

Newcastle Coal Mining & Government Mines -

1796- 1820s

Dr Ann Hardy- April 2014
University of Newcastle's Coal River Working Party

There is confusion about the early coal mines of Newcastle and although the Australian Agricultural Company mines are well documented there is little research on the government coal mines (particularly the shafts) that were worked from the early 1800s up until the late 1820s on 'the Hill'. The Hill refers to the area we know today as King Edward Park and the James Fletcher Hospital. The following article pulls together sources associated with these early years to gain a better understanding of Australia's first working coal mines. Government coal mines were primarily located at two separate mining precincts; the first precinct was the Coal River Precinct and the second, the Newcastle Government Domain. To the south of the Government Domain was another Government coal shaft in an area we know today as King Edward Park Reserve.



Figure 1.1 Map showing the Newcastle Government Domain and the Coal River Precinct

The Awabakal are believed to be the only Aboriginal Tribe to discuss coal *Nikkin* in their legends.¹ The Newcastle coal mines were the earliest in Australia, with the first 'discovery' recorded at Port Stephens in 1796.² Coal had been found in the Illawarra district south of Sydney in 1797 but accessibility was a problem and therefore not systematically mined for several decades. Coal mines at the Illawarra were not operational until 1848 this was at Mt Keira.³ The Coal Mines Historic Site at Little Norfolk Bay in Tasmania only began to be worked in 1833.⁴ But it were the coal seams at the entrance of the Hunter River that appealed to Lieutenant Shortland back in 1798 because of the relative ease that coal could be loaded on 'Vessels from 60 to 250 tons may load there with great ease.'⁵ The first systematic coal mining were the seams at Nobbys Island and on Colliers Point. The shafts at the Government Domain are believed to be the first use of vertical coal shafts in Australia and possibly the southern hemisphere.⁶

The recorded history of what was to become Newcastle began in 1797 when Lieutenant John Shortland made a preliminary survey of the Hunter River in a small whale boat named the *Reliance*. He came across this 'very fine river' whilst looking for escaped convicts and it was on this visit that coal was located and reported to the authorities in Sydney.⁷

When the presence of coal became known in Sydney, private traders began to come to the Coal River for coal and cedar. Emancipist entrepreneurs Simeon Lord and James Underwood and Hugh Meehan were granted rights to procure coals from Fresh Water Bay at Newcastle and to export them to Sydney.⁸ The establishment of a settlement at what becomes Newcastle was first attempted in 1801 and again in 1804.⁹ Governor King in 1801 ordered a survey party led by Lieutenant-Colonel William Paterson to go to Coal River to explore the feasibility of setting up a penal settlement there. Accompanying Paterson was Ensign Francis Louis Barrallier who surveyed the area and produced a map of Coal River.¹⁰

John Platt, one of the very few experienced miners in the Colony was sent with Paterson to investigate coal mining at Hunter River. He led a mining party sinking coal shafts establishing drifts at Colliers Point. Despite the settlements closure in 1801, coal mining continued and Platt established new mines in 1802 and 1803 using convict labour.¹¹ ¹² A 'new' colliery that opened at Hunter's River in 1803 which was said to have produced better quality coal than previous mines in the area.¹³ The location of this colliery is not known. On 14 March 1804, Newcastle re-opened becoming the colony's first place of secondary punishment after an attempted rebellion by Irish convicts at Castle Hill. Thirty-four rebels were sent to Coal River.¹⁴

Governor King's decision to procure coals using convict labour also brought about new regulations in 1804. He gave strict instructions to Menzies restricting private traders seeking coal at the settlement. Private signals were flown from the flagstaff to help control and monitor port trade. Private vessels were not permitted to anchor in the harbor until they produced a certificate they had received a fortnight earlier. The sealed envelope containing a certificate revealed the correct signal pattern that would allow them to anchor.¹⁵ It was a system that the Colonial

¹ Greg Ray, "Aboriginal Hunter Supplement to the Newcastle Herald " *Newcastle Herald* May 11 1993.

² J H Heaton, "Australian Dictionary of Dates and Men of the Time : Containing the History of Australia from 1542 to Date.," ed. Heaton J H (London: Silver & Co., Sun Court, 1879), 62.

³ R Spires, "History of Kemira Colliery 1857-1984.," in *sourced from Illawarra Coal: An unofficial history of coal mining in the Illawarra*, (1984).

⁴ Department of Sustainability Environment Water Population and Communities, "Coal Mines Historic Site Tasmania," Australian Government. <http://www.environment.gov.au/heritage/places/national/coal-mines/index.html>

⁵ Lieutenant John Shortland, "Historical Records New South Wales," (Sydney: Colonial Government, 1798).

⁶ Hunter, "Coal River Tourism Project:Coal River Historic Site." (Newcastle: University of Newcastle, 2001).

⁷ W.J Goold, "The Birth of Newcastle " *Newcastle & Hunter District Historical Society*. (1949): p 6. Although there had been Europeans in the area prior to Lieutenant Shortland in 1797, it is Shortland who is remembered and celebrated for being the 'discoverer' of Newcastle.

⁸ Henry W H Huntington, ed. *History of Newcastle and the Northern Districts 1897-98* (Newcastle, NSW: Newcastle Family History Society,2009), 46.

⁹ M H Ellis, *A Saga of Coal* (Sydney: Angus & Robertson 1969), 12.

¹⁰ Huntington, ed. *History of Newcastle and the Northern Districts 1897-98*, 27.

¹¹ *Sydney Gazette*, "Account Given by John Platt a Coal Miner of the Coal Mines at Newcastle " *Sydney Gazette* 1805, May 5th.

¹² Unknown, "Sydney," *The Sydney Gazette* 1803, June 12. ———, "Sydney," *The Sydney Gazette* 1803, May 8. Coals shipped from Newcastle by Mr Thomas Raby on the 'James' and the 'Raven'. A 'new colliery at Hunters River' established 'These coals are of superior quality and promise to the Colony a lasting resource'.

¹³ Unknown, "Sydney."

¹⁴ Jack Delaney, *Vinegar Hill to Coal River: The Irish Rebellion and the Settlement of Newcastle, Nsw 1804* (Stockton, NSW: (the author), 2004), 55.

¹⁵ "General Orders," *The Sydney Gazette and New South Wales Advertiser* 1804, May 27.

Government introduced in an attempt to regulate trade, allowing private traders to operate simultaneously with Government in coal loading.¹⁶

The opening of the settlement was prompted by the incentive of coal and profit. An excellent export market with the 'Cape' (the Cape of Good Hope) whereby the Dutch government was in demand of coal. A letter to Mr Robert Campbell from Governor Hunter suggested coals be sent to the Cape in exchange for live cattle.¹⁷ There was a need for fresh meat in NSW and the procurement of coal was a way of contributing to the staple diet and well-being of inhabitants. Governor Hunter stated that "...the government here might consent to have the colony supplied [with fresh meat], this would no doubt relieve the experiences of the settlement, and very much add to the comfort of its labouring inhabitants."

There were significant problems working the coal mines during these early years because of the crude excavation by workers picking away at cliffs on the coast, as well as coal island (Nobbys Island) to procure the resource. There were no props in place to secure neither coal shafts nor drifts (horizontal drains) to prevent them filling with sand and rubbish. Work practices relating to coal mining during these years were extremely unsafe resulting in many injuries.¹⁸ When the official settlement of Newcastle was attempted for a second time, in May 1804, the new Commandant put a stop to all individuals working the coal mines and ordered them to be supervised by professional miners.¹⁹ Newcastle remained a working gaol and was exclusively a penal settlement until 1823.

Newcastle's Two Government Coal Mining Precincts

Figure 1.1 shows the location of the two government coal mine precincts, one at the Government Domain and the other beneath Fort Scratchley headland (formerly named Colliers Point) "the Coal River Precinct". The Coal River Precinct mines are quite intact²⁰ and further research is needed to understand technologies used at these drifts. The Government mines 'on the hill' at the Government Domain and King Edward Park (KEP) are less well documented, although there are some plans that show shaft at KEP. These were vertical shafts, whereas the mines at the Coal River Precinct were horizontal drifts. There are very few plans showing the area prior to the 1820s.

In 1804 natural historical painter Ferdinand Bauer sketch of Newcastle shows an arrangement of tents, a small house and flagstaff on the slope of the hill in 1804 (Figure 1.2).²¹ The single house shown is almost certainly Newcastle's first Government House near the flagstaff. The original sketch is lost and what survives is a copy produced in 1890s which may deviate from the original.²² Bauer is renowned for his splendid botanical works and although there were plenty of opportunities for him to sketch the NSW, it was rare for him to do so. The 'Coal River' sketch is the only landscape work found that he produced of the Colony. As a botanical illustrator his works were reliable because he draw what he saw. On close examination of the sketch a small enclosed fence is visible, to the left of the house. Is this a mine shaft? There is also a feature that looks like a test trench for coal mining on the slope of the hill. Coal mining at the Government Domain is also supported by the *Sydney Gazette* report in 1805 describing Newcastle's Government House on the hillside, near the coal mines.²³

¹⁶ Goold, "The Birth of Newcastle": p 6. "...Simeon Lord, James Underwood, Hugh Meehan and other old-traders sent their little vessels to the 'Coal River' to load with cedar and coal."

¹⁷ Governor Hunter, "Letter to Mr Robert Campbell from Governor Hunter," in *CO 201/1* (London: UK Archives, 22 March 1802).

¹⁸ "Sydney," *The Sydney Gazette and New South Wales Advertiser* 1805, December 1.

¹⁹ "General Orders," *The Sydney Gazette and New South Wales Advertiser* 1804, May 6.

²⁰ Coffey Geosciences Pty Ltd, "Investigation of Convict Coal Mine Workings beneath Colliers' Point, Newcastle East. Results of Drilling Investigation.," (Newcastle 2005 November).

²¹ "Expedition to Newcastle [Sic]," *The Sydney Gazette and New South Wales Advertiser* April 1, 1804.

²² Marlene Norst, *Ferdinand Bauer the Australian Natural History Drawings* (Port Melbourne: Lothian Publishing Company, 1989), 56.

²³ John Platt, "Account Given by John Platt a Coal Miner of the Coal Mines at Newcastle," *Sydney Gazette* 1805, May 5th. Platt account in 1805 of the coal mines on the sea-side of Government House and is further evidence that a Government House existed most likely the house in Ferdinand Bauer's sketch.



Figure 1.2 Ferdinand Bauer 'Settlement of Newcastle 1804' - House nearest flagstaff possibly Newcastle's first Government House.²⁴

Forgotten coal mines at Newcastle's Government Domain & Recreation Reserve

The scarcity of early plans showing the Government mines has contributed to a lack of research about the role of these mines. One of the first written references to the Government Domain coal mines originated with Platt and placed them 'on the seaside of Government House'. Blocks of coal were procured in August 1804 from the 'lowermost part of the pits' at Newcastle the only 'shafts' were on the hillside near the Government domain.²⁵ Mine shafts were active at the Government Domain in 1805 and Platt described these vertical shafts as being of better quality than the coal found near the harbour (at Coal River Precinct) that was much dirtier. The vertical shafts were '...3 ½ feet thick, solid coal...' and used for furnaces, malt-houses...²⁶ The New Discovery mine was located near the salt pans probably near Colliers Point where later evidence shows them to be in the 1820s.²⁷ The New Discovery government mine next to the salt-pan was on the south side of Colliers Point was a horizontal drift.²⁸

The *Report of the Commissioner of Inquiry into the state of the Colony of New South Wales*, also known as the Bigge Report also provides some clues about Government coal mining in Newcastle.²⁹ Benjamin Grainger was Inspector of Mines at Newcastle between 1812 and 1822 and gave evidence to the Inquiry on the 23 January 1820. He described a shaft sunk at

²⁴ F Bauer, "Settlement of Newcastle Coloured Lithograph of Newcastle, Probably Traced from an Original Sketch in England as the Time the Bonwick Transcripts Were Available," (Sydney: Historical Records of NSW, vol 5, p368, 1804). Although it is referred to as Bauer's sketch it is a reproduction completed in the 1890s, the original sketch has been lost.

²⁵ Governor Phillip Gidley King, "Letter," in CO 201/32 (London: UK Archives, 14 August 1804).

²⁶ John Platt, "Accounts Given by John Platt, a Coal Miner of the Coal Mines of Newcastle," *Sydney Gazette* 5th April 1805 1805 Sunday 5 May.

²⁷ Unknown, "Plan of the Neighbourhood of Newcastle," ed. MPG1-978(2) (Kew: The National Archives, United Kingdom, 182?). Plan showing 'Blaxland's Salt Pans)

²⁸ ———, "Sydney," *The Sydney Gazette & New South Wales Advertiser* 1805, March 3.

²⁹ John Thomas Bigge, "Report of the Commissioner of Inquiry into the State of the Colony of New South Wales," (London: House of Commons, Great Britain, 1822).

the Government Domain prior to 1814³⁰ and makes the distinction between the horizontal coal drifts 'at the sea side'³¹ at the bottom of the cliff level with the shore, and mines 'at the shaft'.³² Grainger describes the vertical shafts at the Government Domain as 'thirty seven yards' in depth where miners used buckets to scoop water into a drift from a dam in the shaft, which was carried out to the sea.³³ Hamilton and Benjamin Grainger were appointed Government mine managers in 1814.³⁴ They worked the drift west in the direction of Christ Church where twenty tons of coal were raised each day in barrows brought to the bottom of the shaft from drifts four and half foot in width. Coals from the Government Domain were then taken to the wharf in bullock drays and loaded by hand onto waiting vessels.³⁵

Both Grainger and Platt provide accounts of the mine shaft near Government House. Grainger's description of the 'present shaft' suggests it was near Government House and it is well documented in the Bigge Report of a shaft sunk there.³⁶ Grainger's suggestion that the shaft was sunk earlier that points to the possibility that it may be the 'mine on the sea-side of Government House' that Platt referred to in 1805. The 'Wallis' shaft is shown in Walter Preston's engraving and is positioned behind Government House as seen in Figure 1.3.³⁷



Figure 1.3 Walter Preston 'Newcastle Hunter's River, New South Wales 1820. Shaft is shown at right.

The shaft at the Government Domain appears to have ceased operations between 1805 and 1810, perhaps falling into disrepair after Platt's departure in 1808. It was not until Hamilton and Grainger came to Newcastle bringing with them expertise of coal mining that the shafts may have begun to be mined. It has been assumed that the Wallis Shaft was a new shaft, when in fact evidence suggests quite the opposite. The name 'Wallis shaft' infers that it was a new shaft (because it reflected the Commandant at the time) however it is not acknowledged on the Government's list of new infrastructure.³⁸ It may have simply been old infrastructure renewed³⁹

³⁰ Colonial Government of NSW, "Colonial Secretary Papers (Reel 6003; 4/3492 P.188)," (Sydney: State Records NSW, 1811).

³¹ "Government and General Orders," *The Sydney Gazette and New South Wales Advertiser* 1814 November 12, 144, J W Turner, ed. *Newcastle as a Convict Settlement: The Evidence before Jt Bigge in 1819-1821* (Newcastle: The Council of the City of Newcastle, 1973).

³² Turner, ed. *Newcastle as a Convict Settlement: The Evidence before Jt Bigge in 1819-1821*, p 138.

³³ Bigge, "Report of the Commissioner of Inquiry into the State of the Colony of New South Wales," p 138.

³⁴ NSW State Records, "Grainger, Benjamin Hamilton, Richard," in *Sent to Newcastle to assist in opening of new mines (Reel 6003; 4/3492 p.188)* (Sydney 21 December, 1821).

³⁵ Nancy Cushing, "Creating the Coalopolis : Perceptions of Newcastle, 1770-1935" (University of Newcastle, 1995), p 46.

³⁶ John Turner, ed. *Newcastle as a Convict Settlement: The Evidence before J.T. Bigge in 1819 - 1821*, Newcastle Historical Monographs No: 7 (Newcastle: Newcastle Public Library, 1973), 284.

³⁷ W Preston, "Newcastle Hunter's River, New South Wales," (Pic-an8603871, 1820).

³⁸ Meehan, "Adapted from 'Plan of Newcastle' August 7 1818," (State Archives Office of NSW., 1818).

³⁹ Secretary J. T. CAMPBELL, "Government and General Orders Extract from the Sidney (Sic) Government " *The Sydney Gazette and New South Wales Advertiser* 1818, Saturday 26 December

Although Platt's evidence locates the coal mines near Newcastle's Government House in 1805, the common perception by historians is that the shafts were not sunk there until 1812 (what became the Wallis shaft).⁴⁰ Contemporary reports such as the *Newcastle CBD Archeological Management Plan* locate these shafts⁴¹ one at the south-west corner of the Government Domain behind the former military hospital and the other, the 'Wallis Shaft' is at the east of the site near the main entrance.⁴² When the asylum opened at the Government Domain in 1871 these shafts became known as the 'asylum' shafts. The other Government shaft on the 'Hill' at King Edward Park was referred to as the 'Bowling Green Shaft'.

The only map found prior to 1820 showing Government mines is *A Plan of His Majesty's Coal Mine at King's Town in July 1804* by Ensign Barrallier that is held in Britain.⁴³ This map locates the Government mines at the Colliers Point, but not the ones at the Government Domain. The Government's 'old coal pits' at the top of the hill near the Government Domain are shown in the White's *Plan of Newcastle* completed by the British Ordnance Office in 1833.⁴⁴ There were also a 'water pit', 'old coal pit' and 'coal pits' near the original shoreline.⁴⁵ The 'old coal pits' are likely older than the map referring to them because it was not uncommon for former features to continue to be recorded, even though they were no longer in use.⁴⁶ The historic Government coal mines at Newcastle were later transferred to the Australian Agriculture Company. The company also established new ones in the 1830s.

Government workers at the Government coal mines - AA Company

The Bigge Report released in 1823 suggests that convict labour be increased to help establish further industry and enterprise in the Colony. Authorities had identified coal as a way to build wealth and improve conditions of the struggling Colony. The procurement of coal needed to be well-managed to improve economic conditions in NSW and provide for inhabitants.

The company employed Mr Henderson as mine manager in 1827 to help improve output of coal. However there were 'mismanagement' issues and the AA Company refused to take over the mines and withdrawing operations in 1828. Government authorities continued to own and manage the mines and recommenced operations. Authorities used the supply of refractory convicts who had been returned by settlers back to the Government to work the mines.⁴⁷ During this decade of uncertainty, mines at the Government Domain were maintained and worked, however not at any great capacity. One new coal 'pit' was opened in the vicinity of the current King Edward Park reserve to the south of the Government Domain.⁴⁸ The AA Company agreed to take on full charge of the mines in 1828 to be worked by convicts, many of the convicts were then working on assignment for private employers in the pastoral industry and in trades and services.⁴⁹ Colonial and imperial authorities supported this quasi-public/private arrangement as a means of productively employing convicts at no cost to the public and private employers, many approved of it because of the scarcity of free labour in the settlement. This coal pit at the reserve may have been worked earlier than the 1820s and further research is needed.

After several years of planning and negotiation, in 1831 the Company officially leased all of the government coal mines in the colony and was granted a monopoly on the establishment of new ones. There were many people who disagreed with this decision, preferring that the growth of industry be left to Government authorities. However there were some like Gregson who took the view that industry should be "...in the hands of responsible people who could be

⁴⁰ Suters Architects and Planners on behalf of Newcastle City Council, "Newcastle C.B.D Archaeological Management Plan," ed. Newcastle City Council (Newcastle 1997).

⁴¹ Hunter, "Coal River Tourism Project: Coal River Historic Site." Council, "Newcastle C.B.D Archaeological Management Plan."

⁴² John Windross and John Paul Ralston, *Historical Records of Newcastle 1897-1997* (Newcastle: Federal Printing, 1897).

⁴³ Ensign Francis Louis Barrallier, "A Plan of His Majesty's Coal Mine at King's Town New Castle District County of Northumberland New South Wales in Its Present Situation of Working, July 1804.," ed. Public Records Office London. CO 201/32 (London: UK Archives, 1804).

⁴⁴ Boyle White, "New South Wales (to Accompany Comm. Royal Engin. Letter Dated 8 June 1848)," in *MPHH1-681 (67) NSW, Newcastle* (Newcastle: Archives of the United Kingdom, 1848). Overlay produced by Russell Rigby, for the University of Newcastle's Coal River Working Party (August 2010)

⁴⁵ "Plan of the Town of Newcastle," in *MPG1-978 (2)* (Kew: The National Archives, United Kingdom, 1820?).

⁴⁶ G B White, "Township of Newcastle Sept 6 1833.," (State Archives of NSW, 1833).

⁴⁷ Jesse Gregson, *The Australian Agricultural Company 1825-75* (Sydney: Angus & Robertson, 1907), 59-60.

⁴⁸ There are limited sources found in the AA Company records showing the location of the Government mines pre 1820.

⁴⁹ Marsden, *Coals to Newcastle*, 14.

depended upon to make such proper use of their opportunities as would rebound to the wellbeing of the colony".⁵⁰ He was advocating that the private sector would be more successful in sourcing the right people for the job. The Government mines were not the financial success that authorities had hoped they would be, mostly because of the lack of experienced miners. Many of the convicts available for public works were those who had returned by settlers as unsatisfactory workers.⁵¹ The NGD represents a significant heritage of government ownership of mines which laid the foundations for the private enterprise which followed.

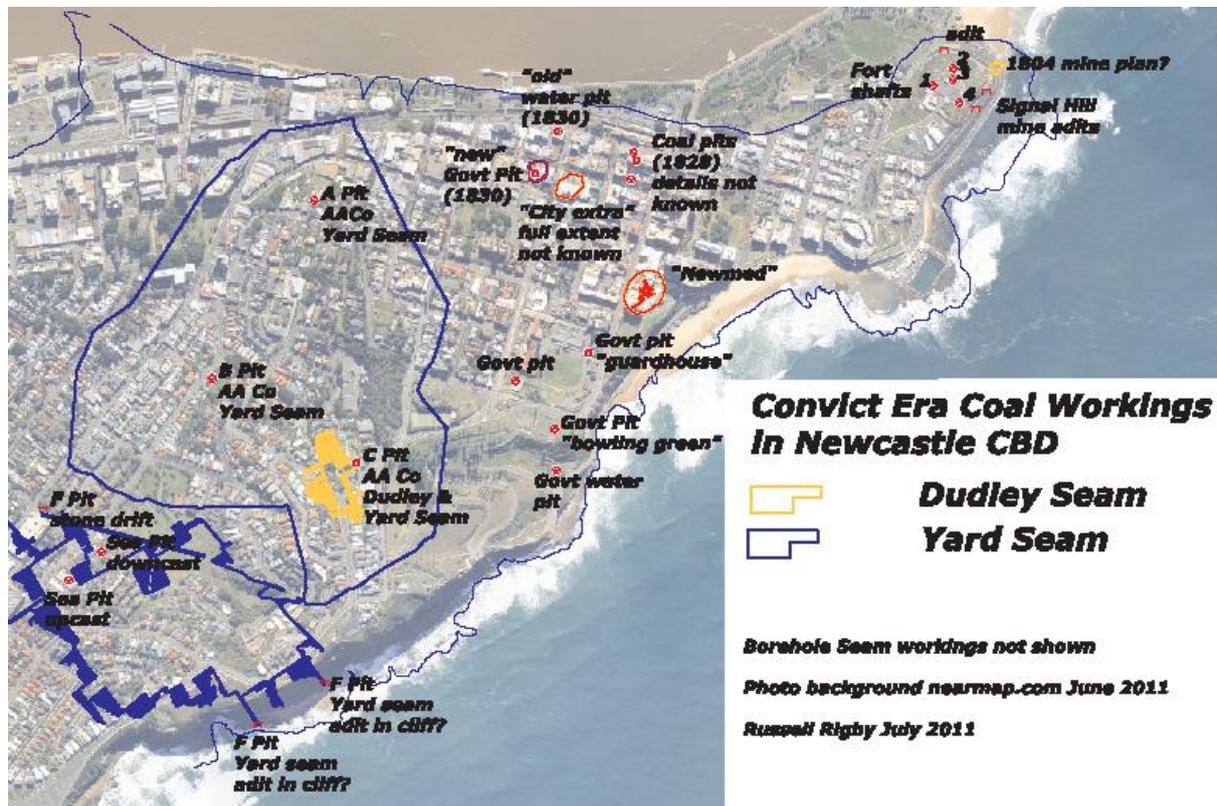


Figure 1.4 Plan produced by Russell Rigby 2011 showing the location of Government mines and later Australian Agricultural Company owned coal mines.

The imperial and colonial Government struggled to make mines profitable. The AA Company leased the Government mines for several years during the 1820s and finally took over the mines on 'top of the hill' in December 1831.⁵² Mr Henderson believed there was a good seam of coal in the position of the western foothills of Shepherds Hill an area of the Company's B pit. This seam is known as the 'dirty seam'.⁵³ The Government mines and the later AA Company mines are shown in Figure 1.4.⁵⁴ By the 1840s the AA Company established even more new pits around the district; these were interspersed from 'The Hill' in Newcastle to what later became the suburb of Cooks Hill.⁵⁵ There was also an inclined plane to carry coal to the wharf⁵⁶ and this was the first railway in Australia.⁵⁷ The AA Company and Government authorities collaborated to grow the Colony's coal industry⁵⁸ and although this partnership was initially successful, it later failed with the company withdrawing operations in 1828. This was because of the lack of free

⁵⁰ Gregson, *The Australian Agricultural Company*, 12.

⁵¹ Gregson, *The Australian Agricultural Company*, 59-60.

⁵² Henry Dangar, "Index and Map of the Country of Bordering Upon the Hunter River..." in *Joseph Cross* (London: University of Newcastle, 1828), p 48.

⁵³ Gregson, *The Australian Agricultural Company 1825-75*, 59.

⁵⁴ There are limited sources found in the AA Company records showing Government mines pre 1820.

⁵⁵ Docherty.

⁵⁶ ———, *Newcastle the Making of an Australian City* (Sydney: Hale & Iremonger, 1983).

⁵⁷ Gregson, *The Australian Agricultural Company 1825-75*, p 61.

⁵⁸ *Ibid.* 26 August 1826

workers. This meant Government authorities continued to own and manage the mines at the Government Domain and they recommenced operations after this initial failure. Authorities used the supply of refractory convicts who had been returned by settlers back to the Government to work the mines,⁵⁹ providing a second wave of convict labor to the mines at the Government Domain.

A coal etched seaport

The human relationship with the geographical landscape forged strong convict-coal associations that set in motion the layout of the town. More specifically it determined where certain would come to be built. The roadway to the wharf from the Government Domain was the first road carrying coals for export in Australia, it etched out what would become the settlements main street. Coals were taken from the Government Domain on the hill to the wharf and the weight and gravity made it relatively easy to haul the coals. Bullocks were used rather than a mechanised system.⁶⁰ King's wharf became important piece of infrastructure that assisted the development of the coal industry. As shown in John Lewin's 1808 painting (Figure 1.5) the wharf existed quite early in the settlement.⁶¹



Figure 1.5 'The Coal River or Port of Newcastle'. John Lewin 1808. State Library of New South Wales

This is one of the earliest artworks representing the settlement and the main thoroughfare in its infancy. The numerous single storied dwellings in two rows define the early street that became George Street and later Watt Street.⁶² 'Signal Hill' is clearly labelled and there are finely drawn numbers indicating the harbour depths. Safe entry to the harbour would have been a serious issue and Lewin's work documents the best route to take to get to the wharf. The close proximity of the wharf and ease of passage from the coal mines on the hill at the Government Domain meant that the township built up around this alignment. Convicts built their houses in the early coal road. Other infrastructure such as the convict lumberyard and sawpits were also established around the wharf.⁶³ The commencement of the construction of Macquarie Pier in 1818 joining the mainland to Nobbys Island was also a significant public works project. This too was closely associated with geology and the need to reorganise the environment in pursuit of coal

Although the coal mines are not visible in many visual sources they did determine the layout of the town and where infrastructure was to be constructed. The area has a specific urban spatial culture (because of coal mining) whereby development controls impact on certain parts of the city because of past coal mine activities. Mine

⁵⁹ Ibid., 59-60.

⁶⁰ Comerford Jim, *Coal and Colonials the Founding of the Australia Coal Mining Industry* (Sydney: United Mineworkers Federation of Australia, 1997).113.

⁶¹ Possibly John William Lewin, "The Coal River or Port of Newcastle," (Newcastle: State Library of New South Wales 1808).

⁶² ———, "The Coal River or Port of Newcastle," (Newcastle: State Library of New South Wales 1807).

⁶³ Meehan, "Adapted from 'Plan of Newcastle' August 7 1818."

subsidence has restricted much new development in the city and the mines continue to inadvertently shape the contemporary urban environment. They (mines) continue to determine planning and development. Coal mining changed the spatial culture of the settlement and continues to do so today due to the ongoing demand for coal.