry Trigg began building the foundations for this light in 1848, and the tower was completed by convict labour in 1851. The second tower 71 ft high, designed by J.H. Thomas and completed by convict labour in 1878, carried a third order dioptric light manufactured by Chance Brothers, which was visible for about 16 miles.[13] It was demolished in 1904, and the light was transferred to Casuarina Point at Bunbury.
GG 12/7/1851, p. 2; 20/1/1852; 1879 p. 242. LPG p. 146.

BABBAGE ISLAND, Carnarvon 24° 53'S, 113° 38'E.
i) A red fixed ordinary lantern was fixed on a 15ft high wooden platform at the end of the jetty in 1899. This was described as being present in 1922 and in 1948.
GG 1882, p. 419. CHM 1907, 1913.

ii) A white pyramidal beacon 25 ft high with its top at an elevation of 42 ft was described as being present on the southern end of Bababage Island in 1922, and a mast surmounted by a cask at an elevation of 16 ft was present on Mangrove Point in 1922 and in 1948.

---

[11] GRP, glass reinforced plastic a form of fibreglass construction

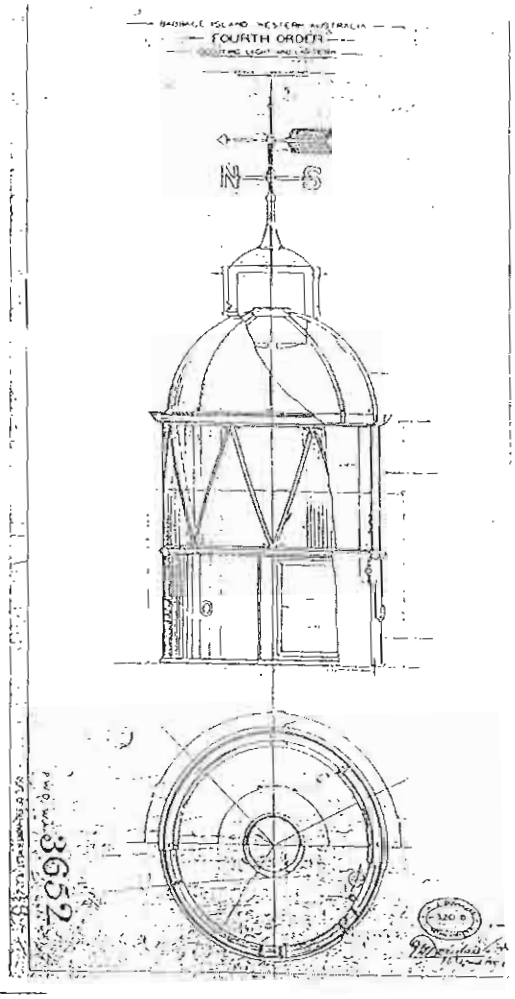
[12] Chance Brothers, who were responsible for building many of the lightstations, standardised their lights as:
First order with focal length 920 mm,
Second order 700 mm,
Third order 500 mm,
Fourth order 250mm
Sixth order 150 mm.
Dioptric lights with their lenses extended by refracting ridges around the outer perimeter, appear to have been used in Australia from about 1860 onwards.
Catadioptric lenses, in which the central lens is supplemented by rings (or banks) of prisms which both reflect and refract the light, were adopted soon after 1910.

iii) A wooden tower 60 ft high on a site 42 ft above sea level, held a fourth order dioptric light visible at 15 miles in good conditions. It was developed by the Northwest Branch of the Public Works Department with the lantern house and light supplied by the firm of W.T. Douglass. It was converted from paraffin (kerosene) oil to acetylene illumination in 1909, and it carried in 1913, two red sector lights flashing every 3 seconds, one visible on a bearing 015-041° which led west of Blowfish Bank, and a second visible on a bearing 345-031° which led west of Elbow Shoal. This light tower was described in 1922 and in 1948 as a white square (wooden) framework tower 18m high, supported a sectored flashing light at an elevation of 31 m. This was replaced by a new light on a steel framework tower in the early 1960s, which was present and working in 1994. The original light is now on exhibition in the grounds of the Gascoyne Historical Society which occupies the timber and iron keeper's cottage. This was entered in the Register of the National Estate (RNE) at the Australian Heritage Commission (AHC) on 18 May 1989. It also appears in the database at the Heritage Council of Western Australia (HCWA).

RPWD 1896, p. 47. CHM 1911. ALOL 1981, 1718. LPG p. 252. CHM 1913.
CHARTS - AUS 331, Quobba Point to Geraldton, 1:300,000, 1968.
MAPS - Quobba SG 49-4 (1) R502, 1:250,000, 1964. Carnarvon 1648 (1) (1974) 1:50,000.

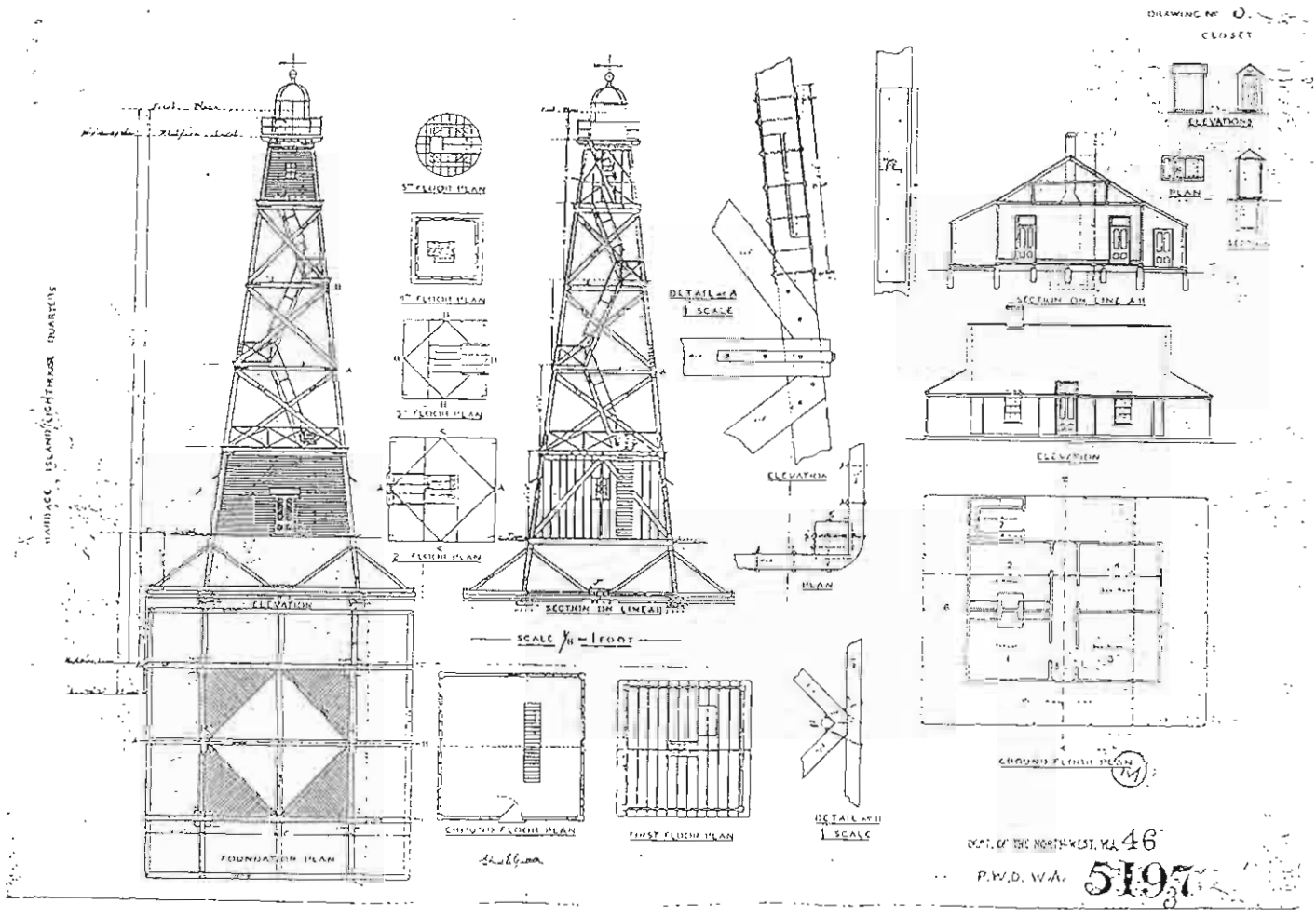
HERITAGE LISTING - (Database) AHC 014522, HCWA 0462, RNE 18/4/1989

Figure 5
Plans of the original Babbage Island Lantern[14]



[14]Department of Transport: 263/83.

Figure 6
Plans of the original Babbage Island Light tower and quarters[15]



[15]Department of Transport: 263/83.

BARROW ISLAND 20° 45'S, 115° 28'E.#
After oil was disovered on and near Barrow Island in 1967 and production began in 1968, a 2 metre high metal post supporting a white flashing light was built on the N-E point of this island. ALOL 1991, 1692.
CHARTS - AUS 327, Port Walcott to Monte Bello Islands, 1:300,000, 1967, 1973. AUS 742, Rosemary Island to Barrow Island, 1:150,000, 1980. AUS 743, Barrow Island to Onslow, 1:150,000, 1979.
MAPS - Barrow Island SF 50-1, 1:250,000. Barrow Island 1956, 1:100,000.

BATHURST POINT (Rottnest Island) 32° 00'S, 115° 24'E.#
On the north-eastern point of Rottnest Island, a circular limestone tower 20m high established in 1900, supports a second order dioptric fixed light. Manning ceased in 1920. The light was originally powered by acetylene and was converted to an electric light operating in the original lens in 1986. Original drawings are held by AMSA.
LSWA 1, 7. ALOL 1981, 1761.1 AASG pp. 132,165. LTP 8.3D.
CHARTS - ADM 1033, Champion Bay to Cape Naturaliste, 1:7,200,000, 1877, 1964. AUS 112, Approaches to Port of Fremantle, 1:37,500, 1982.
MAPS - Perth SH 50-14, 1:250,000. Perth 2034, 1:100,000.

HERITAGE LISTING (Database) AHC 100054, HCWA 0517

BEAGLE ISLAND, See Great Sandy Island#

BEDOUT ISLAND 19° 35'S, 119° 06'E.#
Situated in the Indian Ocean about 30 miles north-east of Port Hedland on the outer edge of extensive reefs subject to large tidal ranges commissioned in 1909. This was the first stainless steel open lattice framework tower in Western Australia and used tubular legs with clamping plates to bolt the bracings to. It was equipped with a white fourth-order dioptric AGA patent light fueled with dissolved acetylene made by Chance Brothers of Birminham UK. Original drawings are held by AMSA.
The tower was demolished in 1980 and was replaced with a stainless steel lattice tower 17.5m high with tube columns, carrying an NAL1 lantern. The original lantern house was refurbished and is now at Hillarys Boat Harbour. The original lens is at the WA Maritime Museum, on loan from AMSA. A Racon beacon was established in 1985 and the light was converted to solar power in 1988. There is also an automatic weather station on the island.
RPWD 1908-9, p. 18. CHM 1911. LSWA 1, 24. ALOL 1981, 1678. LPG p. 351. REID p. 160. AASG pp. 132,165. LTP 11.4A.
CHARTS - ADM 1048, Buccaneer Archipelago to Bedout Island, 1883, 1960, 1:690,580. AUS 325, Lacepede to Bedout Island, Western Sheet. AUS 326, Bedout Island to Port Walcott, 1:300,000, 1980. AUS 739, Bedout Island to Port Hedland, 1:150,000, 1975.
MAPS - Bedout Island SE 50-16, 1:250,000. Poissonier 2758, 1:100,000.

BERNIER ISLAND. See Cape Ronsard (below).

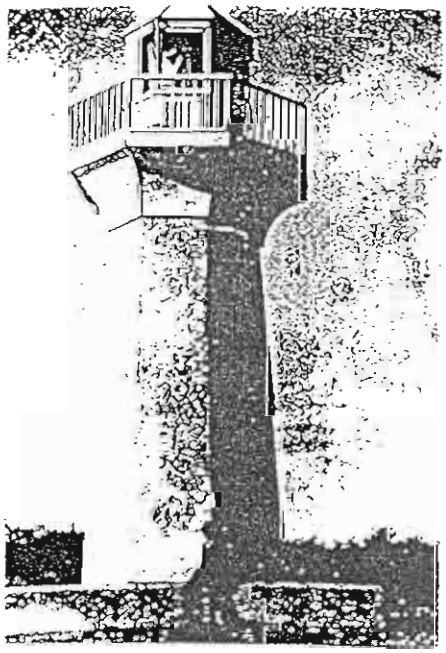
BESSIERES ISLAND. See under original name of Anchor Island (above).

BLACK ROCK 17° 05'S, 123° 35'E.#
In King Sound, north of Derby, lighting the approaches to the former port. The original acetylene light was supported on an open lattice tower until it was removed and sent to the Derby Museum at the Wharfinger's house. A solar-powered light is now displayed on the tower. ALOL 1981, 1654.
CHARTS - ADM 1048, Buccaneer Archipelago to Bedout Island, 1:690,560, 1884, 1960. AUS 32, Cambridge Gulf, 1:75,000, 1972.
MAPS - Derby SE 51-7, 1:250,000. Derby 3563, 1:100,000.

BLUFF POINT LIGHTS (Geraldton) LEADING LIGHTS: 28° 44'S, 114° 36'E.
The first lighthouses operational in Geraldton were the two which acted as leading lights at Bluff Point. The buildings were:
1) an octagonal light tower on the beach one mile south of the Chapman River and
2) A rectangular light tower with attached keeper's cottage some 300 metres inland and at a higher elevation than the octagonal tower. The tower and attached quarters were built with walls of local limestone and a tin roof.
Bluff Leading Light with a fourth order dioptric on an octagonal stone tower and No.2 Light inland with a dioptric holophobe on a square stone tower were established in 1876. The lights were automated and de-manned in 1943. The lower tower was gutted by fire in 1952 and subsequently demolished. The stone was incorporated into a memorial at the site. The Geraldton Historical Society acquired the upper tower and cottage in 1971 and are still in occupation. The structure was entered onto the Register of the National Estate (RNE) at the Australian Heritage Commission (AHC) on 8 April 1989. It also appears in the Register of Heritage Places at the Heritage Council of Western Australia (HCWA).
The current leading lights for entry into Champion Bay are on a similar alignmment and are visible from the site.[16]

HERITAGE LISTING: HCWA 1074, AHC Database 09589, RNE 8/4/1989.

Figure 7
The Bluff Point front lead light.[17]



[16] Notes on Geraldton Lighthouses, supplied by Mr Peter Worsley of Geraldton. Reproduced in full in the working file under Geraldton.
[17] From the Geraldton Library, ND.

BREAKSEA ISLAND 35° 04'S, 118° 03'E.#
An octagonal cast iron tower, 43 ft high, imported from England and assembled on Breaksea Island at the entrance to King George's Sound by convicts in 1858. Made to a design by the Colonial Lighthouse Engineer at the Board of Trade in London, its second order catadioptric light with oil burners was placed 383 ft above sea level, and was visible for nine leagues (c. 30 NM). It was connected to Albany by telephone in 1885. The tower was reconstructed in rough dressed stone 24 ft high in 1901 and given a first-order light. Manning ceased in 1926.[1] The light was converted from acetylene gas to solar power in 1984. The gas cylinders were pulled by seamen harnessed to a cart and then later by jeep. Photos of this appear in the working files. The site was visited by Albany-based heritage interests in November 1995; identifying 1857, 1902 and 1908 sites.
GG 9/2/1858, p. 2; 1879 p. 49; 1885 p. 137; 1889 p. 221, 286. RPWD 1901, p.17. CHM 1913. LSWA 1,1. COL1. ALOL 1981, 1800. LPG p.144-5. REID pp. 60, 62, 121, etc. AASG p.133. LTP 8.3D.

CHARTS - AUS 118 Port of Albany, 1:50,000, 1973.
MAPS - Albany SI 50-15, 1:250,000. Breaksea 2527, 1:100,000.

HERITAGE LISTING - AHC Database 019842, HCWA 3353

BROOME see also Entrance Point, Gantheaume Bay

BROOME JETTY 18° 00'S, 122° 12'E.
When visited in 1994, the jetty and its leading lights had been demolished and had been replaced with a light on a comparatively recent tower on Entrance Point. A white jetty light was fixed on a 12ft wooden platform in 1899, and two fifth-order dioptric leading lights were established on steel towers in 1900. These were described as two skeleton beacons the front white and the rear black with white lanterns from which lights were exhibited at night leading on a bearing of 024° between Channel Rock and the Middle Ground. The front beacon was at the foot of the town pier and the rear beacon in front of the town about one cable southward of Lookout Hill. These were described as being of steel in 1948, and were demolished when the new deep water jetty was built at Entrance Point. A framework tower 5m high supported a sectored light in 1981.
CHM 1911. AP-V 1923; 1948. WA29, ALOL 1981, 1662.
MAPS - Broome SE 51-6, 1:250,000.

HERITAGE LISTING - AHC Database 18074.

BROOME - Buccaneer Rock
A fixed green light. WA 29.

BROWSE ISLAND 14° 07'S, 123° 33'E#.
Listed as acetylene powered and first established in 1945, the light was converted to solar power in 1985, operating an electric FA 251 beacon. A bolted steel square open lattice framework tower built in 1958 held a white flashing light at an elevation of 39m at the southern end of the island. A Racon beacon was established in 1985. A second tower, demolished in 1993 held an NDB. The base remains. An automatic weather station is also on the island.

---

[1] (See Report by Wolfe and Assoc, under Breaksea in working file 1)

LSWA 2, 7. ALOL 1981, 1642. REID p. 160. AASG p. 133. LTP 11.3A.
CHARTS - ADM 475, North-West Coast of Australia ... with off lying islands and reefs, 1:1,916,000, 1880, lc1928, sc 1974. ADM 1242, AUS 319, Penguin Shoal to Browse Island, 1:300,000, 1966.
MAPS - Browse Island SD 51-5, 1:250,000. Browse Island 3669, 1:100,000.

BUCKLAND HILL 32° 01'S, 115° 45'E
This appears as a sectored directional leading light on a square brick tower on Buckland Hill north of Fremantle Harbour entrance marking the outer approaches to this port.
ALOL 1981, 1762.8.

BUNBURY 33° 18'S, 115° 39'E.
i) A wooden lighthouse c.10ft high replaced the earlier wooden keg with storm lantern in 1870, and was replaced in turn by a new light on a steel framework tower on Marlston Hill in 1901. The light itself was reinforced by a green fifth order dioptric.

ii) A white third order dioptric light from Arthur Head in Fremantle, was placed on a braced lattice tower on Casuarina Point in 1904, and this was converted to electric illumination in 1911, when the green light on the mole was replaced with an AGA flashing light.
The light tower on Casuarina Point was extended upwards in 1959, and was replaced in 1971, by a new tubular tower nearer the sea which included the upper 6 metres of the earlier tower. The site of the original tower is marked by a lookout.
These lights were described in 1923 and in 1948 as a white lantern on an open braced tower about 0.2 miles south of Casuarina Point exhibiting a light at an elevation of 122ft (37.2m), and a light at an elevation of 44 ft (13.4m) on a white square wooden tower 34 ft (10.4m) high on the outer end of the mole.
CHM 1911. ALOL 1981, 1782.
CHARTS - ADM 1033, Champion Bay to Cape Naturaliste, 1:7,200,000, 1877, 1964. ADM 1472, Plans on the South West Coast, 1898,1961. AUS 115, Approaches to Bunbury1:50,000; Bunbruy 1:10,000, 1978. PWD 54495, Australia West Coast, Bunbury to Busselton, 1:20,000. PORTS.
GG 1889 p. 344. H&LD 1904 p. 1. CHM 1911. AP-V 1923; 1948. LPG pp. 203, 252. ALOL 1981, 1782.

BUSSELTON 33° 37'S, 115° 20'E.
Often known as Vasse Lights, a fixed red harbour light was placed on a 15ft gallows at the end of Busselton Jetty in 1870. The lighthouse and flagstaff were painted in 1891, and the light replaced with a white fifth order dioptric light in 1904 after the jetty had been extended. The light was assisted by Vasse Light on a square wooden tower 56 ft high on piles 50m from the inner end of the jetty in Geographe Bay until these were de-commissioned in 1933.
In 1981, the jetty head light was on a wooden gallows 4m high.
GG 1891 p. 423. H&LD 1904, p. 1. CHM 1913. REID p. 120. AASG pp. 134, 165. ALOL 1981, 1788.
PORTS. CHARTS - AUS 116, Busselton, 1:12,500, 1981.
MAPS - Busselton SI 50-5, 1:250,000.

CAFFARELLI ISLAND (near Koolan Island) 16° 03'S, 123° 17'E.#
The light consists of a 7m cylindrical steel metal column, 3m in section suporting a lantern house with a drum lens. Originally powered by acetylene it was converted to solar power in 1987.
LSWA 1, ALOL 1981, 1646. LTP 8.8C.
CHARTS - AUS 733, Buccaneer Archipelago and King Sound, 1:150,000, 1965. AUS 40, Yampi Sound, 1:25,000, 1965.
MAPS - Yampi SE 51-3, 1:250,000. Sunday Island 3565, 1:100,000.

CAPE BOSSUT 18° 43'S, 121° 39'E.
Commissioned in 1913 on the mainland south-west of Broome, this light of 550 candle power using dissolved acetylene as fuel and made in England by Chance Brothers of Birmingham, was placed on a 40 ft (12m) steel braced tower. It was described in 1923 as being on the summit of Cape Bossut, with a light exhibited at an elevation of 75 ft from a mild steel square open lattice framework tower 40 ft (12.2m) high. This was one of a number of lights built and designed by the PWD and generally labelled 'North-west Unattended'. This is the last of the group. Decommisioned as a Commonwealth light, it was passed to the Department of Marine and Harbours, now the Department of Transport. Prior to handover the lantern house and lens were removed and solar powered light fitted. Drawings are housed at AMSA. When visited in August 1994, the structure was in poor repair with many members severely corroded. It was, however, an important representative of the type and a nomination to the Register of Heritage Places at the Heritigae Council of Western Australia was intended. When visited in September 1995, it was found that the tower had been demolished in the interim with its constituent parts cut up and left in two adjacent piles. A nomination was not proceeded with on those grounds.

AP-V 1923, p. 250; 1948 p. 251. WA29. LSWA 1, 26. PHIL p. 146. ALOL 1981, 1672. LPG p. 351. REID p. 109. AASG p. 165. LTP 11.3C.
CHARTS - BA 475, North-West Coast of Australia ... with off lying islands and reefs, 1880, lc1928 sc1974, 1:1,916,000. BA 1048, Buccaneer Archipelago to Bedout Island, 1:690,650, 1884,1960. AUS 324, Lacepede to Bedout Island, eastern sheet, 1:300,000.

MAPS - Legrange SE 51-10, 1:250,000. Legrange 3620, 1:100,000.

Figure 8
The Cape Bossut light tower (Denis Cumming, 1994)

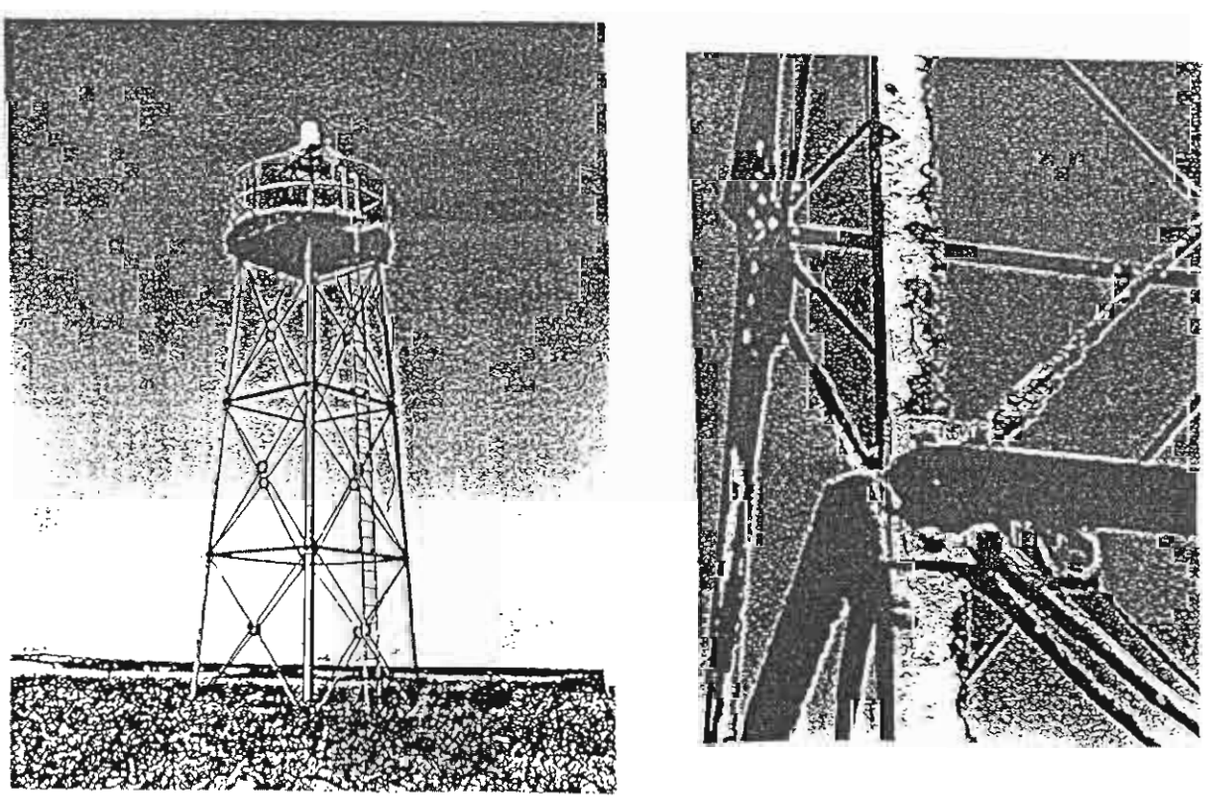
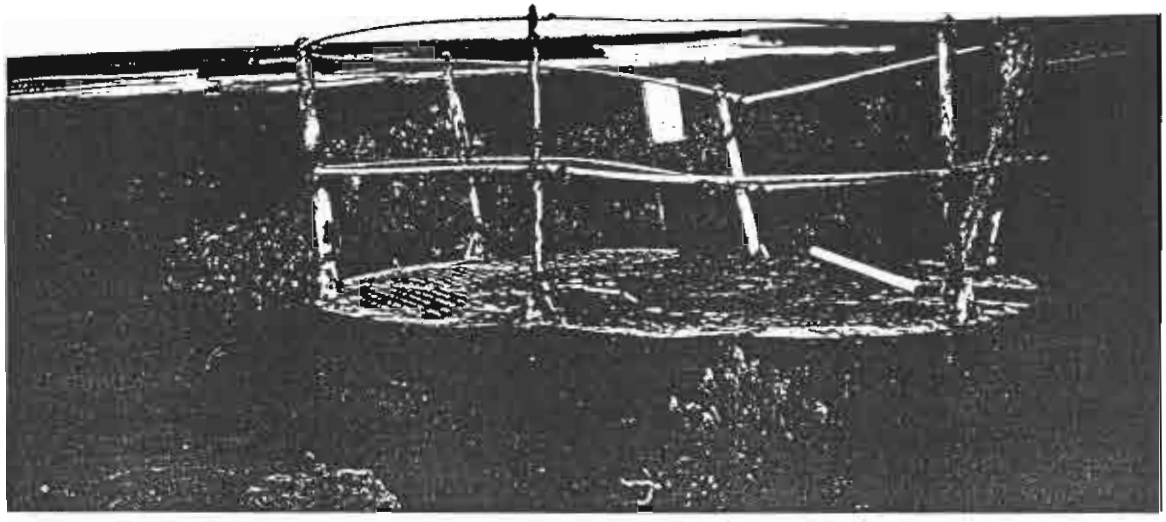
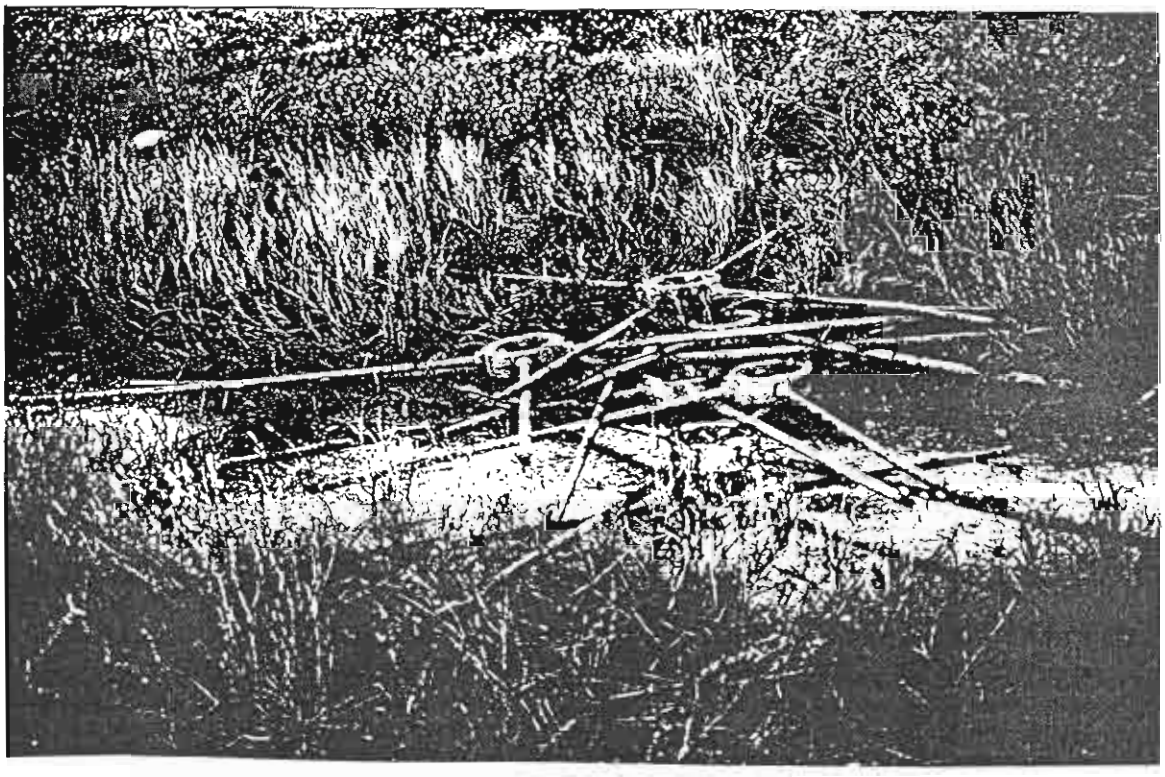


Figure 9a-b
The Cape Bossut light tower (Mike McCarthy, 1995)





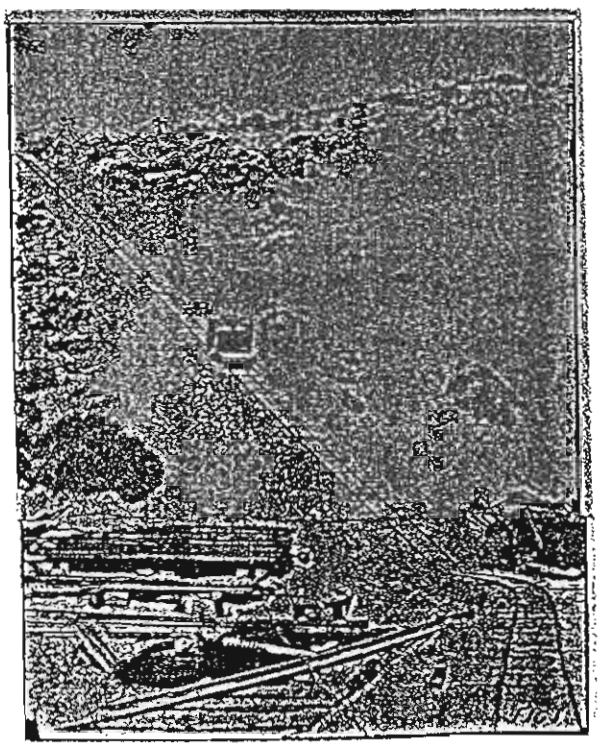
CAPE CUVIER 24° 14'S, 113 24'E.
Built after 1981 about 15 miles north of Point Quobba, as a beacon for a salt loading facility.
ALOL 1992, 1715.
CHARTS - AUS 331, Quobba Point to Geraldton, 1:300,000, 1968. AUS 330, Point Cloates to Quobba Point; Cape Cuvier 1:10,000, 1968.
MAPS - Quobba SG 49-4, 1:250,000. Quobba 1549 (1) 1974, 1:100,000.

CAPE INSCRIPTION (Dirk Hartog Island) 25° 29'S, 112° 58'E.#
In crown reserve 11634 Loc.13 on the northern point of Dirk Hartog Island at the entrance to Shark Bay, this lighthouse with a white third order dioptric occulting light, was erected near the place where Dirk Hartog landed in 1616. Completed in 1910 at a cost of £8,228, the tower was built in reinforced concrete, 34 ft high and 18 ft external at the base, and carried the original light from Breaksea Island. An underground storage tank held 20,000 gallons of rain water, and the landing jetty in Turtle Bay was 232 ft long and took vessels of 10 ft draught. A 3 mile long 2' guage tramway ran from the jetty with winch-power to surmount the cliff top. Manning ceased in 1917, after an AGA lantern had been fixed. The light was converted from acetylene to solar power in 1985. The tower, lighthouse keepers quarters, water tank and oil storage shed still remain in varying stages of repair. The lens is on permanent loan to the WA Maritime Museum as are the pony wheel and trolley shown below. The structure was entered onto the Register of the National Estate (RNE) at the Australian Heritage Commission (AHC) on 6 October 1994. It also appears in the database at the Heritage Council of Western Australia (HCWA).

CHM 1911. LSWA 1, 12. PHIL p. 142. ALOL 1981, 1710. LPG p. 348. REID p. 141. AASG pp. 134,165. LTP 8.3U. Uhe, 1994.
CHARTS - AUS 331, Quobba Point to Geraldton, northern sheet, 1:300,000, 1968.
MAPS - WALD, 75,300 WA, 1:237,600. Shark Bay SG 49-8, 1:250,000. Ningaloo SF 49-12, 1:250,000, 1958.

AHC Database 019865, HCWA 3261, RNE 06/10/1994

Figure 10
The rail from Turtle Bay to the Cape Inscription Light (WSA: LPG)

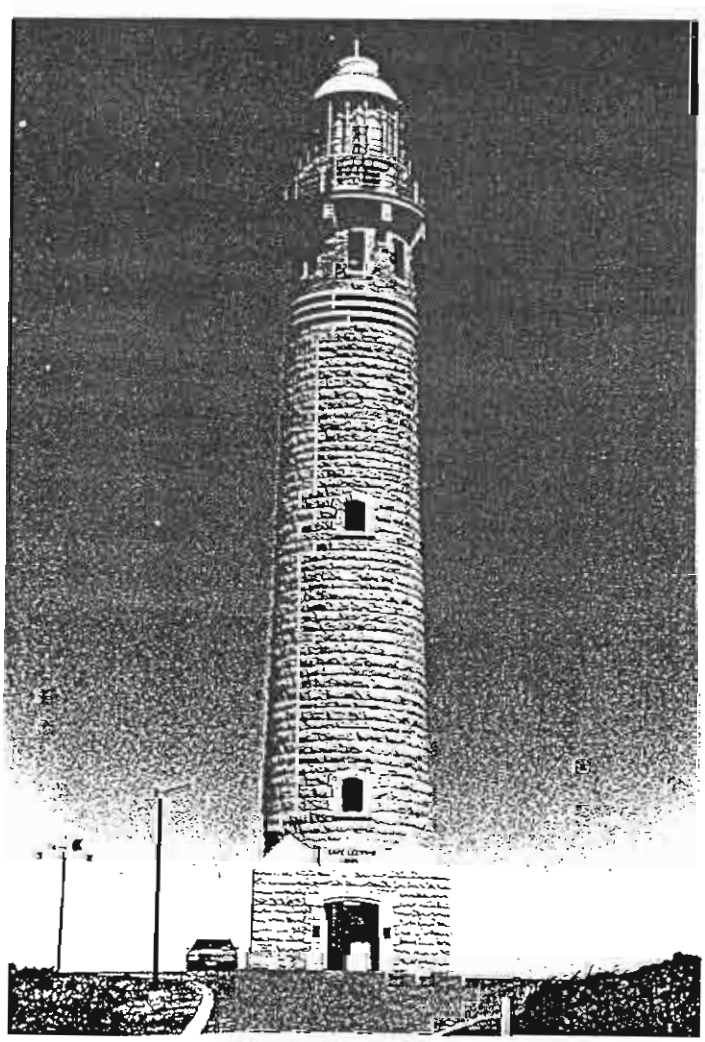


CAPE LEEUWIN 34° 22'S, 115° 08'E.
At the south-western tip of Western Australia, this lighthouse was initially proposed in 1881 and was built, with three attendant cottages by M.C. Davies of Karridale. It was commissioned in 1896. Its round, conical masonry tower 115 ft to the focal plane, was built on foundations 23 ft deep, and carried a 12 foot in diameter light supplied by Chance Brothers of England which floated in a bath of mercury, and burnt a heavy mineral oil to provide a powerful light of 200,000 candles. It was converted to a halogen tungsten filament lamp with electric drive shortly before 1983, but retained its original lenses. When converted it was the last light operating on pressurised kerosene vapour and mantles. The structure was entered onto the Register of the National Estate (RNE) at the Australian Heritage Commission (AHC) on 21/10/1980. It also appears in the Register of Heritage Places at the Heritage Council of Western Australia (HCWA).

RPWD 1896, p. 48. WA29. AP-V 1948, p. 359. LSWA 1, 4. COL1. PHIL p. 127. ALOL 1981, 1794. DWKK pp. 195-7. LPG p. 249. REID pp. 121-2,141, etc. AASG pp. 135,165. LTP 8.4U. GOT. NASH
CHARTS - BA 413, Cape Mentelle to White Point, 1890,1911. 1:99,200. AUS 116, Plans in WA, West and South Coast. AUS 756, Cape Naturaliste to Cape Leeuwin, 1:150,000,, 1982. AUS 757, South Coast, Cape Leeuwin to D'Entrecasteau, 1981, 1: 150,000.
MAPS - Augusta SI 50-9, 1:250,000. Leeuwin 1929-III, R712 1-AAS 1:50,000.

HERITAGE LISTING - HCWA 0104, AHC 09399 (light) /09410 (cottages), RNE 21/10/1980

Figure 11
The Cape Leeuwin Light (Jon Carpenter, WA Maritime Museum) see also front cover.



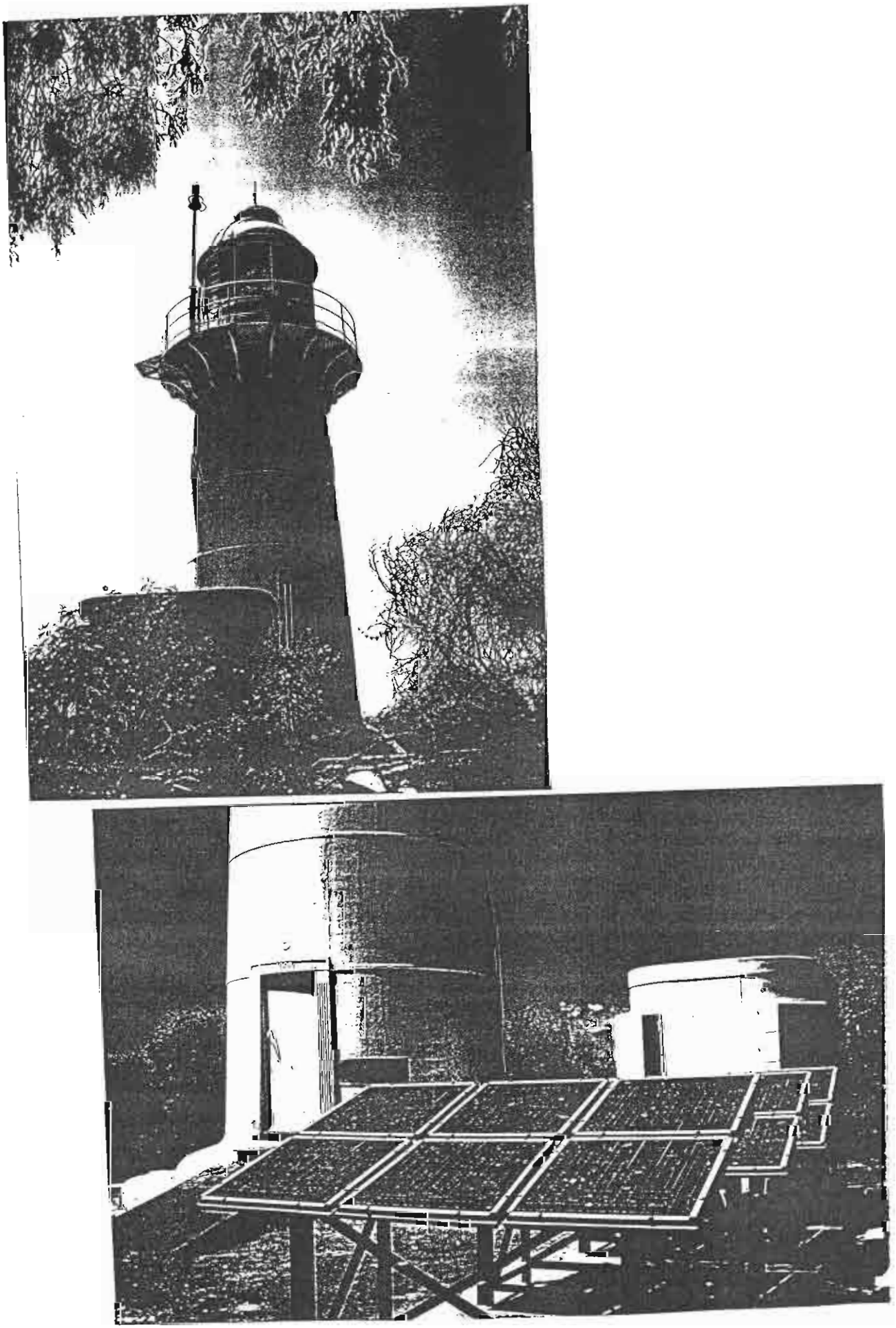
CAPE LEVEQUE 16° 24'S, 122° 56'E.
On the mainland at the western entrance to King Sound and Derby, the bolted conical cast iron tower 28 ft high was manufactured in Perth by Bela Makutz, with a white revolving triple flash at a height of 43 m. Begun in 1909, it was commissioned with quarters for two lightkeepers, in 1911 at a cost of £9,219. The lightstation was described in 1923 as a light exhibited at an elevation of 142 ft from a white tower 43 ft high on the summit of Cape Leveque. Before 1983, it was fitted with a 120V halogen tungsten light powered by a diesel generator. A Racon beacon was established when the light was de-manned and converted to solar power in 1985 with an AGA PRB 24/4 rotating lamp array.[19]
When visited in August 1994 and September 1995, the site was somewhat overgrown with shrubs and small trees. The original duplex cottage for the lightkeepers had been removed and replaced with two two-storey cottages of 1960s design. The site is a reasonably popular tourist destination with an inn and cabin/caravan accommodation close by, and is visited by tourists conveyed by aircraft. These land on the airstrip adjoining. The original equipment is on display at the 'B' Shed annex of the WA Maritime Museum. A nomination to the Register of the National Estate at the Australian Heritage Commission and the Register of Heritage Places at the Heritage Council of Western Australia has been prepared.

CHM 1911, 1915. AP-V 1923 p. 206; 1948 p. 212. WA 29. LSWA 2, 2. COL 1. PHIL p. 147. ALOL 1981, 1650. DWKK pp. 198-9. LPG p. 351. REID pp. 109, 141, etc. AASG p. 135. LTP 8.1A.
CHARTS - BA 1048, Buccaneer Archipelago to Bedout Island, 1:690,560, 1884,1960. BA 3759, Approaches to King Sound. AUS 323, Adele Island to Lacepede Island, 1:300,000, 1967. AUS 733, Buccaneer Archipelago and King Sound, 1:150,000, 1965.
MAPS - Pender SD 51-2, 1:250,000. Leveque 3465, 1:100,000.

Figure 12a
The Cape Leveque Light (Mike McCarthy, WA Maritime Museum)

[19]AGA refers to the Swedish company making the lantern house.

Figure 12b
The Cape Leveque Light (Mike McCarthy, WA Maritime Museum)



CAPE NATURALISTE 33° 32'S, 115° 02'E.
With a short circular conical masonry tower built of local limestone placed on a high cliff 18 miles west of Busselton, this lighthouse was commissioned in 1903. It had a first order lens from Chance Brothers in England which produced 755,000 candelas. It was described in 1923 and in 1948 as a light exhibited at an elevation of 404 ft on a grey stone tower 62 ft high about one mile from the extreme of the Cape. The Lloyds signal station at the lighthouse was connected by telephone with the main telegraph system. Its light was upgraded to 1.2 million candelas in 1924, and subsequently converted to electric illumination. In 1983, power was being supplied from the mains with stand-by diesel generators. The three quarters for light keepers were still on site in September 1993. One is used as an office for the custodian/guides. Another is a museum housing the original Jarman Island lens. In the grounds is the self contained acetylene beacon from the Great sandy Island light. The light, the last to be manned will become automatic late in 1995. The structure was entered onto the Register of the National Estate (RNE) at the Australian Heritage Commission (AHC) on 18 April 1989. It also appears in the Register of Heritage Places at the Heritage Council of Western Australia (HCWA).

CHM 1911. AP-V 1923 p. 377; 1948 p. 353. WA 29. LSWA 1, 6. PHIL p. 130. ALOL 1981, 1790. DWKK pp. 200-1. REID pp. 109, 123-4, etc. AASG pp. 136,165. LTP 8.3U. GOT. NASH.
CHARTS - BA 1034, Cape Naturaliste to King George Sound, 1:603,000, 1876,1914. AUS 756, Cape Naturaliste to Cape Leeuwin, 1:150,000, 1982. AUS 757, South Coast, Cape Naturaliste to Cape Leeuwin, 1:150,000, 1982.
MAPS - Busselton SI 50-5, 1:250,000. Busselton 1930; 1:100,000. Busselton, 1:50,000, Conservator of Forest, 1979

HERITAGE LISTING - HCWA 2914, AHC Database 16693, RNE 18/04/1989

CAPE PERON 25° 31'S, 113° 31'E.
Established after 1981 in Shark Bay north of Denham.
ALOL 1992, 1726.
CHARTS - AUS 331, Quobba Point to Geraldton, 1:300,000, 1968.
MAPS - Shark Bay SG 49-8, 1:250,000. Greenough 1647, 1:1100,000. OR Shark Bay 1646, 1:100,000.

CAPE RONSARD 24° 46'S, 113° 09'E.#
On the northern end of Bernier Island in the entrance to Shark Bay, a steel cylindrical tower built in 1961 supported a white flashing light powered by acetylene gas. It was removed and replaced with a GRP cabinet when the light was converted to solar power in 1985.
LSWA 1, 12.5 ALOL 1981, 1717. REID p. 147. LTP 8.8B.
CHARTS - AUS 331, Quobba Point to Geraldton, 1:300,000, 1968.
MAPS - Carnarvon SG 49-E, 1:500,000. Quobba SG 49-4, 1:250,000. Bernier 1548, 1:100,000.

CAPE St CRICQ, Dorre Island. 25° 16'S, 113° 03'E.#
A white hut 3m high built in 1971, on the southern end of Dorre Island in the approaches to Shark Bay, converted to solar power in 1983.
PHIL p. 142. ALOL 1981, 1723.
CHARTS - AUS 331, Quobba Point to Geraldton, 1:300,000, 1968.
MAPS - Shark Bay SG 49-8, 1:250,000. Dorre 1547, 1:100,000.

CASUARINA POINT (See Bunbury)

CAVE POINT 35° 07'S, 117° 54'E. (Albany)
On high ground on the peninsula west of King George Sound, this unmanned light on a white cylindrical concrete tower 12m high was established in 1976, as a replacement for Eclipse Island Lighthouse following a crane accident which caused that station to be demanned. It was decommissioned in 1994, though the structure remains.
ALOL 1981, 1799. REID p. 157. LTP 8.6A.
CHARTS - AUS 118, Port of Albany, 1:50,000, 1973.
MAPS - Albany 2427, 1:100,000.

CERVANTES ISLAND 30° 29'S, 115° 04'E.#
Two leading lights with ML 300 lanterns, the rear on a 10.5m galvanised steel tubular column built in 1977 on the southern side of the entrance to Cervantes Harbour.
ALOL 1756.61. LTP 11.3U.
CHARTS - AUS 333, Geraldton to Wedge Island, 1:300,000, 1972. AUS 753 Beagle Island to Lancelin, 1:150,000, 1986. PWD 47233, Cervantes, 1:25,000, 1979.
MAPS - Hill River SH 50-9, 1:250,000. Hill River 1937, 1:100,000.

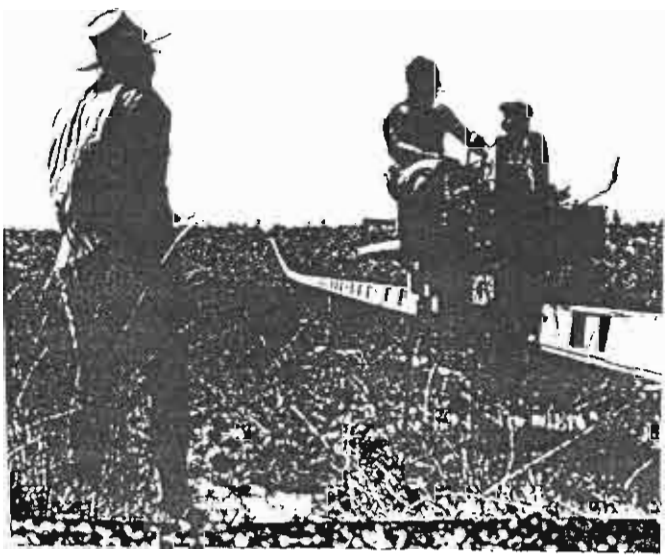
COCKATOO ISLAND 16° 06'S, 123° 36'E.#
The Power House Building on Cockatoo Island once supported a white flashing light at an elevation of 130m, which was exhibited only on request. It was not listed in 1992.
LISWA 2, 3.1. ALOL 1981, 1642.5
CHARTS - AUS 40, Yampi Sound, 1:25,000, 1965. AUS 731, Yampi Sound to Champagny Island, 1:150,000, 1949.
MAPS - Yampi SE 51-3, 1:250,000. Yampi 3665, 1:100,000.

COOKE POINT (Port Hedland) 20° 18'S, 118° 38'E.
The port has a marked channel extending 42 nautical miles consisting of a number of pylons each holding a flashing solar powered light. C1 pylon at the entrance is a white light all others are red or green.The Cooke Point light in Port Hedland is a rear leading light, part of a number of sets within the port area. There are 66 lights under Port Authority jurisdiction and 13 outer lights under commonwealth jurisdiction. ALOL 1981, 1679. PORTS.
MAPS - Port Hedland SF 50-4, 1:250,000. Port Hedland 2657, 1:100,000.

CULL ISLAND (Esperance) 33° 55'S, 121° 54'E.#
Originally called Gull Island. Once an acetylene powered light established in 1965, this is now an automatic solar powered flashing light on a white hut 3m high, south of Esperance Bay. The conversion took place in 1984. The goats on the island were apparently placed there for shipwrecked sailors.
ALOL 1981, 1809.
CHARTS - ADM 1059, Doubtful Island to the Head of the Great Australian Bight, 1:610,000, 1974. AUS 119, Approaches to Esperance, 1:75,000, 1974.
MAPS - Esperance SI 51-6, 1:250,000. Esperance 3230, 1:100,000.

DEGERANDO ISLET 15° 20'S, 124° 11'E.E#
This light consists of an AGA FLDA 22/12 lantern house on a steel 3m cylinder house erected in 1960. It still has a traditional lens and though originally acetylene burning was converted to solar power by placing an electric lamp-change in the original lens in 1987. The monorail which was built to carry supplies from the beach while the light was being constructed is still in situ. The motorised trolley is housed in a small shed at the landing.
LSWA 2, 6. PHIL p.149. ALOL 1981 1640; 1992 1641. AASG p.136. LTP O.
CHARTS - AUS 731, Yampi Sound to Champagny Island, 1:150,000, 1949.
MAPS - Camden Sound SD 51-15, 1:250,000. Champagne 3767, 1:100,000.

Figure 13
The Degerando Island monorail (Phillips, 1977:149)



DENHAM LEADING LIGHTS 22° 56'S, 113° 32'E.

At Denham in Shark Bay, lights on wooden gallows. (see also Lagoon Point) ALOL 1992, 1734.1.
CHARTS - AUS 331 Quobba 1968, Quobba Point to Geraldton, 1:300,000.
MAPS - Shark Bay SG 49-8, 1:250,000. Shark Bay 1646 (1) 1974, 1:100,000.

D'ENTRECASTEAUX (see Point D'Entrecasteaux)

DERBY JETTY 17° 07'S, 123° 35'E. (see also Black Rock)
A white sixth order dioptric light was established on a braced steel platform on the end of the jetty in 1901. CHM 1911.
MAPS - Derby SE 51-7, 1:250,000. Derby 3663, 1:100,000.

DONGARA JETTY (Port Irwin) (See Freshwater Point)
A red light was fixed on a 12 ft wooden platform at the end of this jetty in 1887. (Phillips records a white stone tower?) See also Freshwater Point.
MAPS - Dongara SH 50-5, 1:250,000. Dongara 1839, A611 1-AAS, 1:100,000.

DOUBLE (North) ISLET 20° 44'S, 115° 30'E.#
East of Barrow Island, a 2m post supports a flashing light.
ALOL 1981, 1692.4.
CHARTS - AUS 327, Port Walcott to Monte Bello Islands, 1:300,000, 1967,1973.
AUS 742, Rosemary Island to Barrow Island, 1:150,000, 1980.
MAPS - Barrow Island SF 50-1, 1:250,000. Monte Bello 2057, 1:100,000.

EAST ISLAND. See Lacepede Island.#
The original tower, an open steel lattice similar to Leseur Island was construced in 1968. It was demolished in 1984 to be replaced with a stainless steel open lattice tower with tube columns. It was also converted to a solar powered FA 251 lantern 17.5m high. A Racon is held on the tower as well.
ALOL 1658.0 LTP 11.4A.
CHARTS - AUS 323 Adele Island to Lacepede Island, 1:300,000, 1967.

ECLIPSE ISLAND 35° 11'S, 117° 53'E.#
Off the coast just west of King George Sound, this light was placed on a reinforced concrete tower built in 1926, and was equipped with a ropeway to transport stores from the beach to the light station. People were hoisted from the boats in a basket, using a crane. It was connected to the mainland by radio-telephone in 1962, and was automated, using acetylene and de-manned in 1976 following a fatal crane accident. The light was removed and is now a feature of the Residency Museum in Albany. The LBUA 500 gas lantern is on permanent loan to the WA Maritime Museum. As part of the de-manning process a second light was established on Cave Point, adjacent to the island on the mainland. The crane has been removed, the residence, powerhouse and ropeway towers remain.
LSWA 1, 2. ALOL 1981, 1798. REID pp. 141, 157. AASG p. 137. Scott, N., *Eclipse Island Lighthouse,* Albany Western Australia. Albany Residence Museum, Albany, 1988. LTP 8.5U.
CHARTS - AUS 118 Port of Albany, 1:50,000, 1973.
MAPS- Albany SI 50-15, 1:250,000. Albany 2427, 1:100,000.

ENTRANCE POINT See Broome. 18° 00'S, 122° 12'E.
A light was established at an elevation of 100 ft on a 16 ft steel framework tower on Entrance Point on the southern approach to Broome in 1912. Visible at 9 miles.
After the construction of the deepwater jetty, a sectored light was established on a 5m framework tower in 1981.
CHM 1913; 1915. AP-V 1923; 1948. WA29. ALOL 1981, 1662.
MAPS - Broome SE 51-6, 1:250,000. Broome 3362, 1:100,000.

ESCAPE ISLAND 30° 21'S, 114° 59'E.#
South-West of Jurien Bay about 180 miles north of Fremantle, a metal framework tower 74 ft high built in 1930 supported an acetylene powered white flashing light at an elevation of c.100 feet. It was built by Stone Chance and was painted red and white. It was replaced with an ML300 lantern supported on a 24.5m stainless steel lattice tower with tube columns in 1980. This was later converted to a solar powered ML 300 beacon in 1986. The concrete base of the original light tower is still visible.
AP-V 1948, p. 321. LSWA 1, 8. ALOL 1981, 1756. AASG p. 138. LTP 11.4A.
CHARTS - AUS 333, Geraldton to Wedge Island, 1:300,000, 1972. AUS 753, Beagle Island to Lancelin, 1:150,000, 1986. DMH 171, Jurien, 1:25,000.
MAPS - Hill River SH 50-9, 1:250,000. Green Head 1837, R611 1-AAS, 1:100,000, 1981.

ESPERANCE
A red ordinary lantern was fixed on a 15 ft wooden platform on the Town Jetty in 1901. CHM 1911. A modern steel tower has been erected at the breakwater.

Figure 14
The Esperance Breakwater Light (Denis Cumming, 1994)

FIGURE OF EIGHT ISLAND 34° 02'S, 121° 36'E.#
Built off Esperance in 1965, this station was origianlly an acetylene powered light with a lantern house and traditional prismatic lens. The apparatus was removed when the light was converted to solar power in 1984 and comprises a lantern and a GRP hut 4m high on a concrete base at an elevation of 113 m. The original concrete base is still visible.
ALOL 1981, 1808. AASG p. 138. LTP O.
CHARTS - ADM 1059, Doubtful Island to the Head of the Great Australian Bight, 1:610,000, 1974. AUS 119, Approaches to Esperance, 1:75,000, 1974.
MAPS - Esperance SI 51-6, 1:250,000. Causeway 3229, 1:100,000.

FOUL BAY 34° 15'S, 115° 02'E.
Built in 1967 south of Hamelin Bay to replace the Hamelin Island light, a square white brick tower 3.9 m high, (11'-6" X 8'X8') holds a white flashing light at an elevation of 92m.The light is an electric, mains fed 240 volt system. The structure was entered onto the Register of the National Estate (RNE) at the Australian Heritage Commission (AHC) on 23/06/1995.
ALOL 1981, 1792. LTP 5A.
CHARTS - ADM 413, Cape Mentelle to White Point, 1890,1911. 1:99,200. AUS 756, Cape Naturaliste to Cape Leeuwin, 1:150,000, 1982.
MAPS - Augusta SI 50-9, 1:250,000. Leeuwin 1929-III R712 1-AAS, 1:50,000.

AHC Database. 019844, RNE 23/06/1995

FRASER ISLAND 22° 39'S, 113° 37'E.#
Built on a sandy island inside the reef just south of the whaling station in Norwegian Bay, when the first light on Point Cloates (below) was abandoned about 1936, this light was described in 1948 as being on a sandy islet 23 ft high and exhibited at an elevation of 97 ft from a framework tower 74 ft high. It was repaired in 1949, and destroyed when the islet was blown away by strong winds about 1966, leaving the structure on its side in shallow water.
AP-V 1948, p.289. LSWA 1, 14. PHIL p.143.
CHARTS - BA 1055, Bedout Island to Cape Cuvier. AUS 72, Anchorages on the West Coast; Norwegian Bay (Frazer Island anchorage), 1956,1971. AUS 330, Point Cloates to Point Quobba, 1:300,000, 1968.
MAPS - Ningaloo SF 49-12, 1:250,000. Point Cloates 1652 (1) 1:100,000, 1974.

FREMANTLE HARBOUR 32° 34'S, 115° 44'E.
Two cast-iron towers 30 ft high with fourth order fixed lights were placed on the North and South Moles respectively in 1903 to the design of C Y O'Connor.
CHM 1913. AP-V 1923, 1948, p. 331. PHIL p.133. ALOL 1981, 1764/5.
MAPS - Perth SH 50-14, 1:250,000. Perth 2034, 1:100,000.

HERITAGE LISTING
South Mole Lighthouse AHC Database 016638
North Mole Lighthouse AHC Database 16653.

Figure 15
Fraser Island Light-tower 1988 (G. Henderson, WA Maritime Museum)

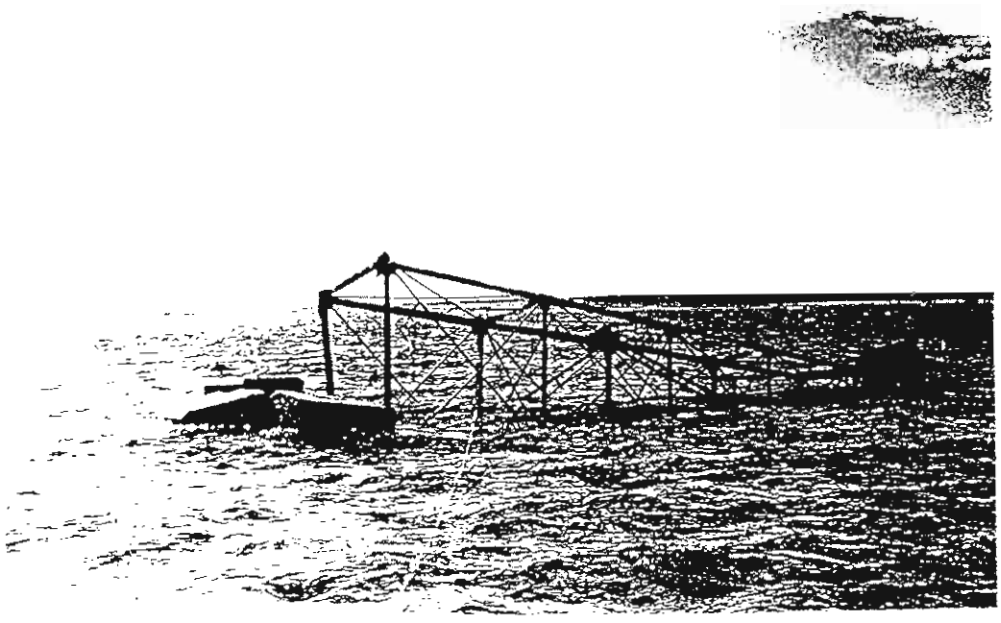
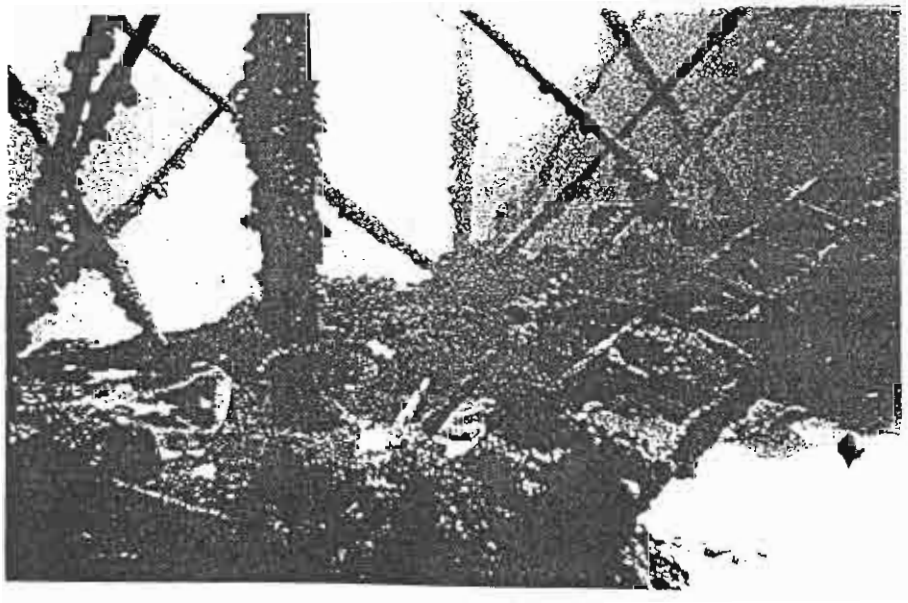


Figure 16
Underwater at the Fraser Island Light-tower 1988
(G. Henderson, WA Maritime Museum)



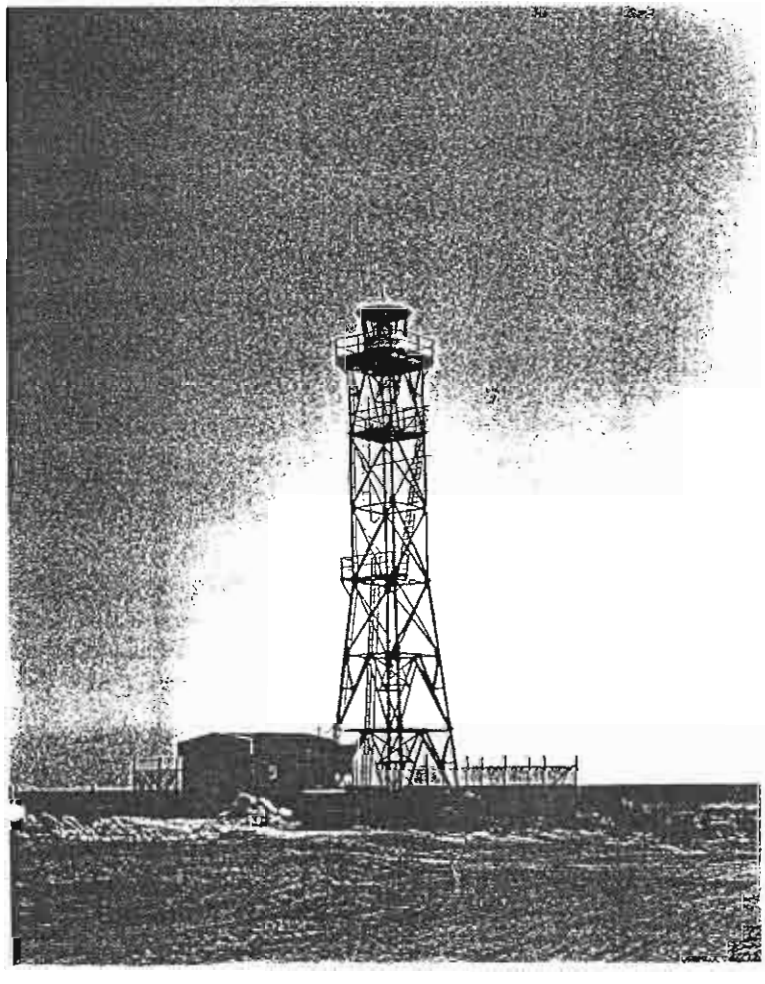
FRESHWATER POINT 29° 36'S, 114° 58'E.
Built after 1981 on the mainland south of Dongara.
ALOL 1991, 1755.6.
CHARTS - AUS 333, Geraldton to Wedge Island, 1:300,000, 1972.
MAPS - Dongara SH 50-5, 1:250,000. Dongara 1839, A611 I-AAS, 1:100,000.

GAGE ROADS see WOODMAN POINT,

GANTHEAUME POINT 17° 58'S, 122° 11'E.
At Gantheaume Point south-west of the township (17 58'S, 122 11'E), a fifth order dioptric occulting light was established on a 47ft open braced steel tower in 1905, and this was replaced with an AGA lantern on a new tower in 1917. A larger light was fitted when the station was de-manned in 1922-3. A new light was placed on a new stainless steel lattice tower in 1984. In 1991, the lantern was supported by a stainless steel open lattice tower with tube columns. Photographs of the original quarters are housed at AMSA. A cement pool called Anastasia's Pool on the rocks below is reputed to have been built for the crippled wife of one of the keepers. The chimney below is all that remains.
GG 1909, p. 3696. CHM 1911. AP-V 1923; 1948. LSWA 2, 1. PHIL p. 147. ALOL 1981, 1660. AASG pp. 139,165. LTP 11.4A
CHARTS - BA 475, North-West Coast of Australia ... with off lying islands and reefs, 1880, lc1928, sc1974, 1:1,916,000. AUS 324, Lacepede to Bedout Island, Eastern Sheet, 1:300,000, 1975.
MAPS - Broome SE 51-6, 1:250,000. Broome 3362, 1:100,000.

HERITAGE LISTING: AHC Database 019864.

Figure 17
Gantheaume Point Light (Denis Cumming, 1994)



GERALDTON 28° 44'S, 114° 36'E. See (Bluff Point, Point Moore)
No.1 jetty light was established with a fifth-order dioptric light on a wooden gallows in 1895, and No.2 jetty light was established with a port seventh-order light on a wooden mast in 1901. The jetty has since been demolished.

GREAT SANDY (Beagle) ISLAND 21° 12'S, 115° 38'E.#
The original acetylene powered light, which appears to have been established in 1959, is located in the museum housed in the No. 2 keepers quarters at the Cape Naturaliste station and the original lantern is on exhibition at AMSA, Fremantle. The existing light which was established in 1986 is a solar powered ML 300 beacon in a size 3 GRP cabinet.
LSWA 1, 19. ALOL 1981, 1695.
CHARTS - ADM 1055. AUS 327 Port Walcott to Monte Bello Islands, 1:300,000, 1967, 1973. AUS 743, Barrow Island to Onslow, 1:150,000, 1970,1979.
MAPS- Legendre 2252, 1:100,000.

GUILDERTON 31° 20'S, 115° 29'E.
Commissioned in 1983 about 100 miles north of Perth, this light with a nominal range of 22 nautical miles is displayed on an impressive 30 metre high red brick tower. Unlike others of its age it was not fitted with a NAL1 lantern house, but has a steel/copper roof lantern house which is possibly the original from Hamelin Island.
COL1. ALOL 1991, 1757.5. REID p. 159. LTP 8.7A. DAC February 1994.
CHARTS - DMH 280, Guilderton, 1:25,000, 1987.
MAPS - Perth SH 50-14, 1:250,000. Ledge Point 1935, 1:100,000.

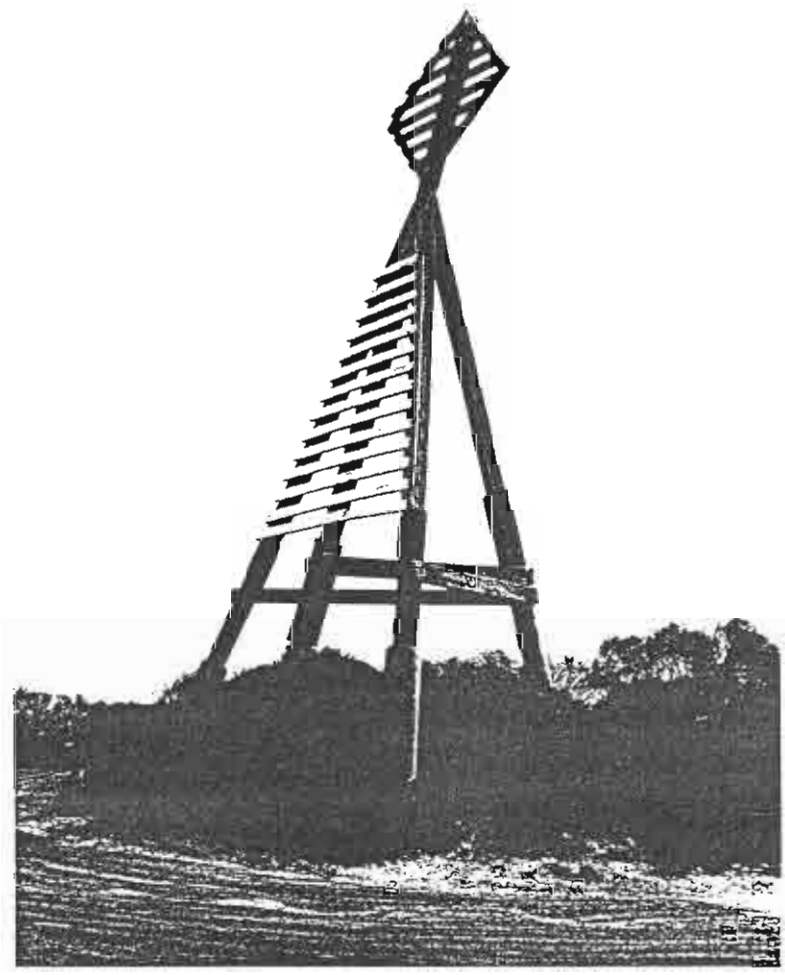
HALLS HEAD 32° 32'S, 115° 42'E.
On the coast north of Mandurah. ALOL 1992, 1781.6.
MAPS - Pinjarra SI 50-2, 1:250,000., Pinjarra 2032, 1:100,000.

HAMELIN ISLAND#
This automatic light was established on a white concrete tower in 1937. It was originally supplied by a cableway from the landing supported on timber towers. It was probably abandoned in 1967 when Foul Bay Light was established. See comments, Foul Bay and Guilderton
AP-V 1948, p. 356. LSWA 1, 5. PHIL p. 128. REID p. 148.
CHARTS - BA 413, Cape Mentelle to White Point, 1890, 1911, 1:99,200. BA 1472, Plans on the south-west coast of Australia. AUS 335, Cape Naturaliste to Point D'Entrecasteau, 1:300,000, 1970. AUS 116, Plans in Western Australia, Hamelin Bay, 1:25,000, 1974, 1981.

HOPETOUN 33° 54'S, 120° 07'E.
A fifth order leading light on a 25 ft steel angle-iron tower which was completed in 1909. The jetty was demolished in 1983, and the light tower was probably demolished about the same time. In 1992, the end of the breakwater was marked by a light on a post.
RPWD 1909, p23. CHM 1911. WA 29. ALOL 1992, 1807.
CHARTS - BA 64, Mary Ann Haven (10" to 6065') 1:7272, nd. AUS 116, Mary Ann Haven 1:12,500, 1981.
MAPS - Ravensthorpe SI 51-5, 1:250,000. Ravensthorpe 2930, 1:100,000.

An additional navigation aid of two large timber towers has been identified at Hopetoun. These were possibly built in the 1910s and represent the only pair of this size which have been identified. Though not lights or lightstations they are included here as examples of the type.

Figure 18
The Hopetoun leads (Denis Cumming, 1994)

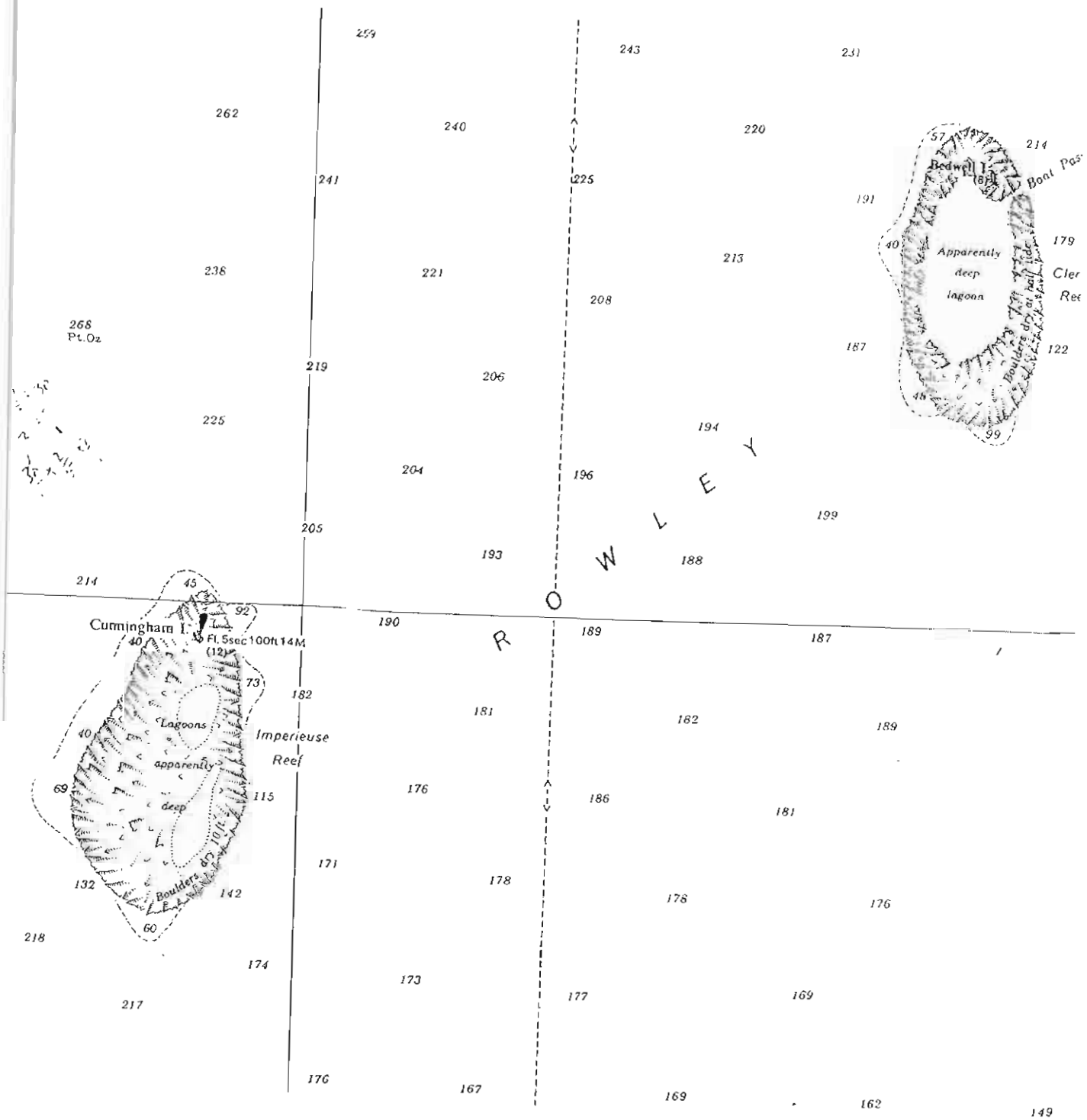


HOUTMAN ABROHOLOS (North Islet) 28 18'S, 113 36'E.#
An automatic flashing light on a white hut on North Islet established in 1967 and converted to solar power in 1983. PHIL p.138. ALOL 1981, 1739.4
CHARTS - AUS 332 Quobba to Geraldton, 1:300,000, 1969,1972.
MAPS - Abroholos SH 49-14, 1:250,000. Wallabi 1641, 1:100,000.

HUMMOCK ISLAND (Houtman Abrolhos) 28 41'S, 114 02'E.#
Established after 1981. ALOL 1991, 1753.4.
CHARTS -
MAPS - Hummock Island 1740, 1:100,000.

IMPERIEUSE REEF. (Rowley Shoals) 17° 31'S, 118° 57'E.#
A light on a simple square framework tower on Imperieuse Reef built in 1960, was replaced by a stainless steel column above a short cylindrical tower in 1970. The light is larger version to that on Pelsaert Island.
LSWA 1, 27. ALOL 1981, 1674. LTP 8.8A.
CHARTS - ADM 475, North-West Coast of Australia ... with off-lying islands and reefs, 1:1,916,000, 1880, lc 1928, sc1974. ADM 1048, Buccaneer Archipeligo to Bedout Island, 1883, 1960, 1:690,580. AUS 325, Lacepede Island to Bedout Island, western sheet, 1:300,000, 1966. AUS 326, Bedout Island to port Walcott, 1:300,000, 1980.
MAPS - NONE.

Figure 19
The light on Imperieuse Reef on the Rowley Shoals (AUS 325)

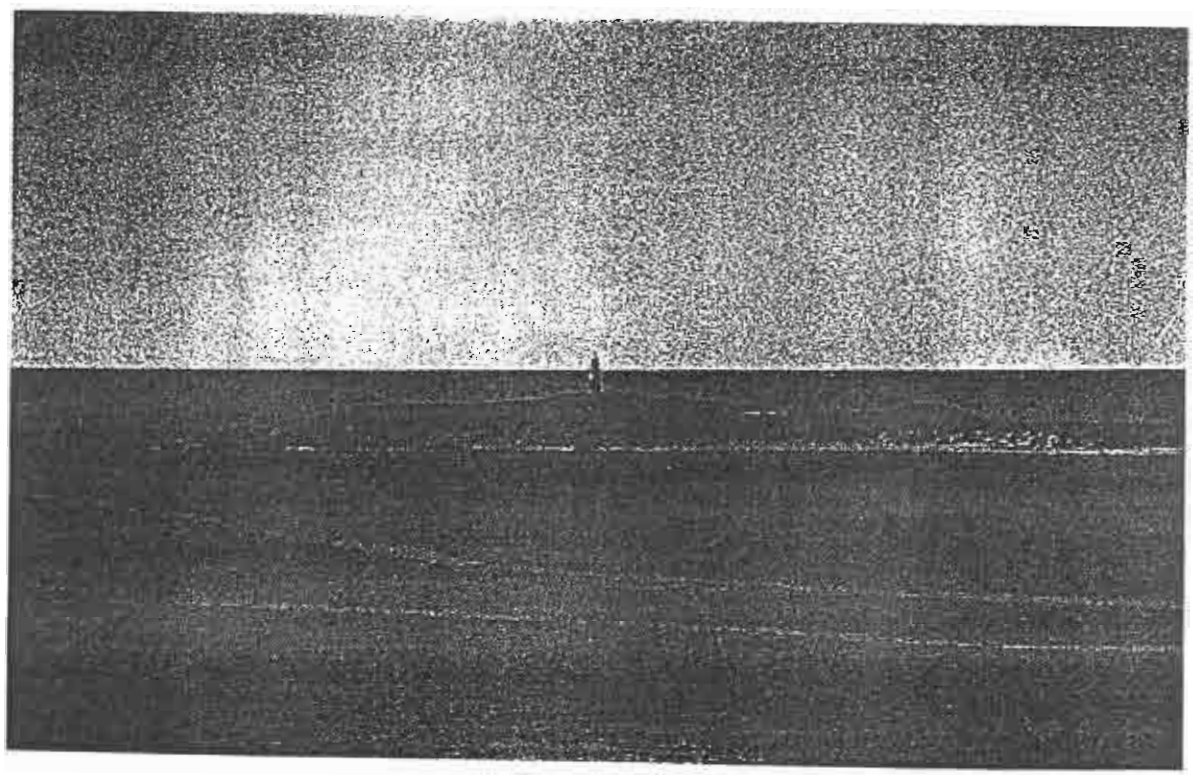


JARMAN ISLAND (Port Walcott, Cossack). 20° 39'S, 117° 13'E.#
A lightstation serving the abandoned port of Cossack and its replacement, Point Samson. On 7 December 1872, the SS *Xantho*, owned by the noted colonial entrepreneur, C.E. Broadhurst bought a beacon up from Fremantle and landed it at Cossack. Following the construction of a lighthouse on Readers Head in 1881 and its destruction by fire in 1884, this lighthouse was built on an island about three miles north of Cossack township and wharf in 1888, under the supervision of W.L. Owen. It displayed a third order dioptric light on a tapering cylindrical cast iron tower, visible at 15 miles under good conditions, It was converted from oil to acetylene in 1911, and discontinued when Cape Lambert light was built in 1985. The structure was entered onto the Register of the National Estate (RNE) at the Australian Heritage Commission (AHC) on 21/10/1980. It also appears in the Register of Heritage Places at the Heritage Council of Western Australia (HCWA).

CSR, GRO to Col. Sec., 714/210, SAWA, WA29. ALOL 1981, 1686. LPG p.163. AASG p. 139. Australian Property Group Potapowicz, G.J., *Jarman Island lighthouse and quarters, conservation management plan.* Australian Construction Services, Perth, 1990. Stephens, R., *Conservation plan for Jarman Island Light-station,* WA. Australian Property Group, Perth, 1991.

HERITAGE LISTING: HCWA 2337, AHC 010086, RNE 21/10/1980.

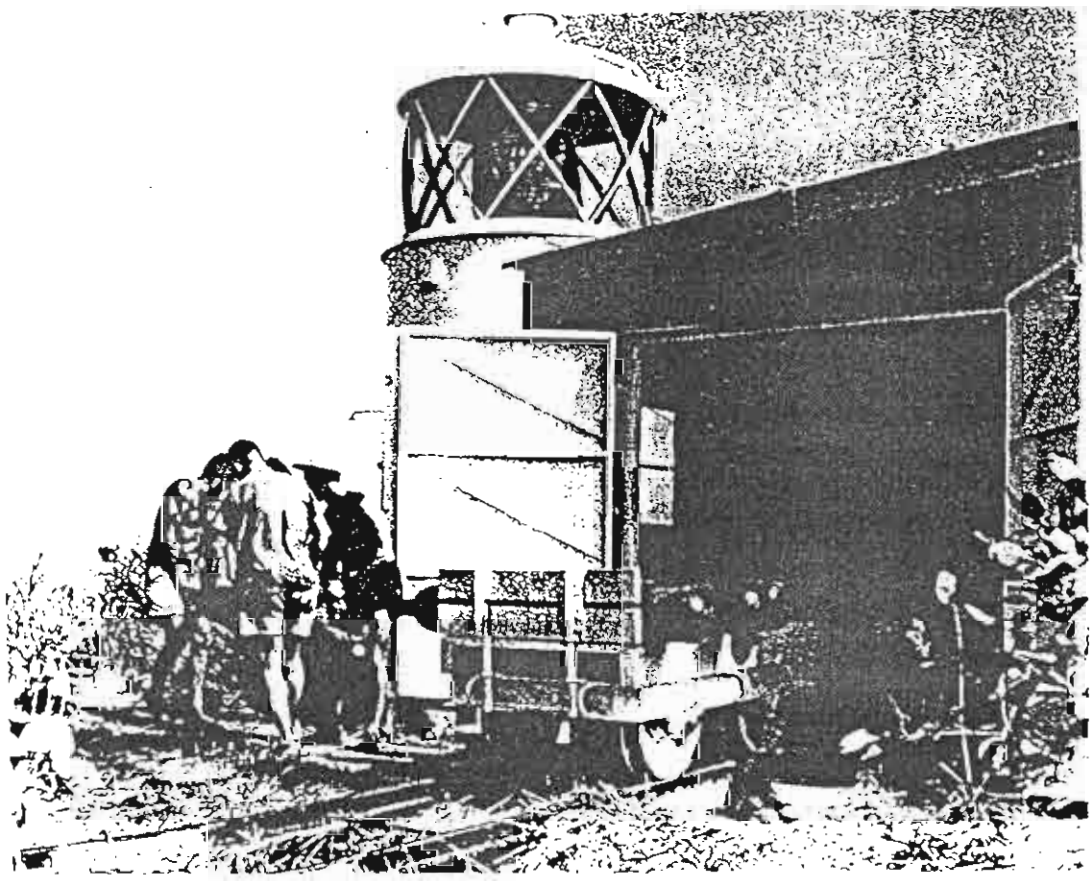
Figure 20
Jarman Island and light (Denis Cumming, 1994)



LACEPEDE ISLAND (see East Island) 16° 54'S, 122° 12'E.#

LACROSSE ISLAND 14° 43'S, 128° 18'E.#
A short cylindrical tower with a light fueled with acetylene built in 1961 on a small island in the approaches to Wyndham. In 1981 this was described as a cylindrical metal tower at an elevation of 113 m visible for 13 miles. It was converted to solar power in 1984 with a small self contained FA 251 beacon. At the time of conversion the original lens and upper lantern house was removed at the lowest glass level and then decked in. (See plan in working file). Photographs are housed at AMSA. A racon beacon was also established. The station has a winch house and a trolley which extends to the beach 100 m below. See photo.
LSWA 2, 9. PHIL p. 155. ALOL 1981, 1636. REID p. 181. AASG p. 139. LTP 8.8C.
CHARTS - AUS 726, Approaches to Cambridge Gulf, 1:150,000, 1979.
MAPS - Medusa Banks SD 52-10, 1:250,000.

Figure 21
Lacrosse Island light-station (Phillips, 1977:155)



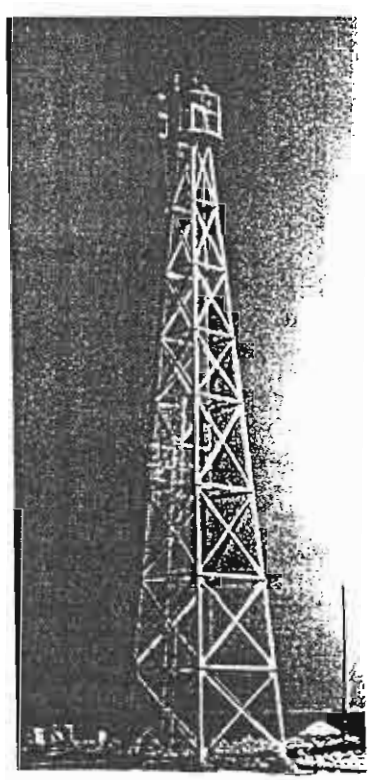
LAGOON POINT, Denham, Shark Bay.
A red fixed ordinary lantern was established on a 12 ft high wooden gallows in 1898 near the telegraph station at Lagoon Point one mile north of Denham. The leading lights were described in 1923 as being on south of Lagoon Point and exhibited from wooden gallows at elevations of 30 and 40ft respectively.
CHM 1911. AP-V 1923, p. 32; 1948 p. 302,
CHARTS - BA 518, Shark Bay. AUS 331, Quobba Point to Geraldton, 1:300,000, 1968.
MAPS - Shark Bay SG 49-8, 1:250,000. Shark Bay 1646, 1:100,000, (1) 1974.

LEGENDRE ISLAND 20° 22'S, 116° 50'E.#
Originally established in 1927 some distance from the present site the light was replaced in 1963 and again in 1989. The second light is at the 'B' Shed annex of the WA Maritime Museum. The present light consists of a white flashing light on a double height size 3, white GRP hut 4 metres high on a square concrete base with a FA 251 beacon. The present light was demolished by a cyclone the day after it was erected and had to be rebuilt. The structure was entered onto the Register of the National Estate (RNE) at the Australian Heritage Commission (AHC) on 23 June, 1995.
ALOL 1981, 1690. AASG p.140. LTP O.
CHARTS - ADM 475 North-West Coast of Australia ... with off lying islands and reefs, 1:1,916,000, 1880, lc1928,sc1974. AUS 327, Port Walcott to Monte Bello Islands, 1:300,000, 1967.
MAPS - Barrow Island SF 50-1, 1:250,000.

HERITAGE LISTING AHC Database 019843, RNE 23/06/1995

LESEUR ISLAND 13° 49'S, 127° 16 'E.#
Built in 1963 at the north-west of this island, a steel angle open lattice framework tower held a white flashing light at an elevation of 20m, this light was converted to solar power in 1987.
ALOL 1981, 1638. LTP 11.3A.
CHARTS - AUS 318, Leseur Island to Troughton Island, 1:300,000, 1969.
MAPS - Londonderry SD 52-5, 1:250,000. Rulheers 4370, 1:100,000.

Figure 22
Leseur Island light tower (Phillips, 1977:154)



MALUS ISLAND, Courtenay Head 20° 30'S, 116° 41'E.#
In the Dampier Archipelago north of Dampier, a flashing light on a 2m hut.
ALOL 1981, 1690.6
CHARTS - AUS 327, Port Walcott to Monte Bello Islands, 1:300,000, 1967. AUS 741, Approaches to Dampier Archipeligo, 1:150,000, 1963.
MAPS - Barrow Island SF 50-1, 1:250,000.

MARDI
With Munda (Mundabullangana Station), a part of the Dampier radio-navigation Decca chain. The master position station was at Woodbrook Station out of Roebourne. The station was closed in 1991 and the property disposed of. (Pers Com M. Glasson, AMSA)

MARY ANNE REEF (Sand Cay) 21° 16'S, 115° 28'E.#
There have been a number of lights, possibly 7, on this reef since the 1930s because it is actually a sand cay that is constantly shifting. Two sets of foundations can be seen in the water, one above the sea and the other completely submerged. The present light was destroyed by a cyclone in 1993 and now is on a double height size 3 GRP cabinet with an ML 300 lantern. It is mounted on a steel skid so that it can be relocated as required.
LSWA 1, 18. ALOL 1981, 1696.
CHARTS - AUS 743, Barrow Island to Onslow, 1:150,000, 1979.
MAPS - Onslow SF 50-5, 1:250,000.

MOUNT BLAZE, Banningarra 20° 00'S, 119° 40'E.#
On the mainland east of Port Hedland, this 10 metre high light on a mild steel square open lattice tower was established around 1921 and was visible at 12 miles. It still existed in 1948, but was abandoned soon after. The lens is on loan to the WA Maritime Museum. The tower was apparently demolished and pushed into the sea. When visited in September 1995, all that was visible was a base and starpickets.
AP-V 1923, p. 252; 1948 p. 253. WA 29.
CHARTS - BA 475, North-West Coast of Australia ... off lying islands and reefs, 1:1,916,000, 1880,1928,1974. BA 1048, Buccaneer Archipelago to Bedout Island, 1:690,580, 1883,1960. AUS 325, Lacepede to Bedout Island, Western Sheet, 1:300,000, 1966.
MAPS - Port Hedland SF 50-4, 1:250,000.

MOORE ISLAND : see Tanner Island

MUNDA

With Mardi (Mardi Station), a part of the Dampier radio-navigation Decca chain. The master position station was at Woodbrook Station out of Roebourne. The station was closed in 1991 and the property disposed of. (Pers Com , M Glasson, AMSA)

NORTH SANDY ISLAND 21° 06'S, 115° 39'E.#
Commissioned in 1913 in Mary Anne Passage south-east of Barrow Island, this light of 1580 candle power made by Chance Brothers of Birmingham in England and fuelled by dissolved acetylene, was supported by a 53 ft (15.9m) braced open lattice steel tower. It is one of the group entitled NW Unattended Lights, built to a similar design (drawings with AMSA). The current tower is a stainless steel lattice tower with a NAL1 lantern house. The light was converted to solar power in 1987.
LSWA 1, 20. ALOL 1981, 1694. LPG p. 351. REID p. 109. AASG p. 165. LTP O.
CHARTS - AUS 327, Port Walcott to Monte Bello Islands, 1:300,000, 1967, 1973.
AUS 743, Barrow Island to Onslow, 1:150,000, 1970,1979.
MAPS - Onslow SF 50-5, 1:250,000.

NORTH-ISLET. See Houtman Abrolhos (above)

NORTH-WEST ISLAND (Monte Bello Islands) 20° 22'S, 115° 31'E.#
Established in 1968 on the north end of the Monte Bello Islands, this station was converted to solar power in 1984 and comprises a 5m double height size 3 GRP cabinet supporting a white flashing light at an elevation of 17m.
ALOL 1981, 1691.98
CHARTS - AUS 327, Port Walcott to Monte Bello Islands, 1:300,000, 1967, 1973.
AUS 742, Rosemary Island to Barrow Island, 1:150,000, 1980.
MAPS - Dampier SF 50-2, 1:250,000.

ONSLOW (Beadon) Jetty 21° 38'S, 115° 07'E
Built at the same time as the jetty in 1925, the lights were on white steel towers with the front at an elevation of 47 ft on a 40 ft tower and the rear at an elevation of 83 ft on a 60 ft tower about 0.6 miles apart. In 1981, the leading lights were on Cape Lambert on metal towers 12m and 8m high.
CHM 1926. WA29. AP-V 1948, p. 282. ALOL 1981, 1704,1706.
MAPS - Onslow SF 50-5, 1:250,000. Onslow 1954, 1:100,000.
CHARTS BA 3152. BA 3187.

ONSLOW Ashburton Road
A red fixed ordinary lantern was fixed on the jetty and a leading light at an elevation of 40 ft (12.2m) on a steel tripod 18 ft high on the sand hills south of the jetty in 1901. The jetty light was described in 1922 as being at an elevation of 25ft. The site was abandoned in 1925, and it is probable that nothing of significance remains.
CHM 1911. AP-V 1922, p. 290.
MAPS-Onslow SF 50-5, 1:250,000. Onslow 1954, 1:100,000.
CHARTS BA 3152. BA 3187.

PELSART (Pelsaert) ISLAND 28° 59'S, 113° 58'E.#
This unmanned light on a stainless steel column was established at the southern end of the Abrolhos Islands in 1974. Converted to solar power in 1984, it is a smaller version of the Imperieuse Reff light.
ALOL 1981, 1753.6 REID p. 157. LTP O.
CHARTS - AUS 332, Quobba to Geraldton, 1:300,000, 1969,1972.
MAPS - Abroholos SH 49-14, 1:250,000. Abroholos 1640, 1:100,000.

POINT CLOATES (See also Fraser Island) 22° 42'S, 113° 41'E.
About 100 miles south of North-West Cape and 138 feet above sea level, this lighthouse with a white revolving second order dioptric light, was built of local sandstone 47 ft high and 19'-8" in diameter at the base, and was completed in 1910. With quarters for two lightkeepers and a two foot gauge tramway two miles long, it cost £13,265. Manning ceased in 1936, and the light was transferred to Fraser Island (above) soon afterwards. The facility (light-tower and quarters) was sold to the local station-owner (Ningaloo station) for the sum of £5.00 soon after. The current light is on a 4m white cabinet which was apparently built in 1966, when the light on Fraser Island was destroyed and abandoned. It was converted to solar power in 1983. When visited in September 1995, the tower appeared in imminent danger of collapse and the quarters were in an advanced state of decay with few of the walls standing. The structure was entered onto the Register of the National Estate (RNE) at the Australian Heritage Commission (AHC) on 16 June 1995.
CHM 1911. AP-V 1923, p. 298. WA 29. LSWA 1, 15. ALOL 1981, 1714. LPG p. 349. REID pp. 109, 141, etc. AASG p. 165.
CHARTS - BA 1055. AUS 72, Point Cloates Anchorage, 1:75,000, 1956,1971. BA 3018* Plan of Point Cloates Anchorage. AUS 330, Point Cloates to Point Quobba, 1:300,000, 1968. AUS 745, North-West Cape to Point Maud, 1:150,000, 1985.
MAPS - Ningaloo SF 49-12, 1:250,000. Point Cloates 1652 (1) 1:100,000, 1974.

HERITAGE LISTING - AHC Database 019863. RNE 16/06/1995.

Figure 23
The Point Cloates Lighthouse c. 1910 (WA Maritime Museum)

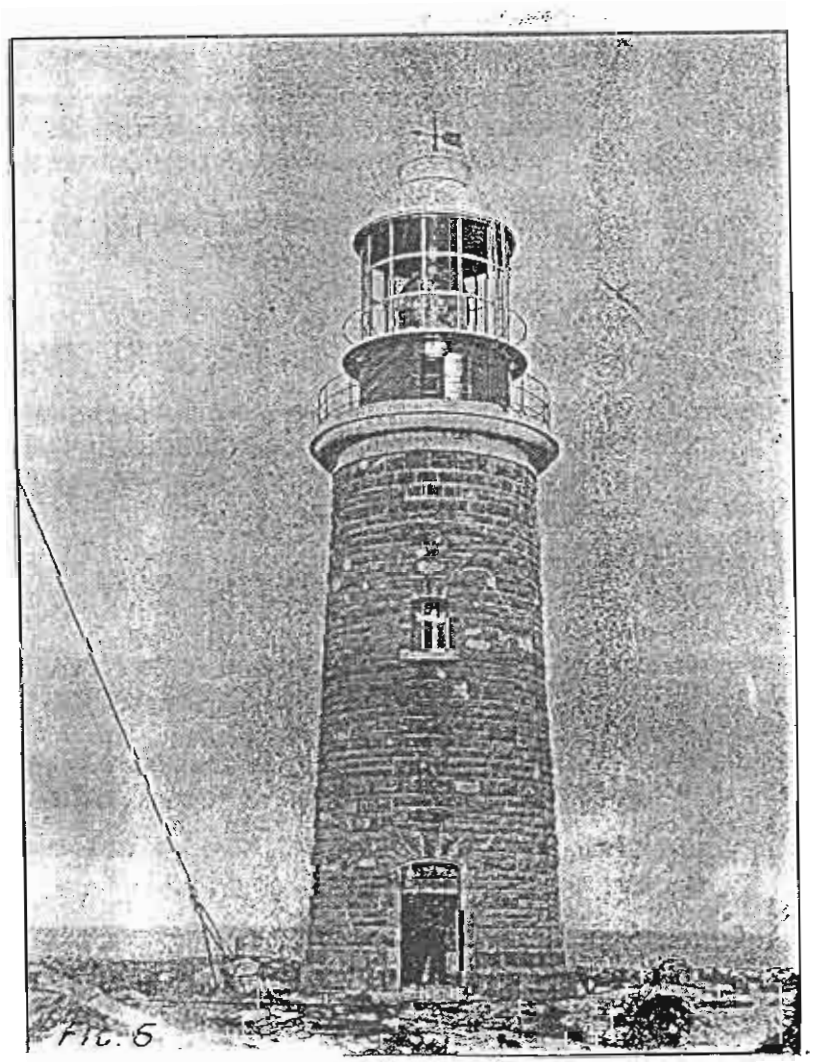


Figure 24

The Point Cloates Lighthouse c.1981 (Jon Carpenter WA Maritime Museum)

POINT D'ENTRECASTEAUX 34° 50'S, 116° 00'E.#
On the south coast between Augusta and Albany, this light was placed on a square cream brick tower at a height of 110m in 1960 and was powered with acetylene gas with a lantern house and traditional lens. It was the last acetylene light operating in the State. The lantern house and large lens was removed and the light was converted to solar power electric in 1989. It now consists of a small self contained FA 251 beacon on a square brick building. The structure was entered onto the Register of the National Estate (RNE) at the Australian Heritage Commission (AHC) on 6 October 1994.
ALOL 1981, 1795. LTP 5A.
CHARTS - AUS 757, South Coast, Cape Lleewin to D'Entrecasteau, 1981, 1:50,000.
MAPS - Albany SI 50-15, 1:250,000. Northcliffe 2128, 1:100,000.

HERITAGE LISTING: AHC Database 019861, RNE 06/10/1994

POINT KING - Albany 35° 02'S, 118° 55'E
A prefabricated light, built by convicts on Point King on the northern side of the entrance to Princess Royal Harbour at Albany in 1857-8. Its second order dioptric light on a square wooden tower 17 feet high adjacent to a square stone building with a tin roof, was visible up to a distance of about 18 miles. Its light was replaced with a fifth order light in 1901, and was replaced with an AGA occulting lantern on a 30 ft skeleton steel tower in 1912. This was replaced by a light on a tubular column in the 1980s, which is all that was present in 1994. The stone, four roomed building remains. (See detailed report by Wolfe and Assoc, in the working file). The structure was entered onto the Register of the National Estate (RNE) at the Australian Heritage Commission (AHC) on 22 June 1993. It also appears in the Register of Heritage Places at the Heritage Council of Western Australia (HCWA).
GG 9/2/1858; 1879 p. 52; 1891 p. 492. CHM 1911. LPG p. 146. ALOL 1981, 1802.
MAPS - Albany SI 50-15, 1:250,000. Albany 2427, 1:100,000.

HERITAGE LISTING: HCWA 0837; AHC Database 18832, RNE 22/06/1993.

POINT MOORE 28 47'S, 114 35'E.
The major lighthouse at Geraldton, this tower of 16 tiers each of 12 iron plates imported from England 95 ft high tapering from 21.0 ft at the base to 10'-10" at the top, was first built on an inappropriate site in 1876 and was transferred to its present site in 1878. The structure and its white revolving second order dioptric light was supplied by Chance Brothers in England, and the tower carried a lower red fixed-light with vertical dioptric prisms in the years 1878 to about 1913. A the time it was visible for 18 nautical miles. The original kerosene wick lamp was replaced with an incandescent mantle lamp in 1911, and subsequently by a 120V 1000-watt tungsten-halogen lamp with an intensity of 1,000,000 candelas. The lighthouse was converted to fully automatic operation in 1985, and is currently (1994) still operational. Originally there were three semi-detached stone cottages for the keepers. These were demolished in 1926 and replaced with a timber framed cottage.[20] The tower originally had two balconies, the lower one has since been removed. The structure is to be nominated to the Register of the National Estate (RNE) at the Australian Heritage Commission (AHC) and the Register of Heritage Places at the Heritage Council of Western Australia (HCWA).

---

[20]Notes on Geraldton Lighthouses, supplied by Mr Peter Worsley of Geraldton. Reproduced in full in the working file under Geraldton.

GG 1891 p. 492. CHM 1911. LSWA 1, 9. PHIL p. 139-140. ALOL 1981, 1740. LPG pp. 146. REID pp. 120-1,149, etc. AASG p. 140. LTP 8.1A.
GG 1876 p 216; 1878 p62; 1882 532; 1891 p. 492. CHM 1913. Cramer, G. *Lighthouse Keepers cottage, Bluff Point, final report on restoration* Perth, The Author, 1987. Report of Director of Public Works and Commissioner of Railways.

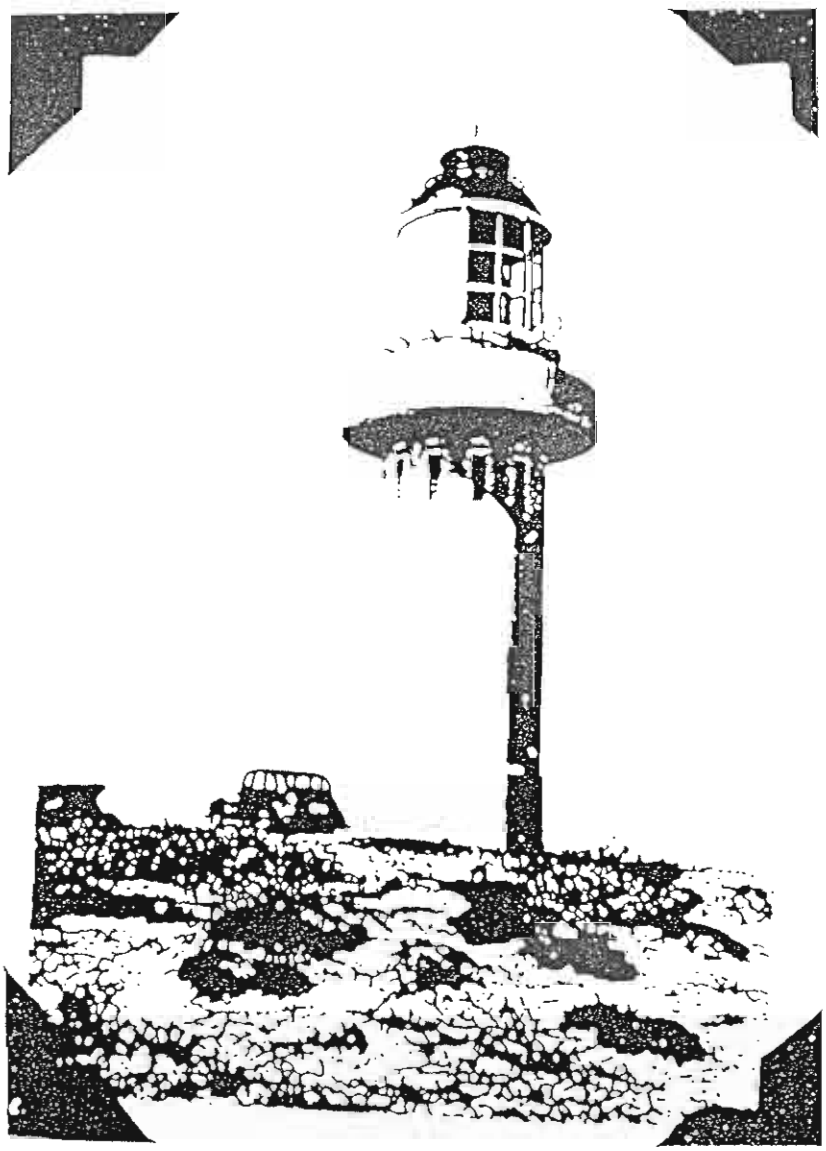
Figure 25
A contemporary photograph of the Point Moore lighthouse, showing the original keeper's cottages (Geraldton Library)

POINT SAMSON See Cossack. 20 38'S, 117 12'E.
A jetty light established on a wooden platform in 1912, was destroyed when the jetty itself was destroyed by a cyclone in 1926.
CHM 1912. AP-V 1923, p. 263.

QUOBBA POINT 24° 29'S, 113° 25'E.
Originally constructed in 1950 with the lantern and stairs from Point Cloates as an acetylene light on a white round concrete tower 12.5m high, this light supports a red cupola with a white flashing light at an elevation of 64 m. It was converted to solar electric FA 251 lantern in 1988 and the original lantern (from Cape Wickham in Tasmania) was removed. Built in the 1860s, this historic lens is on loan from AMSA to the WA Maritime Museum. LSWA 1, 13. ALOL 1981, 1716. LTP 8.5U.
CHARTS - AUS 331, Quobba Point to Geraldton, 1:300,000, 1968.
MAPS - Carnarvon & Exmouth half million. Quobba SG 49-4, 1:250,000. Quobba 1549 (1), 1:100,000, 1974.

Figure 26

The Quobba Lighthouse as it appears in the lighthouse tender's working file (Working file #2 attached)



RED BLUFF (Lacepede Islands) 17° 03'S, 122° 19'E.
This light, established n 1968 is on the mainland opposite East Island and coveres the Lacepede Channel. It was decommissioned c. 1981 and removed when two buoys were located in the channel. These were later removed and the light re-established in 1987 as a white flashing light on a double height size white GRP cabinet with a FA 251 lantern and a Racon beacon. ALOL 1981, 1659.
CHARTS - AUS 323, Adele Island to Lacepede Island, 1:300,000, 1967.
MAPS - Broome SE 51-6, 1:250,000. Carnot 3363, 1:100,000.

ROSEMARY ISLAND 20° 29'S, 116° 36'E.#
North-west of Dampier in the Dampier Archipelago, a 4m high white hut built in 1965 supports a white flashing light at a total elevation of 46m. converted to solar power in 1986.
ALOL 1981, 1690.4. AASG p141.
CHARTS - ADM 475, North-West Coast of Australia ... with off lying islands and reefs, 1:1,916,000, 1880, lc1928, sc1974. AUS 327, Port Walcott to Monte Bello Islands, 1:300,000, 1967. AUS 742, Rosemary Island to Barrow Island, 1:150,000, 1980.
MAPS - Dampier SF 50-2, 1:250,000. Legendre 2252, 1:100,000.

ROTTNEST ISLAND 32° 00'S, 115° 30'E.# See also Bathurst Point
On the highest point of the island, the foundations of the first lighthouse were begun by H. Trigg in 1842. The tower 48 ft high was completed by convict labour in 1849 and lit in 1851. The lantern house had been made on the island and the mechanism by Alfred Carson in Fremantle. This light was replaced by a revolving first order dioptric light on a 125 ft tall tapered circular masonry tower in 1896. Two quarters were built in 1896, and a third, which is all that now remains was built in stone in 1928. The light was converted to automatic operation in 1935 and increased to three million candelas. In 1983, the light was a 120 volt 1000 watt tungsten-halogen lamp supplied from mains electricity, backed up by a diesel generator. The structure appears in the Register of Heritage Places at the Heritage Council of Western Australia (HCWA).
GG 11/2/1842; 13/8/1850, pp. 2-3. LSWA 1, 7. PHIL p. 135-6. DWKK pp. 204-6. LPG pp. 44-5, 249-250. COL1. REID pp. 60, etc. Moynihan, J., *All the news in a flash.*, 19?? . AASG p. 141, 165. LTP 8.3D.
CHARTS- ADM 1033, Champion Bay to Cape Naturaliste, 1:7,200,000, 1877, 1964. AUS 112, Approaches to Port of Fremantle, 1:37,500, 1982.
MAPS - Perth SH 50-14, 1:250,000. Perth 2034, 1:100,000.

HERITAGE LISTING: AHC Database 019860, HCWA 3254

Rowley Shoals (See Imperieuse Reef)

SHOAL POINT (Geraldton) 28° 03'S, 114° 12'E.
On the mainland about 40 miles north of Geraldton and built in 1958, a white square brick tower 11'-6" X 8'X8' (3.5m) high supports a white flashing light. converted to solar power in 1987 when a racon beacon was also established.
PHIL p138,140. ALOL 1981, 1739. LTP 5A.
CHARTS - AUS 332, Quobba to Geraldton, 1:300,000, 1969,1972.
MAPS - Geraldton SF 50-1, 1:250,000. Hutt 1741, 1:100,000.

STEAMBOAT ISLAND (Onslow) 20° 49'S, 116° 03'E.
Planned for the north-east end of the Mary Anne Passage, this light was never established.
AASG p. 142.
CHARTS - AUS 743, Barrow Island to Onslow, 1:150,000, 1970,1979.
MAPS - Roebourne SF 50-3, 1:250,000. Preston 2156, 1:100,000.

STEEP POINT 26° 09'S, 113° 09'E.
Built in 1960 on the mainland just south of Dirk Hartog Island, a 4m high round metal tower supported a white flashing light at an elevation of 68m. The original structure was removed in 1984 when the light was converted from acetylene to a solar powered ML 300 electric lantern in a double height, white, size 3 GRP cabinet.
AP-V 1948, p301. LSWA 1, 11. ALOL 1981, 1728. AASG p. 143. LTP 4A, 8.8D.
CHARTS - AUS 331, Quobba Point to Geraldton, 1:300,000, 1968.
MAPS - Ningaloo SF 49-12, 1:250,000, 1958. Edel 1545, 1:100,000.

STEWART ISLAND 21° 53'S, 115° 56'E.#
South-west of Steamboat Island in the Mary Anne Passage, this light was apparently never built.
LSWA 1, 21.
CHARTS - AUS 327, Port Walcott to Monte Bello Islands, 1:300,000, 1967, 1973.
AUS 743, Barrow Island to Onslow, 1:150,000, 1970,1979.
MAPS - Roebourne SF 50-3, 1:250,000. Turbridge 1854, 1:100,000.

TANNER ISLAND (Formerly More Island). 16° 06'S, 123° 32'E.#
A white concrete tower built in 1951, supports a white flashing light at an elevation of 23m visible for 11 miles.
LSWA 2, 3. ALOL 1981, 1643. LTP 3A.
MAPS - Yampi SE 51-3, 1:250,000. Yampi 3665, 1:100,000.

TRIMOUILLE ISLAND 20° 24'S, 115° 34'E.#
On the north-east of the Monte Bello Islands, a white hut built in 1968 supports a white flashing light at an elevation of 39m. It was converted to solar power in 1984.
ALOL 1981, 1691.99.
CHARTS - AUS 327, Port Walcott to Monte Bello Islands, 1:300,000, 1967, 1973.
MAPS - Barrow Island SF 50-1, 1:250,000. Monte Bello 2057, 1:100,000.

TROUGHTON ISLAND 13° 55'S, 126° 02'E.#
At the northern end of the Kimberley Region, a manned radio beacon and NDB direction finding station was established soon after 1949, and a small light was established at the same time. It was demanned and decommissioned after being destroyed by a cyclone in the 1970's. The island is now a major aviation transfer facility for oil-rig personel
LSWA 2
CHARTS - AUS 319, Penguin Shoal to Browse Island, 1:300,000, 1966.
MAPS - Londonderry SD 52-5, 1:250,000. Troughton 4170, 1:100,000.

VASSE LIGHTS (see Busselton)

VLAMING HEAD 21° 47'S, 114° 10'E.
On the north-western tip of the North West Cape, this tower was built of concrete 30 ft high and 17'-8" diameter at the base, on a site 200 ft above sea level. It was completed in 1912 and housed a dioptric light made by Chance Bros and Co. of Birmingham. The quarters for two lightkeepers were below the hill near the station homestead, and a tramway, with horse-drawn trolleys was provided for bringing stores from the beach landing to the south-west. The light was described in 1923 as being at an elevation of 240ft (73.2m) on a grey concrete tower 40 ft (12.2m) high on Vlaming Head. The light was discontinued in 1967, and a new light was established on one of the radio communication towers near Point Murat. The ruins of a World War II radar tower are a short distance (100m) north of the light tower, and are very significant. The structure was entered onto the Register of the National Estate (RNE) at the Australian Heritage Commission (AHC) on 21 March 1978 It also appears in the Register of Heritage Places at the Heritage Council of Western Australia (HCWA).
CHM 1913, p. 1. AP-V 1923 p. 295; 1948 p. 287. WA29. LSWA 1, 15. PHIL p. 143. LPG p. 350. REID pp. 141,179, etc. AASG p. 143. KTA Partnership. *Vlaming Head Lighthouse Exmouth* . KTA Partnership, Leederville, 1992.

CHARTS - BA 3186, Mary Ann Passage and approaches. BA 3187 Mangrove Islands to North-West Cape. AUS 744, Exmouth Gulf Approaches, 1:150,000, 1955,1967.
MAPS - Onslow SF 50-5, 1:250,000. Exmouth 1754, 1:100,000.

HERITAGE LISTING -
LIGHT HCWA 0837; AHC Database 10795. RNE 21/03/1978
QUARTERS AHC Database 010799

WHITE HILL (Mandurah) 32° 41'S, 115° 37'E.
On the coast south of Mandurah. ALOL,1992, 1781.9.
CHARTS - DMH, Peel Inlet & Harvey Estuary, 1:50,000, 1984.
MAPS - Pinjarra 2032, 1:100,000.

WOODMAN POINT, Coogee, Gage Roads 32° 08'S, 115° 46'E.
A first order occulting dioptric light was established on a 32 ft stone tower on Woodman Point as a sectored light in 1902. It was de-manned and improved in 1921. In 1981 it was a sectored light.

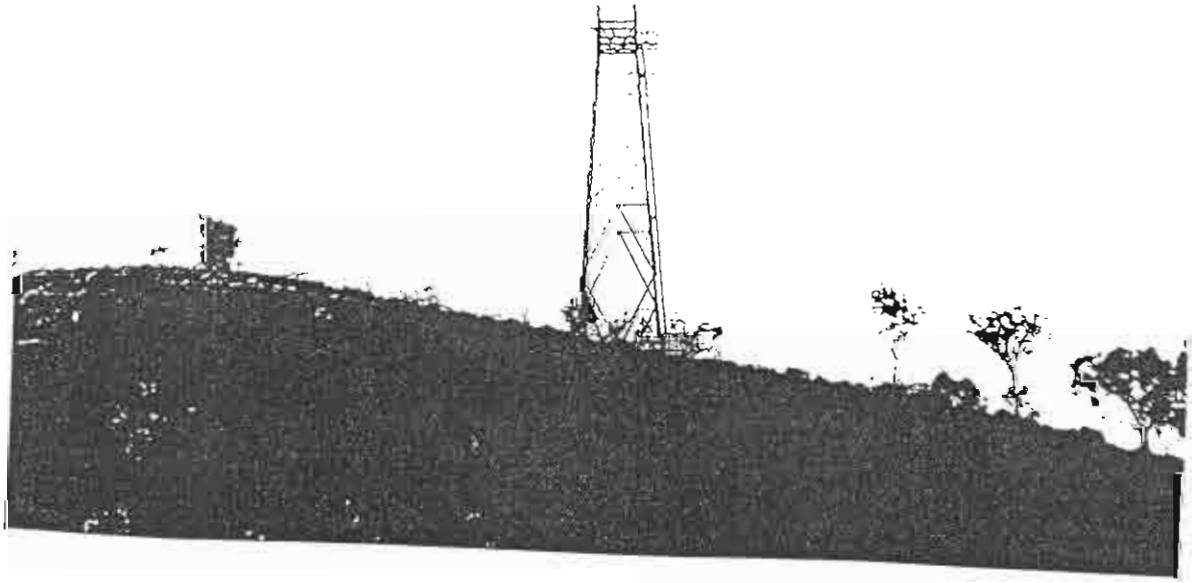
RPWD 1901 pp. 16-17. CHM 1913. PHIL p. 133.ALOL 1981, 1774.
CHARTS - ADM 1033 Champion Bay to Cape Naturaliste. 1:7,200,000, 1877, 1964.
MAPS - Fremantle 2033, 1:100,000.
RPWD 1901 pp. 16-17. CHM 1913. AP-V 1923; 1948 p. 334. PHIL p. 133. ALOL 1981, 1774.
CHARTS - BA 240. BA 1033 Champion Bay to Cape Naturaliste, 1:7,200,000, 1877,1964. AUS 117, Gage Roads & Cockburn Sound, 1:25,000, 1972.
MAPS - Fremantle 2033, 1:100,000.

HERITAGE LISTING - HCWA 0507.

Figure 27
The Woodman Point Light (Photo: D. Austren-Smith, 1995)

WYNDHAM 15° 27'S, 128° 06'E.
At the southern end of Cambridge Gulf, an ordinary lantern was fixed on Anthon Landing Jetty in 1895. It was replaced with a larger light about 1920-1, and was exhibited in 1922 and on request in 1948. Leading beacons currently serve the port
H&LD 1904 p. 6. CHM 1909. AP-V 1922 p. 128; 1948, p.151. AASG p. 144.

A leading lights above Anthon's Landing. (Photo D. Cumming, 1994)



Appendices
to
Lighthouses on the Western Australian Coast and off-shore islands

Appendix 1) by D.A. Cumming.
a) Lighthouses of Western Australia in date sequence
b Early lighthouses in otber states

Appendix 2) by D. A. Cumming
A catalogue of photographs copied from *Offshore light-stations of Western Australia*

Appendix 3) from J.H. Winston-Gregory
a) Lighthouse Type Profiles
b) Lighthouse and tower typologies

Appendix 4) by D.A. Cumming
a) Archive location data
b) Plans and charts of lighthouses

Appendix 5) by M. Lorimer
A cultural resource management strategy for lighthouses in Australia

Appendix 6) by Margaret Coleman
Inscriptions on the lightstations of Western Australia and other material

Appendix 1 by D. A. Cumming

Lighthouses on the coast in date sequence

Including near shore islands

ab. abandoned; Dm. de-manned; d. Decommissioned/demolished; r. replaced/rebuilt. tr. transferred.

Arthur Head at Fremantle, No.1. 1851; r.1878; (see No.2)
Rottnest Island No.1. 1851, r.1896. See No.2

Point King at Albany 1856(8?), r.1900??/1980????.
Breaksea Island off Albany 1858. r.1901. (see No.2)

Bunbury harbour 1870. Moved repeatedly.
Busselton Jetty 1870. Moved repeatedly.

Bluff leading light No.1 at Geraldton 1876. Dm.1943; dc.1960
Bluff leading light No.2 at Geraldton 1876. Dm.1943.

Point Moore at Geraldton 1878.

Dongara Jetty 1887. d.1930s??

Jarman Island (Cossack) 1888. ab. 1984?

Geraldton Jetty Light No1. 1895. Moved repeatedly. ab.1950s
Wyndham (Anthon Jetty) 1895. d.???

Babbage Island, Carnarvon, 1896. r.1960?
Cape Leeuwin 1896.
Rottnest Island No.2 Tower, 1896.

Lagoon Point, Shark Bay 1898. d.??
Broome Jetty 1899. d.1967.

Broome Leading Lights 1900. d.1967-8??
Bathurst Point on Rottnest Island 1900.

Breaksea Island No.2 1901. ab.??
Esperance (town) Jetty 1901. d.1935??
Derby Jetty 1901. d.1965?
Onslow Sea Jetty 1901. d.1924 Moved to Beadon Point

Woodman Point (Coogee, Gage Roads) 1902.
Bunbury Mole 1902. Moved repeatedly.

Vasse Light (Inner end of jetty) Busselton 1903. d.1933.

Cape Naturaliste 1904.
Casuarina Point at Bunbury 1904. d.1975? New tower to seaward.
Fremantle North & South Moles 1904.

Gantheaume Point (near Broome) 1905, r.1917, r.1984.

Hopetoun 1909. d.c1980?

Point Cloates 1910, ab.1936? Tr. to Fraser Island, tower colapsed

Cape Leveque 1911. (Iron tower by Bela Makutz)

Vlaming Head, N-W Cape 1912, ab.1962; tower still standing

Cape Bossut 1913.

Gantheaume Point (Broome) No.2. 1917, r.1984.

Eclipse Island 1926. ab.1975?

Escape Island 1930.

Fraser Island 1936. ab. 1966, tr. to Point Cloates No.2.

Hamelin Island 1937?? ab.1967, tr. Foul Point

Quobba Point 1950.

Shoal Point 1958.

D'Entrecasteaux Point 1960.
Steep Point 1960.

Cloates Point (No.2) 1966.

Foul Bay 1967. (Replaced Hamelin Island)

Red Bluff 1968.

Cave Point, near Albany 1975-6.

Buckland Hill, North Fremantle, 1970s?

Post 1981.
Cape Peron (Denham)
Cooke Point (Pt Hedland) 1981?
Hummock Island
Freshwater Point
Gantheaume Point (No.3) 1984?
Gantheaume Point (No.2) 1917. r.1984.
Guilderton 1983
Hall's Head
White Hill
Lake Preston

Appendix 1 b) Early lighthouses in other states
with dates of commissioning

Macquarie Lighthouse, South Head, NSW. 1818.
Sow and Pigs Reef, Beacon, Sydney, 1820s, lightship 1836.
Shortland's Bluff, Queenscliff, VIC, 1842.
Cape Otway, VIC, 1848
Gabo Island, VIC. 1853, replaced 1862.
Raine Island Beacon, QLD. 1854.
Barranjoey Lighthouse NSW 1855.
Hornby Lighthouse, South Head, NSW, 1858.
Nobby's Head, Newcastle, 1958.

Derwent, Iron Pot, TAS, 1832.
Low Head, Tamar, TAS, 1833.
Cape Bruny, D'Entrecasteau Channel, TAS.
Deal Island, TAS, 1846.
Swan Island, TAS, 1846.
Goose Island, TAS, 1846.

Cape Willougby, SA 1852.
Troubridge Shoal, SA 1856
Cape Borda, SA 1858.
Cape Northumberland, SA, 1859.

Cape Schank, Vic, 1859
Wilsons Promentary, Vic, 1859

The first radio navigational beacon was installed in south-western Victoria in 1937, and the last manned light station was established in 1943. Decca navigational radio chains consisting of a master and two slave trans-mitters, were established at Port Hedland in 1970, and at Dampier in 1972. Omega position-fixing was made possible in Australian waters by the construction of a station in Victoria in 1982. With the advent of satellite navigation equipment, Decca and Omega services will be phased out soon after 1992. Since 1984, lights have been converted to, or built with, solar power.

Appendix 2).
Photographic catalogue of material copied form *Offshore light-stations of Western Australia*

provided by Mr G. Walker and Mr M Glasson, (AMSA)

Maritime Archaeology Department Catalogue Number: (MA) 4507

2. Breaksea Island Jetty, repairs to braces ???? 1959. 1A (page no of original file)
3. Breaksea Island Lighthouse, light tower and quarters 1B
4. Breaksea Island, landing the jeep 1C1
5. Breaksea Island Lighthouse Quarters from the top of the tower 1C2
6. Breaksea Island Lighthouse, light tower and quarters 1C2
7. Breaksea Island, store at inner end of jetty 1C2
8. Eclipse Island, view from mainland 2C
9. Eclipse Island Lighthouse, built 1926, re-inforced concrete tower. 2D
10. Eclipse Island 22/12/1948. Quarters looking NW 2E
11. " " " Quarters from tower. 2E
12-3 " " " Quarters looking SE (2) 2E
14. " " " Flying fox looking from E to W 2E
15. " " " Tower looking from NE to SW 2E
16. " " " Landing looking from E to W. 2E
17. " " New 10,000 gal. tank (1959) 2F
18. " " Landing (and tower of flying fox) 2F
19. " " Quarters and tank 2F
20. " " Photos by PMG after installation of radio telephone 2G
21 " " Radio tower, Quarters and tank 2G
22. Cape Leeuwin lighthouse tower 4A
23. Cape Leeuwin 11/4/1949, Quarters from tower 4B
24. " " " tower 4B
25. " " " hydraulic ram and sluice 4B
26. " " " Quarters 4C1
27 " " " front of Quarters No.1 in foreground 4C1
28. Hamelin Island 2/3/1949, Tower and ropeway, from the island 5B
29. " " " Tower and ropeway, from the sea 5B
30 " " " Ropeway tower 5B
31 " " " Ropeway tower and light tower 5B
32 " " " erosion at base of the ropeway tower 5B
33 Hamelin Island, serving ropeway 5C
34 " " tower and ropeway 5C
35 " " new 2 HP Lister hauling winch (PUB 1959)
36 Cape Naturaliste, tower 6B
37 Cape Naturaliste 1/3/49 tower 6C

MA4508
1A Cape Naturaliste, tower 6B
2A Cape Naturaliste 1/3/49 tower 6C
3A " " " flagstaff 6C
4A " " " Quarters from tower 6C
5A " " " No.1 Quarters, front 6C
6A " " " Nos. 2 and 3 Quarters, front 6C
7A " " " No.1 Quarters rear
8A " " " Nos 2 and 3 Quarters rear
9A " " 12,000 gal water storage tank 1958 6D
10A " " windmill and store from the island 6D
11A Rottnest Island, tower 7B

12A Rottnest Island, tower 25/2/1949 7C
13A Bathurst Point lighthouse 7C
14A Rottnest Island Quarters 7C

15A Rottnest Island, Quarters and garage 7C
16A Escape Island, March 1950. 8C
17A Point Moore, tower 9A
18A Moore Point, tower 9B
19A " " tower looking NW 9B
20A " " sand drift - bare patch 9B
21A " " No.1 Quarters from tower 9B
22/3A " " Nos. 2 & 3 Quarters from tower (2) 9B
24/5A " " Nos.1, 2 & 3 Quarters looking SE.

26A Steep Point - inspection 1958, cairn 11A
27A " " station craft at Dirk Hartog Island 1958 11A
28A " " foreshore 11A
29A " " during construction, tower 11B
30A " " " " dooorway 11B
31A Cape Inscription, tower 12A
32A " " the jetty before the blow 12C
33A " " hoisting capstan 12C
34A " " gas cylinders on the incline, and view of landing 12C
35A Cape Ronsard, loading tractor on raft 12.5B
36A " " towing tractor ashore on raft 12.5B

MA4509
1 Cape Ronsard, tractor & raft, close-up 12.5B
2-3 " " tractor approaching beach 12.5C
4 " " landing tractor on beach 12.5C
5 " " empty raft leaving beach 12.5C
6 " " N.W. Whaling spotter plane 'Piper Aappache' 12.5D
7 " " N.W. Whaling spotter plane on runway 12.5D
8 " " tractor and trailer 12.5D
9 " " camp kitchen 12.5D
10 " " building exit ramp from beach 12.5E
11 " " first trip from beach with the tractor 12.5E
12 " " tractor hauling concrete mixer 12.5E
13 " " loading tractor after completion
14 " " towing raft & tractor from beach
15 " " completed light (tower)

16-18 Quobba Point, panoramic view (3) 13A
19 " " view from base of tower 13A
20 " " tower under construction 13A
21 " " completed tower 13A

22-3 Cape Ronsard (alternative) Quobba, Charles Point, view from mainland
24-5 " " view from end of point showing sand hill site at an elevation of about 60ft.
13B

26 Frazer Island maintenance July '49. Before filling 14G
27-8 " " Temporary ropeway from top of tower
29 " " completed work from top of tower
30 " " temporary ropeway to wreck
31 " " completed work looking south 14G
32 " " completed work looking north 14G

33-5 North-West Cape - Vlaming Head, Tower (3) 15E
36 Anchor Island tower 28/7/1949 16C

MA 4510
1 Airlie Island tower, April 1950. 17B
2-3 Sandy Cay (Marion Reef, Mary Anne Reef) tower April 1950 (2) 18CD
4-5 Beagle Island tower, 1959 (2) 19A
6 North Sandy Island, April 1950, tower 20C
7-8 Stewart Island site '57. 21A
9 Legendre Island original tower 22C
10 " " landing site with tender 22C
11 " " original tower April 1950 22D
12-3 " " constructing new tower 1963 (2) 22D
14 Bedout Island tower under construction 1909. 24C
15 " " " 1934
16-7 Jarman Island tower, March 1950 (2) 23CD
18 Bedout Island 1950 24D
19 Mount Blaze 30/7/1949 25D
20-1 Cape Bossut tower 31/7/1949 (2) 26C
22-4 Rowley Shoals (Imperieuse Reef) erection of tower October 1960. 27A

Light Stations of Western Australia, Volume 2.

MA4510
25 Gantheaume Point, tower 1A
26 " " tower 2/8/1949 1B
27 Cape Leveque, tower & store 2C
28 " " tower store & engine shed? 2C
29 Cape Leveque 7/12/1948, tower & oil store looking South 2D
30 " " " Quarters looking North 2D
31 " " " Quarters looking NW. 2D
32 " " " retaining wall at base of tower 2E
33 Cape Leveque 7/12/1948, windmill and engine shed 2E
34 Tanner Island (Fmr Moore Island), lighthouse 3A
35 " " " " derrick 3A
36 Mission barge, Troughton Island

MA4511 (Note reverse order)
36-7 Cape Leveque 7/12/1948, tower and oil store 2D
35 " " " windmill and engine shed 2E
34 " " " retaining wall at base of tower 2E
33 Tanner Island (Fmr Moore Island), lighthouse 3A
32 " " " " derrick 3A
31 Cockatoo Island, the workings (open cut) 1957 3.1A
30 " " flashing beacon on Power House, 1957 3.1A
28-9 Degerando Island, beach landing (pair) 6B
27 " " completed tower, April 1960. 6C
26 " " fire, 1957 6C
24-5 " " erecting lantern, April 1960. 6D
23 Browse Island, converted to acetylene with cylinder house on concrete base within the tower, 1958. 7B
21-2 " " electric flasher with Edison cells housed in base (2) 7B
20 Troughton Island, inspection party investigates, 8A

18-9 " " " " " sheer legs 8A
17 " " " " " tripod 8A
15-6 " " 8B
13-4 " " 8C
12 " " radio towers and aerials 8D
11 " " base of radio tower 8D
9-10 " " 8E
8 " " Quarters, camp and construction work 8F
7 " " Quarters accomodation and office 8F
5-6. " " camp 8G
4 " " radio station 8G
3 " " radio tower 8G
0-2 " " various (3) 8H
00 Mission barge, formerly Works Department 8I

MA4512 (Reverse order of negatives)
29-36 Troughton Island (eight views of poor quality) 8J
28 Lacrosse Island, (the bay?) 9F
26-7 " " completed tower and winch shed, 1961. 9F
25 " " (view up) tramway 9E
24 " " (view down) tramway 9E
23 " " " " (camp) 9D
22 " " " " (front end loader) 9D
21 " " construction 1961, (canteen) 9D
20 " " (winch) 9C
19 " " (lighthouse tower) 9C
18 " " (unloading stores) 9C
16-17 " " stratified cliff face, 1957 (2) 9B
13-5 " " possible anchorage for same (2) 9A
12 Troughton Island, winning coral for airstrip 8K
11 " " landing stores 8K
10 " " new fixed light at base of mast 8K
8-9 'Cape Otway' (2) 18
7 Buoy handling 19A
4-6 Buoy handling, M.V. 'Cape Don' (3) 19C
3 DUKW, disembarking tractor 22
2 DUKW, 'under weigh' 22.
1 DUKW, disembarking tractor 22

Appendix 3) by J.H., Winston-Gregory 1988
a) Lighthouse Type Profiles

NOTES -
AMSA File Number, ALOL Number, Type (see categories following).
Date built, height, Optical and light power details, construction type.
With notes from Admiralty List of Lights, Volume K 1981.

ADELE ISLAND 102.1 1640.00 11.3U
1951, 30.3m, AGA FLEA 22/12. Welded angle steel square open lattice tower. Lantern replaced 1985. Two stage splay of legs, foreshadows type 11.2 ALOL, 1640.

AIRLIE ISLAND 103.1 1698.00 11.4A
1980, 21m, NAL 1. Stainless steel square open lattice tower with tube columns, (replaced 1913 tower).

ANCHOR ISLAND (Bessieres Island) 104.1 1702 11.3C
1940 (?), 17.2m. Mild steel square open lattice tower with ring intersection of diagonals as Cape Bossut and Mt Blaze (N-W Towers contract). (Original 1914, lantern replaced? 1949. Replaced with a white GRP Hut by 1992, 1988?.)

BATHURST POINT 105.1 1761.01 8.3D
1900, 12.2m, CB 10'-9". Round conical tower of local limestone .

BEDOUT ISLAND 107.1 1675.0 11.4A
1963, 17.5m, NAL 1. Stainless steel open lattice tower with tube columns, (replaced 1909 tower).

BREAKSEA ISLAND 2. 108.1 1800.0 8.3D
1858/1901, 7.0m, CB 14'. Conical round rough dressed stone tower.

BROWSE ISLAND 109.5 1642 11.3A
1945, 30.3m, FA 251. Bolted steel square open lattice tower (as Leseur Is.).

CAFFARELLI ISLAND 110.1 1646.0 8.8C
1967, 4m, AGA FLDB 22/12, cylindrical steel tower, similar to Lacrosse Island. (described as a 7m white metal column. ALOL 1981-92))

CAPE BOSSUT 111.1 1672 11.3C
1914, 10m. Mild steel square open lattice tower with ring intersection of diagonals as Anchor Island and Mt Blaze (N-W Towers contract).

CAPE INSCRIPTION 114.1 1724.0 8.3U
1910, 10.4m, CB 8'-6". (Concrete tower with cupola, 1992)

CAPE LEEUWIN 350.1 1794.00 8.4
1896, 39m, CB 12'. Round conical masonry (with annex, base of old tower)

CAPE LEVEQUE 351.1 1650.00 8.1A
1911, 8.6m, CB 8'-9". Bolted conical iron-plate tower.

CAPE NATURALISTE 358.1 1790.0 8.3U
1904, 10.0m, CB 14'. Circular conical masonry tower.

CAPE RONSARD (Bernier Island) 115.1 1717.0 8.8B
1961, ML 300. Steel cylindrical tower on summit of island.

CAVE POINT 007.1 1799.0 8.6A
1976, 12m, NAL1. White cylindrical concrete tower with annex.

CERVANTES ISLAND (Ronsard Bay) 139.1 1756.61 11.3U
1977, 10.5m, FA 251. Rear leading light. Steel open lattice tower with limited torsional and diagonal bracing

D'ENTRECASTEAUX POINT 120.1 1795.0 5A
1960, 3.9m, AGA FLDA 22/12. Square tower in cream brick

DEGERANDO ISLAND 119.1 1641.0 O
1960; 6m, AGA FLDA 22/12. Possibly similar to Cape Ronsard.

EAST ISLAND (Lacepede Island) 017.1 1658.0 11.4A
1968, 17.5m, FA 251. Stainless steel open lattice tower with tube columns (as Bedout Island, Escape Island, Gantheaume Point)

ECLIPSE ISLAND 364.1 1798.0 8.5U
1926, 11m, CB 14'-9". Concrete tower, Lantern possibly replaced in 1984, but light still operating 1992.

ESCAPE ISLAND 123.1 1756.0 11.4A
1980, 24.5m, ML 300. Stainless steel framework tower with tube columns. (similar to Airlie Island) Replaced 1930 tower.

FIGURE OF EIGHT ISLAND 124.1 1808.0 O
1965, ??, FA 251. 4m GRP hut on a concrete base.

FOUL BAY 011.1 1792.0 5A
1967, 3.9m, CLS 7'-1". White brick tower 11'-6" X 8'X8'.

GANTHEAUME POINT 126.1 1660.0 11.4A
1962, 21m, NAL1. Stainless steel open lattice tower with tube columns. (replaced 1922-3 (1905?) tower)

GUILDERTON 476.1 1757.01 8.7A
1983, 30m, NAL1. Red brick tower.

IMPERIEUSE REEF (Rowley Shoals) 305.1 1674.00 8.8A
1970, 33m, FA251. Stainless steel column.

LACROSSE ISLAND 128.1 1636.0 8.8C
1961, 6m, AGA FLDA 22/12. Cylindrical steel tower similar to Caffarelli Island

LEGENDRE ISLAND 129.1 1690.0 O
1963, Lantern CB 7'-1". (3m) White GRP hut on a square concrete base. Replaced 1927 tower

LESEUR ISLAND 130.1 1638.0 11.3A
1963, 17m, ML300. Steel angle open lattice tower.

MOORE POINT 374.1 1740.0 8.1A
1876, 28.9m, CB 10'-3". Closed conical bolted cast-iron tower.

MOUNT BLAZE 139.1 ?? 11.3C
1914, 10m. Mild steel square open lattice tower with ring intersection of diagonals as Anchor Island and Cape Bossut (N-W Towers contract). (Possibly built 1921)

NORTH SANDY ISLAND 140.1 1694.0 O
1982, 17.5m, Lantern NAL 1. Plan 3.80/1913 shows open lattice

PELSART ISLAND 117.1 1753.6 O
1974; ??, Lantern FA 251. Stainless steel column.

QUOBBA POINT (Beagle Hill) 141.1 1716.0 8.5U
1950, 12.5m, CB 12'-9". Circular concrete tower, with first order lantern, and stairs ex Point Cloates

ROTTNEST ISLAND 380.1 1760.0 8.3D
1896, 30.4m, CB 12'. Tapered circular masonry tower (with annex - base of previous tower).

SHOAL POINT 144.1 1739.? 5A
1958, 3.5m, lantern CB 7'-1". White-brick closed square tower with angled corners 11'-6" X 8'X8'(3.5m)

STEEP POINT 1 8.8D
Possibly an earlier tower.

STEEP POINT 2 1728.0 4A
1984. Closed double height GRP3 square tower with rounded corners. ALOL 1981-92, 4m white round metal tower)

TANNER ISLAND 147.1 1643.0 3A
1951, 6m, AGA FLEB 22/12. Closed square concrete tower.

Appendix 3) by J.H., Winston-Gregory 1988
b) Typologies

0 Unknown or other
Degerando Island
Figure of Eight Island 1965, ?? FA 251. (ALOL 1981 - lantern on concrete base and hut.)
Legendre Island 1927??, ??, CB 7'-1". (1963!) (ALOL 1981 - 3m white hut)
North Sandy Island 1982, 17.5m, NAL 1. (ALOL 1981 - 16m metal framework tower)
Pelsart Island 1974, ??, FA 251. (ALOL 1981 - 15m galvanised metal column)

3A Square tower
Tanner Island 1951, 6m, AGA FLEB 22/12.

4A Closed square with rounded corners
Steep Point 2. 1984, ??. (Double height GRP; ALOL 1981-92 - 4m round metal tower)

5A Square brick tower with chamfered corners.
D'Entrecasteau Point 1960, 3.9m, AGA FLDA 22/12. 3.9 X 2.4 X 2.4m
Foul Bay 1967, 3.9m, CLS 7'-1".
Shoal Point 1958, 3.5m, CB 7'-1"

8.1 Circular iron plate
Cape Leveque 1911, 8.6m, CB 8'-10".
Moore Point 1878, 28.9m, CB 10'-3"

8.3D Circular masonry tapered.
Bathurst Point 1900, 12.2m, CB 10'-9".
Breaksea Island 2. ??, 7.0m, CB 14' (1901!)
Rottnest Island 2. 1896, 30.4m, CB 12'.

8.3U
Cape Naturaliste 1904, 10.0m, CB 14'
Cape Inscription 1910, 10.4m, CB 8'-6".

8.4U Circular masonry with annex
Cape Leeuwin 1896, 39m, CB 12'.

8.5U circular concrete
Eclipse Island 1926, 11m, CB 14'-9" (lantern moved 1984?)
Quobba Point 1950, 12.5m, CB 12'-9" (Lantern and stairs ex Point Cloates)

8.6A Circular concrete with annex H/D=4
Cave Point 1976, 12m, NAL1.

8.7A Red brick circular tower (possibly tapering)
Guilderton 1983, 30m, NAL1.

8.8A Stainless steel column
Imperieuse Reef 1970, 33m, FA 251.

8.8B Circular steel cylinder H/D =1.
Cape Ronsard 1961, ??, ML 300.

8.8C Circular steel cylinder H/D=3.
Caffarelli Island 1967, 4m, AGA FLDB 22/12.
Lacrosse Island 1961, 6m, AGA FLDA 22/12.

11.3A Pyramidal angle-steel open lattice, bolted intersections?
Browse Island 1945, 30.3m, FA251 (1966!)
Leseur Island 1963, 17m, ML300

11.3C Pyramidal angle-steel open lattice with ring intersections of diagonals.
N-W Towers contract?
Anchor Island 1940, 17.2m, ?? (1913!)
Cape Bossut 1914, 10m, ??
Mount Blaze 1914??, 10m

11.3U
Adele Island 1951, 30.3m, AGA FLEA 22/12
Cervantes 1977, 10.5m, FA 251. (limited bracing?)

11.4A Stainless steel braced tower with tubular columns (no taper)
Airlie Island 2. 1980, 21m, NAL1.
Bedout Island 2. 1963, 17m, NAL1.
East Island 1968, 17.5m, FA 251. (Lacapede)
Escape Island 2. 1980, 24.5m, ML 300.
Gantheaume Point 2. 1962, 21m, NAL1.

.....

OMITTED Commonwealth owned.
Casuarina Point 1782.0. 15m round tower, ALOL 1981.
Great Sandy Island (Beagle) 1695.0. 4m white metal building, ALOL 1981.
Gull Island 1809.0. 2m white GRP hut, ALOL 1981.
Houtman Abrolhos, North Island 1739.4. 4m white hut, ALOL 1981.
Jarman Island 1686.0. 15m round metal tower, ALOL 1981.
Malus Island, Courtenay Head 1690.6. 2m hut, ALOL 1981.
North-West Island 1691.98 5m white hut, ALOL 1981.
Red Bluff 1659.0. 4m white hut, ALOL 1992.
Rosemary Island 1690.4. 4m white hut, ALOL 1981
Trimouille Island 1691.99. 3m white hut, ALOL 1981.

ADDITIONAL Not Commonwealth.
Babbage Island 1718.0. 18m square wooden framework tower ALOL 1981.
Buckland Hill 1762.8. 10m square brick tower. ALOL 1981.
Fremantle Port, N & S. Moles 1764/5. 9m cast-iron conical towers ALOL 1981.
Woodman 1774. 13m conical stone tower. ALOL 1981.

DECOMMISSIONED but still standing
Vlaming Head, North-West Cape. 40ft Conical concrete, b.1912.
Hamelin Island replaced by Foul Bay. Square concrete.
Point Cloates. 72ft masonry tower, b.1910.

NOT KNOWN
Bluff leading Lights, Champion Bay. 25 ft stone towers.

Classifications by type (By Winston-Gregory)

Type 3,4,5.

TANNER ISLAND 147.1 1643.0 3A
Closed square

STEEP POINT 2 1728.0 4A
Closed square with rounded corners

D'ENTRECASTEAUX POINT 120.1 1795 0 5A
Closed square with angled corners

FOUL BAY 011.1 1792.0 5A

SHOAL POINT 144.1 1739.? 5A

Type 8. closed circular

BATHURST POINT 105.1 1761.01 8.3D

CAFFARELLI ISLAND 110.1 1646.0 8.8C

CAPE INSCRIPTION 114.1 1724.0 8.3U

CAPE LEEUWIN 350.1 1794.00 8.4

CAPE LEVEQUE 351.1 1650.00 8.1A

CAPE NATURALISTE 358.1 1790.0 8.3U

CAPE RONSARD 115.1 1717.0 8.8B

CAVE POINT 007.1 1799.0 8.6A

ECLIPSE ISLAND 364.1 1798.0 8.5U

GUILDERTON 476.1 1757.01 8.7A

IMPERIEUSE REEF 305.1 1674.00 8.8A

LACROSSE ISLAND 128.1 1636.0 8.8C

MOORE POINT 374.1 1740.0 8.1A

QUOBBA POINT 141.1 1716.0 8.5U

ROTTNEST ISLAND 380.1 1760.0 8.3D

STEEP POINT 1 ? ?? 8.8D

Type 11 open square.

ADELE ISLAND 102.1 1640.00 11.3U

AIRLIE ISLAND 103.1 1698.00 11.4A

ANCHOR ISLAND 104.1 ?? 11.3C

BEDOUT ISLAND 107.1 1675.0 11.4A

BROWSE ISLAND 1095. ?? 11.3A

CAPE BOSSUT 111.1 ?? 11.3C

CERVANTES 139.1 1756.61 11.3U

EAST ISLAND 017.1 1658.0 11.4A

ESCAPE ISLAND 123.1 1756.0 11.4A

GANTHEAUME POINT 126.1 1660.0 11.4A

LESEUR ISLAND 130.1 1638.0 11.3A

MOUNT BLAZE 139.1 ?? 11.3C

Unknown/Other

DEGERANDO ISLAND 119.1 1641.0 O

FIGURE OF EIGHT ISLAND 124.1 1808.0 O

LEGENDRE ISLAND 129.1 1690.0 O

NORTH SANDY ISLAND 140.1 1694.0 O

PELSART ISLAND 117.1 1753.6 O

APPENDIX

Appendix 4) by D.A. Cumming

a) Archive location data

AASG From Australian Archives, Subject Guide No1. September 1991. Location number, page number
ALOL Admiralty list of lights and sound signals, Vol K.- south of the equator, 1981

Adele Island ALOL 1640. AASG 134, p.131. North of Derby.
Airlie Island ALOL 1698. AASG 124, p. 165. Exmouth.
Anchor (Bessieres) Island ALOL 1702. AASG 123, p. 165. Exmouth.
Bathurst Point ALOL 1761.3. AASG 116, pp. 132,165. Rottnest.
Bedout Island ALOL 1675. AASG 130, pp. 132,165. Port Hedland
Bernier Island, Cape Ronsard ALOL 1717.
Black Rock ALOL 1654.
Bluff Point Leading Lights (3) ALOL 1742/.1
Breaksea Island ALOL 1800. AASG 110, p. 133. Albany.
Browse Island ALOL 1642. AASG 136, p. 133
Buckland Hill ALOL 1762.8
Bunbury Mole Head ALOL 1784.
Busselton AASG 114, pp. 134,165
Caffarelli Island ALOL 1646
Cape Bossut ALOL 1672. AASG 131, p. 165.
Cape Cuvier ALOL 1715. (not 1981)
Cape Inscription ALOL 1724. AASG 120, pp. 134,165. Shark Bay, Carnarvon.
Cape Leeuwin ALOL 1794. AASG 112, pp. 135,165
Cape Leveque ALOL 1650. AASG 133, p. 135. N-W Derby.
Cape Naturaliste ALOL 1790. AASG 113, pp. 136,165, West of Busselton.
Cape Peron ALOL 1728
Casuarina Point ALOL 1782. Bunbury
Cave Point ALOL 1799
Cervantes Island ALOL 1756.6
Cooke Point, Port Hedland ALOL 1679.
D'Entrecasteaux Point ALOL 1795.
Degerando Island ALOL 1641. AASG 135, p. 136
Eclipse Island ALOL 1798. AASG 111, p. 137. Albany?
Entrance Point, Broome ALOL 1662.
Escape Island ALOL 1756. AASG 117, p. 138. Jurien Bay
Esperance S. Breakwater ALOL 1810.
Figure of Eight Island ALOL 1808. AASG 109, p. 138. Esperance Bay.
Foul Bay ALOL 1792.
Freshwater Point ALOL 1755.6 Not 1981.
Gantheaume Point ALOL 1660. AASG 132, pp. 139,165. Broome.
Gascoyne Road, Babbage Island ALOL 1718.
Great Sandy (Beagle) Island ALOL 1695.
Guilderton ALOL 1757.5 (not 1981)
Gull Island ALOL 1809.
Halls Head ALOL 1781.6 (not 1981)
Houtman, Abrolhos ALOL 1739.4
Hummock Island ALOL 1753.4 (not 1981)
Jarman Island AASG 129, p139. Off Cossack
King Point ALOL 1802.
Lacepede Island ALOL 1658.
Lacrosse Island ALOL 1636. AASG 138, p139. North of Wyndham
Lake Preston ALOL 1781.9 (not 1981)
Legendre Island ALOL 1690. AASG 128, p140. Dampier Archipelago
Lesueur Island ALOL 1638.

Malus Island, Courtenay Head ALOL 1690.6
Mary Anne Reef ALOL 1696.
Moore Point ALOL 1740. AASG 118, p140. Geraldton.
Naturalist Channel, Dorre Island, Cape St Cricq ALOL 1723.
North Mole Head ALOL 1764.
North Sandy Island ALOL 1694. AASG 125, p165
North-West Cape ALOL 1710.
North-West Island ALOL 1691.98 Monte Bello Islands
Pelsaert Island ALOL 1753.6
Point Cloates ALOL 1714. AASG 121, p165 N-W Cape, south of Exmouth.
Point Quobba, Beagle Hill ALOL 1716. Sharks Bay
Red Bluff ALOL 1659. (Not 1981)
Rosemary Island ALOL 1690.4. AASG 127, p141
Rottnest Island ALOL 1760. AASG 115, p141,165
Rowley Shoals, Imperieuse Reef ALOL 1674.
Shoal Point ALOL 1739.
South Mole Head ALOL 1765.
Steamboat Island AASG 126, p. 142
Steep Point ALOL 1728. AASG 119, p143. Shark Bay, Carnarvon.
Tanner Island ALOL 1643.
Trimouille Island ALOL 1691.99
Vlaming Head AASG 122, p143. Exmouth.
White Hill ALOL 1781.8 (not 1981)
Woodman ALOL 1774.
Wyndham AASG 137, p. 144

From Reid: *From dusk to dawn* with location, and page number

Adele Island 2, p. 160. North of Derby
Airlie Island 7.
Anchor Island 8, pp. 109, 179.
Bedout Island 5, p. 160. Port Hedland
Breaksea Island 20, pp. 60,62, 121, etc
Browse Island 1, p. 160.
Cape Bossut 4, p. 109.
Cape Inscription 11, p. 141.
Cape Leeuwin 17, pp. 121-2, etc.
Cape Leveque 3, pp. 109, 141, etc. NW of Derby.
Cape Naturaliste 16, pp. 109, 123-4, etc.
Cape Ronsard 10, p. 147.
Cave Point 19, p. 157. Albany
Eclipse Island 18. West of Albany
Escape Island 13. Off Jurien Bay
Guilderton 14, p. 158,176.
North Sandy Island 6.
Pelsaert Island 12, p. 157.
Point Cloates 9, p. 109, 141-2, etc. South of Vlamming Head.
Rottnest Island 15, pp. 60-61, etc.

Appendix 4) by D.A. Cumming

b) Plans and charts of lighthouses

MA 4513
1-2 Sand Cay (Mary Anne Reef - Marion Reef) 18B
3-4 Airlie Island 17B
5-6 Legendre Island 22B
7-8 North Sandy Island 20B
9-10 Bedout Island 24B
11-12 Jarman Island 23B
13 Breaksea Island 1B
14-15 Eclipse Island 2C
16 Caffarelli Island Vol.I
17-18 Cape Inscription 12B
19-20 Escape Island 8B
21-24 Fraser Island (2) 14DF

MA4514
25-26 Point Cloates Anchorage 14C
27 Cape Ronsard 12.5A
28 Mount Blaze 25C
29-30 Cape Bossut 26B
31-32 Point Charles
33-34 Adele Island 2.5
35-36 Anchor Island 16B
37-38 Vlaming Head (North-West Cape) 15D
39 North-West Cape (Vlaming Head) 15A
40-41 Cape Leveque 2.2B
42 Cape Naturaliste 6B
43-45 Rottnest Island / Bathurst Point 7B1
45 Breaksea Island 1B

Appendix 5) by M. Lorimer

A cultural resource management strategy for lighthouses in Australia[1]

Keeping the light burning, a cultural resource management strategy for lighthouses

Mike Lorimer

Introduction

This paper is concerned with the development of a cultural resource management (CRM) programme for the properties operated by the Federal Department of Transport. It considers first a CRM strategy and second the assessment of cultural significance.

Two of the most popular and evocative images of maritime history are shipwrecks and lighthouses. There is a strong association between lighthouses and wrecks with lighthouses often being built in response to shipwrecks. It is not inappropriate therefore that at a seminar on the management of shipwrecks as a cultural resource that a paper on the management of lighthouses as a cultural resource should also appear. Lighthouses have the public image of being immovable and inextinguishable. In reality of course, they are dynamic with lights being upgraded, moved, closed or established to meet the changing requirements of the shipping industry.

Australian lighthouses for coastal and ocean navigation are provided by the Federal Department of Transport to guide commercial shipping safely and efficiently via the most economic route. Currently construction, maintenance and conservation costs are recovered from the commercial shipping industry by the payment of lightdues.

By 2000 ad it is probable that for all intents and purposes lighthouses will be redundant to commercial shipping due to the rapid development of satellite navigation systems and the widespread deployment of radar transponder beacons (racons). The commercial shipping industry is already demanding reductions in lightdues to reflect these changes. Shipping patterns have changed dramatically over the last 10 to 20 years, thus many of the lighthouses built in the 19th century are becoming less relevant to the sector of the community which is paying for their conservation and maintenance. The most vocal proponents for the retention and improvement of the lighthouse network are commercial fishing and pleasure boating organisations who do not contribute to lightdues. It may well occur that many historical lighthouses which are still of vital importance to small craft will be either transferred to the States or new funding arrangements will be required.

Therefore the Department's CRM programme relative to the probable life of many of the structures may well be only a quite short period. Thus arises the political question of to what extent resources provided by the shipping industry should be put into preserving structures of little direct use to them. To date the industry has been sympathetic to preserving historic light structures although this may not continue nor is it perhaps appropriate that this situation should continue.

Cultural resource management strategy

The Department's CRM programme is designed to meet the requirements of the *Lighthouse Act* 1915 and the *Australian Heritage Commission Act* 1975 (AHC Act). The *Lighthouse Act* requires the Commonwealth government to operate a modern, efficient and cost effective marine navigational aids network. This Act demands responsiveness and is dynamic requiring change, whereas the AHC Act demands a static response, requiring the Department take no action which adversely affects a place on the Register of the National Estate unless there is no feasible or prudent alternative.

To meet both these often contradictory requirements the Department has adopted a five stage CRM strategy.

1. Resource identification
2. Contextual analysis
3. Thematic analysis
4. Component analysis
5. Management

This strategy was adopted early in 1986; however, due to operational factors such as the current modernisation programme, the strategy is not being implemented in a linear fashion but concurrently.

Strategy implementation

Stage One: resource identification

The first stage was to develop a database of all lighthouses and related structures listing their age, construction technique, location and heritage classification and status. The Department is the first Federal Department to have on line access to the computer database containing the Register of the National Estate. In addition, historical documentation and information is being collated for each station on a need and availability basis.

The Department has 381 marine navigational aids through out Australia.

	1985	1986
Attended lightstations	41	39
Unwatched lightstations	253	269
Unattended lightvessels	4	2
Light buoys	32	21

[1]Lorimer, M., Keeping the light burning, a cultural resource management strategy for lighthouses, *Bulletin Australian Institute for Maritime Archaeology*, **11** (1):35-38.

Unlit beacons	19	15
Radio beacons	11	10
Decca chains	2	1
Tide guages	2	4
Radar transponders	15	19
Omega transmitters	1	1
Total	380	381

Table 1 provides details of the age of the properties currently owned by the Department. Of the attended and unwatched lighthouses and related structures 30% were built prior to 1900.

Of the 308 properties owned by the Department, approximately 90% are on the Register of the National Estate either in their own right for cultural significance or by virtue of being in an area listed for its natural environment significance.

Stage Two: contextual modelling

The objective of this stage is to develop models to place lighthouses and their distribution in historical, technological and social context. Two models are currently being developed. The first is a simple architectural typology based on construction techniques and light source technology (Fig. 1). The second is a history of the Federal lighthouse service and its colonial predecessors. This has been written by a consultant, Reid. A book using his research is to be published as part of the Department's bicentennial contribution. Other historical models such as a model of shipping patterns and of wreck distribution whilst potentially useful, are not available. Secondary sources are the primary source for these inputs into significance assessment.

Stage Three: thematic analysis

This stage involves the detailed analysis of a particular theme identified in Stage Two, e.g. timber framed iron clad towers of Queensland. To date, we have concentrated on architectural types based on the principle of type profiles outlined by Pearson of the AHC (Pearson 1986). Regional studies will follow in 1987, e.g. the lighting of Bass Strait.

Topics covered in a type analysis include:
- functional demand
- history of type
- description of identifying features
- current status of members of the group
- foreseeable actions & impacts

Stage Four: component analysis

At this stage the significance of individual lighthouses is assessed using the criteria discussed below against the new typology and regional studies. A number of individual lighthouses have been assessed leading to a quite new perspective on the ligbthouses of Queenslnd. It may well lead to a number of lighthouses being nominated for the *Register of the National Estate* with others being removed.

Stage Five: management

The Department has adopted two processes to ensure that the cultural and natural environment significance of a registered place is automatically considered by the planning engineer. The first is the preparation of a referral to the Australian Heritage Commission detailing the proposed action, the assessed statement of significance, alternatives considered and a reasoning for the action. This referral is required under Section 30 (3) of the *Australian Heritage Commission Act* 1975. Fig. 2 provides a flow diagram of the steps involved. The planning engineer initiates the proposal for action, he then ascertains whether the property is on the *Register of the National Estate* and its significance. He develops the proposal taking into consideration the significance of the place. Then the proposal is referred to the Australian Heritage Commission for comment ; the Department assesses any comments that the Commission might make and either carries out or modifies the action. If the property is not on the Register the planning engineer still takes into consideration the negative impact the action might have on the environment and the cultural significance of a place.

The second process for lightstations of dramatic cultural significance is prepare a site management plan. To date, only one management plan for an individual lighthouse has been adopted by the Department - for Macquarie Light in Sydney prepared by consultants Davies & Wilson (1980). Another is in preparation in house for Gabo Island. Further plans will be prepared on either an opportunity or needs basis.

The plans will include:
- assessment of significance
- operational requirements
- control mechanisms for future development and modification
- public access and interpretation.

Regional and type management plans are also prepared. These highlight comparative cultural significance and identify type sites for particular preservation, conservation and interpretation action.

As indicted above, the AHC Act requires that the Australian Heritage Commission is given an opportunity to comment on development proposals and to suggest alternatives if the action will adversely affect the national estate values of a registered place. Also, the conservation plans are provided to the Commission for endorsement. Yet the final decision rests with the Minister for Transport, therefore, it is important that the department is

fully conscious of and accepts responsibility for the implications of its acts to the cultural and environmental significance of a place.

To show this strategy working in practice, I will take an example from Queensland. A group of lighthouses of very similar construction has been identified marking the inner route of the Great Barrier Reef. These are characterised as being timber framed using local hardwood with a non-structural iron cladding. This is typically surmounted by an imported Chance Brothers lantern. The light source was originally a kerosene wick burner but these have been subsequently replaced with various types of automatic apparatus. The tower was prefabricated in Brisbane, pre-erected and then dismantled for shipment and erection at the desired location. These towers were very appropriate to the physical and social environment of 19th century Queensland (Lorimer, 1986b).

Unfortunately, these towers as a group, are now an unacceptable high maintenance commitment, especially those on islands. There are eight currently in operation and it is intended to replace one (Pine Islet) with a low maintenance fibreglass tower and two others are under discussion. A management plan for the group is to be introduced so that at least one example of this uniquely Australian type of lighthouse survives. Low Isles off Port Douglas is ideally suited as it has already been highlighted as a station for continued manning. It also has significant aesthetic qualities worthy of preservation. At the other four lightstations modernisation is to be handled in a sympathetic manner and individual management plans are to be drawn up to identify the individual components of the lightstations cultural significance and outline mitigation plans.

Assessment of significance

The CRM strategy revolves around the ability to determine the cultural significance of the lightstation in total and of its component parts. Also, the AHC Act is in essence concerned with the preservation of the cultural and/or environmental significance of a place on the Register. Thus, a set of objective and uniform criteria has to be developed.

Prior to 1985, lighthouses nominated for the Register, were assessed by the nominator against the nominator's own idiosyncratic criteria of significance at an individual lightstation level. This led to some highly original statements of significance. For example:

'This little structure, together with its sister at Wollongong, possesses a dream-like romantic character against a seascape setting. The two structures contribute unique historic and artistic qualities to enrich the national heritage and at the same time, signalise (sic) an important advance in the capacity of Australian craftsmen to match the metal engineering techniques of industralised Europe.' (Belmore Basin - NSW).

'Simple and unpretentious, this building displays admirable architectural sensitivity to the study (sic) weather defiant characteristics required in the design of natural landmarks. The building's link with men, ships and cargoes of the once vital "north coast run" is one of considerable historic importance.' (Richmond River - NSW).

'The composition of architectural elements in this group provides lively contrast with the sombre rock masses of the island. The proportions of the shaft, platform and lantern in the dominent tower are extremely satisfying and endow this simple edifice with architectural quality of a high order.' (Montague Island - NSW).

It has proved very difficult to develop management plans from these statements as they do not have any objective basis nor is there an attempt to place the tower in a broader context. The nominators were primarily national trusts and individuals. All approached the task from the perspective of individual lighthouses. Many are incorrect in ascribing unique qualities to their lighthouse, e.g. 'only iron lighthouse', 'only unpainted stone tower' etc.

To develop a more objective criteria for cultural significance in relation to its own properties, the Department has adopted the criteria outlined in the AHC Act and elaborated on in the Burra Charter (Kerr, 1985). These list four categories: aesthetic, historic, scientific and social. A lightstation is assessed against each criteria with negative qualities considered as well as positive qualities.

Aesthetic Significance

Aesthetic significance is the most difficult to assess as it is the most subjective. In the past, it seems that it was the primary criteria; for example, most of the above quoted statements of significance rely heavily on aesthetic reasoning. The Department recognises this criteria as one of a group to be given equal weight rather than the primary consideration.

Historical Significance

A lighthouse will have significance in a number of historical themes including:

- regional and national development
- lighthouse network development
- association with historical event e.g. shipwreck and/or with a person.

Other themes are also considered where appropriate.

Regional and national development is concerned with the role the lighthouse played in the European colonisation of Australia. The degree of infrastructure support in the form of lighthouses and port works provided by the government was vital in the establishment and economic growth of a port and region. Often this is reflected today in the symbolic role lighthouses have in a local community.

The growth of the lighthouse network is another historical context considered. Each colony developed a lighthouse network reflecting its economic and social conditions. An individual lighthouse, whilst of little technological, regional or national development significance may be of interest and value in terms of its place in the growth of the network.

Also, many lighthouses are associated with disasters such as shipwreck and cyclones.

As an example, Flat Top Island lighthouse in Queenslnd is a small tower built in 1877. It has historical significance in a number of areas. The island lies just off the mouth of the Pioneer River on which the town of Mackay developed. The town was declared a port in 1863, however, the port suffered from a number of natural disadvantages such as a large tidal range and insufficient depth of water at even high tide for large vessels. Throughout the 19th and early 20th centuries there was continual lobbying for port improvement works. However, only the lighthouse was built. It marked a natural anchorage. The lighthouse can be seen therefore as having significant historical value to the region.

Within the lighthouse network the tower was part of a significant spate of lighthouse construction by the Queensland government to mark the inner route of the Great Barrier Reef and is typical of that period.

In addition, it is associated with a number of events; the passing of cyclones can be read in the remains of the structures on the island.

Scientific significance: architectural and technological

Architectural significance covers the position of the lighthouse in architectural history within artefact types. It also covers the aesthetic qualities of the individual lighthouses.

Lighthouses are assessed on the degree of:

- representativeness within type
- rarity within type
- modification versus intactness

or its ability to demonstrate:

- a philosophy
- custom
- taste
- design
- usage
- process
- technique
- material.

A series of in-house studies to identify architectural and regional types has been initiated. This will allow individual lighthouses to be assessed comparatively within its type.

Related to the architectural significance is its technological significance. Lighthouses have been on the leading edge of high technology from the beginning of European colonisation and the Department has identified the various phases of the technology used and the impact of that technology on the development both geographically and at the individual lightstation level. Surviving examples of the phases of the technology are rare in situ but a number of lenses and apparatus such as burners etc have been located in store and identified for preservation and use in interpretation centres at various lights.

Social significance

Occasionally lighthouses have acquired social significance to a local community. For example, Macquarie Light in Vaucluse, Sydney is part of the local council crest. Other lights have significance to a family or individual as part of their family history. This interest is taken into account by the Department wherever possible.

Conclusion

The economic and technological environment of lighthouses is changing dramatically. This presents the Deparunent with the problem of preserving the cultural significance of the lighthouses whilst providing the most efficient service to shipping for in a very real way peoples lives rest on providing a light at all times. The strategy outlined above will bring CRM into the everyday planning of the Department to ensure both objectives.

References

Davies, M. and Wilson, G., 1980, *Macquarie Lighthouse*. Manuscript, Department of Housing and Construction.

Kerr, J., 1985, *The conservation plan*. National Trust of Australia (NSW).

Lorimer, M., 1986a, *Pine Islet, historical background*. Manuscript, Federal Department of Transport.

Lorimer, M., 1986b, *Iron clad lighthouses, Queensland*. Manuscript, Federal Department of Transport.

Pearson, M., 1986, *Identification and significance assessment at the national level - historic places*. Workshop on Needs and Priorities for the Conservation of Places of Cultural Significance - Towards a National Approach.

Appendix 6) by Margaret Coleman
Inscriptions on the lightstations of Western Australia and other material

HISTORICAL INFORMATION ON W.A. LIGHTHOUSES

Reference: Your 75/5180 of 4.8.1977

The following information is provided for lighthouses in W.A. which may have some historical significance or interest:-

1 FOUNDATION STONE INSCRIPTIONS

Information on foundation stone inscriptions is as follows.

(1) Eclipse Island Light Tower - date of construction 1926. No foundation stone and no inscription.

(2) Cape Leeuwin Light Tower - inscriptions on foundation stones are:

"Cape Leeuwin 1895"
"Dedicated to the World's Mariners 10 December 1895"
"Foundation Stone laid by Sir John Forrest K.C.M.G. Premier of the Colony 15 December 1895".

(3) Cape Naturaliste Light Tower - inscription on foundation stone.

"Naturaliste Lighthouse Erected 1903
Hon. Walter James K.C. M.L.A. Premier
C.S.E. Palmer M.Inst.C.E. Engineer in Chief".

(4) Rottnest Island Light Tower - inscription on stones.

(a) New Tower

"This Beacon light of the Port of Fremantle was first kindled on the 17th March 1896 by His Excellency Sir Gerald Smith K.C.M.G. Governor of the Colony".

(b) New Tower

"This Stone was laid by the Honourable Sir John Forrest K.C.M.G. Premier of the Colony April 25th 1895".

(c) Old Tower

"Erected in the 13th year of the Colony through the means of Native prisoners.
Henry Vincent Superintendent.
This first stone was laid by Henry Trigg Inspector of Public Works January 1842".

(5) Moore Point Light Tower - there is no inscription.

Vlaming Head Light Tower - inscription on foundation stone is:

"Vlaming Head Lighthouse
Completed 1912
Hon. J. Scaddan M.L.A.
Premier.

Hon. W.D. Johnson M.L.A. — Minister for Works
James Thompson M.Inst.C.E. — Engineer in Charge.

Cape Inscription Light Tower - inscriptions on tower are:

(a) "Cape Inscription Lighthouse completed 1910.
Hon. F.J. Moore M.L.A. — Premier
James Thompson M.Inst.C.E. — Engineer in Charge".

(b) "Dirk Hartog landed on this island in 1616 and 120 yards south east of this lighthouse, left a record of his visit on a pewter dish which was nailed to a pole inserted in a cleft in the rock. William de Vlamingh in 1697 found the "old dish" and erected on the same spot a new pole with a flattened pewter dish nailed to it on which he inserted both the old record and a record of his own visit. Vlamingh's dish was taken to France by de Freycinet and deposited in the Museum of the French Institute in 1821."

(c) "A.D. 1616

On the 25th October there arrived here a ship the D'Endracht of Amsterdam. Supercargo Gillis Miebais of Liege. Skipper Dirck Hartichs of Amsterdam. She set sail again for Bantum on '27 DO. Sub cargo Jan Stins. Upper Steersman Peiter Docker Van Bil".

Dirk Hartog's Inscription translated from the original in the State Museum Amsterdam.

"This memorial plate was placed here by the Commonwealth Government of Australia in 1938 to commemorate the first recorded landing of Europeans in Australia".

Cape Leveque Light Tower - inscription on foundation:

"Cape Leveque Lighthouse
Completed 1911
Hon. Frank Wilson M.L.A.
Premier

Hon. Henry Daglish — Minister for Works
James Thompson (M.Inst.C.E.) — Engineer in Charge."

Jarman Island Light Tower - no inscription.

Cape Don Light Tower - no inscription - date of construction only 1916.

INSTALLATION COSTS AND HISTORICAL INFORMATION

(A) Data from Public Works Department files relating to lights taken over by Commonwealth on 1st July 1915.

Light	Contractor	Erection Date	Contract Price	CAPITAL COST AT 1915 Optical	Total
Breaksea Island	Harrison	12.3.01 to 12.12.01	£2700	£3251	£10,047
Cape Leeuwin L/H & quarters.	Davies and Wishart	2.4.95 to 1.2.96	£7800	£4869	£16,909
Lantern	"	17.8.96	£ 425		
Quarters	Longbottom	27.6.08 to 29.9.08	£ 605		
Cape Naturaliste	Anderson	11.2.03 to 11.12.03	£4800	£5425	£12,470
Cape Leveque	P.W.D.	May 1910 to 1911	-	£2431	£10,012
Rottnest (Qtrs)	Parker & Rhodes	31.10.94 to 31.5.95	£3237	£3728	£ 9,447
	Honey	3.4.97 to 3.9.97	£ 970		
Bathurst Pt.	P.W.D.	1900	-	£1185	£ 3,116
Moore Pt.	P.W.D. and Contract	1877	-	£1032	£ 6,658
Cape Inscription	P.W.D.	1910		£1000	£10,566
Cloats		1910		£4957	£14,263
Jarman Qtrs.		1888		£ 683	£ 3,441
	Stanmore	29.6.95 to 29.10.95	£1000		
Vlaming Head		1912		£5090	£16,656
Anchor		1913		£1130	£ 2,070
Nth. Sandy		1913		£1293	£ 2,299
Airlie		1914		£1218	£ 2,236

Light	Contractor	Erection Date	Contract Price	CAPITAL COST AT 1915 Optical	Total
out		1910		£1978	£ 4,289
aut		1914		£1033	£ 1,786
theaume t	Mc^Kutz	22.11.09 to 20.12.09	£ 270	£ 684	£ 2,773

B) Cape Inscription (on Dirk Hartog Island).
(article accompanied by several photographs - in "Western Mail" 14th May 1910).

crete tower 34 ft. above ground to gallery level.
t. diameter, 123 ft. above H.W.M., seen 12 miles.
rters (in concrete) for 2 men - 20,000 gallon underground water tank and
chment - stables. Store house and oil store.
ty 232 ft. long to suit craft of 10 ft. draught constructed 1¼ miles from
nt and connected to it by 2 ft. gauge tramway. Goods hauled up cliff by
se operated winch.
started October 1908, completed February 1910 by P.W.D. Light exhibited
ch 1st, 1910. This was the second of 6 new lights on the coast (Bedout was
first). Water for concrete construction hauled in barrels by horses for
iles.
ly landings by explorers at this point are commemorated by plaque on light
er.

s light now converted to automatic acetylene unwatched.
jetty has almost deteriorated.
tramline has now been sold to Dirk Hartog Station.
quarters still stand - unroofed.
water tank still holds water.
store shed still stands.

(C) Cape Leeuwin Light

st proposed by Colonial Secretary's office, April 1881.
ters sent to steamer companies requesting comments.
ious sites suggested. The work was suggested as a joint undertaking by all
Australian Colonies.
ctually approved by W.A. Parliament and a contract let, as other States would
co-operate. Contractors - Davies and Wishart. Foundation Stone laid by
John Forrest December 13th, 1895 and he was presented with a silver trowel
mallet of sandalwood and karri.

foundation had to be taken to a depth of 22 feet instead of 8 ft. as planned
fuse the bores had been terminated on loose boulders not bedrock.

: 1,000 c.yds of excavation involving 550 yds of concrete and 1,000 yds masonry.
.s 7 ft. thick at base.
ration of highest light, white, 185 ft. above H.W.M. seen 18 miles.
ration of lower light, red, 81 ft. above H.W.M. seen 12 miles.
: oil lamps used.
e Keepers stationed there.
tantial quarters being built.

(C) Cape Leeuwin Light (Cont'd)

Cape Leeuwin exhibited December 1st, 1896. Contract £6,000 exclusive of dome and light apparatus.
7 gallons of oil used in lamps each night, 250,000 C.P.
Seen 30 miles on a clear night.
"dedicated to the World's Mariners".
Cape Leeuwin ("the lioness") named in 1622 after the vessel from which first seen - "the Cape at the meeting of the two oceans with the breakers dashing around - seemed like a lioness defending her home".

P.S.
The "Pericles" which sunk offshore from the light on an uncharted rock is now being salvaged of lead, etc. by a Fremantle diver (ex U.S.A.).

Lightkeepers first appointed in W.A. in 1877 -
Salaries ranged from £10 to £100 p.a.

Moore Point	1880	£100 p.a.
Rottnest	1879	£ 50 p.a.
Breaksea	1870	£ 84 p.a.

(D) Breaksea Island

The cable communication from mainland proposed June 1883, estimated cost £600 in connection with the Lloyd's signal station at light - approved 24.9.83. The first tower of cast iron with octagonal quarters surround was commenced May 1857 by Royal Engineers under Capt. Wray. The building cost was borne by the Imperial Government and all materials sent from Great Britain.

Notice to Mariners of 24.2.1858 as follows:-

"A lighthouse has been erected on Breaksea Island with a light exhibited from sunset to sunrise - a good catadioptric light of 2nd order 2000 C.P. - fixed white and 383 ft. above sea level - visible in clear weather at 9 leagues from an elevation of 12 ft. above the water - octagonal iron tower 45 ft., also a light at Point King in Princess Royal Harbour at its narrow entrance - fixed white - 37 ft. above H.W.L. wooden square tower 17 ft. high. J.S. ROE, Surveyor General".

A second stone circular tower was erected later and new quarters.
Breaksea was an attended light until 1926. When Eclipse Island light was built Breaksea was converted to automatic - new granite tower. Old quarters still stand with the C.I. Tower.

(E) Moore Point

1.8.1877 foundation laid down, later taken up as built on wrong orientation.

Paper comment June 1877. C.I. light tower aboard "Lady Louise" from England -- "when erected will be the best light on the Australian Coast".

Paper comment 19th November 1877. Mr. Stokes from England - relaid the foundation (placed by State Govt.) and commenced erection of C.I. Tower.

Paper comment 27.3.1878 - a light exhibited for first time on 19th March, 2nd order - said to be one of the finest of its kind in the world - visible 18 miles - by Chance Bros.

gation from Director of Public Works

ghthouse has been erected at Moore Point - iron tower 21 ft. diameter - c light (white) revolving dioptric of 2nd order flash every 40 secs. ibility 18 miles, seaward range 263°. Lower subsidiary light is fixed 4th c dioptric with perpendicular prisms giving two strong red beams.

r comment 1.9.1877 - "cavities left in basement for receiving the pedestals ne iron superstructure have been built over and a portion of the work has e undone - representing a series of mistakes on the construction of this thouse. £14,000 has now been spent. The original estimate was £4000 -), who is responsible for these blunders? - it would appear that the more ons there are to look after these things the worse they are done".

ight later removed.

) Rottnest Island (Main Light)

Old Light Foundation laid in 1842 by H. Trigg.

350 Erection contract for revolving apparatus Carson £43. A revolving light with 3 burners - visible 16 miles.

1850 An attempt made, after some years, to complete stonework of tower. Total cost £500 (as compared with Cape Agulhas light Cape Colony (£3000).

1851 Notice to Mariners

ght has been established on Rottnest Island - a revolving catoptric light be exhibited from a tower near the centre of Rottnest Island after June 1851 (anniversary of colony) from sunset to sunrise - white stone tower t. high with lantern 11 ft. high super imposed - 2 groups of 3 powerful s - whole revolving once in 2 minutes - 5 secs. flash duration and 55 secs. ness - centre of light 1?7 ft. above H.W.M. seen in clear weather at 7 leagues

1881 An improvement to light recorded - in clarity and range - new revolving rder dioptric. The old light tower basement is now used as an oil store.

New Tower A site for a new tower was surveyed in 1891. Plans were red under the Engineer in Chief, P.W.D. (C.Y. O'Connor) and construction nced 31st October, 1891.

ril 26th, 1895 the new lighthouse was opened by Sir John Forrest, with O'Connor present. The contractors were Parker and Rhodes. Pure hard limeston btained from a quarry 1½ miles distant. Foundations went down 18 ft. The ent octagon was 42 ft. diameter by 6 ft. thick = 300 C.yds. concrete. There 1000 yds. of stone in the superstructure. The walls at the base were 5 ft. . thick. The elevation of new light was 264 ft. above sea level (H.W.M.) rder Holo photal revolving light 920 m.m. focal distance, flash every 20 secs. wick burner of 720 standard candles each - lamp by Chance Bros. - visibility les.

light electrified in 1936.

Some wrecks (sailing ships) occurred off Rottnest on reefs in early days of the Settlement.

(G) The following notes are extracted from a publication "Description of Lights on W.A. Coast", published 1913.

Light	Position	Elevation above HWM	Height of Tower	Year Est.	Light Apparatus
Cape Leveque	16°23'S 122°55'E	142 ft.	43 ft.	1911	3rd order Dioptric oil
Gantheaume	17°59'S 122°11'E	67 ft.	41 ft.	1910	4th order Dioptric oil
Cape Bossut	18°43'S 121°40'E	75 ft.	36 ft.	Under construction	550 C.P. Acetylene
Bedout	19°35'S 119° 6'E	66 ft.	55 ft.	1909	5th order Dioptric 720 C.P. Acetylene
Jarman	20°39'S 117°13'E	97 ft.	30 ft.	1888	Dioptric 3rd order 2500 C.P. - oil
North Sandy	21°06'S 115°39'E	93 ft.	56 ft.	Under construction	1580 C.P. Acetylene
Airlie	21°19'S 115°10'E	84 ft.	49 ft.	"	1580 C.P. Acetylene
Anchor	21°[illegible]'S 114°46'E	[illegible] ft.	[illegible] ft.	"	1580 C.P. Acetylene
Vlaming Head *	21°48'S 114°6'E	240 ft.	54 ft.	1912	2nd order Dioptric 215,000 C.P. - oil
* A wreck occurred at N.W. Cape in vicinity of Vlaming Head					
Cloates **	22°42'S 113°42'E	200 ft.	73 ft.	1910	2nd order Dioptric oil
Cape Inscription	25°29'S 112°58'E	127 ft.	40 ft.	1910	Oil
Moore Point (white)	28°47'S 114°35'E	110 ft.	114 ft.	1878	Rev. 2nd order Dioptric 20,000 C.P. - oil
(red)	" "	90 ft.		1878	4th order Dioptric fixed 500 C.P. - oil
Rottnest	32°00'S 115°31'E	264 ft.	127 ft.	1896	Rev. 1st order Dioptric. 45,000 C.P. - oil

Light	Position	Elevation above HWM	Height of Tower	Year Est.	Light Apparatus
athurst t.	31°59'S 115°33'E	98 ft.	60 ft.	1900	2nd order Dioptric Acetylene
ape aturaliste	33°32'S 115°02'E	404 ft.	33 ft.	1904	Double Dioptric - oil
ape Leeuwin	34°22'S 115°09'E	185 ft,	115 ft.	1896	First order lens oil
reakses	35°04'S 118°04'E	390 ft.	34 ft.	1901	1st order Dioptric oil

** New light established at Frazer Island and Cloates discontinued. An airstrip now laid down adjacent to Cloates tower and D.C. 3 lands. Frazer Island now used by whalers.

Lighthouses on the Western Australian coast and off-shore islands

Working File #1

Lighthouses and lightstations A to Z

Individual site details arranged alphabetically, with supplementary material from the authors, extracts from the appendices and working files, AMSA archives and various other sources.

Lighthouses on the Western Australian coast and off-shore islands

Working File #2

a) Lightstations of Western Australia

Volume 1
Volume 2

b) Lightstations: Western Australian Region

Volume 1
Volume 2

c) An untitled photographic scrapbook

Mr Gil Walker, former Assistant Manager Navigational Service of the Australian Marine Safety Authority, located and provided a working document entitled *Light Stations of Western Australia Volumes (1) & (2).*
This document, a compilation of details, illustrations, charts, 'mudmaps' and diagrams of the lights and their surroundings was prepared to enable the master and crew of the lighthouse tenders *Cape Otway* and then *Cape Don* to safely access the sites.
It is an important historical document in its own right and was duly copied for this study. It appears *in toto* working file (File #2a).
Mr Maurice Glasson, Depot Manager Navigational Service of the Australian Marine Safety Authority, was approached to join the team soon after Mr Cumming's death and he located and provided another similar working document entitled *Light Stations: Western Australian Region Volumes (1) & (2).*
This document, again is a compilation of details, illustrations, charts, 'mudmaps' and diagrams of the lights and their surroundings was prepared to enable to safely access and work the stations.
It is an important historical document in its own right and was duly copied. It appears *in toto* working file (File #2b).
The untitled scrapbook contains illustrative material of importance. Originals are housed at AMSA.

Lighthouses on the Western Australian coast and off-shore islands

Working File #3

This file contains material housed at AMSA, Fremantle viz.

i) A drawing index
ii) An historical photos index,
iii) A catalogue of lighthouse plans and related charts (by Margaret Coleman)
iv) A history of the development of the Commonwealth Lighthouse Service (by M. Komesaroff)
v) other notes

This file is an essential reference and aid to studies into lightstations. It was compiled by Mr Glasson, Depot Manager (AMSA) and copied by the project manager. The originals are housed at AMSA Fremantle and in Canberra.

REFERENCE TO LIGHTS

S & C	Name of Lighthouse	Locality	Miles Visible	Nature	Order	Periods in seconds	Colour
C	Mollusn Banks	Entrance Cambridge Gulf	8	Flash		Fl·3, Ec·3·5	White
S	Point Torment	Derby	12	Flash	Diop 6th	Fl·3, Ec·4·2	White
C	Cape Leveque	Entrance King Sound	18	Gp Flash	Diop 3rd	Fl, Ec, Fl, Ec, Fl, Ec 3, 2·7, 3, 2·7, 3, 11·7	White
C	Gantheaume Pt	Broome	13	Gp Flash	Diop 4th	Fl·3, Ec·9, Fl·3, Ec 4·5	White
S	Entrance Point	Broome	9	Gp Flash	Diop 7th	Fl, Ec, Fl, Ec, Fl, Ec, Fl, Ec 3, 9, 3, 9, 3, 9, 3, 41	White
S	Buccaneer Rock	Broome	7	Fixed	Diop 4th	Permanent	Green
S	Leading Lights(2)	Broome	15	Fixed	Diop 5th	Permanent	White
C	Cape Bossut	La Grange	14	Flash		Fl·3, Ec·2·7	White
S	Barnangarra	Mt Blaze	12	Gp Flash		Fl·3, Ec·9, Fl·3, Ec 4·5	White
C	Bedout Island	near Pt Hedland	13	Flash	Diop 5th	Fl·20, Ec 8·0	White
S	Port Hedland	Town	12	Fixed	Diop 5th	Permanent	White
C	Jarman Island	Cossack	15	Flash	Diop 3rd	Fl·3, Ec 2·7	White
C	North Sandy Isld	Anna Plains	15	Gp Flash		Fl·3, Ec·9, Fl·3, Ec 4·5	White
C	Sandy Cay	"	9	Flash		Fl·3, Ec 2·7	White
C	Airlie Island	"	15	Gp Flash		Fl, Ec, Fl, Ec, Fl, Ec, Fl, Ec 3, 12, 3, 12, 3, 12, 3, 72	White
C	Anchor Island	"	15	Gp Flash		Fl, Ec, Fl, Ec, Fl, Ec 3, 12, 3, 12, 3, 57	White
S	Leading Light	Onslow	10	Fixed	Diop 5th	Permanent	White
C	Vlaming Head	NW Cape	27	Gp Flash	Diop 2nd	Fl·3, Ec·9, Fl·3, Ec 6·0	White
C	Point Cloates	"	20	Flash	Diop 2nd	Fl·3, Ec 2·7	White
S	Babbage Island	Carnarvon	13 and 9	Flash Fixed Sectors	Diop 6th	Fl·3, Ec 2·7	White Red Sectors

S & C	Name of Lighthouse	Locality	Miles Visible	Nature	Order	Periods in seconds	Colour
C							
S	Oyster Channel Light Buoys	South Side	5	Flash		Fl·3, Ec 2·7	White
S	" "	Outer Buoy North Side	5	Flash		Fl·3, Ec 2·7	Red
S	" "	2nd Buoy North Side	5	Flash		Fl·3, Ec 2·7	White
S	Leading Lights(2)	Geraldton	8	Fixed	Diop. 4th Harbour Diop. 2nd	Permanent	White
C	Point Moore	Geraldton	15 & 12	Flash Fixed Sector	Diop 4th	Fl·5·0, Ec 3·5·0	Red Sectors White
C	Rottnest Island	Main Light	23	Occulting Flash	Diop 1st	Fl 3·0, Ec 17·0	White
C	Rottnest Island	Bathurst Pt	15	Gp Flash	Diop 2nd	Fl Ec Fl Ec Fl Ec Fl Ec 3, 12, 3, 12, 3, 12, 3, 72	White
S	Fremantle	North Mole	11	Fixed	Diop 4th	Permanent	Red
S	Fremantle	South Mole	7	Fixed	Diop 4th	Permanent	Green
S	Woodman Point	Leading Light	17	Occulting	Diop 1st	Light 2·7 0, Ec 3·0	Red White Green Sectors
S	Bunbury	Koombana Bay	17	Fixed	Diop 3rd	Permanent	White
C	Vlaming Head	" "	10	Flash	Diop 8th	Fl·3, Ec 2·7	White
C	Busselton Light	Busselton	8	Fixed	Diop 6th	Permanent	White
S	Busselton Jetty	"	4	Flash		Fl·3, Ec 2·7	Red
C	Cape Naturaliste	"	29	Gp Flash		Fl Ec Fl Ec 3, 2·2, 3, 7·7	White
C	Cape Leeuwin	"	20	Flash	Diop 1st	Fl·3, Ec 7·2	White
C	Eclipse Island	Albany	27	Gp Flash		Fl Ec Fl Ec Fl Ec 2·9, 3·5, 2·9, 3·5, 2·9, 17·3	White
C	Breaksea Island	Albany	25	Gp Flash		Fl·5, Ec 1·0, Fl·5, Ec 8·0	White
S	Point King	Albany	12	Flash	Diop 5th	Fl·3, Ec 2·7	White
S	Hopetoun	"	14	Fixed	Diop 5th	Permanent	White

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