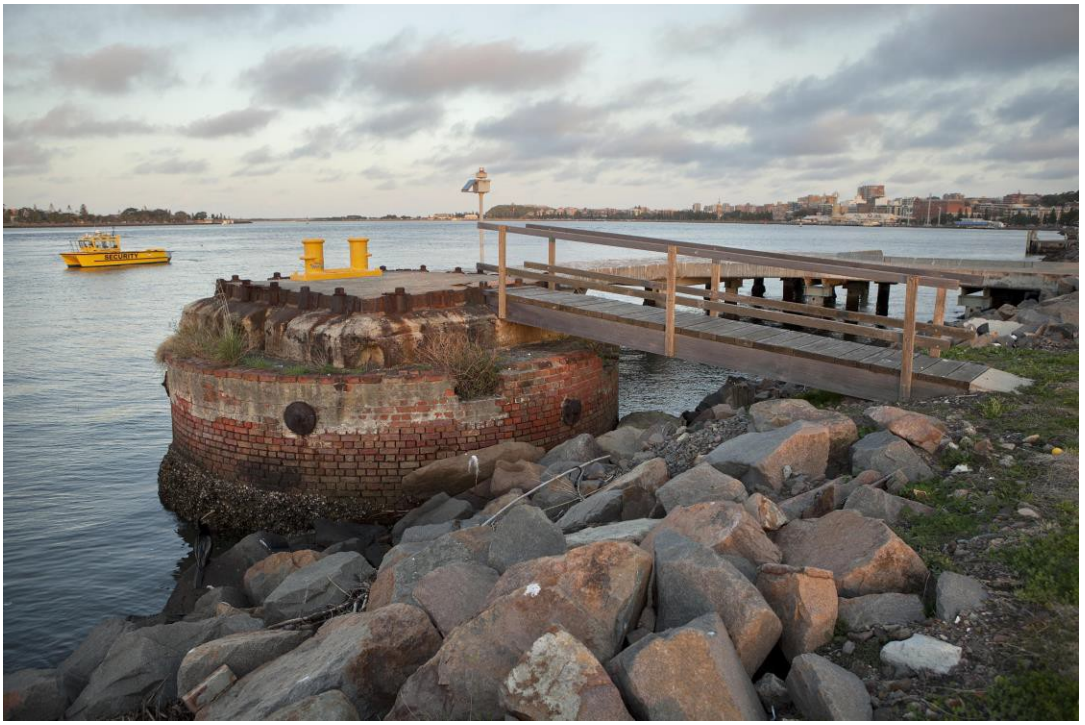
Heritage and Conservation Register



November 2014

Prepared by Port of Newcastle and EJE Heritage

PORT of NEWCASTLE

PART I

HISTORICAL BACKGROUND

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1. FORWARD

1.1 General

Port of Newcastle (PON) is the long term lessee of the Port of Newcastle, having commenced a 98 year lease of the port from the NSW State Government on 31 May 2014. Port of Newcastle Lessor Pty Limited, a NSW State government entity is the registered proprietor of the land the subject of the Port Lease.

Clause 17(b) of the Port Lease requires that the Port Lessee must at its own cost, discharge any obligations imposed on Port Lessor under the Heritage Act 1977 (NSW) relating to the Total Concession Area as described in the lease. This includes the Leased Area and adjoining wet lands.

Section 170 of the Heritage Act 1977 requires government agencies to prepare a Heritage and Conservation Register. This is a list of heritage assets owned, occupied or managed by the agency and includes an assessment of their heritage significance. It also includes a thematic history of the agency. The register identifies buildings, but may also include natural, movable and Aboriginal heritage. The purpose of the register is to assist agencies care for their heritage assets and make decisions about their future conservation and development.

A number of heritage assets are contained within the Port lease area or adjoining wetlands. Accordingly, a Heritage and Conservation Register has been prepared in accordance with section 170 of the Heritage Act 1977 on behalf of Port of Newcastle Lessor Pty Limited, in compliance with PON's obligations under the Port Lease.

EJE Heritage has been requested to prepare the Port of Newcastle Heritage and Conservation Register. PON manage a number of heritage items, as set out within the Heritage and Conservation Register.

The project team undertaking the project consisted of

- Barney Collins – (Director), Conservation Architect
- David Campbell – Heritage Consultant

The History of the Port of Newcastle was written by Hunter History Consultants Pty Ltd.

1.2 Methodology

This report has been undertaken in accordance with the following publications and guidelines:

- *Assessing Heritage Significance*;[1]
- *The Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance 2013*;[2]
- *Statements of Heritage Impact*;[3]
- NSW Heritage Office, *Preparing a Maintenance Plan*;[4]
- NSW Heritage Office, *How to Prepare Archival Records of Heritage Items*;[5] and
- NSW Heritage Office, *Photographic Recording of Heritage Items using Film or Digital Capture*[6]
- NSW Treasury *Heritage Asset Management Guideline* (Total Asset Management).[7]

1.3 Constraints and Limitations

EJE is not qualified to offer structural opinions. This report is not intended to convey any opinion as to the structural adequacy or integrity of any building or asset, nor should it in any way be construed as so doing. Similarly, the author's observations are limited to fabric only: he does not comment as to the capacity, adequacy,or statutory compliance of any building services.

1.4 Acknowledgements

EJE Heritage acknowledges the assistance of Ms Wendy West in undertaking the Review of the Heritage and Conservation Register.

Hunter History Consultants acknowledges the assistance of Ken Bayliss and Stephen Aitchison; of Ted Coulin (former MSB employee); of Gail Orchard and Ross Zimmerman from the Local Studies section of Newcastle Region Library; and of Judy Barnard of Newcastle City Council Plan Room.

1.5 Abbreviations

CHL	Commonwealth Heritage List
CMP	Conservation Management Plan
HAMS	Heritage Asset Management Strategy
HCR	Heritage and Conservation Register
Heritage Guide	State Agency Heritage Guide: Management of Heritage Assets by New South Wales Government Agencies
LEP	Local Environmental Plan
PON	Port of Newcastle
SOHI	Statement of Heritage Impact

[1] Parramatta: NSW Heritage Office, 2001.
[2] Burwood: Australia ICOMOS, 2013.
[3] Sydney: Department of Planning, 1991.
[4] Parramatta: NSW Heritage Office, 1998.
[5] (3rd ed) Parramatta: NSW Heritage Office, 1998.
[6] Parramatta: NSW Heritage Office, 2006.
[7] Sydney: NSW Treasury, 2004.

2. HISTORICAL CONTEXT

The presence of vast deposits of coal and the area's developments as an industrial centre have provided ongoing incentive to dredge, reclaim, develop and maintain a deep sea port capable of handling increasingly large cargoes of coal and other products. [8] The development and operation of the Port of Newcastle since the beginning of European settlement in 1804 is largely focussed around three main themes:

- Administration;
- Physical development of the harbour and foreshores, including the provision of wharves and loading facilities; and
- Navigation of vessels into and within the port.

After a brief discussion of the discovery and early mapping of the harbour, the history of the port may be explored within a framework of four major, and roughly equal, timeframes.

The first phase (1804-1850) saw relatively slow development due to Newcastle's role as a penal colony until 1823, followed by the Australian Agricultural Company's government-assisted domination of coalmining in the area. This period was followed by one of enormous development (1850-1900) stimulated by the shipping needs of Newcastle's developing coal industry. The third period (1900-1950) was characterised by the establishment of the Steelworks at Mayfield, and the completion of further harbour developments, while the post-war period (1950-present) saw a major expansion of the overseas coal trade, which prompted further port developments. Also significant in this period was the eventual achievement of port autonomy in 1995.

For two centuries, the development of Newcastle has been closely linked to its harbour, which has provided trading facilities, wide-ranging employment opportunities and a place of recreation for the community. Since the early years of the 19th Century, the estuary of the Hunter River has been transformed from a series of mudflats and shallow channels to a major deepwater trading port. Encouraged initially by the area's large coal deposits and then by the establishment of BHP's iron and steel works at Port Waratah, the government invested significant amounts of money in reshaping the harbour through dredging, rock blasting and reclamation work. An upsurge in overseas trading after World War II provided the impetus for reforms which saw major advances in loading technology and also in port management. The engineering achievements in the port were recognised in 1989 when it was declared a National Engineering Landmark by the Institution of Engineers, Australia. In recent years the Port has become the world's largest coal export port.

[8] J.E. Gallagher, "The Outports of New South Wales: a paradigm", PhD Thesis, University of Newcastle, 1979, Chapter 1.

A HISTORY OF THE PORT OF NEWCASTLE[9]

The history of the Port of Newcastle is multi-faceted and extraordinarily rich. While this study provides a

context for the assessment of the port, more detailed information on various aspects of the Port's development and its social history may be found in a wide range of sources available in the Newcastle Local Studies Library.

2.1 PREAMBLE

The Port of Newcastle is located 60 nautical miles north of Sydney, at the mouth of the Hunter River. It is now managed by the Port Authority of New South Wales, providing a pilot service for approximately 3,000 shipping movements annually.

Initially little more than a shallow estuary with a difficult entry, the harbour has been transformed over the years to become one of Australia's most significant ports, and the largest coal export port in the world. Other goods shipped include general cargo, aluminium, wheat, lead and zinc concentrates, fertilisers, raw materials for aluminium production, vegetable oils and cotton seed.

As well as catering for trading vessels, the port is home to a substantial fishing fleet, and recreational boating is increasing steadily. Shipbuilding and repair has also played a significant role in the history of Newcastle and its harbour, which has seen the rise and subsequent closure of two State-owned dockyards. These industries are now operated by private concerns.

A regular passenger ferry service crosses the harbour to link Newcastle to Stockton, on the northern shore. Road access to Stockton is via t h e Stockton Bridge, opened in 1971 to replace a vehicular ferry service.

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[9] Prepared by Hunter Heritage Consultants. Not to be reproduced without written permission.

2.2 INTRODUCTION

In his thesis, "*The Outports of New South Wales: a paradigm*"[10], James Gallagher argued that one of the most enduring dreams of those involved in the development of New South Wales coastal towns has been the development of a deep sea port, linked to its hinterland by a road or railway system.

Realisation of this dream, claimed Gallagher, would lead to the development of commercial and trading centres which would, in turn, bring "major progress and independence" to previously undeveloped seaside towns. Despite the ambitions of many commercially-oriented townsmen, these dreams often remained unrealised because of an inability to capture sufficient trade to attract government funding for port development.

At Newcastle, however, the presence of vast deposits of coal and the area's development as an industrial centre have provided ongoing incentive to dredge, reclaim, develop and maintain a deepsea port capable of handling increasingly large cargoes of coal and other products. [10]

The development and operation of the Port of Newcastle since the beginning of European settlement in 1804 is largely focussed around three main themes:

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[10] J.E. Gallagher, "The Outports of New South Wales: a paradigm", PhD Thesis, University of Newcastle, 1979, Chapter 1.

2.3 1770-1801: "A GREAT ACQUISITION"

The first recorded sighting of the Newcastle area by Europeans was in May 1770 when Lieut. James Cook noted "a small clump of an island lying close in shore S.82deg. West; dist. Off shore, about 2 leagues. Latitude obs'd 32 deg. 53'." [11]

At that time the coastal areas of the Hunter Region were occupied primarily by the Awabakal and Worimi groups, who enjoyed the abundant supplies of fish and wildlife. Early artistic representations of the river estuary depict Aborigines hunting and fishing, and resting around a campfire on the shores of the harbour. Shellfish were harvested for thousands of years, their discarded shells forming enormous middens which were exploited by Europeans during the 19th Century for lime burning purposes.

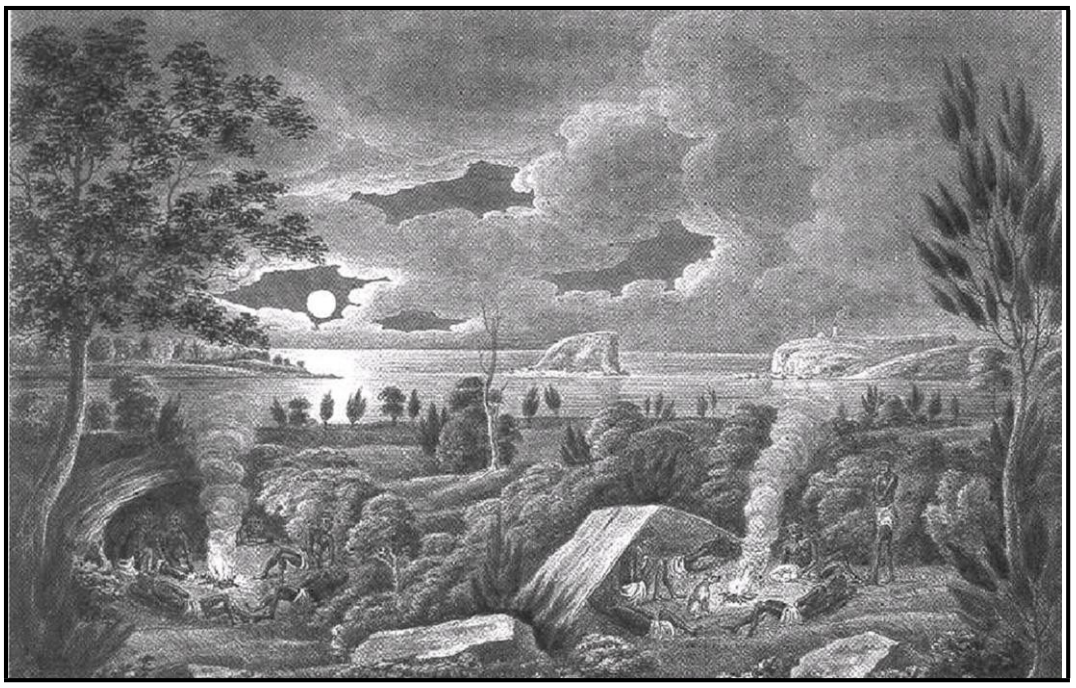


Plate 1: Aborigines resting by camp fire, near mouth of the Hunter River, Newcastle. Joseph Lycett (1775-c.1828) Reproduced in J. Turner & G. Blyton *The Aboriginals of Lake Macquarie: a Brief History.*

Seven years elapsed before Lieut. John Shortland, leading an expedition in search of escaped convicts, discovered the river which he named after the governor of New South Wales, John Hunter. However, many of the geographic names which appeared on Shortland's "Eye Sketch of Hunter's River" were not retained. They included Point Bass, Point Flinders, Point Kent, Mangrove Point, George's Point, Hacking Point, and Braithwaites Head. Early names for the settlement - Kings Town and the Coal Harbour – were also short-lived and in March 1804 it was officially named Newcastle[12].

[11] D. O'Donnell, *The History of Early Newcastle 1800-1870,* Newcastle, undated, p.7.

[12] Government and General Order, 24 March 1804, in F.M. Bladen (ed) Historical Records of NSW, Facsimile reprint, Sydney,1979. Vol.5, p.365.

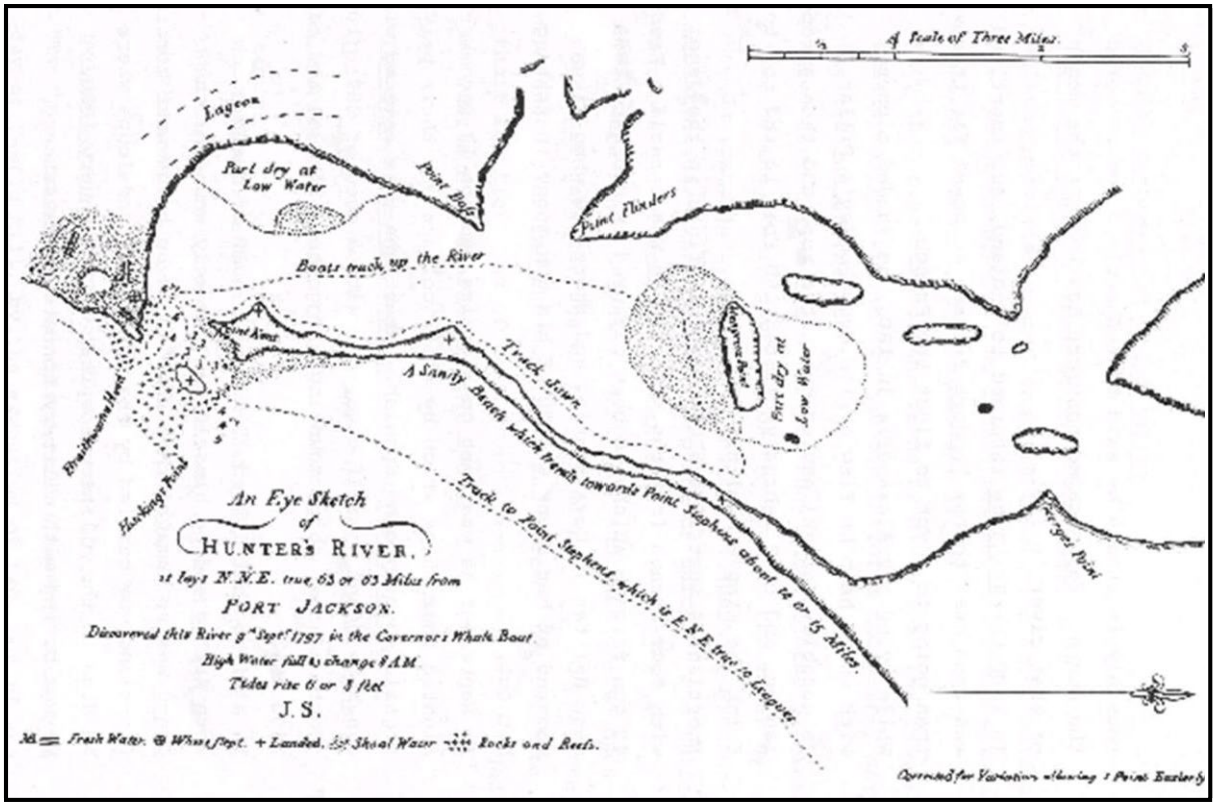


Figure 2: "An Eye Sketch of Hunter's River" 1797. Reproduced from F. Gregory, *Selected Source Material.*

Shortland predicted that the newly discovered river and its surrounding coal deposits would become "a great acquisition" to the British government, and private traders soon began to exploit the area's natural resources.[13] A survey of the river was subsequently carried out in June 1801 by Lieut. James Grant who, after locating Nobby's island, described the entry into the harbour:

> *We found the entrance very narrow, with a reef on one side, and a very heavy surf breaking on it. On the other side were some heavy sand breakers, and the passage in very much troubled, and all but breaking … Finding this to be the case, I at one time put the boat's head round to the swell, and pulled out but the risk of bringing in the two vessels, without exactly ascertaining the channel, made me determine to attempt it, and accordingly we pulled through, and carried from five to four and three and half fathoms with us close to the island.*

The party then landed on Nobby's Island and clambered to its summit from where they obtained "a beautiful view of the river, interspersed with islands, and extending as far as the eye can reach". A Union Jack was hoisted and the island declared to be "well calculated for defending the River's entrance, and a proper place for erecting a signal tower or light-house".[14]

[13] Lieut J. Shortland to J. Shortland Sen, 10 September 1798, cited in *ibid.*
[14] J. Grant, *The Narrative of a Voyage of Discovery,* London, 1803, reprinted by Heritage Publications, Melbourne, pp.151-2

When placed in the broad geological history of the Newcastle area, the estuary discovered by Shortland in 1797 was relatively young. In her book, *The Geology of the Hunter Valley*, Beryl Nashar points out that "at a time when the shoreline stood about 270 feet lower than it does now, the mouth of the Hunter River oscillated from time to time over a wide area lying between Nobby's and Morna Point". The coastal area was later submerged, allowing the sea to extend far into the valley. During this period, the Paterson and Williams Rivers entered the sea independently and the land on which Newcastle now stands was an island, as were Nobbys and Shepherds Hill.[15] By the time Cook sailed past Nobbys in 1770, the combined effects of silt deposits and falling sea levels had produced a landscape closely resembling that which we know today.

However, since the establishment of a permanent European settlement in 1804 significant and ongoing developments have been carried out in the estuary of the Hunter River to create a commercially viable port.

2.4 1801-1850: NEWCASTLE IS A VERY DANGEROUS PLACE[16]

A small party of convicts and soldiers set up camp on the shores of the Hunter River in 1801 for the purpose of "procur[ing] coals, timber and lime for the service of Government".[17] This settlement was unsuccessful and was abandoned after six months, and for the next two years the only Europeans to visit the area were Sydney traders seeking coal and timber. Following a convict revolt at Castle Hill in 1804, the Coal River settlement was re-opened to allow the most troublesome convicts to be segregated from the main settlements in the Sydney area. Many of these convicts were put to work in the government's coalmines, which are now believed to have been the first in the southern hemisphere.

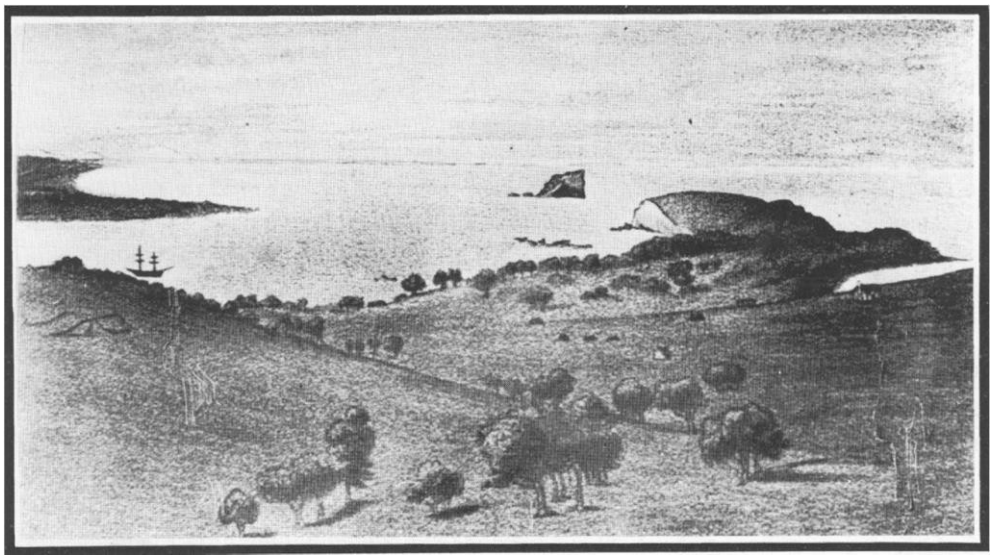


Plate 3: Newcastle, 1804, showing Nobbys Island centre-right. After the painting by F. Bauer Reproduced

[15] B. Nashar, *Geology of the Hunter Valley,* Sydney, 1964. p.57.
[16] Commissary John Palmer addressing the House of Commons in 1810, cited in *Bar Dangerous,* p.99
[17] "Instructions for the guidance and government of Lieutenant Purcell … Commandant at Newcastle." 1 October 1810. HRNSW, Vol.V11, pp.421-427, reproduced in D. O'Donnell, *the History of Early Newcastle,* p.15.

in F. Gregory, *Selected Source Material*

Development of the harbour was limited during the convict period but after closure of the penal station in 1823 Newcastle was declared an open port (the first north of Sydney) However, free settlers were attracted to the developing towns of the Hunter Valley rather than the abandoned convict settlement. Newcastle's population declined and the town was replaced by Morpeth as the main shipping port on the Hunter. In 1827, convicts were still employed in the government's coal mines but the town was described by a visitor as being "in a state of decay".

Although the Australian Agricultural Company began to load coal from its wharf in 1831, its monopoly of the industry until 1847 discouraged the government from allocating funding for port development.

Coal exports from Newcastle increased dramatically as the A.A. Company developed its mines to meet the demand created by the introduction of the steamship. In its first year of operation the company raised 5,000 tons. In 1840, the company's mines produced 30,000 tons of coal and by 1842 the annual output had risen to 40,000 tons.[18] Despite this increase, demand outstripped production and ships waited from four to five weeks to load.[19]

The harbour at this time was characterised by a series of mud flats and sand spits separated by channels. Coal loading was often a drawn out process, as the entrance to the "coal channel", which led to the A.A. Company's coal wharves, was not deep enough to allow a large ship to load fully. These vessels were moved into deeper water and the loading completed from lighters. Until at least 1839, the company intensified the problem in the channel and at its wharf by discharging water from the Church Street mine into the harbour below.[20]

2.5 ADMINISTRATION

Newcastle was established as a penal outpost of Sydney, which retained control of the newly formed town and its port. The first local administrators of the port were Commandants of the convict settlement, initially Lieutenant Charles Menzies in 1804. Lieutenant Charles Throsby was also appointed at that time to take control of public works and was responsible for the issue of general orders, including those relating to the port. Throsby's first recorded order was issued in May 1804 and although its clarity may have dimmed with the passage of time, its authority is unmistakable:

> *Weekly private signals being directed, to be shown from the flagstaff at Kings Town, in Newcastle District, on the arrival of all vessels at that Port, the masters will be careful not to anchor until they*

18 J.W. Turner, *Coal Mining in Newcastle, 1801-1900,* Newcastle, p33.
19 T. Callen, *Bar Dangerous,* Newcastle, 1986, p.34.
20 *ibid.,* p.35.

> *have observed the signal indicated, for which purpose they will receive a sealed paper containing the signals for a fortnight after their departure from hence at the time they receive their certificate, which sealed paper is not to be opened until they are within the Coal Island.*

After Newcastle became a free settlement, port administration remained under the control of the Engineer-in-Charge of Public Works until 1846, when Captain Alexander Livingstone was appointed to the position of Harbour Master. However, the provision and maintenance of wharves and general port development work continued to be supervised by the Engineer-in-Charge.[21]

2.6 HARBOUR IMPROVEMENTS

2.6.1 Macquarie Pier

Newcastle was dependent on sea transport for supplies from Sydney, and it soon became apparent that Governor King's fears relating to the harbour entrance were justified. The first victim of the Oyster Bank was the *Francis,* lost in 1805 and by 1816, when Lieutenant C. Jeffries produced a detailed map of the port, at least five additional vessels had been destroyed in the Newcastle area. Jeffries' own vessel, *Kangaroo,* had struck three times when negotiating the channel between Signal Hill and Pirate Point.[22]

A major factor contributing to the hazardous entry was the surge entering the estuary between Signal Hill and Nobbys. This opening, "between the island and the main" had been noted in 1801 by Grant, who commented that the expanse of water "of about three cables' length [was] full of rocks, with a heavy surf breaking over them". The only safe entry to the harbour, he wrote, was "round the island".[23] Governor King also expressed concern about the entry, believing that it would limit the usefulness of the harbour.

This navigational problem was overcome with the construction of Macquarie Pier, the first major improvement to Newcastle Harbour and the main legacy of the convict period. Construction of the pier, linking Nobbys to the mainland, commenced in 1818 after Governor Lachlan Macquarie visited the site in August of that year. He recorded the event in his journal:

> *At 1 p.m. I went along with Capt. Wallis to look and examine the channel dividing Coal Island (Nobby) from the South Head of Newcastle Harbour, with the view of filling it up entirely by constructing a strong mound or causeway between the island and the main for the purpose of deepening the main channel or entrance into the harbour. We landed on the island and sounded the channel between it and South Head, which does not exceed 7 feet in depth at low water and only about a quarter of a mile in breadth. After examining both sides of the channel, it was finally determined to commence forthwith filling it up by constructing a strong causeway of 30 feet broad*

[21] A.J. Enver, "A Brief History of Port Administration at Newcastle" in *Port of Sydney,* Vol.7, June 1961. p.154-158.
[22] T. Callen, *Bar Dangerous,* Newcastle, 1986, Appendix 1 and Jeffries map.
[23] Grant, *The Narrative of a Voyage,* p.152.

from South head to Coal Island.[24]

With characteristic vigour, Macquarie approved the huge undertaking after a couple of hours' inspection and the next day he returned to the site to lay the foundation stone.

> *At 4 p.m. accompanied by Capt. Wallis, Revd. Mr. Cowper, Major Antill, Lt. Macquarie, Ensn. Roberts and Mr. Meehan, I went to the shore of the channel dividing Coal Island from the South-Head, for the purpose of laying the foundation and first stone of the causeway or pier to be constructed across from the main to the island; and the stone being cut and ready, with an inscription, it was laid accordingly with all due form in presence of the artificers & labourers to be employed in the construction of it; and Capt. Wallis having proposed that it should bear my name it was accordingly called after me Macquarie Pier, which [with] the present year 1818 was cut and inscribed on the foundation stone. After the foundation stone had been laid the artificers and labourers were served with an allowance of spirits to drink success to the undertaking, which they did with 3 hearty cheers.*[25]

The location of the foundation stone is not known but a map prepared in 1831 by the A. A. Company surveyor Armstrong (Plate 6) shows the point of commencement of the stonework

Work on Macquarie Pier began shortly after the Governor's visit and continued until 1822, when the Hunter Valley was opened to free settlers and Newcastle's convict population transferred to a new penal settlement at Port Macquarie. Work recommenced in 1832 and in 1846 the link between Nobbys and the mainland was complete, but was often breached by heavy seas and needed continuing repairs.

[24] L. Macquarie, *Journals of his Tours,* Sydney, 1979, pp.135-6.

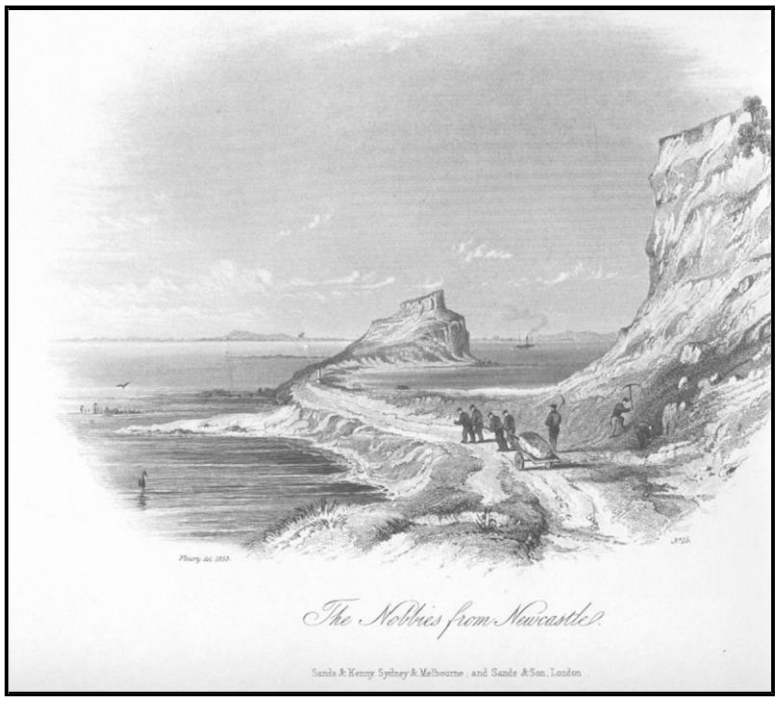
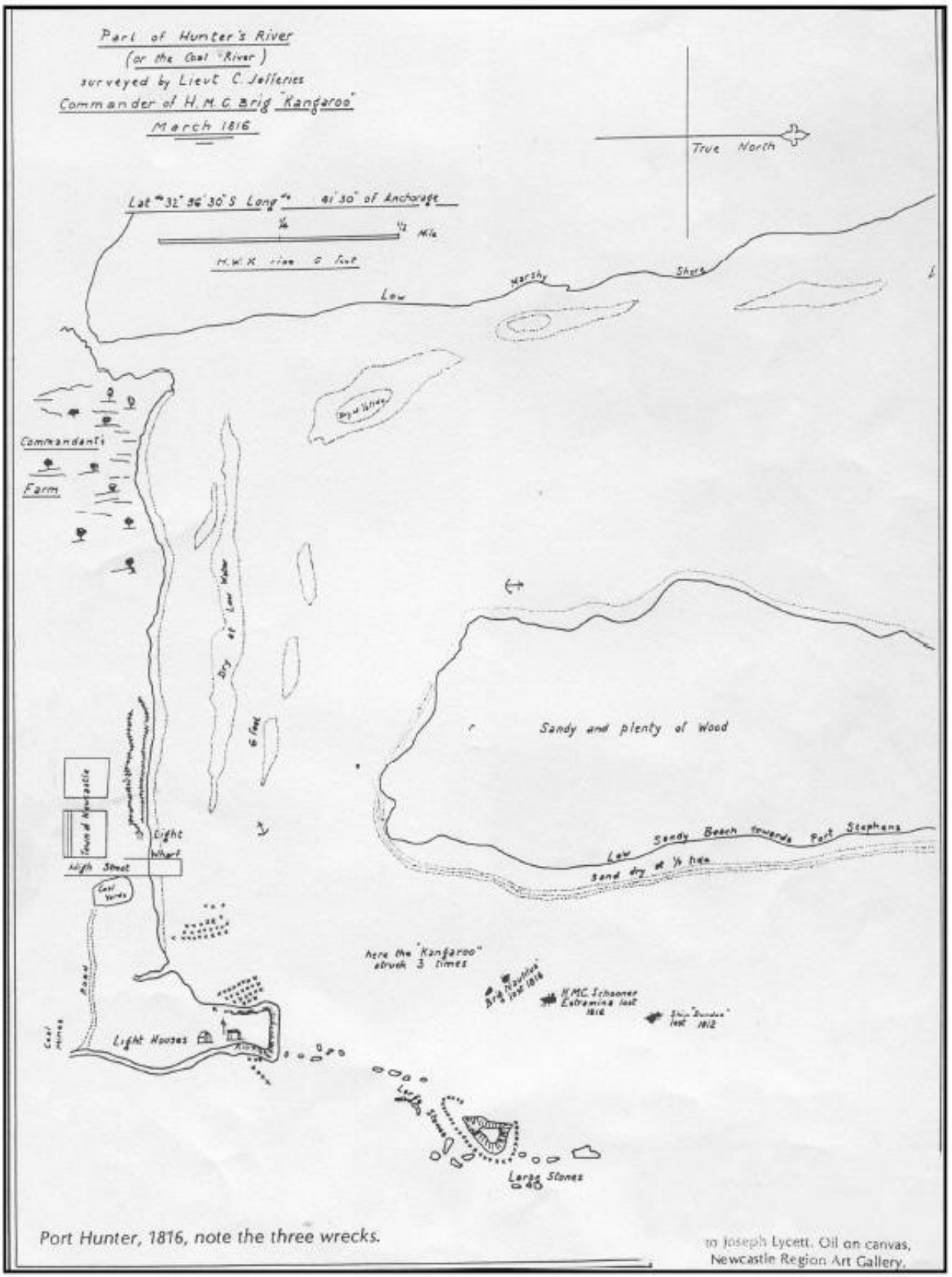


Plate 4: Macquarie Pier in 1853, shortly after completion as sketched by F.C. Therry . *New South Wales Illustrated: The Sketches of F.C. Therry* with introduction by James Murray.



Port Hunter, 1816, note the three wrecks.

to Joseph Lycett. Oil on canvas, Newcastle Region Art Gallery.

Plate 5: Jeffries' map of Newcastle, 1816.

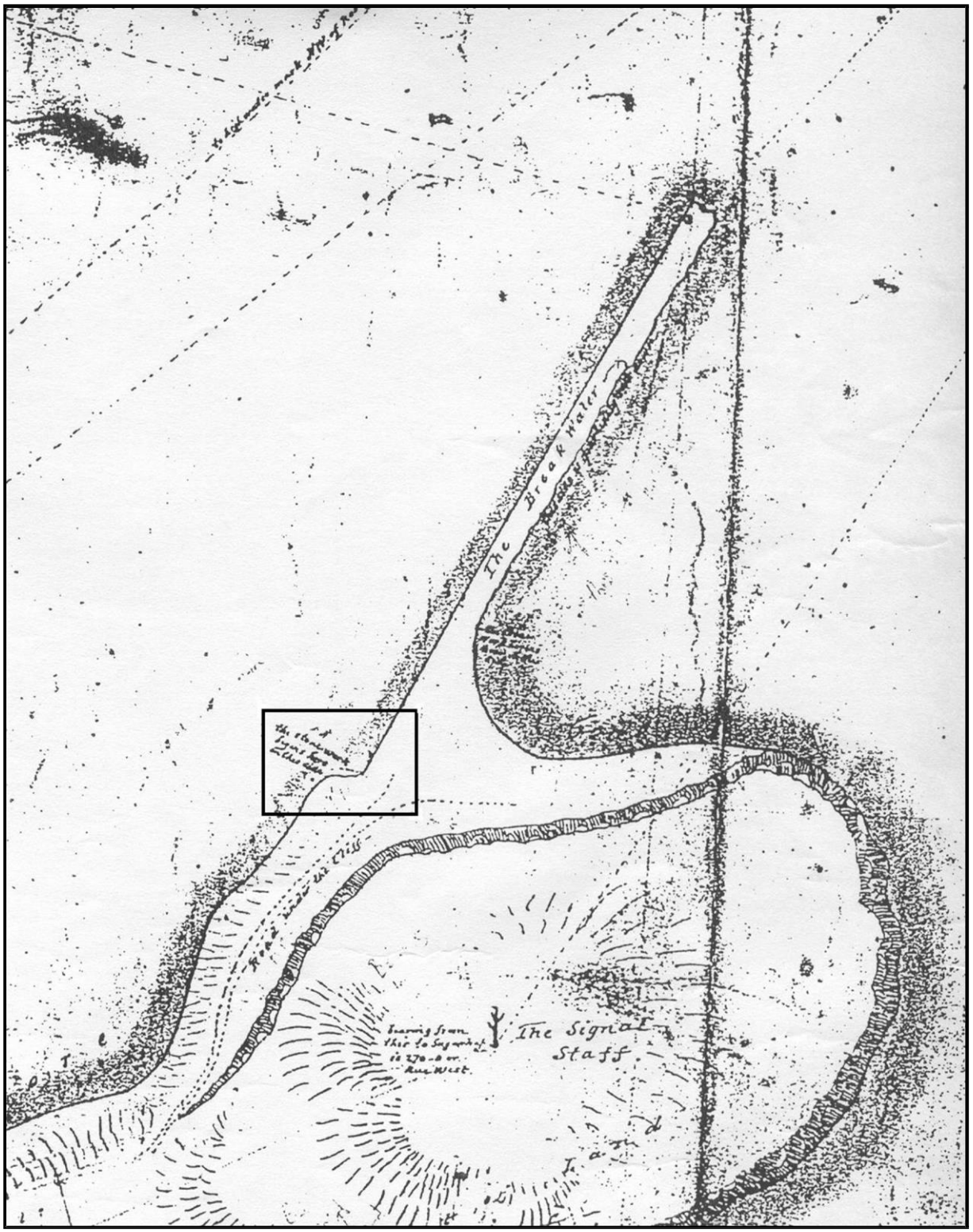


Plate 6: Extract from plan of the Town of Newcastle 1830 showing note: "the stonework begins on both sides"

J. Armstrong, A.A. Company Surveyor

2.6.2 Dredging Begins in the Harbour

In response to a government review of harbour facilities at Newcastle in 1843, residents of Morpeth commissioned a survey of the Hunter River by Surveyor G.B. White. Steamers travelling between Newcastle and Morpeth were sometimes grounded on the mudbanks near Fullerton Cove but the Government was not prepared to provide the requested funds for deepening the river. Instead, the dredge, *Hercules,* was sent from Sydney in March 1845 with a crew of thirty prisoners. The work of dredging a channel through the "flats" was more tedious than anticipated due to numerous difficulties with the crewmembers, described as being "extremely tenacious of control and of excitable temperament".[26]

Dredging began in May, just after the first Newcastle Regatta which was held on 5 April. The condition of the river led to an official complaint after John Hannell's crew jumped out of his boat and pushed if off a sandbank:

> *The sailing match, which was for a Silver Cup, for all classes of boats, was well contested to the end, although Mr. John Hannell of Hexham, got the lead at starting, and kept it the whole way, coming in about twenty minutes before Mr. Wallace, and leaving all the others a good distance astern. It seems there is some dispute about the race, respecting the running on a sandbank, which is to be referred to the decision of the Regatta Club of Sydney.*[27]

The dispute was subsequently settled by Captain Moriarty, who awarded the Silver Cup to John Hannell. The Regatta continued on an annual basis until the outbreak of World War II. On Australia Day 1984, the tradition was revived as a result of efforts by retired Harbourmaster Ken Hopper who was then President of the Maritime Museum. His goal was to raise funds for the museum and while success in this area has been limited, the Regatta is a highly popular event in the city, providing an opportunity for the community to enjoy the various aquatic activities or take advantage of a wide range of activities on the foreshore.[28]

2.7 Wharfage

2.7.1 1806: The harbour's first jetty

One of the first tasks after the establishment of settlement was the construction of a jetty, 108 feet long and 13 feet wide, at the foot of George Street (later renamed Watt Street). A small lagoon adjacent to the jetty served as a boat harbour. Coal loading methods remained primitive, and the mines at Newcastle seen as "the cause of the wretched state of Newcastle" by a *Sydney Morning Herald* journalist:

> *The coal is doled out in miserable thimblefuls and drawn about the wharf in wheelbarrows. Five*

[26] L. Coltheart, *Between Wind and Water,* p.40. and E. Coulin, "Port of Newcastle: the Formative Years, 1844-1862" unpublished manuscript. p.42.
[27] *Maitland Mercury,* 5 April 1845, cited in *Ports and People: a Social History of the Hunter River,* p.23.
[28] Discussion with Capt. I. McLeod, 3 February 2002.

or six prisoners to a barrow is common, and so often is the coal shifted about from baskets to bullock carts, from bullock carts to the wharf, from wharf to the pier, from pier to lighter, and from lighter to ship, that by the time it arrives in Sydney for sale, this fine coal is nothing but dust, and difficult to be had at any price sometimes, in winter months.[29]

2.7.2 1831: A.A. Company wharf and coal loading facility

The government retained its coalmines in Newcastle but as early as 1825 the Australian Agricultural Company (A.A. Company) was expressing an interest in the mines. The company had been established in London in 1824 to raise fine woolled sheep on a one million acre grant in New South Wales. In addition to its large grant, the A.A. Company also obtained a 2,000 acre grant in the Newcastle area, with the right to mine coal. Under an agreement signed in 1828, the A.A. Company became the sole coal producer in NSW, after the government agreed that no further coal rights would be issued, or convicts assigned for coalmining, for the next 31 years.[30] However, the agreement was terminated in February 1847 after a legal challenge by rival miner James Brown.[31]

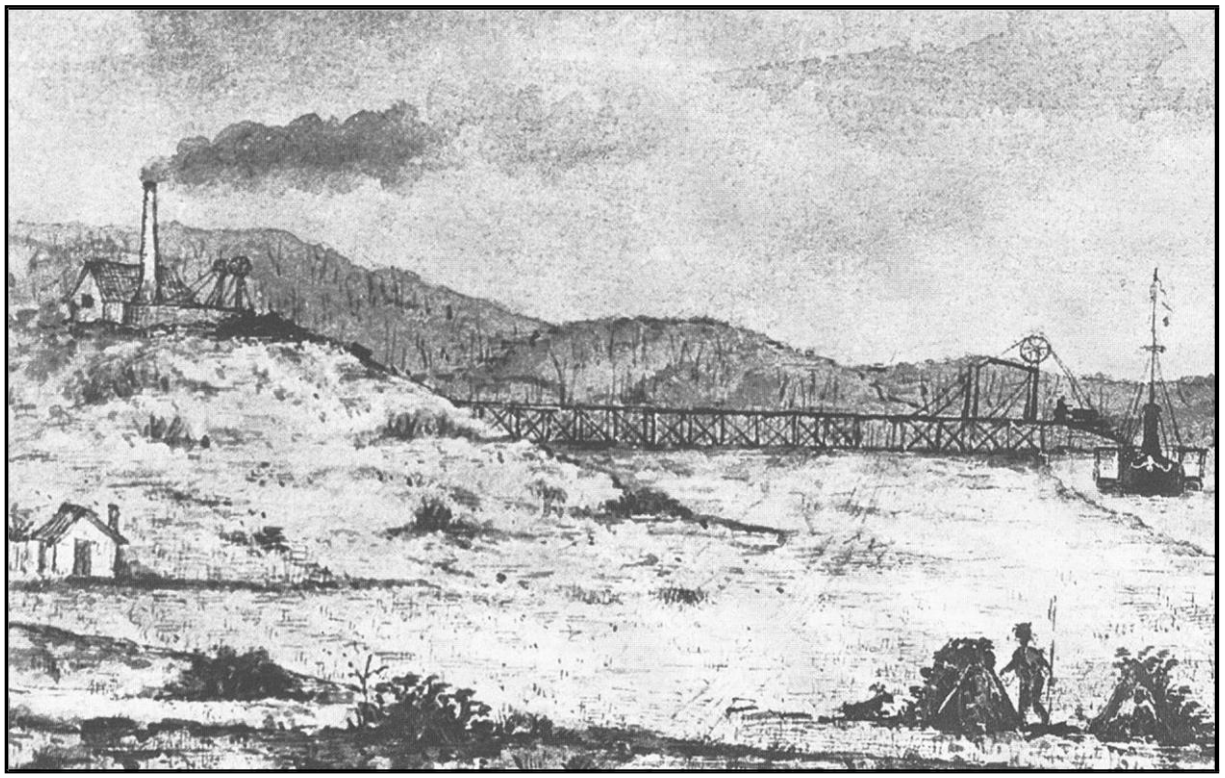


Plate 7: "City of Newcastle" showing Ballast Wharf. C.1845. *LHM B333.3/16*

Mechanised coal loading was introduced to Newcastle by the A.A. Company, which sank its first shaft at the corner of the present Brown and Church Streets. The mine was officially opened on 10 December 1831, when decorated wagons loaded with coal descended an inclined plane to a newly-erected wharf

[29] *Sydney Morning Herald,* 31 January 1827, cited in Callen, *Bar Dangerous,* p.31.
[30] P. Pemberton, *Pure Merinos and Others: the Shipping Lists of the Australian Agricultural Company,* Canberra, 1986, p.31.
[28] Discussion with Capt. I. McLeod, 3 February 2002.

below, where the steamer *Sophia Jane* waited to receive the load. After the coal was released into her holds by a single hammer blow, two more wagons descended from the mine, their weight causing the empty wagons to return to the pit head for refilling.

2.7.3 1843: Ballast Wharf

In 1843, shortly after his appointment as Port-Master for New South Wales, Captain Merion Moriarty carried out a review of port facilities. He arranged for a circular ballast wharf to be built around the end of a sand spit about 1,000 ft. east of the existing wharf. Masonry blocks were shaped in Sydney and shipped to Newcastle, where they were placed in position by a convict workforce. Ballast was then dumped behind the wharf and formed into a wall which partly enclosed a large lagoon, creating a small boat harbour .[32] Few of Newcastle's convict-built structures were sound, and it appears the Ballast Wharf was no exception: the masonry later required strengthening with heavy timbers.

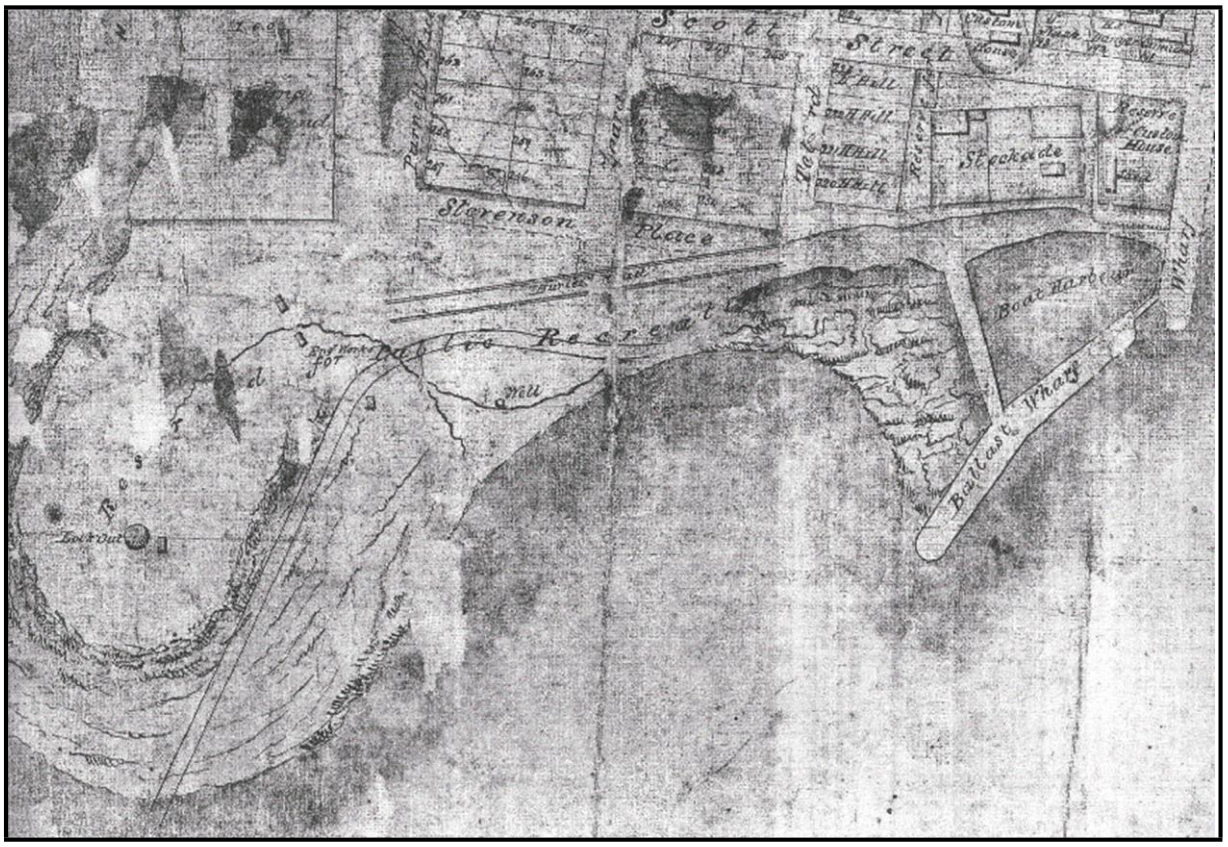


Plate 8: "City of Newcastle" showing Ballast Wharf. C.1845. *LHM B333.3/16*

2.8 NAVIGATION

Navigation aids for vessels approaching the port at this time were limited to a coal-fired beacon and signal flags, erected on Signal Hill in 1804. A further, unofficial marker, came into use in 1820 with the construction of a windmill on a hill behind the settlement. Its demolition in 1847 caused an uproar in

[28] Discussion with Capt. I. McLeod, 3 February 2002.

maritime circles, resulting in the erection of a masonry obelisk in 1850. Although no longer serving its intended purpose, the obelisk is a well known local landmark.

As area of the harbour were dry at low tide, bringing a vessel safety to a berth at any time would have been difficult. During this early period, one ship's captain commented that the task was easier at night time, using a light at the A. A. Company mine at the top of Brown Street and a basket light on the wharf at the foot of Watt Street as guides.[33]

Until the establishment in 1812 of a pilot service (comprising pilot, whaleboat and convict crew) ships' masters negotiated the entrance unaided. Early pilots were William Eckford, appointed in 1812 and William Cromarty, who took up the position after Eckford's death in 1833. Cromarty held the position until 1836, when he resigned after being badly injured while at work.

Subsequent pilots carried the title of Pilot and Harbourmaster until 1858 when Captain David Allen became the first to carry the title of Harbourmaster. His residence was at Signal Hill, which was for many years known as Captain Allen's Hill.[34]

The first pilot station occupied part of the old Stockade and the boat was beached on the riverbank until a boatshed was built in 1840.[35]

2.9 Overview

The first half of the nineteenth century saw the establishment of Newcastle as a free port following closure of the penal settlement. Coal from the A.A. Company mines was the primary export, generally destined for Australian ports but in the late 1840s small shipments of coal and cargoes of sheep, cattle and horses were sent to New Zealand.[36] With the cessation of the A.A. Company's monopoly, other mining companies began to export coal which was loaded from staithes adjacent to the three A.A. Company staithes, or direct from the jetty by means of wheelbarrows.[37] Recognition of the area's coalmining potential encouraged the government to allocate funding for the construction of Macquarie Pier and the beginnings of a dredging programme to increase the depth of the port. However, these achievements were but a drop in the ocean compared to the massive undertakings of the next fifty years.

2.9.1 1850-1900: "A HARBOUR FROM A CREEK"

With the breaking of the A.A. Company's coal monopoly, mining in the area escalated rapidly. Newcastle's place as a major trading port was secured, overtaking Morpeth which subsequently declined in

[33] Callen, *Bar Dangerous,* p.187.
[34] *Ports and People,* p.12.
[35] *ibid,* p.11.
[36] *ibid.,* p.24.
[37] "Early Development of the Ports of Sydney and Newcastle" unpublished manuscript, NPC files.

significance as a port. As Australia's population increased, especially after the goldrushes of the 1850s, the demand for coal for industrial, railway and domestic purposes incr4eased. Shipments to foreign and interstate ports rose steadily, from less that 500,000 tons in the mid-860s to just under 4,000,000 tons in 1900.[38] More local coal was shipped to Victoria than elsewhere, but the overseas market improved following the Californian goldrushes and in October 1850, sixteen of the twenty-two ships waiting to load coal were from North America.[39]

While coal was by far the major export for Newcastle, wool, timber, livestock and general cargo were also shipped. However, the expansion of trade was hampered by the harbour's natural disadvantages which created a hazardous shipping environment and also limited the size of vessels which could visit the port. The government responded by undertaking a series of major developments in the port which led to vastly improved shipping facilities with a corresponding effect on the city's prosperity. However, while the benefits to Newcastle and the surrounding region were undeniable, the government's approach to the control and development of the port drew intense local criticism.

2.9.2 ADMINISTRATION

Despite increasing agitation for local control of the port during this period, power remained firmly in the hands of the State Government in Sydney, with responsibility divided between three departments.

Administration was in the hands of the Navigation Board until 1871 when a Local Marine Board was established under the Navigation Act (1871). Hopes of local autonomy at this time were short-lived, as the local Board's subservience to the Marine Board of New South Wales ensured that control remained with the central body.

Construction of wharves, management of dredging and reclamation work was controlled by the NSW Public Works Department. As well as being responsible for construction and maintenance of port facilities and harbour development, the PWD was involved in construction of the Hunter River district water supply scheme and electricity installations for coal loading equipment at Bullock Island. A workshop was established at the southern end of The Dyke, where repairs to dredges and other equipment were carried out, together with the construction of valves, hydrants, engines and boilers for the water supply scheme.[40] The Department was a major employer in Newcastle, providing work for 400 men in 1898 with an additional 200 employed by contractors on Newcastle harbour works.[41]

During this period the Department of Railways also became a key player in port administration. In the early

[38] Newcastle Chamber of Commerce Annual Reports, passim.
[39] S. Marsden, "Coals to Newcastle: a history of coal loading at the Port of Newcastle, New South Wales, 1797-1997", unpublished manuscript, p.11, and Coltheart, *Between Wind and Water,* p.40
[40] Coltheart, *Between Wind and Water,* p.92
[41] Ibid, p.93.

Years of coal production, loading facilities were provided by private mining companies but with the extension of the Great Northern Railway to Newcastle and along to Queens Wharf in 1858, the Department of Railways became the chief railway provider, levying its own rates and charges. After 1863 the Department also provided steam cranes for coal loading. It owned and operated the coal loading plant which was established at Bullock Island during this period, provided the wharves and facilities, and controlled the berthing arrangements.

In the eyes of the Newcastle business community, such a complicated administrative system was detrimental to port development. These concerns were well founded, as poor communication between the various controlling bodies inhibited the development of comprehensive and cohesive planning. Local frustrations were further intensified by the perceived preference of the central body to direct funding towards Sydney rather than outports such as Newcastle.

2.9.3 HARBOUR IMPROVEMENTS

The completion of Macquarie Pier had improved the entrance to the harbour, creating additional shelter for ships and reducing the swell at the wharves. However, while the altered direction of the outward current had produced some scouring of the northern shore, the shallow depth in the harbour continued to be its main drawback, preventing many ships from visiting Newcastle.

Moreover, the Newcastle Harbour Master reported in 1852 that the harbour depth was further decreased by "ballast being thrown out of the sailing vessels going up the river, when getting aground on the flats, much to the injury of the river and the vessels trading up and down"[42]. If full advantage was to be taken of the area's rich coal deposits, considerable expenditure would be required to create a safe, navigable harbour with adequate wharfage and loading facilities. The government began working towards this goal in the early 1850s

In 1851 Lieut. John Lort Stokes, R.N. carried out a survey of the harbour which highlighted the hazardous rocks, reefs and channels through the mudflats. This survey was followed in 1854 by the formulation of a Harbour Development Plan by a civil engineer, J. Woolston Ellis. His plan, which incorporated construction of The Dyke with a shipping basin behind it and training walls for the river to Fullerton Cove, foreshadowed the future shape of the harbour. However, the ambitious plan which transformed the port has been attributed to Edward Orpen Moriarty, son of Merion Moriarty.

2.9.4 The Moriarty Plan

E.O. Moriarty had broad engineering experience in breakwater construction, railway works, surveying,

42 E. Goulin, "Port of Newcastle, the Formative Years", unpublished manuscript p.62.

construction and shipbuilding. He had worked as a cadet engineer on the Isle of Portland breakwater in Ireland before emigrating to New South Wales with his family in 1843. After working as a consulting engineer and surveyor in Sydney for several years, he became an assistant in the Surveyor-General's Department. In 1853 he became Engineer-Surveyor of the Steam Navigation Board (which he later Chaired), followed by his appointment to Newcastle in 1855 as Engineer for Hunter River improvements.[43] After leaving Newcastle in 1858 he became Engineer in Chief, Harbours and Rivers for the Public Works Department.[44]

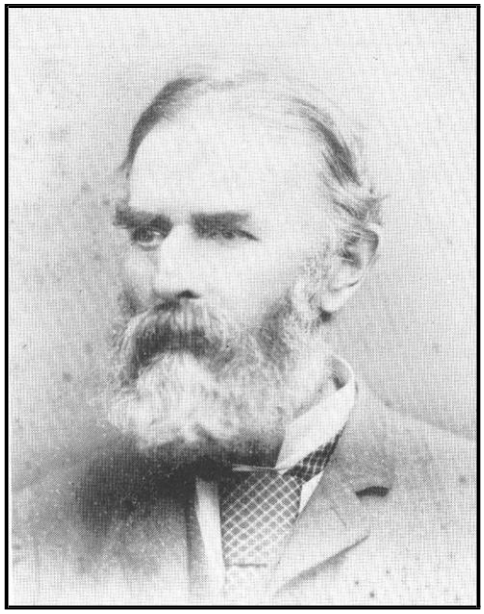


Plate 9: E.O. Moriarty J. Armstrong, *Shaping the Hunter*

Moriarty produced a report on the navigation problems of the harbour, identifying "two natural drawbacks of the harbour": a rock ledge and unusual current at the entrance, and the extensive banks of sand within." He predicted the removal of the rock ledge, or the carving of a channel through it, "at some future time",[45] but laid down a three stage plan to reduce the levels of silt and sand within the harbour. These steps were summarised by maritime historian Terry Callen:

> *The first stage was the "continuation of the river" plan and involved the building of a large stone dyke curving from Port Waratah to opposite the Australian Agricultural Company's wharf (Crown Street). The second stage was to build a similar stone wall from near Crown Street curving slightly until it met Macquarie Pier. The third stage was a small stone guidewall or breakwater on the northern side of the harbour at Pirate Point. All three features were planned to work together in concentrating the outgoing current into one stream which would scour out the harbour and the bar.*[46]

[43] Armstrong, *Shaping the Hunter, p.15.*
[44] *ibid.,.*
[45] Coltheart, *Between Wind and Water,* p.41.
[46] Callen, *Bar Safe,* p.26.

For many years the government raised funds for Newcastle harbour improvements by levying of tonnage dues. This scheme operated from 1858 until the 1873 when the Repeal of Tonnage Dues Act was passed, following pressure from local politicians who resented the expenditure of locally raised funds in other areas.[47]

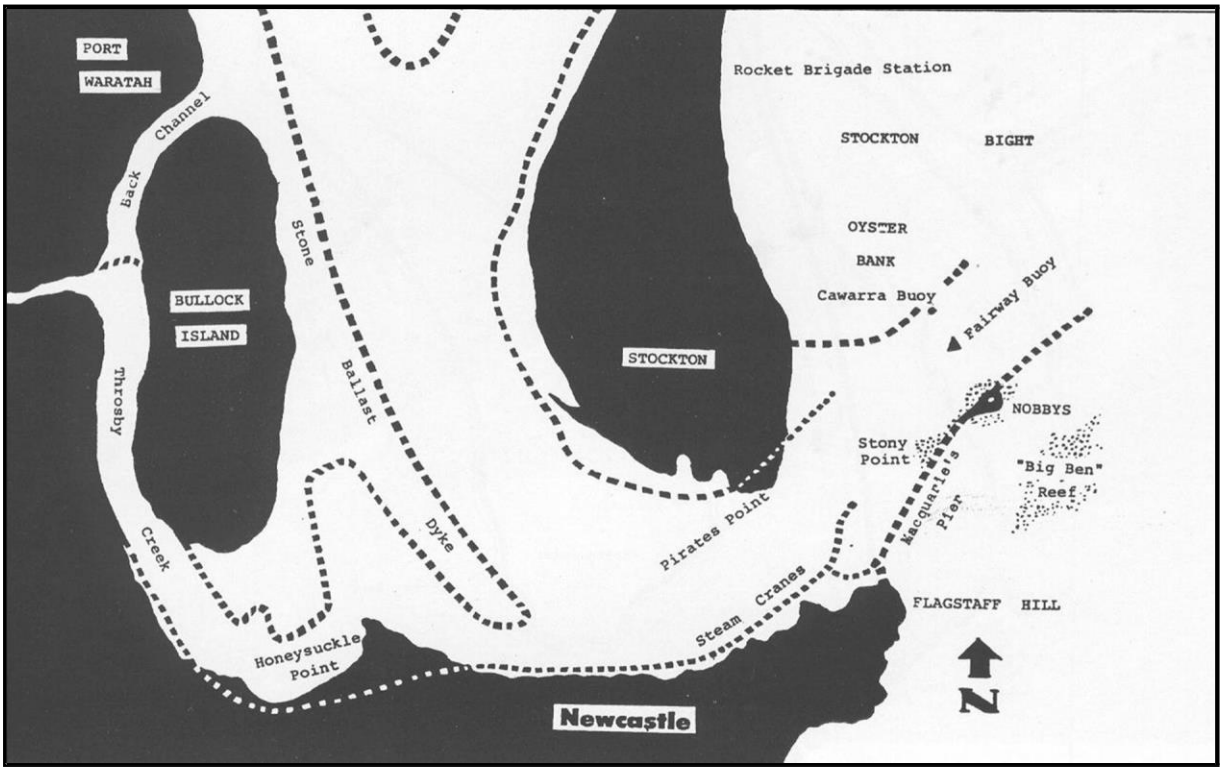


Plate 10: Plan of Newcastle Harbour with manmade foreshores shown in broken lines from T.Callen, Bar Dangerous.

Stage 1: The Dyke

Construction of The Dyke at Bullock Island served a dual purpose in Moriarty's plan. While its eastern face would improve the flow of the river, it would also support a line of wharves for coal loading purposes. Reclamation work behind The Dyke would create an area of land which could be devoted to loading activities.

A sand bank of about 650 hectares ran north-south on the east of the Bullock Island, and Moriarty proposed depositing a layer of ballast along the margin of the bank to prevent it flooding at high tide and to divert the flow of the river to scour a channel to the east of the Dyke. In 1862, two ballast jetties were built and ships began depositing ballast heaps on the line of the embankment, while sand dredged from the harbour was pumped behind the newly created wall.

The diverse nature of the ground on the man-made island was highlighted by a local newspaper:

47 N.L. Cushing, "Creating the Coalopolis: Perceptions of Newcastle 1770-1935", PhD Thesis, University of Newcastle, 1995, p.188.

> *Here we have geographical specimens from every part of the world. The whole expanse of ground has been built up of ballast from the ships that come to our harbour. In one place we tread upon a layer of London flint, next a collection of stones from the shores of the sunny Mediterranean. These are succeeded by a rocky mound from Scandinavian coasts and these in turn give place to blue stone from Melbourne, green trap from New Zealand, limestone from Singapore and even the sun burnt bricks and glazed uncouth carvings from a dismantled village in far off China.*[48]

By 1874 the stone bank was complete, enabling contracts to be let for the construction of wharves. Reclamation work continued on Bullock Island and by 1890, a series of mudflats had been transformed into 121 acres of usable land.

Enlargement of the basin behind The Dyke in 1892 involved pumping sand through a pipe laid under the main railway line to swampy land north of the hydraulic engine house. Rock at the entrance to the new basin was removed by drilling and blasting, using a specially built rockbreaker, Posiedon. [49]

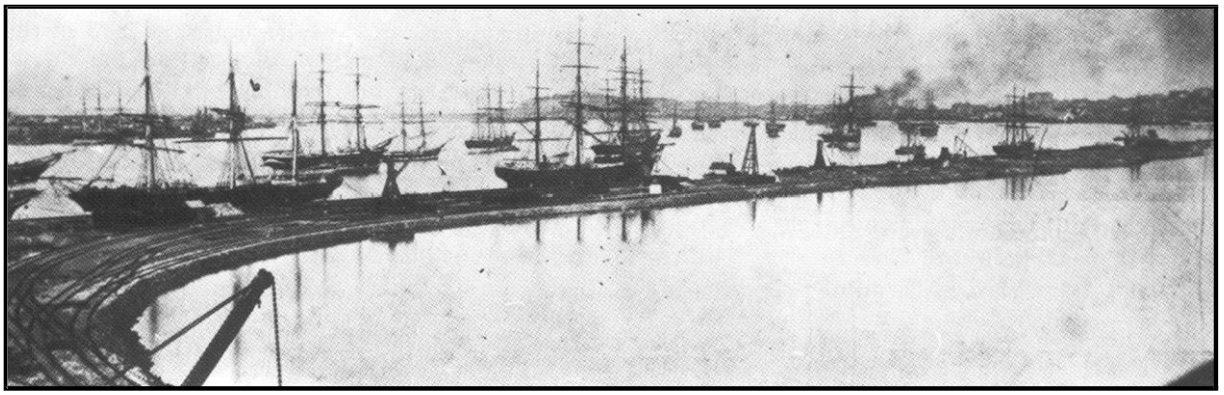


Plate 11: The Dyke during construction phase, looking towards Nobbys. T.Callen, *Bar Dangerous*

Stage 2: The Southern Foreshore Seawall

Construction of this seawall was already underway in 1851 when Lieut. Stokes carried out his survey of the harbour. When completed, the wall created an uninterrupted shoreline to promote river flow and for future wharf accommodation.[50] By 1862 it had reached a point in line with Zaara Street, and reclamation work was continuing behind a wall which ran in a north-easterly direction towards Macquarie Pier.

When the harbour was surveyed in 1866 by Messrs. Gowlland and Boulton, R.N., (Plate 12) the irregular southern shoreline between Watt Street and Macquarie Pier had been replaced by a well-defined bank on which Queens Wharf was subsequently built. The 1848 stone wharf was demolished and the boat harbour

[48] *Newcastle Morning Herald and Miners Advocate,* 7 November 1877.
[49] Coltheart, *Between Wind and Water,* p.92.
[50] Port of Newcastle Surveyed by Captain Stokes RN 1851.

Behind it resumed in a reclamation programme associated with the construction of Newcastle Railway Station in 1857. A new boat harbour, its banks lined with masonry from the Watt Street wharf, was built at the foot of Markey Street.

A small beach, now known as Horseshoe Beach, remained between the eastern end of the seawall and Macquarie Pier. The low lying ground behind it was reclaimed to create an enlarged area of foreshore land, shown on Plate 12 below.

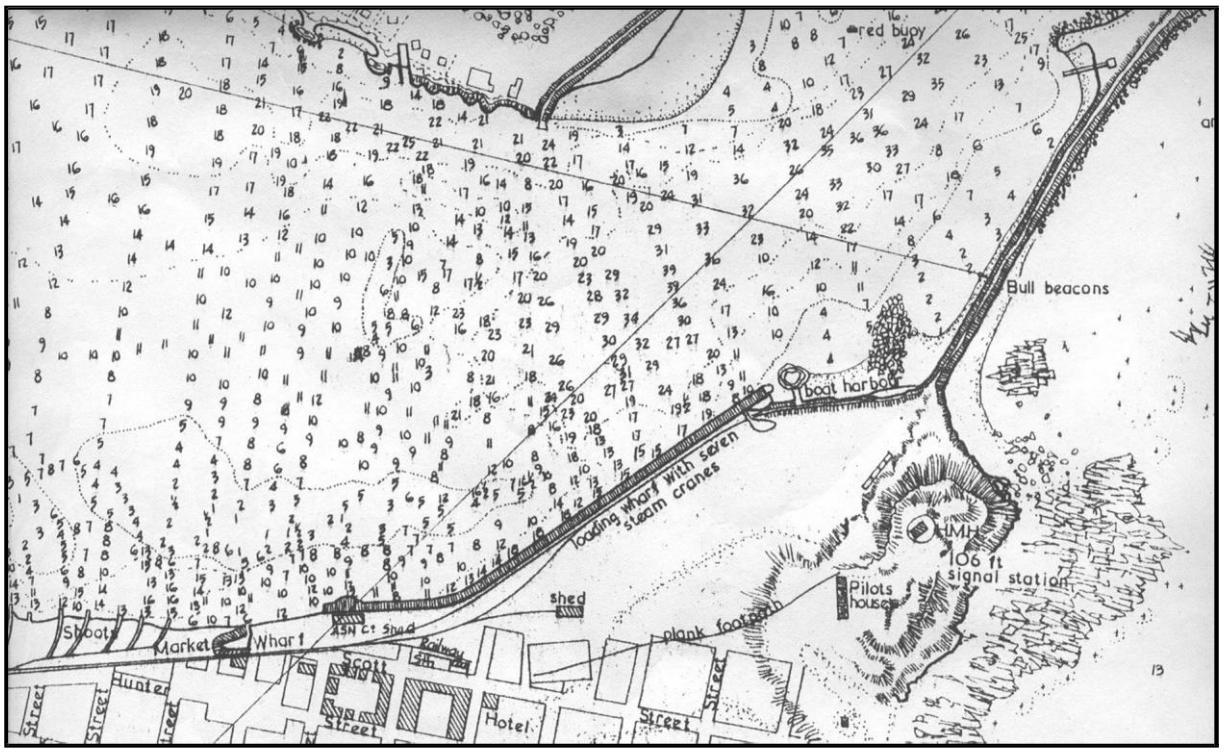


Plate 12: Extract from Gowlland & Boulton Survey, 1866 Taken from PWD microfilm by MSB Engineering, Ncle 1976

Stage 3: The Pirate Point Guidewall

Between 1861 and 1872 a small breakwater was built towards the sea from Pirate Point on the Stockton peninsular. A wall was built of ballast, mostly Melbourne bluestone, which was discharged at a small wharf on the south-eastern tip of the peninsular.[51] As the wall progressed, railway tracks were laid on to carry wagons of ballast to the end, where they were tipped to build up the next section.[52] This breakwater was rebuilt between 1871 and 1886, and was also reinforced with Waratah sandstone. It continues to serve as a wave-trap to reduce the damage to ships moored in the harbour.[53]

Dredges were a key component in Moriarty's plan and they worked constantly, excavating berths and channels then using the dredged material to reclaim new waterfrontage. As well as the training walls

[51] Callen, *Bar Dangerous,* p.173.
[52] Coltheart, *Between Wind and Water,* p.53.
[53] Callen, *Bar Dangerous,* p.173.

mentioned above, similar structures were built up as far as Fullerton Cove and the western shore of Stockton Pennisular was reclaimed.

Further developments at Stockton were made as a result of outbreaks of bubonic plague in the late 19th Century. This aroused much concern in Newcastle because of the city's close contact with the maritime industry. In an attempt to minimise the risk of infection, a new jetty was built at Stockton in 1899 for the dumping of ballast from infected ports and a Quarantine Station, which later became Stockton Hospital, was built soon after.[54]

Moriarty's plan had vastly improved the harbour, but as ships became larger the need for additional deepening took on a degree of urgency. In 1890 the Chamber of Commerce reported that several English merchants had complained that they were incurring "very great loss … in consequence of a number of vessels not being allowed to load to their full draughts". Turnaround times were also a problem, with some ships waiting up to 2 months for a berth, lying up to 5 abreast. In many cases, the ships were sent to Sydney rather than Newcastle to load.[55]

Arrival of the rockbreaker, *Poseidon,* in 1892 brought some hope for improved navigation of the harbour. The channel was deepened to 25 feet, a navigational hazard known as the Lightship Rock was removed and rock was excavated to deepen the wool berths at Queens Wharf to 24 feet, the depth required for larger ocean steamers.[56]

However, silt continued to wash down the river and after severe flooding in 1893, the depth was reduced from 27-28 feet to only 12 feet in some places. Seven dredges, including *Dorus* and *Juno* which were added to the fleet at the time, worked constantly to clear shipping channels, removing one and a quarter million tons of silt from the north channel alone.[57] Henry Deane Walsh, Engineer-in-Chief of the Sydney Harbour Trust, believed that constant dredging would maintain sufficient depth in the harbour "for many years to come". While he acknowledged that it may be necessary in the future to cut away a "considerable portion" of the rock at the harbour entrance, he described such a task as "a bigger job that the removal of Hell's Gates".[58]

[54] Coltheart, *Between Wind and Water,* p.93. and Chamber of Commerce Annual Report, 1901.
[55] Fifth Annual Report, Newcastle Chamber of Commerce, Newcastle, 1891, p.9.
1888 Improvements, p.112
[56] Coltheart, *Between Wind and Water,* p.92.
[57] Henry Deane Walsh, evidence to Parliamentary Standing Committee on Public Works. Minutes of Evidence – Hunter River Flood Prevention, 20 December 1901, P.96.
Chamber of Commerce Report, 1893
[58] Walsh, evidence to Parliamentary Standing Committee on Public Works, Hunter River Flood Prevention, 20 December 1901, p.95

2.9.5 Macquarie Pier

Although the link between Nobbys and the mainland had been completed in 1846, Macquarie Pier was not strongly built and was often breached by heavy seas. The stone from signal hill which was used to construct the pier was "of a very indifferent character" and "fretted away, partly by the action of the sea and partly by the action of the atmosphere".[59]

Hoping to create a beach which would protect the convict-built structure, Moriarty built two groynes near the centre of the pier but they were partially destroyed in a gale.[60] Recalling his arrival in Newcastle in 1867, PWD Engineer Cecil Darley commented that:

> *… the breakwater was breached through, and the sea was breaking heavily through several gaps into the harbour. One gap was so washed out that at high tide it was almost possible to take a boat into the harbour through it. I found that a contract was in existence when I arrived for repairing that structure … with ships' ballast bluestone, which was being carried out from the end of Queen's Wharf. There was no crane at the end of the wharf in those days, and the ballast was run out on a siding and tipped there. I watched these operations for a short time, and found that the ballast was altogether too light for the work which it was expected to do. Every sea used to wash away the stonework.*[61]

Rather than using ships ballast to repair the breaches, he argued that larger rocks were needed if the pier was be effective. In 1869 a quarry (subsequently known as "Harbour and Rivers Department No.1 Quarry") was established on the Waratah Coal Company's estate at Lambton. An arrangement was made with the coal company whereby the government paid for the use of their rail line to transport stone from the quarry to the eastern end of Queens Wharf.

Progress was continually hampered by the Government's reluctance to grant more than £5,000 at a time for such work. As Darley pointed out, this prevented the acquisition of necessary plant so work was undertaken with "indifferent appliances, and when we got fairly into swing with the work, and the men all trained to it, the money ran out, the works were stopped, and the men were scattered all over the Colony". By 1870 all gaps had been filled but the pier was sound for only three quarters of its length. Gales once again caused damage in the following year, and a grant of £5,000 which was intended to finance completion of the pier was devoted to repairs.[62] The project was finally completed in February 1872. The inner harbour face was later built with roughly-dressed blocks of stone "so as to get the benefit of the

[59] C.W. Darley, evidence to Parliamentary Standing Committee in Public Works, Proposed Harbour Improvements at Newcastle, 21 March 1895, p.7
[60] Callen, *Bar Safe, p.26.*
[61] C.W. Darley, evidence to Parliamentary Standing Committee in Public Works, Proposed Harbour Improvements at Newcastle, 21 March 1895, p.7
[62] *ibid*

whole width on the top, and make it a public promenade." [63]

Early maps of the harbour show lifeboat sheds on Stony Point, located mid-way along the inner face of Macquarie Pier. Although the lifeboat sheds were relocated to the Pilot Station c.1866. later photographs indicate structures (possibly houses) near the site. A set of steps in this vicinity, sometimes erroneously known as "the convict steps", probably provided access to the buildings on Stony Point.

2.9.6 Southern Breakwater

The first breakwater extension beyond Nobbys was built between 1875 and 1883 to protect ships from the reef which extended towards Big Ben Rock. The Government exceeded its previous allocation of funds for such work, and voted £10,000. Aspects of the undertaking were described by Cecil Darley:

> *The first thing … to be done was to form a railway round to Nobby's. All our appliances had to be dismantled and carried out to Nobby's for the purpose of constructing the new extension. The work was then proceeded with, and the first stone was tipped beyond Nobby's on the 7th January, 1875. On the 7th March, 1876, work ceased for want of funds. In 1876 the Government voted £35,000m and the work was resumed on the 7th July 1876. It went on continuously then till the 4th August 1880, and had to cease again through the money being exhausted. That was the longest spell of work that we had, being a period of four years. In 1881 a further sum of £20,000 was voted,and the work was proceeded with again and finished in 1883. …*

Darley commented that the completed breakwater "covered" Big Ben, "so that a ship, if she [kept] clear of the breakwater, [would] have to keep clear of Big Ben, which was the serious danger."[64]

A large fog warning bell was installed on the breakwater in 1878. The sound of this bell, "rung with three distinct beats with an interval of half a minute before the next three beats", became a familiar sound to city dwellers and could be heard a great distance out to sea. The bell, which weighs half a ton, was cast in the local foundry of Morison and Bearby and mounted on a timber frame. It was operated by staff at Nobbys Signal Station until it was replaced by an electronic system in the 1950s. It is now housed in the Newcastle Maritime Museum.[65]

The breakwater was repaired and extended by 300 ft. in 1896, when the railway line was re-laid to carry new plant which could carry stones weighing up to 30 tons. The last 100ft. of the extension was strengthened by increasing it to three times the former width.

[63] *ibid.*
[64] *ibid.*., pp.6-8
[65] P. Melville, "Macquarie Pier and Nobbys Head", in Conservation Management Plan for the site prepared by Suters Architects

2.10 WHARFAGE

As Newcastle's coal industry expanded, increasing numbers of ships visited the harbour, creating a need for additional wharf accommodation. This was facilitated by the construction of Moriarty's training walls, which created unbroken shorelines with unrestricted access across newly reclaimed land.

On the southern shores of the harbour, additional coal loading staithes were built to the west of the Market Street wharf. By 1865 there were five operated by the A.A. Company and four by the Newcastle Coal and Copper Company. Further up the river, the Port Waratah Company had four at Port Waratah and at Hexham, J & A Brown filled their ships from three staithes.[66]

2.10.1 Queens Wharf

This period also saw the construction of Queens Wharf, in the area between Watt Street and the area now occupied by the Pilot Station. To build this wharf, it was necessary to fill in the old boat harbour and demolish the 1846 circular wharf. A new boat harbour was built near Market Street in 1852 and masonry from the demolished wharf used to face the banks.

Construction began in 1858 and by the early 1860s, it provided 1,500 ft. of wharf accommodation, equipped with rail tracks and steam cranes for coal loading.[67] Two steam cranes had been erected by the Wallsend Coal Company and a third came into operation shortly afterwards. They were unreliable and often collapsed under load. After a court case associated with the use of the cranes by other companies, and the continued poor performance of the cranes, they were replaced by eight government-owned cranes, the largest with a capacity of 15 tons.

The removal of coal loading to The Dyke eased the congestion on Queens Wharf, which could then be used primarily for general cargo. The steam cranes were phased out and by 1888 only two remained on the wharf, while three had been moved to The Dyke.[68] Bases of two of these cranes have survived, one near the entrance to the Pilot Station and the other a short distance to the west. At intervals along the wharf were several sets of watermen's boat stairs, as well as stairs for the various ferry-steamers travelling to Stockton, Bullock Island, Waratah and Raymond Terrace.

In 1895, Queens Wharf was enlarged to create two new berths for loading wool and frozen meat, which had first been exported in 1892.[69]

[66] J. Armstrong, *Shaping the Hunter,* p.18.
[67] *ibid.,* p.17.
[68] J. Windross, *The Newcastle Nautical Compendium,* 1892, p.13
[69] Coltheart, *Between Wind and Water,* p.92. and Newcastle Chamber of Commerce Annual Report,1896-7, p.20.

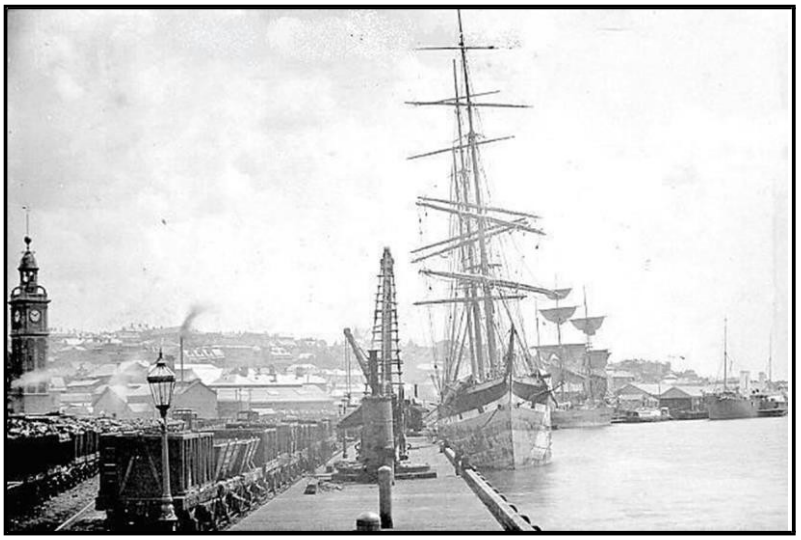


Plate 13: Steam Cranes on Queens Wharf, c.1891. *Cadell Collection NRPL.*

2.10.2 Coal Loading Moves to The Dyke

Contracts were let in 1874 for the construction of wharves on the eastern side of Bullock Island, in preparation for the transfer of coal loading activities from the southern side of the harbour. Archaeologist, Damaris Bairstow, documented the development of these wharves between 1875 and 1877:

> *Along the Dyke, wharves were built in 30 metre sections, 60 metres apart starting about 230 metres from the southern end. Seventeen were built in 1875, the same year as the branch railway crossed Throsby's Creek on the east side of the island. By 1876, including all sidings, some eleven kilometres of single track had been laid, all in steel, designed to last six times as long as the iron rails normally used. In 1876-7, concrete foundations for the first four hydraulic cranes were laid at Berths 4,5,6 and 7, ninety metres apart. [These bases supported the cranes which later became known as Nos.7, 8, 9 and 10] In the course of the latter year, the first ten wharves were connected to form a continuous timber-built wharf 838 metres long.*[70]

Hydraulic powered cranes were selected for The Dyke coal loading berths, and tenders were called for "the erection of the engine house, boiler house, smoke stack and hydraulic towers" in April 1876. The building was erected by private contractors employed by Harbours and Rivers section of the Public Works Department but design of the building has sometimes been attributed to the Government Architect, James Barnet. Built on "huge blocks of shining white sandstone" (now grey in colour), and featuring the same yellow bricks from local brick maker, Bowtell, that had been used in the Customs House, the building drew favourable comment:

> *On heavy foundations, then thought essential for any major building on reclaimed land, this*

[70] D. Bairstow, "The Bullock Island Hydraulic Power House", unpublished manuscript in possession of the author. Identification of cranes in relation to surviving bases was carried out by B. Collins and R. Melville following close study of documentary and physical evidence.

> *Classic Revival edifice is of yellow, compressed brick, with Sydney sandstone quoins, architrave, frieze and pediment. The roof was boarded and slated. The overall length was 43.9 metres, the depth 26.9 metres. The engine room measured 21.3 by 12.3 metres.*[71]

Contracts for the hydraulic pumps and associated hydraulic loading cranes were awarded to the Armstrong Hydraulic Machinery Co., Elswick, England.[72] In February 1878, Moriarty witnessed a test lift and on 19th March, 1878 the first shipment of coal loaded by hydraulic cranes left Newcastle Harbour aboard the *Downiemount*, which had brought the cranes from Britain on her previous voyage.

The cranes were described in the *Town and country Journal* in March 1879 as "the chief glory of Newcastle":

> *These beautiful pieces of mechanism … represent the last achievements of mechanical science in hydraulic machinery. They could be manipulated by a child. The wagons of coal are brought into position by a rope worked by an hydraulic windlass. The man in charge has simply to press his foot on the treadle, while he draws in the rope, and the irresistible water pressure does the rest. The wagon being in position, the hooks of the chains are fastened in it, and the man standing on the platform of the hydraulic crane moves a lever, and the giant lifts the top of the truck as easily as a mother would lift her child, without a sound swings it over the ship's hatchway, where the lumpers knock out the pins which fasten the bottom of the truck, and then the coal disappears into the hold of the vessel. The whole process takes only a minute and a half.*[73]

[71] Suters Architects, "Macquarie Pier and Nobbys Head Conservation Management Plan", p.11.
[72] For a detailed description of this equipment see P. Cockbain, "The Engineering Heritage Associated with Coal Shipment from Newcastle 1877 to 1967, paper presented to National Engineering Heritage Conference, 1997.
[73] cited in D. Bairstow, archaeological report on various industrial sites in Newcastle, unpublished manuscript in possession of author

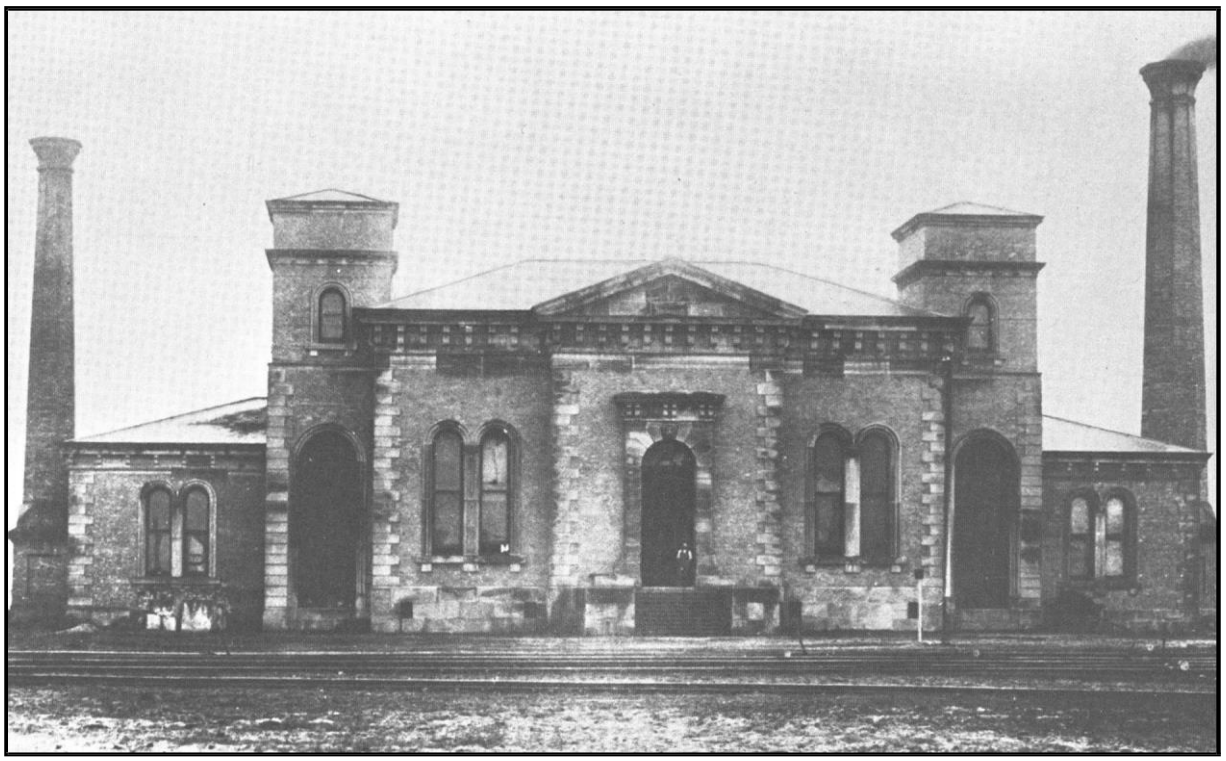


Plate 14: Hydraulic Power House showing two chimneys which have now been demolished. *Newcastle Region Public Library.*

Four more cranes – two of 15 tons and two of 25 tons – were ordered in 1877 and in 1879, two more boilers and another engine arrived. It was 1880 before the first of the 25 ton cranes arrived and was installed north of the existing cranes. In 1884-5 contracts were let for a northern extension to the wharf and by 1886 the Dyke was almost three kilometres long. Four 9 ton cranes were ordered, but they were not erected until early in 1888, bringing the number ofcranes to twelve.

Congestion continued to be experienced, and three steam cranes were transferred from Queens Wharf to ease the situation. Electric light was installed in 1891 to allow loading to continue around the clock.

While coal loading was the primary activity at the Dyke wharves, an area an the northern end was leased to the Sulphide Corporation in the 1890s.[74] Cattle and sheep wharves were established at the northern end. Horses were shipped from this wharf during the Boer War (1899-1902) with the men who had enlisted from the Hunter.[75]

In the recently completed Basin behind The Dyke, tie up dolphins were provided but wharves were not completed until after 1900.

[74] M. Sparke, "Newcastle Waterside Workers: Their Home Port, Working Environment and Unionism, 1885 to 1917, MA Thesis, University of Newcastle, 1997. p.48.
[75] *Ports and People*, p.44.

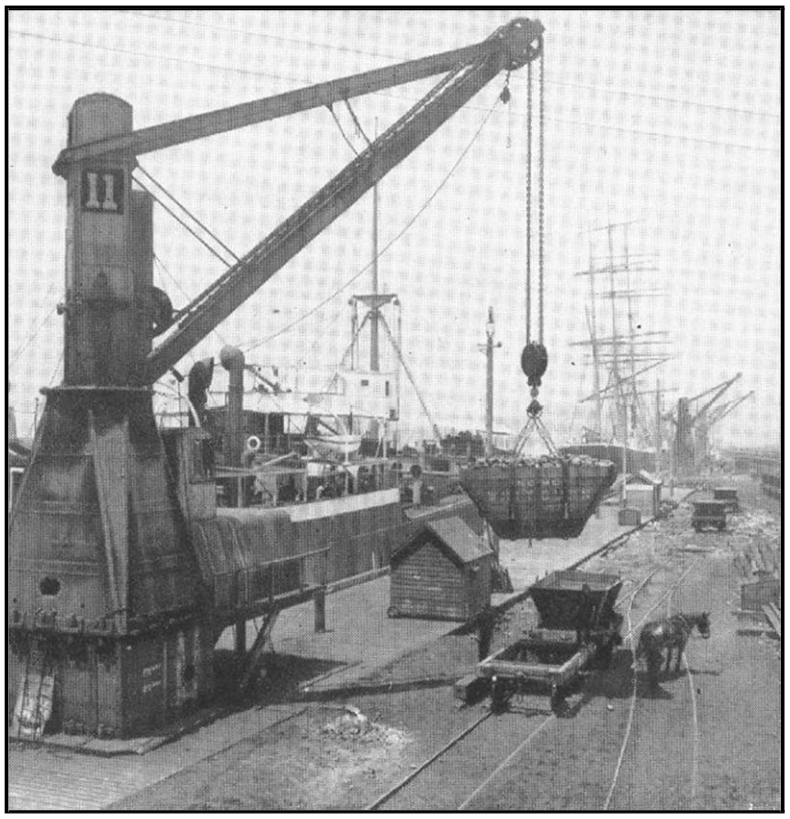


Plate 15: Hydraulic Power Crane. One of the three hydraulic crannes still in operation in 1959. Note the horse to the right of the coal wagon. *Port of Sydney, March 1959.*

2.11 Boat Harbours

As well as providing wharf accommodation for ocean going vessels, it was necessary cater for the small boats which brought produce to Newcastle from farms further up the river, and for ferries and other small craft.

Boat harbours were built at Stockton, The Dyke, and at the foot of Market Street. In 1887 the Market Street boat harbour, which had recently been enlarged, was described in *The Newcastle Nautical Almanac:*

> *The Newcastle Boat Harbour, in connection with the Market, is situated at the northern extremity of Market-street, and has been enlarged and improved, and now provides frontage of 510 feet, of which 250 feet is reserved for the use of settlers for landing produce, 160 feet for accommodation for watermen's boats, and 100 feet for slips and sheds, to contain boats belonging to the various Government Departments. A market for the accommodation of settlers to vend their produce has been erected close to this frontage.*[76]

The Market Street boat harbour was resumed for railway expansion and was replaced by the Perkins St. Boat Harbour, opened in 1902. After providing a safe harbour for small boats and launches for nearly

[76] R.C. Knaggs, *The Newcastle Nautical Almanac,* Newcastle, 1887, p.181

sixty years, the Perkins Street Boat Harbour was demolished in 1960.[77]

The boat harbour at The Dyke contained provision for slipping boats and wharfage for landing produce. It also allowed vessels to lower their boats into the water while loading. as the strong current made it dangerous to moor boats alongside the wharf.

Driven largely by the demands of the coal industry, wharf accommodation in the port had increased enormously by the end of the 19th Century:

> *On the south or town side of the harbour there is a continuous line of wharf, 3,607 feet long, belonging to the Government, 2,130 feet of which is occupied for cargo berths for deep-draught vessels; 500 feet reserved for Sydney passenger steamers; and the remaining 977 feet is used as a general cargo wharf, including a lumber berth for loading vessels with timber. The whole length of this wharf is lit with gas.*
>
> *At Bullock Island, on the western side of the harbour, a substantial timber Government wharf, 7,760 feet in length, and four ballast jetties, each 50 feet long and 200 feet apart, has been constructed along the face and round the south end of what was formerly known as the Ballast Dyke; at present 5,550 feet of this wharf is set apart for the shipment of coal. The loading is performed by hydraulic cranes, of which twelve are erected, capable of shipping 1,000 tons of coal each in twenty-four hours – six being 15 ton, four 9 ton, and two 25 ton cranes, the latter for discharging heavy machinery etc. and three 15 ton steam cranes.*
>
> *The remainder of the wharf and the ballast jetties are used by vessels discharging ballast or waiting their turn to load. Ships of the largest class can load under the hydraulic cranes, and proceed direct to sea through deep-water channels recently dredged. It is proposed to spend immediately £150,000 to further increase the shipping facilities at Bullock Island. This wharf is now lit by electric light, which greatly facilitates the loading of coal at night, and is one of the finest systems of electric lighting in existence, consisting of fifty large arc lamps, each 5,000 candle power.*
>
> *In addition to these Government cranes, the Australian Agricultural Company have three large private shoots capable of delivering 2,000 to 3,000 tons of coal per diem. Vessels loading from them can discharge their ballast onto the Company's ballast wharf, lying alongside at a draught of 18ft. 6in. And upwards. Vessels drawing 22 feet can load at the Company's shoots. The Waratah Company also have a shoot at Port Waratah capable of shipping about 50 tons per*

[77] N. Barney, *History in our Streets,* Newcastle, 1997, p.36.

house and Messrs. J. & A Brown have two shoots on the Hunter River, at Hexham, 10 miles from Newcastle, capable of shipping 100 tons per hour.[78]

A 600ft. long wharf, equipped with two steam cranes for loading coal was also built at Stockton during this period.

2.12 NAVIGATION

Newcastle's disastrous tally of shipwrecks cause many sailors to fear entering the port – between 1850 and 1900 at least 35 ships were lost in Newcastle Bight and on Stockton Beach, and the dreaded Oyster Bank claimed more than 23. One of the most significant disasters was the wreck of the paddle steamer *Cawarra,* which struck the Oyster Bank in a heavy gale in 1866 with the loss of 60 lives. The victims were buried in Newcastle Cathedral cemetery, many being placed in a mass grave where some tombstones may still be seen. [79]

Navigation aids in 1850 were limited to a signal station and beacon fire on Signal Hill, a number of beacons and the newly erected obelisk which replaced a windmill which had stood on the hill behind the town since 1820. This windmill had been used as a guide by ships approaching the port, and its demolition in 1847 caused an uproar in maritime circles.

Vessels were assisted into port by private tugs as early as 1854 but for several years during 1850s the harbour was without a tug service. Appeals to Sydney for a government funded tug were unsuccessful, despite the support of Merion Moriarty who declared that "The harbour at Newcastle is a very dangerous one indeed. It should have a tug to prevent accidents". In September 1859 a second privately own tug commenced operations and towage services were subsequently provided by firms such as J & A Brown, The Newcastle Co-Operative Steam Tug Company, Daltons and Fenwicks.

2.12.1 Nobbys Lighthouse

As the coal trade developed, increasing numbers of ships were visiting Newcastle and the need for a better lighthouse became urgent. The beacon on Signal Hill was unsatisfactory as it was located about half a mile south of the entrance to the port and this was confusing to navigators, particularly in bad weather. A Select Committee was appointed in 1852 to recommend a suitable site and design. It was agreed that Nobbys should be reduced in height, fuelling rumours that the island was to be destroyed entirely. The top of the island was subsequently levelled and tenders called for the construction of a lighthouse in 1857.

[78] *Newcastle Morning Herald,* 2 January 1895.
[79] Callen, *Bar Dangerous,* p.124.

Two houses for the keepers were also erected, together with a large brick well. The houses were demolished in 1941 and the existing cottages were built the following year. During construction, No.1 house was hit by a shell fired from a Japanese submarine but the shell did not explode. The cottages were occupied by the military until January 1945 when civilian keepers resumed occupation of the site.[80] The cottages have recently been vacated and are now unoccupied.

2.12.2 Signal Station

In conjunction with the construction of the lighthouse, a new, weatherboard signal station was built on Nobbys to replace the Signal Hill structure. It was replaced in 1953 by a four storeyed brick building in which storerooms and offices occupied the two lower levels, and signalling sections occupied the top two levels. This building underwent a major upgrade in the 1980s. Signal station functions are now located at the Pilot Station.

2.12.3 Leading Light Towers

While the lighthouse guided ships to the entrance of the harbour, negotiating the channel remained a difficult task. Two stone leading light towers were built in 1865, one in Perkins Street near St. Mary's Church and the other in Tyrrell Street. The rear tower, which still stands, displayed a white light and the other, of which only the base remains, displayed a red light.[81]

These lights came under much criticism from mariners, who claimed that they were too close together, and ships could stray up to 200ft. from the centre of the channel before the lights appeared to "open". Following the loss of a number of ships on the Oyster Bank, the lights were dubbed the "misleading lights" and were treated with mistrust by the pilots. Despite continued pressure on the government for new lights, they were not replaced until 1917 with lights located below Church Street and on the harbour foreshore.[82]

2.12.4 Pilot Station & Boat Harbour

In 1864 the section of old convict stockade occupied by the pilots collapsed, destroying two whaleboats. The other section of the structure had been destroyed by fire in 1852. It was possibly this loss which prompted the construction of a new Pilot Boat Harbour and associated buildings.

In February 1866 the Government announced the commencement of work on a pilot boat harbour at the

[80] Suters Architects, Macquarie Pier and Nobbys Head Conservation Management Plan
[81] Callen, *Bar Dangerous,* p.*187.*
[82] Callen, *Bar Dangerous,* p.188

eastern extremity of Queens Wharf.[83] The evolution of this harbour, which enabled the pilotage service to move from its original site on the beach near the old stockade, is documented in maps of c.1864, 1866 and 1874.

Tenders were called in April 1866 for the deposit of stone ballast in the embankment "leading from the eastern end of Newcastle wharf to the Southern Breakwater" A "waiting room" and lifeboat shed followed in 1867 and a pilot station building and residence in 1869. Additional pilots quarters were built near the base of Signal Hill in 1871.[84] The pilot station was a three storeyed building, containing the Assistant Harbour Master's office and waiting room facilities. A lifeboat shed was built in 1867 and until its termination in 1946, the lifeboat service was also based at the Pilot Station.

Further additions were made at the Pilot Station in 1881 when it was incorporated in the defence system for Newcastle. Included in the plans for Fort Scratchley was the construction of a submarine mining depot on the eastern side of the entrance to the Pilot Boat Harbour. This system involved cables which were used to position the mines in the shipping channel between Stockton and the Pilot Boat Harbour, and to fire them by electrical impulse. These cables were stored in the observation bunker, where a concrete cable tank still exists.

Plate 16: Pilot Boat Harbour, 1902. *Newcastle Region Library*

According to military historian Graham Davidson, in 1894 the bunker was equipped with one 37 mm Nordenfelt Quickfiring gun to protect it from torpedo boats. The remains of the mount for this gun can be seen on the roof of the bunker. The western side of the Pilot Boat Harbour was also reconstructed in

[83] *Newcastle Chronicle,* 10 February 1866.
[84] Turner, "A History of the Newcastle Pilot Boat Harbour" and Fletcher, Capt. James, Notes on the history of the Newcastle Pilot Service, undated manuscript.

1881.

The Pilot Station also served as headquarters of the lifeboat service from about 1869 until 1846 when it was terminated.

Plans to demolish the Pilot Station and adjoining cottage in 1939 and to erect a new complex were abandoned when World War II broke out. Instead, the cottage was rebuilt and occupied by either the Boatswains or the officer in charge of the station. The Pilot Station was demolished and a new building erected in 1959. The automatic tide gauge which was replaced at this time has been retained at the Pilot Station.

In 1988 an old amenities building in the south-east corner of the site was demolished and replaced with a new workshop and storeroom. In the course of construction, a large number of 32 pounder round shot was found stacked in a trench in pyramid formation. After examination they were left in the ground and covered for protection.[85]

2.13 Overview

At the end of the 19th Century, Newcastle Harbour had undergone remarkable changes, eloquently described by, Harbour Master and later Deputy Supt., Department of Navigation, Newcastle, Captain Henry Newton, who declared that "by engineering skill and the expenditure of money, it has been made, I may say, a harbour from a creek".

2.13.1 1900-1950: "WE ARE NOT GETTING A FAIR DEAL"[86]

Funding for port development was limited in this period, in which Australia weathered two World Wars and the Great Depression. Nevertheless, there were repeated outbursts of frustration at the Government's failure to upgrade the port's facilities. Resentment also continued to simmer, as unsuccessful attempts to gain local control were blamed on "the determined opposition of officials whose interests centre in Sydney".[87]

Although the Public Works Department was almost continuously occupied with dredging and reclamation work, there was much of dissatisfaction in Newcastle about the inadequate wharf accommodation and equipment. At least two Sydney firms were prepared to ship wheat through Newcastle in 1922, but their

[85] Turner, "A History of the Newcastle Pilot Boat Harbour"
[86] John C. Reid, President Newcastle Chamber of Commerce quoted in Newcastle Chamber of Commerce Annual Report, 1919
[87] Newcastle Chamber of Commerce, Annual Report, 1924

trade was lost because the Government declined to provide the necessary facilities.[88] But perhaps the strongest attacks were directed at the Railway Commissioners for their failure to improve coal loading facilities, while reaping significant profits from their Newcastle operations.

2.13.2 ADMINISTRATION

The divided control which hampered development and decision making in the port continued, with the Department of Railways gaining complete control of coal handling in 1913 with the takeover of the last privately owned operation.

In 1921 the Government re-introduced a system of port charges, under the Harbour and Tonnage Rates Act, to raise money for harbour works. This produced much dissatisfaction in Newcastle, where over £10,000 per month was raised but with no corresponding investment in harbour improvements.[89]

Continued agitation, driven largely by the local Chamber of Commerce, led to the appointment of a Royal Commission in 1923 to enquire into "all matters relating to the Port of Newcastle" Local interests were optimistic that they might finally escape the tentacles of "the ever grasping Sydney octopus". To their dismay, the Commission's recommendation that a local trust be appointed to control the wharves, leaving coal loading in the hands of the Railway Commissioners, failed to eventuate.

The Premier was agreeable to the formation of a local trust, and the Minister for Public Works had previously expressed his willingness to be "relieved of the responsibility" of the Newcastle port. However, the proposal was resisted strongly by three powerful players. The Railway Commissioners, who stood to lose the considerable profits generated by their coal loading operations, and two influential private interests – BHP and the coalmining industry – which feared the imposition of a levy to finance operations.[90]

The establishment of the Maritime Services Board in 1935 made very little difference to port management in Newcastle. The MSB took over the functions of the Department of Navigation, but all other aspects of port control remained unchanged. However, a statutory body, the Port of Newcastle Advisory Committee, was established to advise the Board on matters relating to control of the port. It consisted of eight members, one nominated by the Board and the remainder being nominated by the Minister to represent interests concerned with port matters. [91]

[88] Newcastle Chamber of Commerce, Annual Report, 1923
[89] Newcastle Chamber of Commerce, Annual Report, 1922
[90] R. Melville, "In the Shadow of the McMyler Hoist? Coal Loading in the Port of Newcastle 1900-1960". Unpublished manuscript, 1996.
[91] A.L. Enever, "A Brief History of Port Administration at Newcastle", *Port of Sydney,* Vol.7, June 1961, p.158.

2.13.3 HARBOUR IMPROVEMENTS

While great progress has been made with harbour improvements in eth second half of eth 19th Century ships were becoming bigger and the harbour depth at the entrance continued to be a problem.

Following agitation by the Newcastle Chamber of Commerce, the State Government agreed to an extensive programme of improvements which included harbour deepening and additional wharfage. The work was carried out under the direction of Percy Allen, who was appointed as the Department's Chief Engineer in Newcastle in 1908. He had been trained as a civil engineer by the PWD and served as an Assistant Engineer for Roads and Bridges before coming to Newcastle.

Under the direction of Allen, a detailed survey of the harbour was made which revealed that the wreck of the *Regent Murray* was impeding the tidal scour. Its removal, together with the modification of dredging procedures, increased the depth of the harbour from 20 ft. to 22 ½ ft. An extra foot of depth was achieved following the removal of a large number of boulders, previously believed to be solid rock, leaving only a small area of rock to be removed to increase the low water spring tide depth to 25 ft. Percy Allen also stressed the importance of "sweeping" with a bar to maintain a uniform depth, as well as taking soundings.[92]

Work continued slowly, but in 1927 the Chamber of Commerce reported that the equipment was inadequate for the task and although a large quantity of rock had been removed, much more needed to be removed before a channel of 26ft. or 27ft. could be provided.[93] This was not achieved in the immediate future, as in its Annual Report for 1931, the Newcastle Chamber of Commerce reported that with a few weeks the channel would be "500 ft. wide being the full extent of the entrance from the leads-in-line to the northern breakwater with a depth of 25ft. 6in. at low water ordinary spring tides".[94] By 1936 the width of the channel had been increased to 750ft.[95]

During this period dredges worked continuously removing silt from the harbour, with concerted efforts being made in the steelworks channel in association with the establishment of the iron and steelworks in 1915. While BHP planned to construct its own wharves, it was not prepared to bear the cost of deepening the harbour to provide access for the import of raw materials and export of the finished product. As the State Government was anxious to facilitate BHP's operations at Newcastle, the Minister for Public Works agreed to undertake the work, declaring that "if Mr. Delprat wanted a depth of 35 feet in order to get modern ships up to the company's wharves, he would get it."[96] The outcome was a government guarantee

[92] Armstrong, *Shaping the Hunter,* p.19.
[93] Report of the Council of the Newcastle Chamber of Commerce, 1927.
[94] Report of the Council of the Newcastle Chamber of Commerce, 1931, p.72..
[95] Report of the Council of the Newcastle Chamber of Commerce, 1936, p.45.
[96] Report of Conference on Subject of Harbour Improvements, Newcastle, 1920, p.20

To maintain a depth of 25 feet at the wharves, and a swinging basin for ships.[97]

2.13.4 Northern Breakwater (Shipwreck Walk)

The impact on harbour depth as a result of construction of the Pirate Point guidewall was disappointing, as sand built up against it and continued to flow into the harbour. Waves also "entered the harbour more freely, and made the water very disturbed … during heavy weather at Queen's Wharf, where they loaded coal"[98]. While the problem of increased wave action was largely overcome following the extension of the southern breakwater, the build-up of sand continued.[99] A Public Works Department committee was established to investigate the matter and although it was recommended that the guidewall be extended, it was eventually decided to build a new breakwater starting from the beach opposite King Street.

Stone for the breakwater came from a new quarry, known as No.2 Quarry, at Platts Hill near Waratah. It was transported by rail to Hamilton, then to Bullock Island and up to a wharf at North Carrington, where it was transferred to punts and towed to a gantry at the end of Clyde Street, Stockton. From there the rock was loaded onto wagons which were pulled by a small steam locomotive across the ballast ground to the construction site.

Work began in October 1898 and by the end of 1900 it had reached 1,180 feet. A number of wrecked vessels lay along the proposed line of the breakwater and after the large French barque, Adolphe, was added to the ghostly row of hulks, it was decided to fill in the gaps quickly to prevent sand entering the harbour:

> *In 1905, two old passenger steamers, Elamang and Katoomba were scuttled in a straight line between Regent Murray wreck and Adolphe and in the path of the breakwater. Smaller gaps were filled by sinking old mud punts into position. The scouring problem was overcome as a result of these scuttlings, so too was the movement of sand into the harbour.*

A further extension of the Stockton breakwater was completed in 1912, bringing it to a final length of 3,400 feet with a 60 ft. diameter roundhead at the end. In the following year, the top of the newly completed section was concreted. In memory of the vessels which lie beneath it, the breakwater is now known as "Shipwreck Walk"[100]

[97] Armstrong, *Shaping the Hunter,* p.23.
[98] C.W. Darley, evidence to Parliamentary Standing Committee in Public Works, Proposed Harbour Improvements at Newcastle, 21 March 1895, p.9
[99] *ibid.*
[100] Callen, *Bar Safe,* pp.61-5.

2.13.5 Southern Breakwater Extension

Completion of the Northern Breakwater drew criticism from shipping companies and mariners, who claimed that new currents were created which forced ships onto sandbanks in the harbour. To overcome the problem it was decided in 1913 to extend the southern breakwater by 460 feet.[101] The decision would not have been popular by some members of the community who was felt that such an extension would inhibit the escape of floodwaters, thereby intensifying the impact of the flood further up the river.[102]

After severe storms in 1921, repair work involved dumping reinforced concrete and five 50 ton concrete blocks on the breakwater. Five more of the massive blocks were used to fill a large hole in 1925.[103]

2.13.6 Walsh Island

Removing silt from the harbour was an ongoing process, but the cost of carrying it out to sea for dumping was expensive. In heavy weather, it was impossible. As a means of disposing of the silt in an economical way, it was decided to reclaim an area between Carrington and Stockton which would include three small islands (Goat Island, Spectacle Island and Pig Island) and a large mud flat. Work began in 1897 with the construction of a stone wall at the southern end of the site, and all material previously dumped at sea was discharged into this area. The newly formed island was named after a senior Public Works engineer, Henry Deane Walsh.[104] Reclamation work continued until 1918, when the island reached about 400 acres.

2.14 Walsh Island Dockyard[105]

Following the sale of the Cockatoo Island Dockyard to the Federal Government in 1913, the NSW Labor Government sought to establish a dockyard at Newcastle where dredge repair, construction and general engineering work could be carried out.

One of the reasons for choosing a site at Newcastle was the government's desire to reassure its electors it was committed to State industry, even though plans for a State steelworks had been shelved in favour of BHP's proposal to establish its works at Port Waratah. Walsh Island was viewed favourably as a site because it was removed from the economically valuable coal and wheat loading areas, and was large enough to build workshops and slips with room for future expansion if required. By this time, an area of

[101] Callen, *Bar Safe,* p.64-7. Coltheart, *Between Wind and Water,* p.95
[102] Napier Bell, C. "Flood Prevention in the Hunter", Report to the NSW Legislative Assembly, 3 August 1899, 3rd Session, p..7.
[103] Coltheart, *Between Wind and Water,* pp. 95, 114.
[104] T.W. Keele, Principal Engineer, Harbours & Rivers Branch, PWD, evidence to Parliamentary Standing Committee on Public Works, Minutes of Evidence – Hunter River Flood Prevention. 18 November 1901. p.40.
[105] J. Docherty, *Newcastle: The Making of an Australian City,* Sydney, 1982, p.42 and D. Cameron, "Towards the Wage-Earners' Welfare State? The Establishment of the Walsh Island Dockyard, 1910-1918. Honours Thesis, University of Newcastle History Department, 1994

between 70 and 80 acres had already been reclaimed but only 32 acres was required for the dockyard.

Work began early in 1913 and the dockyard was officially opened on 27 November 1914. One of the largest workshops in Australia at the time, it was operated by the Public Works Department which transferred the bulk of its activities from The Dyke to the new facility. At the time of opening, the Dockyard included "central workshops, housing the light and heavy machine and boiler shops, [which] consisted of five bays covering a total of 62,500 square feet…the three larger building berths were nearing completion." A pipe foundry was completed in 1915, and additions continued in the following year.

The outbreak of World War I restricted operations and further development but the dockyard contributed significantly to the war effort, producing shell casings, machine guns, a radio controlled torpedo for coastal defence, aircraft engines, airframe parts and components. The Walsh Island Dockyard also played a role in the establishment of heavy engineering and manufacture in New South Wales, especially in the Newcastle area, by filling orders which would usually have been sourced overseas.

With the war over and funding limited, the Commonwealth government's shipbuilding programme ceased in 1921. Facing high operating costs and few orders, the Dockyard was unsuccessfully offered for sale in 1922. Thereafter, its focus gradually changed to general engineering works, constructing steel railway carriages, bridges, cast iron pipes, cranes, punts and dredges. A floating dock was completed in 1930, but the Walsh Island Dockyard had struggled to survival since the 1920s and was eventually closed in February 1933. Much of the plant and several buildings were sold. The site was abandoned and the Public Works Department re-established its workshop on the original site at the southern end of The Dyke.

Apart from a few small remnants on the waterfront, all trace has disappeared of the dockyard on Walsh Island.

2.15 NSW State Dockyard[106]

With the outbreak of World War II, the State Government considered rehabilitating the abandoned Walsh Island Dockyard, described at the time as presenting:

> *…a most unattractive and depressing spectacle. Nature's relentless elements had taken a heavy toll of the neglected materials. The coverings of the buildings had long since ceased to protect their sadly-diminished contents. The Building Berths, which had been denuded of their lifting facilities, were covered with a shroud of scrub extending to wharves so dilapidated as to*

[106] For a detailed study of this site, see "Record of the State Dockyard, Newcastle, NSW", prepared by The EJE Group in Association with Peter Fenwick for the MSB Hunter Port Authority, April 1993.

form a fitting frame to a dreary picture of industrial desolation.[107]

In 1941, it was decided to establish a combined Engineering and Shipbuilding Works at the southern end of The Dyke, where a small dredge repairshop was already operating.

Construction began in January 1942. The State Government proudly announced that the capital outlay for the project was relatively small, as 90% of the structural steel in the buildings and the major proportion of the machine tools, cranes and equipment from the Walsh Island site were resurrected:

> *Investigation of Walsh Island's remaining facilities revealed some encouraging possibilities. The structural steel components of the workshops were still satisfactory, and a number of cranes and engineering machine tools were found to be in a reconditionable state. Practically all the original ship construction machinery only required overhauling to be made thoroughly satisfactory. Of particular importance was the fact that a considerable volume of Electric Motors and associated equipment was available.*[108]

In the absence of crane facilities, girders replaced roof trusses on top of columns of one of the Walsh Island Engineering Shops. The columns were braced to give lateral stability and were spaced on each side of the building berth to suit the span of one of the overhead travelling cranes.[109]

Also utilised was the 15,000 ton floating dock, which had previously operated in three sections at Walsh Island. It was joined and moved to a site at Carrington in 1943.

The State Dockyard continued to operate after the War, building ships and maintaining the Government's dredge and harbour fleet. It also carried out general engineering work, which included the manufacture of plant and equipment for power generation and machinery for the State Brickworks in Sydney. However, by the 1970s, shipbuilding had become less profitable so in 1977 the Dockyard became involved in the construction of modular building units, under the tradename "Enclosed Spaces".

Among the ships built at the State Dockyard were the *John Hunter,* a 24,000 tonne oil tanker and the *Flinders Range* and *Selwyn Range*¸ both 25,000 tonne bulk carriers, launched in 1976 and 1977 respectively. The last vessel to be launched was the Sydney ferry, *Queenscliff* on 4 December 1982 but the Dockyard continued to carry out general engineering work until it was closed on 6 March 1987.

[107] *The State Dockyard, Newcastle, NSW: Its Wartime Establishment and Production, January 1942-December 1945.* Government Printer, Sydney, 1946.
[108] *Ibid.*
[109] *Ibid.*, p.18

Plate 17: Aerial view of State Dockyard September 1945 *The State Dockyard Newcastle NSW, 1945*

2.16 Wharfage

2.16.1 Throsby Basin

As the port continued to develop, wharves on the southern side of the harbour were extended westwards and by 1900 there was need for a further extension. This was achieved by transforming the lower reaches of the shallow, winding Throsby Creek into a large deepwater basin capable of handling ocean going ships. Honeysuckle Point and part of Bullock Island were removed, stone retaining walls constructed and the area behind was reclaimed.[110]

2.16.2 The Dyke

In comparison with the developments of the previous fifty years, there was little effective change to coal loading facilities during the first half of the 20th Century.

In 1909 the Railway Commissioners made an ambitious but ill-considered decision which highlighted the problems associated with divided, remote control of the port. In direct opposition to the wishes of local

110 J.W. Turner, "Honeysuckle Historical Study", 1994, p.28

shipping interests, the Commissioners purchased four McMyler hoist from America. They were brought in anticipation of future needs, being designed to lift forty ton wagons as opposed to the 10 ton wagons then in use at Newcastle.

The McMyler Hoist was erected on the Dyke between cranes Nos.14 and 15. No.15 crane was moved to make way for the new loading equipment, and No.14 could not be used because it was too close. The three steam cranes at the Dyke were also removed atthis time.

It was found that the hoist's efficiency was considerably reduced when the smaller wagons were used, and the coal was inclined to break as it was dropped into the ships' holds. Criticism was intense, and several coal owners refused to allow its use in the loading of their coal. A subsequent Royal Commission into the disastrous purchase found that the hoist was "wholly unsuitable for loading at this port". The three remaining hoists were never brought into service, their parts left to rust on the ground at Carrington for many years, while the erected McMyler Hoist was officially closed in February 1916. It was not demolished until May 11, 1933.[111]

To compensate for the failure of the McMyler hoist two cranes, Nos. 12 and 13, were replaced by two cranes of 15 ton capacity, and Nos. 7,8,9 and 10 were raised twelve feet higher at the base to allow them to bunker larger vessels. Plans were formulated in 1913 for the construction of a conveyor belt-loading system but the scheme was shelved when war broke out in 1914.

A further advance in coal loading technology was introduced at the Dyke in 1914 when horses, which had traditionally been used to place coal trucks alongside the cranes, were replaced by hydraulic powered capstans. Tractors replaced horses at Western Basin in 1925, and at Eastern Basin in 1927, bringing to an end the role of the horse in coal loading operations at Newcastle.[112]

2.16.3 Eastern Basin

Between 1898 and 1903, wharves for coal loading purposes were built along the eastern side of the newly formed Basin. Six hydraulic cranes were imported from England, the first three commencing operation in 1903. The remaining three could not be installed until the last section of wharfage was completed in 1907. Unlike the fixed cranes on The Dyke, these cranes were moveable and could traverse along the wharf. This allowed ships to be filled by two cranes at the same time and removed the need to move the ship along the wharf.

2.16.4 Western Basin

Construction of wharves on the Western Basin began in 1913. This wharf was one of the strongest timber

112 Coulin, "The Evolution of Coal Loading in the Port of Newcastle" and R. Melville, "In the Shadow of the McMyler Hoist?" pp. 164-182.

wharves in the world at the time, and was designed to carry six large electric travelling cranes. The first two electric cranes came into service in May 1916 and the remaining four were in operation by April 1917.

These electric cranes handled the bulk of coal loading operations in the port.[113]

The Bunker and Bunker Extended Wharves were built at the southern end of the Carrington peninsula between 1914 and 1917. In 1934, after much agitation by the Newcastle Chamber of Commerce, construction of wheat silos for the bulk shipment of wheat began in this area. As well as adding to the business of the port, the Chamber estimated the new silos would produce a saving of at least 4d. per bushel on handling charges while also protecting the wheat from the weather and "the depredations of mice".[114] The terminal elevator and loading equipment were completed during 1936 and bulk shipments began the following year.[115]

The Bunker Wharves were renamed Nos. 1 and 2 Silo Berths, and in 1945, No.2 silo wharf was extended and additional storage facilities provided.[116] These wharves later became known as No.2 Western Basin.

2.16.5 Kings Wharf (formerly Queens Wharf)

With the death of Queen Victoria in 1901 and the accession of Edward VII, the name of the wharf in front of the Customs House changed accordingly but it continued to be the major general cargo berth in the port. Plans were made during this period to extend the wharf, but did not eventuate due to the financial strain of World War II and were officially dropped in the late 1940s.[117]

In anticipation of increased trade through the port, extensive maintenance work was carried out at Kings Wharf after wool sales began in Newcastle in 1928.

2.16.6 A.A. Company Wharves

Having phased out its Newcastle coal mines after nearly a century of operation, the A.A. Company sold its waterfront land to the Government in 1923. However, it was over twenty years before the Merewether Street Wharf was built on the site.

2.16.7 Lee Wharf

Following the appointment of a board in 1905 to investigate demands for improved wharf accommodation in Newcastle, it was recommended that 1200 ft. of wharfage be erected between Merewether Street and the Carrington bridge. It was to be built in conjunction with the construction of the new Carrington Basin and coal loading facilities.

Spoil taken from the new basin was used in the reclamation of the southern foreshore and by 1907 work

[113] *ibid.* p.162.
[114] Annual Report, Newcastle Chamber of Commerce, 1935, p.53
[115] Annual Report, Newcastle Chamber of Commerce, 1937, p.66.
[116] Coltheart, *Between Wind and Water,* p.117
[117] *Newcastle Morning Herald,* 22 November pp.154-162.

had begun on the new berths. Lee Wharf, named after the Minister for Works, C.A. Lee, was opened on 2 June 1910. About 1,000 ft. had been completed, corresponding to the existing Lee 1 and 2 sections.

The wharf had a 30ft. apron and two sheds, 150ft. x 50ft, behind it. There was a rail connection to the main line at Honeysuckle Point and a 90ft. unsealed road.[118]

While the new wharf was a welcome addition to the port's facilities, agitation soon began for its extension. In 1912, the Newcastle Chamber of Commerce complained that:

> *Lee Wharf is now being largely utilised, and commodious as it was deemed to be, when built, it is thus early found to be inadequate to meet the demands made upon it. Your Council noted this fact, and in June last applied to the Minister for the completion of the wharf by placing a line of rails thereon running along the water's edge to facilitate the discharge of cargo into railway trucks.*[119]

After much delay, completion of a 540 ft. extension to the wharf was completed in 1927. A road and railway with a concrete bridge over Cottage Creek linked Lee Wharf and the inflammable liquids berth with Hannell Street.[120]

A third shed was added in 1930, primarily for the storage of wheat but also to be available for other cargos as well.[121] Two more sheds, each measuring 340 ft. x 50 ft., were completed by the mid-1940s.[122]
In the mid-1930s a low-level 460 ft. long wharf was built to the west of Lee Wharf, to be used primarily for the handling of inward cargoes of timber but also for the shipment of frozen meat.[123] This wharf was known as No.4 Lee Wharf and was provided with a railway siding for the handling of various types of bulk cargo.

2.16.8 Wickham Oil Wharf

A wharf for the discharge of inflammable liquids was built on the Wickham side of Cottage Creek in 1925.[124] It provided unloading facilities for The Atlantic Oil Company (Now BP), which established a large oil terminal on a nine acre site in the Wickham area. Tankers berthed at a wharf near the southern end of Hannell Street, and fuel was pumped from there to the terminal.[125]

In February 1930 there was a sensational fire aboard an oil tanker, *British Honour*, as it lay at the wharf. A valve had been left open after her last delivery in Sydney and when pumping began, fuel was discharged

[118] *Newcastle Morning Herald,* 22 December 1969.
[119] Annual Report, Newcastle Chamber of Commerce, 1912, p.26.
[120] Annual Report, Newcastle Chamber of Commerce, 1928,
[121] Annual Report, Newcastle Chamber of commerce, 1930, p.56.
[122] "Development of General Cargo Handling Facilities – Newcastle. *Port of Sydney,* June 1969.
[123] Annual Report, Newcastle Chamber of Commerce, 1934, p.44.
[124] Annual Report, Newcastle Chamber of Commerce, 1926
[125] Turner, 'Honeysuckle Historical Study', pp.154-162.

into the harbour. Apparently ignited by sparks from the Myall Timber Company's mill in Hannel Street, the burning fuel flashed across the surface of the water to the ship. The fire was eventually brought under control, but not before it had ignited a number of rockets and a series of explosions had blown away the top of the navigation bridge.

The *British Honour* incident reinforced community concerns about the advisability of placing such a facility so close to residential areas and within sight of the Wickham Superior School, but it was 1971 before serious thought was given to an alternative site.

Plans were prepared in 1971 for a bulk liquids berth at "Rotten Row", to the north of the Bulk Dry Cargo Berth at Kooragang Island. The site was desirable because, in the event of a spillage, it is possible to confine the affected area by running a boom across the entrance to Rotten Row.[126] However, this plan did not eventuate and the Wickham facility it remained in operation until the 1980s when a pipeline was installed to bring flammable liquids to Newcastle.[127] The berth was demolished in March 1993.[128]

2.17 Overview

In stark comparison to the progress of the previous fifty years, the first half of the twentieth century was characterised by ongoing expressions of frustration and discontent by those using the port. While the establishment of BHP's steelworks and the State Dockyard contributed to significant advances in harbour deepening and breakwater construction, the divided administrative system inhibited the provision of much need improvements to coal loading facilities. However, improvements to wharf accommodation were achieved on the southern side of the harbour and at Western Basin where facilities were provided for the shipment of wheat through the port.

2.17.1 1950-1999

During the 1950s, the development of Japan's steel industry led to increased demands for raw materials. Supplies which had been obtained from possessions within Korea and Manchuria were no longer available after World War II, and this led to an escalation of trade between Japan and Australia. Newcastle's coal exports increased dramatically, providing the impetus for a widespread transformation of port operation and management.

In 1966, the MSB released details of a ten year port development programme for Sydney and Newcastle ports to meet the changing trends in ship design and cargo handling techniques. In Newcastle, the harbour was deepened and "obsolete and derelict structures" were demolished prior to embarking on a programme of modernisation and reconstruction of wharfage and construction of new berths.

[126] W.H. Brotherson, "Developments in the Port of Newcastle", *Port of Sydney,* July 1971, p.155.
[127] Turner, "Honeysuckle Historical Study", p.37.
[128] Maritime Services Board of New South Wales, Annual Report, pp.154 and 162.

Another major development undertaken was the Islands Reclamation Scheme which saw the creation of a large industrial estate and adjacent wetlands reserve between the north and south arms of the Hunter River.

This period also saw the final realisation of an autonomous port, with the establishment of the Newcastle Port Corporation in 1995.

In September 1999, the BHP steelworks closed and as a consequence the shipping of iron ore into basic steel making closed.[129]

2.17.2 ADMINISTRATION

As the overseas export market increased, it became apparent that the divided control of Newcastle's port mitigated against Australia's overseas trade prospects. This handicap was overcome in 1960 when the State Government passed the Maritime Services (Amendment) Act, which placed all port concerns under the control of a single authority, the Maritime Services Board.[130] Control remained in Sydney, but the port was at last free of the crippling inertia arising from divided control and the way was clear for a unified approach to port development.

The Maritime Services Board assumed responsibility for port operations, development and administration on May 1st, 1961. However, decades of neglect had taken their toll. leading the President of the MSB, Mr. L.V. Smith, to comment that the Board was taking over a "run down" port.[131]

Port administrative functions had been based at Newcastle Customs House but in 1968 the MSB moved to its new branch office at the corner of Scott and Newcomen Streets. The Board engaged architects Stephenson and Turner to design the five storey office block, which was constructed by the local building firm, F.H. Compton and Sons.[132] The three lower floors are were occupied by the Board, while the two upper two levels were leased out.

A further change to port management was introduced in 1989 with appointment of a Board of Directors for the MSB Hunter Port Authority. Control, however, remained with the MSB in Sydney. The final step towards an independent port came in 1995 following the State Government's decision to corporatise the State's ports, which led to abolition of the Maritime Services Board and the establishment of the Newcastle Port Corporation.

[129] NPC, 2007
[130] B.F. Ramage, unpublished manuscript, p.11.
[131] *Newcastle Morning Herald,* 5 May 1961.
[132] "Newcastle Port Expansion", *Contracting and Construction Engineer,* August 1968, p.72 and NPC files.

2.18 HARBOUR IMPROVEMENTS

2.18.1 Islands Reclamation Scheme

The most obvious physical change to Newcastle harbour over the last fifty years has been the creation of Kooragang Island, a reclamation programme carried out by the Public Works Department. Commencing in 1951, the project involved reclaiming the tidal flats between five low-lying islands in the Hunter River estuary, using silt and other materials dredged from the bed of the river and from the harbour.

Greenleaf Fertilizers Pty. Ltd. was the first industry to be established on the newly reclaimed land when it purchased 80 acres on Walsh Point in 1964. Soon afterwards, Eastern Nitrogen established the largest nitrogenous fertilizer plant in Australia on an adjacent site. The State Government undertook to build a rail link to the island and bulk unloading wharf at the former Rotten Row to serve the fertilizer works - a move which opened the way for the future development of coal loading operations on the island.[133]

Part of the reclamation was achieved through disposal of waste products from the BHP steel works. The contaminated areas of the island are subject to ongoing monitoring[134].

2.18.2 Harbour Deepening

By 1950 the depth of the harbour was inadequate for the increasingly large ships, particularly those carrying coal from Australia to Japan. The most significant problems were two bars of rock – one at the entrance in line with Nobbys and another smaller bar near the tip of the Dyke. Until this time, rock breakers had been used from time to time to chip the rock away, but only about half a metre had been removed in forty years.

An intensive programme of work was proposed in 1950 to increase the depth to 10.5 metres but by 1961 ships wishing to enter the port had increased and a further metre of depth was required. Dillinghams, an internationally experienced contractor, was engaged to carry out the work and shortly after assuming control of the port in May 1961, the MSB oversaw the completion of the project which involved drilling and blasting rock from the entrance bar to a depth of 11.6m. By 1966 work was proceeding on deepening the channels to the same depth.

By the mid-1970s it was becoming apparent that this depth was no longer adequate and a contract was let in 1977 to Westham Dredging Ltd. for further deepening to 15.2 metres. Work was completed in 1983 and, according to the Institution of Engineers, Australia,

[133] J.W. Turner, "A History of the Hunter River Islands", unpublished manuscript in possession of author.
[134] NDC, 2007

> *This rock removal programme was by far the largest of its type in Australia and one for which there was little precedent anywhere in the world. Special drill rigs were designed and built in Newcastle to support the drilling platform on spuds jacked down to the channel floor. A buoy to measure wave height was designed by PWD to give warning of rising seas.* [135]

Also in this period, Newcastle City Council reclaimed an area of the harbour between the old vehicular ferry wharf and Watt Street to provide space for road widening and parkland. Following completion of this work, the MSB constructed a stone retaining wall along the foreshore and the passenger ferry wharf was rebuilt.

Further harbour works were carried out in 1993 when an inlet behind Eastern Basin Berth 2, was reclaimed in 1993 using fill from the former stacking area of The Basin Coal Loader.[136]

2.18.3 Wharfage

This period saw the removal of all port cargo operations from the southern side of the harbour and redevelopment of the foreshore areas for recreational, commercial and residential purposes. In 1992, ownership of the former State Dockyard site was passed to the Maritime Service Board in exchange for wharves and land on the southern side of the harbour which were relinquished for the Honeysuckle Development Scheme.[137] As recommended in The Basin Redevelopment Plan, progressive demolition and removal of obsolete structures was carried out to facilitate the provision of additional general cargo handling areas.[138]

2.18.4 Kings Wharf

By the late 1950s, the all-timber wharf was in such poor condition that black bans were placed on it by maritime unions. Kings Wharf was withdrawn from use for commercial shipping in 1959 and it became a tie-up berth for the port's tugs.

Part of Kings Wharf, together with the Hunter River Steamship Company's wharf near Market Street, was demolished in 1963[139] and in 1970 the remainder of King's wharf was demolished to make way for four dolphin type tug berths connected to the shore by a catwalk.[140] As part of the Board's port enhancement works, a seawall was constructed to connect the new berths with the completed wall near the Pilot

[135] Institution of Engineers, Australia, "The Significance of Newcastle Harbour", documentation relating to declaration of the Port of Newcastle as a National Engineering Heritage Landmark.
[136] The Maritime Services Board of New South Wales, Annual Report, 1994, p.20.
[137] EJE Group in Association with Peter Fenwick, Record of the State Dockyard, Newcastle, NSW", April 1993.
[138] The Maritime Services Board of New South Wales, Annual Report, 1993, p.20.
[139] *Newcastle Morning Herald,* 23 December 1969
[140] *Newcastle Morning Herald,* 23 October 1970.

Station. [141] These berths now lie idle, the tugs having been relocated to Nos 4 and 5 Lee Wharves.

2.18.5 Mereweather St. Wharf

Plans to build the wharf on the old A.A. Company land had begun in 1924 but it was 1945 before approval was given for the construction of the Mereweather Street wharf, for the use of small coastal companies. Work did not begin until 1950 and was delayed several times before coming to a halt in 1952 due to a shortage of finance. The site remained idle for four years, but the wharf which was provided with two small sheds, each 60ft. by 40 ft., was finally completed in 1957.[142] This wharf was transferred to the Honeysuckle Development Corporation in the early 1990s and has since been rebuilt to support commercial offices, harbour side eateries and residential units

2.18.6 Lee Wharves

The last of the Lee Wharves, No.5, was completed in 1965. It was an open berth but was also equipped with two 5 ton travelling cranes for the movement of cargo. Measuring 560 ft. by 55 ft. in depth, No.5 Lee Wharf had a larger back up area than the earlier wharves.[143]

In August 1993, 30.6 hectares of surplus MSB land was transferred to the Honeysuckle Development Corporation. Lee Wharves 4 and 5 were leased back for up to five years, during which time general cargo operations were transferred to the Carrington Basin area.[144] These wharves were transferred to the Honeysuckle Development Corporation in the early 1990s. Lee Wharves 1, 2 and 3 have been partly demolished, Lee Wharves 4 and 5 were for sometime used as tug berths. Two of the wharf sheds have been retained and renovated to provide an ongoing heritage record of the Port during an era when this area was central to the Port's operations.

2.18.7 Throsby Basin

The Throsby Basin scheme had been announced by the State Government before World War I but did not proceed at that stage. After assuming control of the port in 1961, the MSB began construction of Throsby No.1 Berth, which required removal of remnants of the old oil berth. Delays arose in 1962 due to a need to revise the design to accommodate unfavourable site conditions, and again in 1966 to meet the needs of container and other heavy cargoes, but the new berth was finally completed in 1969. [145]

As only a limited area of waterfront land was available for storage and cargo handling, the Board purchased a number of nearby properties, acquired a section of public roadway and constructed an alternative road and a traffic bridge across Cottage Creek. The wharf was 650 ft. long with a deck of

[141] W.H Brotherson, "Developments in the Port of Newcastle", *Port of Sydney,* July 1971, p.155.
[142] Coltheart, *Between Wind and Water,* p.117 and "Development of General Cargo Handling Facilities – Newcastle", *Port of Sydney,* June 1969, p.13.
[143] "Development of General Cargo Handling Facilities – Newcastle", *Port of Sydney,* June 1969,p.12.
[144] Maritime Services Board of New South Wales, Annual Report, 1994.
[145] *Newcastle Morning Herald,* 23 December 1969.

Reinforced concrete supported on steel and concrete piles driven into rock. In some cases the piles extended more than 120ft. under the low water level.146

A large cargo shed, measuring 434ft. by 120ft., was built behind the wharf:

> *This shed, which incorporates amenity and administration buildings, has a total floor space of 46,800 square feet – exclusive of amenity areas – without any internal obstruction in the form of roof supporting pillars and, with high, wide doorways, was specially designed to cater for the particular requirements of the port, after consultation with local shipping, transport and commercial interests.*
>
> *To cater for the heavy wheel loadings associated with the latest cargo handling methods, including unit loads and containerised traffic, the wharf apron … the floor of the transit shed, and the wharf areas for the movement and stacking of cargo, have been specially strengthened to modern standards. Two lines of rail tracks have been provided along the front of the wharf apron and an order has been placed for a 26-ton level-luffing travelling crane to be installed, capable of movement along the full length of the berthing face.*[147]

Throsby No.1 Wharf was included in the Honeysuckle Development Corporation transfer under the same conditions as Lee Wharves 4 and 5. Throsby No.1 Wharf was used for the occasional visit by small cruise and navy vessels whilst under the management of the Honeysuckle Development Corporation.

2.19 Coal Loading Facilities

Newstan Coal Loader

As the quantity of coal being handled through the port increased, the aborted plans for a conveyor belt-loading system were revived by the Railways Department in 1952, but in 1955 it was still unfinished: This state of affairs was the subject of a damning article in the journal, Australian Coal, Shipping and the Harbour, in its July, 1955 edition:

> *In the Carrington railway yards there is a partly-constructed coal loading plant which stands as a monument to inefficiency and waste of public money. This plant was under construction by the Railway Department some four or five years ago, and when its cost exceeded £105,000, for some reason work there ceased suddenly … construction of the plant has never been renewed.*
>
> *The whole set-up of the coal loading equipment at Bullock Island (The Basin and Dyke) is indeed*

146 "Newcastle Port Expansion", *Contracting and Construction Engineer,* August 1968, p. 69
147 *Newcastle Morning Herald,* 23 December 1969

a sorry spectacle and a glaring example of the complete inefficiency of departmental control" [148]

Frustrated by the antiquated equipment and inefficient labour force provided by the Railways Department the colliery owner approached the Minister for Transport with a proposal to construct and operate their own coal loading plant at Carrington. The result was the Newstan coal loader, built with private funding but incorporating the partly built Railways Department loader. It commenced operation in July 1958.[149]
This was the first conveyor type loader which relied on direct feed from rail wagons as there were no stockpiles or bins[150].

In 1961 the Maritime Services Board took over from the Railways Department the ownership and operation of coal loading appliances, such as tractors and cranes, and the collection of loading charges. It also assumed responsibility for the coal loader formerly operated by Newstan Colliery Pty. Ltd.[151]

2.19.1 The Basin Coal Loader

Federal government moves to upgrade coal loading facilities in New South Wales resulted in financial assistance for the construction of a new coal loader which was commenced in 1964 and came into operation in 1967.[152] It replaced the 15 ton hydraulic cranes on the eastern side of The Basin and the electric cranes on the western side of The Basin.

[148] "Newcastle's Inadequate Port Facilities", *Australian Coal, Shipping, Steel and The Harbour,* July 1, 1955, p.34.
[149] "Temporary Coal Loader", *Australian Coal, Shipping, Steel and the Harbour,* 1 July, 1958, p.54.
[150] NPC, 2007
[151] *Newcastle Morning Herald,* 24 April 1961.
[152] Interview with E. Coulin, cited in R. Melville, "In the Shadow of the McMyler Hoist", unpublished manuscript.

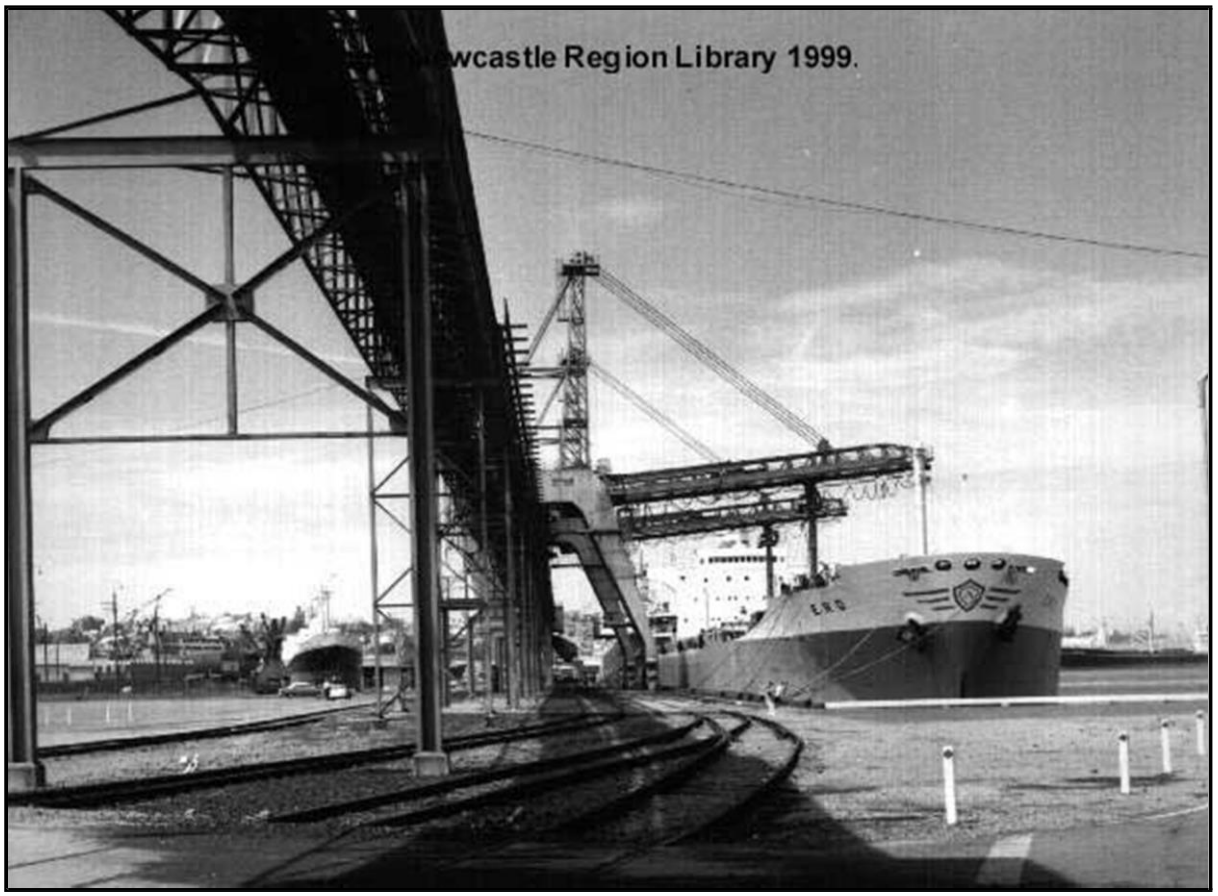


Plate 18: The basin coal loader, 1968. *Port of Sydney, March 1971*

When the Basin Coal Loader was being planned there was a significant divergence of views on where the loading heads should be situated. Newcastle interests wanted the new loader to be on the Dyke, loading vessels berthed in the Steelworks Channel. The MSB, however, were strongly influenced by the effects of a major flood in 1955 on the main channel, and the also by the hydraulic effect of large ships passing moored vessels in the channel. The Boards preference, therefore, was to locate the new loader in The Basin where siltation would be less and where loading ships would not be affected by other operations on the harbour. After some spirited meetings, the MSB finally decided to locate the new loader in The Basin.

A new berth at Eastern Basin was constructed for the MSB by the PWD, and the equipment was constructed and commissioned by the local engineering firm, A. Goninan & Co. The new loader was described in *Contracting and Construction Engineer* in August 1968:

> *The new berth has a longshore wharf 1,200 ft. long with dolphins providing extensions to 1,640 ft for mooring vessels waiting to use the loader or to depart after loading. It has two travelling loaders each with a capacity of 1,000 tons per hour. Coal brought to the site by rail will be discharged into underground track hoppers by bottom dumping or tippling. From the underground hoppers, the coal is moved by conveyor belt either direct to the ship or to a four-*

Section stacking area where it will be stacked by boom stackers according to grade, type and anticipated ship arrival.

When required for shiploading, the stacked coal is moved by a bucketwheel reclaimer and placed on the conveyors.

All coal being shipped either direct from the underground hopper or from the stacking areas will enter large surge bins which will regulate fluctuations in delivery inwards to a constant rate outwards, and from which coal will be moved by conveyors to the two wharf-mounted shiploaders. [153]

The operation capacity of the Basin Coal Loader was initially 7 million tonnes per annum[154].

Construction of this facility allowed the wharfage on the western side of The Basin to be reconstructed for general cargo.

In 1968 Canwan Coal Pty Ltd established a stockpile operations on land leased from the Railways near where the Carrington Coal terminal now stands which was linked to the Basin Loader in 1970 increasing capacity to 11 million tonnes per annum[155].

The Basin coal loader was decommissioned in December 1988[156] and the area redeveloped for general cargo purposes. This redevelopment included some reclamation work at the Dyke and provision of substantial stacking areas for cargo behind the Eastern Basin wharves.

2.19.2 Dyke Berths 4 and 5

In the early 1970s, as coal exported continued to grow, it became clear that additional coal loading facilities were required in the port.

Canwan Pty Ltd was bought by Gollin & Co., a Sydney firm which traded coal and other products into Japan. Gollin prepared a plan to develop a new loader to load 15 million tons per annum over new berths to be built in the Steelworks Channel, south of the BHP steelworks.

Gollin and Co. encountered finiacial difficulties. A group of coal shippers and Japanese investors formed Port Waratah Coal Services to acquire the project and assume responsibility for the funding, construction

[153] "Newcastle Port Expansion", *Contracting and Construction Engineer,* August 1968, pp.68-69.
[154] NPC, 2007
[155] NPC, 2007
[156] Maritime Services Board of New South Wales, Annual Report, 1989, p.18

and operation of the new terminal[157]. At the request of both Gollin & Co. and the Japanese interests, CSR took over the control and management of the project.

PWCS commenced operation in October 1976 with a throughput capacity of 16 million tonnes per annum[158]. The plant was expanded in 1983 to consist of two berths (Nos.4 and 5 Dyke) and three loading heads each capable of operating at 2,500 tons per hour. The throughput capacity became 25 million tonnes per annum[159].

2.19.3 Kooragang Island Berths 4, 5 and 6

Coal loading operations expanded to Kooragang Island in 1984 with the opening of Stage 1 of the Kooragang Coal Loader. It was constructed and operated by Kooragang Coal Loader Ltd., which had shareholdings of BHP (30%), the MSB (20%), Newcastle Coal Shippers (27.5%), Howard Smith (12.5%) and Japanese utilities (10%). The facility was capable of loading vessels ranging in size from 40,000 to 140,000 dwt. The wharf was approximately 300 long and fitted with a radar-based berth approach aid system to assist pilots.[160]

In 1990, the State Government decided to relinquish the MSB's coal loading operations. The Kooragang coal loader was sold to PWCS thus making Kooragang Coal Loader Limited a wholly owned subsidiary of PWCS. The PWCS shareholding was restructured with the principle shareholders being Newcastle Coal Shippers, Coal and Allied and Japanese interests. The loading capacity of the Kooragang Coal Terminal was 31 million tonnes (a combined capacity with Carrington of 46 million tonnes per annum). With the completion of stage 2 including a second ship loader at Kooragang in 1996, the loading capacity increased to 64 million tonnes 9a combined capacity with Carrington of 89 million tonnes per annum). The facilities at Kooragang included three berths (Kooragang 4, 5 and 6) and three loading heads, each capable of loading up to 10,500 tons per hour.

2.20 Grain Handling

Seeking economies of scale, shippers began to favour the use of larger, more economical ships for the transport of bulk items such as coal, oil and wheat. It was generally agreed that the ideal grain loading facility was a single berth with massive loading facilities, rather than a number of berths with relatively small loading facilities.

In response to this trend, the Maritime Services Board of NSW constructed new bulk wheat terminals in Sydney and Newcastle.

[157] NPC
[158] NPC
[159] NPC
[160] Annual Report, 1983-84, The Maritime Services Board of New South Wales, p.22.

With the removal of coal loading operations from the western side of The Basin in 1967, work began on construction of the new terminal on the site. The Newcastle facility, which was larger than its Sydney counterpart, was officially opened in July 1970. Known as No.3 Western Basin, it caters for bulk carriers up to 50,000 tons, which are loaded from four high speed gantry loaders at the rate of 4,000 tons per hour, one of the fastest loading rates in the world at the time.

The old grain berth (No.2 Western Basin) fell into disrepair and was subsequently demolished. [161]

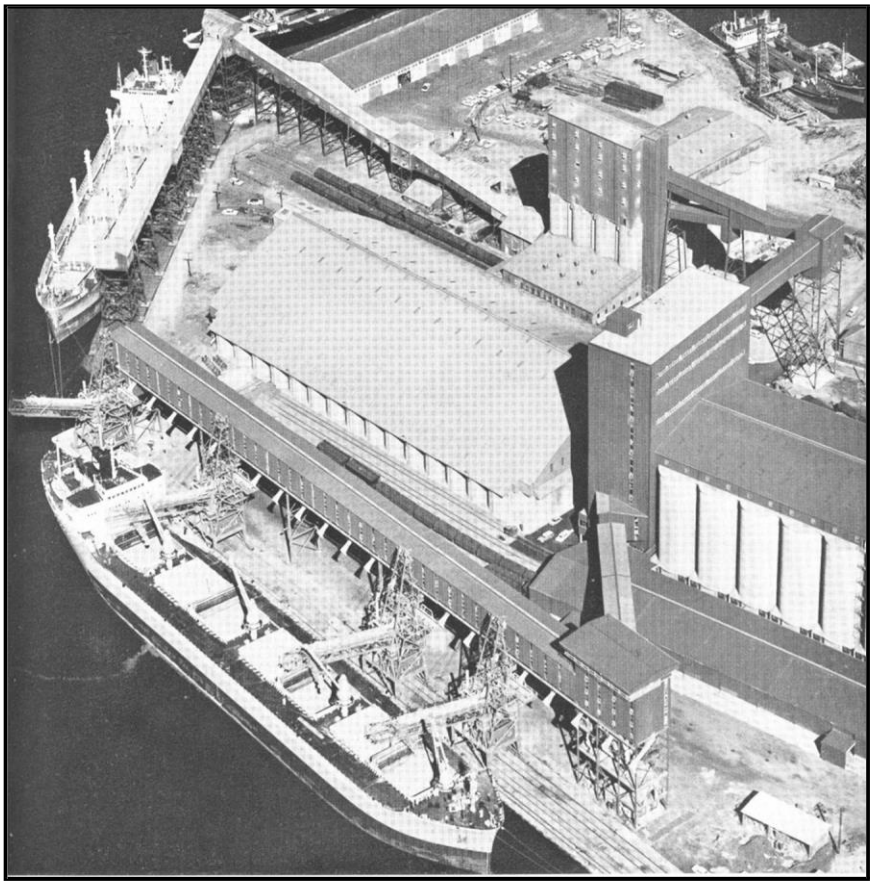


Plate 19: The grain terminal, 1971 *Port of Sydney, March 1971.*

2.21 General Cargo

In 1972, No.4 Western Basin, formerly used for coal loading, was reconstructed for general cargo use at a cost of $3.5 million. It was suitable for cargoes which did not require covered shed accommodation, but required extensive areas of flat land for storage. The new wharf was 800 ft. long with a depth of 38 ft provided alongside. Approximately seven acres of paved land adjoined the berth, which was serviced by two old 15 ton electric cranes. An amenities block for port workers was also provided on the berth.[162] A new container crane was also installed on this wharf by private interests.

[161] W.H. Brotherson, "The Development of New South Wales Bulk Wheat Berths", *Port of Sydney,* March 1971, p.124-9

[162] "New Wharfage at Newcastle", *Port of Sydney,* July 1972, p.232.

As previously mentioned, following decommissioning of the Basin Coal Loader in 1988 the eastern side of the basin was also redeveloped for general cargo purposes.

2.21.1 Kooragang Nos.2 & 3 Bulk Berths

To service the early industries on Kooragang Island, a 600 ft. long bulk berth known as Kooragang 2 was constructed. It was provided with two wharf-mounted unloaders was provided. Mooring dolphins at each end of the berth provided an additional 300 feet of tie-up berthing for vessels waiting to load or unload.[163]

Kooragang 3 was completed in the early 1980s for the import of alumina and petroleum coke for aluminium smelters at Tomago and Kurri.[164]

2.22 Overview

By the end of the 20th Century, the much-hoped for port autonomy had finally been achieved. Significant developments during the period included major harbour deepening and wharf construction but perhaps the most significant change could be seen in coal handling technology which saw the "Newcastle coal loading muddle"[165] transformed into an operation of world class standard in that area. A further major change to the harbour scene was the removal of port-related cargo activities from the southern foreshores following redevelopment of land previously occupied by the Railways Department.

2.22.1 2000 - PRESENT

Information for this section was provided by Newcastle Port Corporation Records (2007).

2.22.2 Administration

In 2003, the NSW Government released the NSW Ports Growth Plan which established a framework for the State's three main commercial ports. To this end the Government committed itself to facilitate the construction of a new coal loader by the private sector to add to the Port's coal loading capacity. The NSW Ports Growth Plan sought further consideration of the environmental impacts of a possible further expansion at Port Botany and nominated the Port of Newcastle as the state's second container port once the capacity of Botany has been reached. However, with the later agreed expansion of Port Botany it is not expected that significant container facilities will be required at the Port of Newcastle until 2030.

In 2006, the then NSW Government rejected a proposal by the Chamber of Automotive Industries to import motor vehicles through the Port of Newcastle, supposedly because this role had previously been

[163] "Kooragang Island – Port of Newcastle", *Port of Sydney,* March 1970, pp.63-68.
[164] Annual Report 1983-84, The Maritime Services Board of New South Wales, p.22.
[165] Title of an article in *Australian Coal, Shipping, Steel and the Harbour,* September 1955.

designated to Port Kembla under the NSW Ports Growth Plan. In 2012 the State Government again postponed the development of a container terminal on part of the BHP site, in favour of an expansion of the facilities at Port Botany.

2.22.3 Harbour Improvements

Reclamation of the former BHP steelworks land

The former BHP Steelworks land consisted of a 150 hectares site suitable for port, freight and general industrial and commercial issues. It provides the largest available portion of port-side land in NSW.

The NSW Government established the Regional Land Management Council (RLMC) as a State owned Corporation to manage land previously owned by BHP which was transferred to the NSW Government as part of a settlement to transfer responsibility of site remediation from BHP to the NSW Government.

In 2002 NPC launched a Call for Preliminary Proposals for the design, construction, financing, operation and maintenance of the Newcastle Multi-Purpose Terminal on 37 hectares of the site. This was followed in 2004 for a call for proposals from respondents and in 2005 a call for final proposals from the short listed respondents.

With the NSW Government's decision to allow the expansion of containerisation at Port Botany in 2005, the economic viability of the project became unattractive to the proponents.

BHP Billiton completed the demolition of steel plant structures in 2004. RLMC in conjunction with the Department of Environment and Conservation (DEC) developed a $110 million remediation strategy. This work involved the construction of a 1.4 kilometre underground barrier. A further $8.1 million was allocated for the construction of other critical infrastructure including upgrade of rail and road infrastructure on the site. NPC is to fund the refurbishment of a former ore wharf and the establishment of an allocated hard stand.

In 2007, RLMC issued a call for proposals to develop the site following the completion of the remediation work. In the absence of government approval for an additional coal loader on the site, it is now proposed that parts of it will be leased for port-related operations under the Mayfield Site Port-Related Activities Concept Plan, for which the new Mayfield No. 4 berth is now available.

2.22.4 Channel Deepening

In 2005, a proposal was developed to further deepen the channel and berth pockets at the Kooragang coal berths. This was in response to the inability to move from the harbour full loaded vessels in excess of around 120,000dwt. These vessels were required to leave the Port less than fully loaded, whist at some

other Australian coal export ports they could be fully loaded reducing the cost of competitiveness of the Port of Newcastle for this vessel size. The business case tested options for deepening of the channel to maintained depths of 16m, 16.5m and 17m.

Whist the NSW Government had legislative power to levy coal shipments to finance the deepening project they were reluctant to do so when the Coal mining industry asserted that there were more crucial land based infrastructure requirements in the coal logistic supply chain which provided a better return on infrastructure investment.

2.22.5 Coal Loading Facilities

In July 2004 the NSW Government invited detail proposals for the use of surplus Crown land at Kooragang at the Port of Newcastle. The successful proponent proposing a coal terminal was Newcastle Coal infrastructure Group (NCIG). NCIG consisted of BHP Billiton, Excel Coal and some other Hunter Valley coal miners. Their proposal was for a 66 million tonne coal loader facility, with the first stage being a 33 million tonne capacity. This having been completed, the next stage is now under consideration.

PWCS completed their stage 3 ('T3') expansion of the Kooragang Coal Terminal in 2002 increasing the capacity to 64 million tonnes per annum (a combined capacity with Carrington of 89 million tonnes per annum).

In May 2007, PWCS completed the "Project 3D" expansion which increased capacity to 77 million tonnes per annum (a combined capacity with Carrington of 102 million tonnes). Also in May 2007, the NSW Government granted planning approval which would allow PWCS to expand to a combined capacity of 120 million tonnes.

2.22.6 Bulk Liquid and Solids

With the increasing demand for build liquids and solids at Kooragang Island, work commenced in 2007 to expand K2 to allow the simultaneous berthing of two small vessels at this berth.

Bulk liquid facilities were being developed in 2007 at the Dyke 1 wharf to allow BP to recommence the delivery by sea of petroleum products to their Carrington oil terminal.

2.23 CONCLUSION

For two centuries, the development of Newcastle has been closely linked to its harbour, which has provided trading facilities, wide-ranging employment opportunities and a place of recreation for the community. Since the early years of the 19th Century, the estuary of the Hunter River has been transformed from a series of mudflats and shallow channels to a major deepwater trading port.

Encouraged initially by t h e area's large coal deposits and then by the establishment of BHP's iron and steel works at Port Waratah, the government invested significant amounts of money in reshaping the harbour through dredging, rock blasting and reclamation work. While the provision of wharves and coal loading facilities was hampered for many years by a clumsy administrative system, an upsurge in overseas trading after World War II provided the impetus for reforms which saw major advances in loading technology and also in port management. The engineering achievements in the port were recognised in 1989 when it was declared a National Engineering Landmark by the Institution of Engineers, Australia. In recent years the Port has become one of the world's largest coal export ports.

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2.24 Recent Developments[166]

2.24.1 T4 Coal Terminal

In 2011, dredging was completed for a new 15.2 metre-deep channel in the South Arm of the Hunter River to allow colliers to reach a new coal terminal being built by Newcastle Coal Infrastructure Group. The final stage of this facility was opened by the Premier, Barry O'Farrell MLA, on 20 September 2013.[167] This forms part of a general expansion in coal handling capacity at the Port of Newcastle. Another project is also planned. Called Terminal 4, or more usually 'T4', the facility is planned to meet the long term needs of Hunter Valley coal producers within the Long Term Commercial Framework ('LTCF'). This, authorised by the Australian Competition and Consumer Commission, seeks to address capacity bottlenecks in the Hunter Valley coal chain, and to provide extra loading capacity once the limits of the existing terminals has been reached. Involving the development of approximately 310ha of land to the west of the existing Port Waratah Coal Services operations, it is to include railway facilities, coal stockyards, marine infrastructure and ship loading facilities, and is to increase exports by up to 120,000,000 tons per annum.[168]

Changing patterns of supply and demand have delayed work on T4, although it is intended to continue with the development approvals process.[169]

2.24.2 Cruise Terminal

In or about the year 2000, the Port Corporation, Newcastle City Council and regional tourism authorities began to consider in earnest the economic potential of visits by cruise ships, and the possibility of home porting some of these. These ambitions came to fruition with the establishment of the agency known as *Cruise Hunter* in 2002. At first administered by Council, the project became so successful in attracting visits that in 2007 it was transferred to the Port Corporation, which convinced the Peninsular and Oriental

[166] Written by David Campbell of EJE Heritage.
[167] See *Newcastle Herald*, 20 September 2013.
[168] PWCS Expansion – Project T4', http://www.pwcs.com.au/pages/projects/t4.php
[169] 'Port Waratah Coal Services Pushes Back T4 to 2017', *Mining Weekly* 14 June 2012; 'T4 Delayed Again as Options Explored', *Newcastle Herald*, 9 April 2013; 'More Doubt over T4 Coal Loader', *Newcastle Herald*, 2 May 2013.

Steam Navigation Company Ltd (P&O) to home port a vessel at Newcastle. In 2012 it was decided to establish a permanent cruise terminal at the Channel Berth at The Dyke. The benefits of such a facility to both the Port Corporation and the City of Newcastle must prove substantial.

2.24.3 Proposed Leasing of the Port of Newcastle

In 2013, the then State Treasurer, Michael Baird MLA, announced that Treasury would initiate a scoping study of a possible long-term lease of the assets of the Port of Newcastle. This would address the commercial, regulatory, financial and policy issues associated with the proposed lease. Mr Baird said that such a transaction would occur only if the scoping study found it was clearly in the State's interest, and would deliver value for money for taxpayers.[170]

On 30 April 2014, it was announced that Port of Newcastle Investments Pty Ltd, the shareholders of which consist of The Infrastructure Fund (managed by Hastings Funds Management) and China Merchants, had been successful in obtaining a 98-year lease of the Port of Newcastle. On 30 May 2014, Port of Newcastle Investments (trading as Port of Newcastle) commenced the 98-year lease from the New South Wales Government. The lease includes responsibility for vessel scheduling, property management and port development, trade development, cruise shipping, dredging and survey, wharf and berth services, maintenance of major port assets, and pricing for associated services.

[170] NSW Treasury website, 'Port of Newcastle Transaction' http://www.treasury.nsw.gov.au/port_newcastle_transaction , accessed 20 September 2013.

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