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CITY EVOLUTIONS – PLACE OF COAL

Keith Nesbitt

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CITY EVOLUTIONS – PLACE OF COAL

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ABSTRACT

This paper describes the creative thoughts and ideas behind a projection developed for the Newcastle City Evolutions Project in Watt Street, Newcastle during 2013-2014. Entitled, “Place of Coal” the projection was designed and used on the David Maddison building. This report serves to acknowledge the sources of various contributions used in the project, and is not intended to report on the technical characteristics of the project.

This was a collaborative project and was developed using contributions from: Greg Ray, John FitzGerald, Allan Chawner, Paul Foley, Bill McQuire and the University of Newcastle Cultural Collections.

Place of Coal actually began as a story about the history of shipping and the Port of Newcastle but evolved into a more general story about coal, shipping and Watt Street in Newcastle. The projection tells a personal narrative exploring the close link between coal and the place I grew up in. Long years before it was colonised coal was being used by the Awabakal in the region. Coal was actually pivotal to the area being discovered and continues to play a major role in the life of Newcastle right up to this day.

The film also reflects on the personal story of coal itself – the process of taking coal from its sources to its destinations. The complexity of this is amazing. From the logistics to the overwhelming scale is quite a feat of engineering. My two young children actually started my own appreciation of this. They love to drive past the coal loaders at Kooragang or to sit and watch the coal trains lumber by or the giant ships wade into the harbour. The more I watched with their eyes the more their amazement caught on in me. Regardless of other feelings I find it incredible to consider the amazing scale of the huge machines and ships that bring our harbour to life.

The film runs for about 15 minutes and is in five distinct parts:

1. Awabakal Dreaming
2. Early European History of Watt Street, Coal and Shipping
3. Digging it out - Underground Mining
4. Getting to the Harbour - Trains and Logistics
5. Exporting - Loading and Shipping



1 Introduction

This paper provides a reference body for a creative work developed for the City Evolutions Project in Watt Street, Newcastle during 2013-2014. Entitled, “Place of Coal” the projection was designed and used on the David Maddison building (Figure 1).

This work was a collaborative project developed with contributions from: Greg Ray, John FitzGerald, Allan Chawner, Paul Foley, Bill McQuire and the University of Newcastle Cultural Collections. This report serves to acknowledge the sources of the various contributions used in the project, and is not intended to report on the technical characteristics of the project.

“Place of Coal” was conceived as a story about the history of shipping within the Port of Newcastle and the role of Watt Street to the early development of that port. The original intention was to develop an ambient display that was regularly updated with day-to-day data about the port’s function. For example, the data might include: the destination and origin of ships entering the harbour the number of ships arriving and departing and the types of cargo they were carrying. The display would include interesting facts about imports and exports as well as financial information about the ports operation. The ambient display was intended to update on a daily basis by scraping data from relevant sites such as the New Port Corporation. Unfortunately resourcing issues meant the display evolved into a static projection, displaying only some general statistics surrounding the harbour’s function.

Thus the original intention was to tell the story of over 200 years of shipping in the Harbour (1799-now) with a focus on both the history of the harbour with current information about how the harbour operates now. The story also evolved somewhat as it became obvious that it was impossible to escape the links between coal and shipping or indeed coal and Newcastle, or “Place of Coal”. I should point out the project tries to make no political or cultural statements about the role of coal in society, it merely tries to capture the interesting story of the way things were and the way they have become.

Personally, the two main reflections I made while engaging in the project were the close link between coal and my home town and the awe inspiring scale of the process that involves taking coal from its sources to its destinations in our town.

First I found it fascinating to think that coal was being used by the Awabakal people long before the location was ever colonised by European settlers. This location is unique as there are no other references to Aboriginal people using coal as a source of fuel anywhere in Australia. Coal too was pivotal to the area being discovered and settled. Of course it continues to play a major role in the life of Newcastle right up to this day. With global warming a reality and the role coal plays in that it is also interesting to consider how the more distant future of Newcastle will look. Just as there is no castle in Newcastle, perhaps there will be no coal.

The sheer scale and complexity of the local coal industry is amazing. From the interlinked dependencies inherent in the logistics to the overwhelming size of machinery involved it is quite a feat of engineering and organisation. It made me think of the pyramid builders of old who would I’m sure appreciate the difficulties that need to be overcome when planning of this scale is dreamed. My two young children (Ada and Max) actually started my own appreciation of this. They love to drive past the coal loaders at Kooragang or to sit and watch the coal trains lumber by or the giant ships wade into the harbour. The more I watched with their eyes the more their amazement caught on in



me. Regardless of other feelings about the use of coal I found it incredible to consider the amazing scale of those huge machines and the giant ships that pulse our busy harbour to life.

The Place of Coal projection runs for about 15 minutes and was designed in five main parts.

- Part 1 – Awabakal Dreaming
- Part 2 – History of Coal
- Part 3 – Underground Mining
- Part 4 – Trains and Logistics
- Part 5 – Loading and Shipping

This report is structured around these 5 parts providing a detailed visual reference to the contributions used in each of these parts of the work.



Figure 1.1: The original design concept – overlaid on the Maddison building in Watt Street

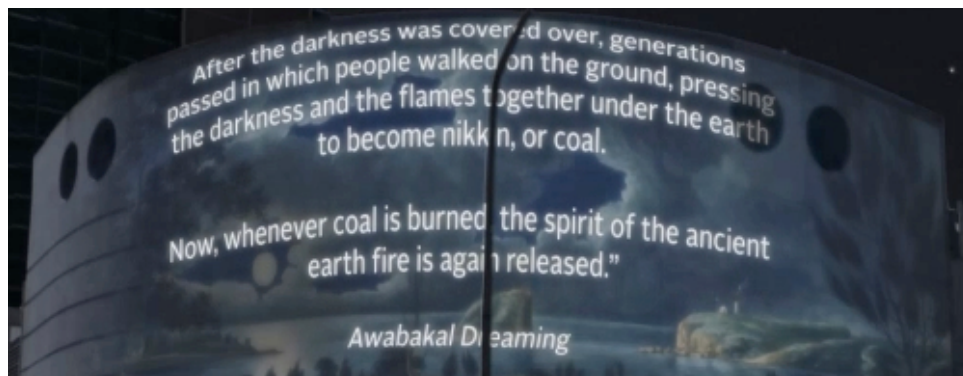


Figure 2.1: Part 1 – Awabakal Dreaming - projected on the Maddison building in Watt Street



Figure 2.2: Part 2 – History of Coal - projected on the Maddison building in Watt Street



Figure 2.3: Part 3 – Underground Mining - projected on the Maddison building in Watt Street



Figure 2.4: Part 4 – Trains and Logistics - projected on the Maddison building in Watt Street

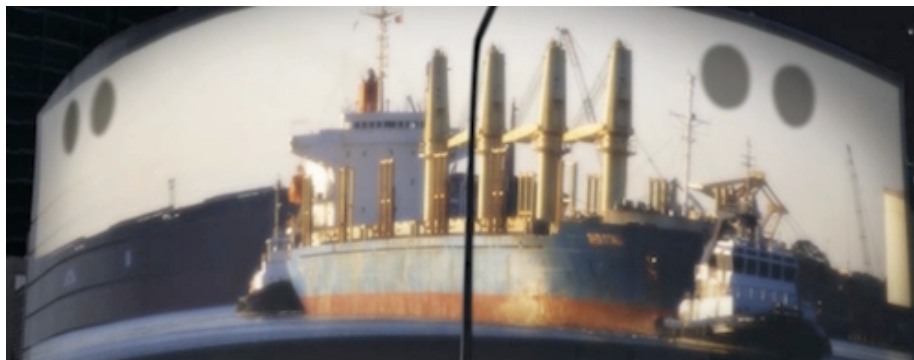


Figure 2.5: Part 5 – Loading and Shipping - projected on the Maddison building in Watt Street

2 Awabakal Dreaming

The display begins with the Awabakal dreaming that relates the early use of coal in area (Figure 2). Apart from the Awabakal people there are no other documented stories of indigenous people using nikkin (coal). The site of this dreaming actually relates to a volcanic plug near Redhead, called 'Kintirabin'. The story was most likely told to Rev Lancelot Threlkeld and was reported by Herald journalist, Percy Haslam before being featured in a 1993 story by Greg Ray in the Newcastle Herald.

"A very long time ago, when the earth and sea were different from today, a great darkness fell on the land. This darkness, which seemed to come from a hole in a mountain and block out the sun, was so deep and sudden that the people were very frightened. Even birds and insects fell silent.

Messengers were sent in all directions, bringing all people together to decide how light could be brought back to the world. The wise men of the tribes decided that the only way to bring the world back to normality was to cover up the darkness that was scattered deeply on the ground. Men, women and children dug up rocks and sand and broke down foliage from trees and bushes to cover up the thick darkness.

People from miles around came together to stop the darkness breaking through the surface of the earth. The people feared that the ever-burning fires deep in the ground would release the darkness again.

After the darkness was covered over, generations passed in which people walked on the ground, pressing the darkness and the flames together under the earth to become nikkin, or coal. Now, whenever coal is burned, the spirit of the ancient earth fire is again released."

Aboriginal Hunter Supplement to the Newcastle Herald Tuesday,
May 11 1993:4 Text by Greg Ray:





Figure 2.1 Opening image used in the projection
 nla.pic-an2962715-s15 Lycett, Joseph, ca. 1775-1828.
 [Aborigines resting by camp fire, near the mouth of the Hunter River, Newcastle, New South Wales]
 [picture][ca. 1817] 1 watercolour ; 17.7 x 27.8 cm.
 Part of Drawings of Aborigines and scenery, New South Wales, ca. 1820 [picture] [ca. 1820]
 This image was used with permission from the Australia National Library



Figure 2.2 Opening image as in the projection on the right side of the Maddison building

3 History of Coal

This part of the display features historical images of coal production and transport in the region. It features many of the early coal mines in the inner city suburbs of Newcastle and some early photos of Watt St. It also features the early transportation story of coal mining and export. It includes images of trains and wagons, loading and shipping of coal in the harbour. The photos used in this part of the projection are mostly circa 1880-1940. They were used with permission from the University of Newcastle's Cultural Collections <http://www.newcastle.edu.au//service/library/our-libraries/cultural-collections/>

They include:

- images scanned from negatives in the Bert Lovett collection that are part of the Norm Barney Photographic Collection
- images scanned from photographs or slides taken by the late Dr John Turner (1933 - 1998), local historian and lecturer
- images scanned from photographs or negatives held in the J and A Brown collection.
- images scanned from the original glass negatives taken by Ralph Snowball. It that are part of the Norm Barney Photographic Collection
- an image from the collection of Mr George Davison via Mr Barry Howard.
- images scanned from original glass positives that are from a collection of glass slides of Newcastle and coastal shipping, c.1870-c.1940 donated by Mr. E. Braggett

All these images were downloaded from the cultural collection between April and May, 2013. Many of the images have been digitally cleaned and colour corrected for the display. In some cases only parts of the images were used. If you have more information about any of these images you can go to the cultural collections and provide comments. The link and attribution for each image used in the display is provided in Appendix A.



Figure 3.1 Early views of Watt Street.

4 Underground Mining

The footage was taken from the John FitzGerald Film Collection which is a historical series of 15 DVDS containing 291 mins of film by John FitzGerald from 1968-1988. These DVDs feature NSW's coal mining history, their operations and people and provide a fascinating glimpse into coal mining in NSW during 1970s and 1980s. Permission to use the film footage in this part of the display was kindly provided by Coal Services, Australia.

The John FitzGerald Film Collection collections contain the following DVDs:

1. Power from coal (23:12)
2. Search for coal (17:21)
3. View from below (31:09)
4. Where the action is (37:30)
5. Electrical hazards in coal mining (23:55)
6. Fight that fire (22:22)
7. Rescue at Manton Colliery (24:57)
8. Coal and the environment (7:11)
9. Open cut safety (16:38)
10. A safe start (15:19)
11. Safe roof bolting (16:25)
12. Longwall mining at Invincible Colliery (15:23)
13. Can you hear me (16:04)
14. Coal dust - the invisible killer (18:27)
15. Winning Illawarra coal (11:32)

The footage used in the actual display is mostly from the first video (Power from Coal) but also uses selected clips from the last DVD (Winning Illawarra coal). The original footage has an aspect ratio of 16:9. To accommodate the aspect ratio used in the project, which is about (30:9), two clips were placed side by side. Some minimal production effects were then used to blend the edges of these two clips. However, as much as possible, the integrity of the original films have been preserved.



Figure 4.1 An example of the split screen style used in the underground mining sequence.

5 Trains and Logistics

I shot the film footage in this part of the display at Sandgate and Warabrook stations. The infographics were developed by Bill McGuire (Table 5.1).

As explained in the introduction It was originally planned that over time that more ambient information displays would be produced, updated with current data on a regular basis. For example, this displays would show the number of coal ships entering and leaving the harbour each week, total coal exported last month, etc. Since no resources were available to complete this phase of the display a number of high-level static infographics were used.

The facts used in this part of the film were taken form a number of sources which are provided below. In many cases the numbers are averages, or approximate values rather than exact. Some figures are also time dependent, varying from year to year. These variations and more accurate values are provided below.



Figure 5.1 Example of Infographics - 80 wagons of coal at Sandgate.



Figure 5.2 Example of Infographics - .100 tonnes of coal per wagon

Table 5.1 Sources for the facts and data used in part 4 of the projection.

Facts	In the early 1800s, coal was mined at the top of Watt St and loaded on ships at the street's northern end. Coal was first exported from Newcastle in 1799. The coal was mined by convicts from the cliffs and loaded by wheelbarrow. A load weighing 50 tonnes was shipped to Bengal on a vessel called Hunter. It was the colony's first export.
Source	http://www.newportcorp.com.au/site/index.cfm?display=111729
Comments	A good historical timeline is available on the New Port Corporation web site.
Facts	40 coal mines 80 types of coal 30 loading points
Source	Coordinator. http://www.artc.com.au/library/2012-21%20Hunter%20Valley%20Corridor%20Capacity%20Strategy%20Consultation%20Document.pdf
Comments	These were taken from a 2012 report by the Hunter Valley Coal Chain. It is expected that these numbers will change over time and may be larger in 2013. The "types" of coal could be better described as "brands". Different coals have different properties and by mixing or preparing coal in different ways the final product, or brand, will have different properties that may better suit the end customer needs.
Facts	80 wagons 1.5 km long 100 tonnes 42 trains for 1 ship Current export demand: 60 trains per day 1 tonne is approx. 1 cubic metre 230,000 tonnes per ship 1500 ships per year \$15 billion dollars export revenue
Source	http://www.artc.com.au/library/2012-21%20Hunter%20Valley%20Corridor%20Capacity%20Strategy%20Consultation%20Document.pdf
Comments	These facts were based on data taken from a 2012 report by the Hunter Valley Coal Chain. The largest trains in New South Wales consist of 80 * 120 gross tonne wagons. However, the number of wagons vary based on things like the ability to load trains of certain lengths. An average length of 55 wagons was used in our calculations. The 100 tonnes of coal per wagon is an approximate weight. The actual weight of a wagon depends on the type of coal being loaded. The size of ships entering the port are restricted because of the depth of the harbour. The larger cape-sized ships can carry about 230,000 tonnes of coal. With an average weight of about 5,500 tonnes it requires about 42 trains to load these large ships.
Facts	\$15 billion dollars export revenue 10,500 tonnes per hour 2,500 tonnes per hour The Hunter Valley Coal chain is the worlds largest coal export operation
Source	http://www.nswmin.com.au/Mining-in-NSW/Facts-and-Figures/Economic-Contribution/Coal-Specific-Statistics/Coal-Specific-Statistics/default.aspx
Comments	Coal is stacked & loaded on ships at two locations on Kooragang Island and one location at Carrington. The capacity of these loading facilities is about 10500 tonnes per hour for Kooragang and 2,500 at Carrington. The revenue is a figure from 2012 and will vary depending on the export demand and price of coal.

6 Loading and Shipping

This part of the display features the current infrastructure related to stacking, reclaiming and loading coal at Kooragang and Carrington. It also depicts the amazing scale of ships that navigate the harbour before being loaded with export coal. The images used in the display are referenced below. Note that while the original photos have been preserved as much as possible in the project, there have been some slight colour corrections, the image resolutions have been reduced and some images have also been cropped. These changes were made to cater for the aspect ratio of the onsite projection.

The photographs used in this part of the projection were provided by Allan Chawner,(Appendix B) Paul Foley (Appendix C) and Keith Nesbitt (Appendix D). A visual reference to the actual images used are provided in these appendices at the back of this document.

Allan Chawner

Allan is a Fine Art Photographer and has been a practicing artist for more than 30 years. His artwork has been based around notions of sense of place in portraiture and landscape. He collaborates with writers or composers to produce art works that may be projected or printed. He present exhibitions internationally through cultural exchange, exhibiting in venues outside mainstream art galleries. His work is a response to identity, both of the self and of the communities.

www.chawner.com.au

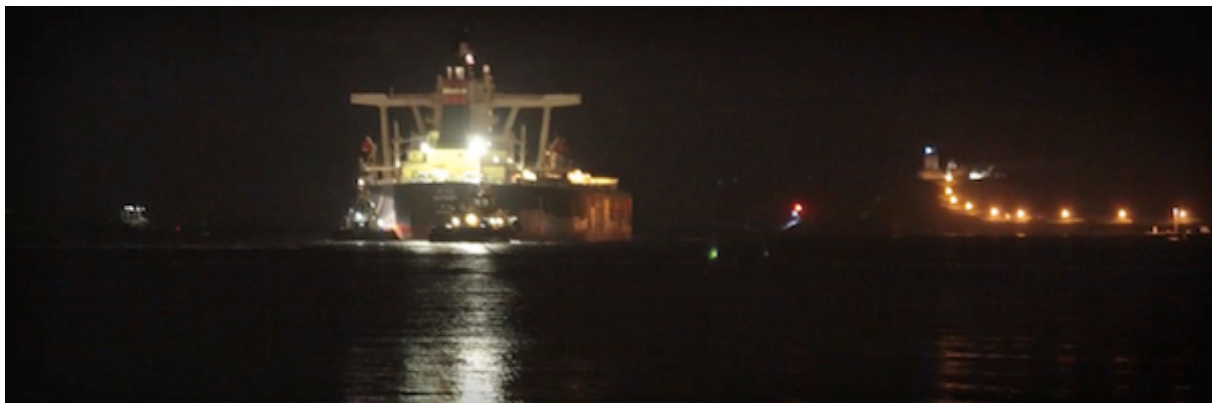


Figure 6.1 Night ship departs the harbour – Allan Chawner

Paul Foley

Paul Foley is a professional, corporate and lifestyle photographer experienced with tourism, education and branding projects. His clients include government, universities, tourism bodies as well as small, medium and large enterprises. He has been commissioned to photograph around Australia and Internationally.

<http://archive.lightmoods.com.au>



Figure 6.2 Day ship departs the harbour - Paul Foley

Keith Nesbitt

Keith's background is actually in computer science and mathematics and during his day job he focuses on applied IT research. He likes to build tools for helping people to find patterns in information. Information visualisation, virtual reality and computer games are some of his favourite things. He also studies how the mind works and how people create and use ideas. Keith grew up surfing the beaches of Newcastle and obtained his PhD in Computer Science from the University of Sydney. Despite his more scientific side, he also has an artistic side and has been writing songs and painting pictures since 1975. He has held 10 paintings exhibits, provided lyrics for two CDs and a musical and one of his visual designs was selected for exhibit in New York, London and Beijing.

www.knesbitt.com



Figure 6.3 Watt St at night - Keith Nesbitt

7 Acknowledgements

Thanks to Michael Donovan who helped explain facets of this regions earliest indigenous history. More information about the painting and words used in the opening scenes can be found in “Part 1 – Awabakal Dreaming”.

Thanks to Greg and Slyvia Ray for being able to view their collection of historical photos from Newcastle’s early days. If you wish to see more pictures of Newcastle’s early history I recommend their 3 books:

1. Newcastle: The Missing Years, Greg Ray and Slyvia Ray, 2010, ISBN 978-0- 646-54383-3
2. Recovered Memories: Newcastle and the Hunter, Greg Ray and Slyvia Ray, 2011, ISBN978-0-9871883-0-4
3. Changing Places: Newcastle and the Hunter, 2012, ISBN 978-0-9871883-2-8 Available from the Newcastle Museum and the Herald office.

All the historical photos used in this story were sourced from the University of Newcastle Cultural Collections. Thanks to Gionni DiGravio for his help with this process.

Thanks to Coal Services who made it possible to include the historic footage of underground coal mining. This film footage was shot by John FitzGerald from 1986-1988. A full collection of these fascinating videos is available from Coal Services (for further information go to www.coalservices.com.au).

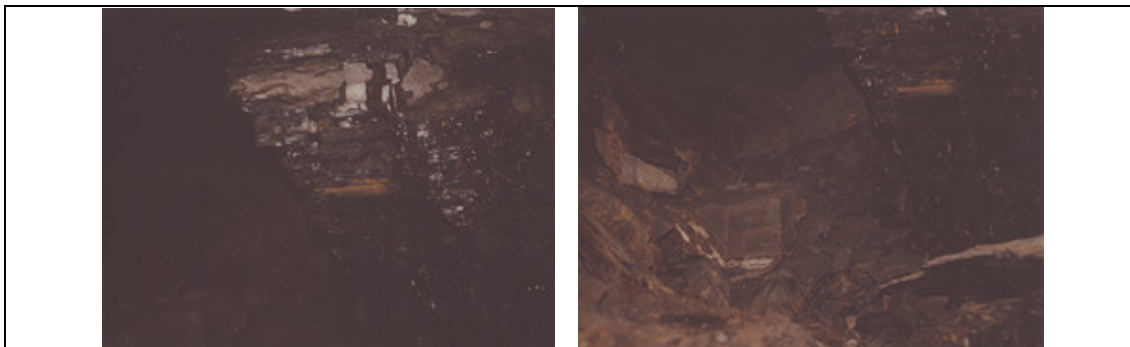
Thanks to Bill McQuire who did all the final production and editing on the project. Bill also helped provide some incredible infographics to incorporate into the display. You can find a show reel of Bills work at <http://vimeo.com/30442960>

Thanks also to Shanthi Herd from Hunter Valley Coal Chain Coordinators for providing some much appreciated knowledge on the way coal gets from our mines to our ships.

Numerous other people helped support me, with information or encouragement. Thanks to Keith Powell at Newport Corp and Deb Mastello at the Newcastle Maritime Centre for a great introduction to the past and future of the Newcastle’s vibrant port. For more nautical discoveries I suggest a visit to the Maritime Centre at Lee Wharf, <http://maritimecentrenewcastle.org.au/>. Thanks also to Liz Anelli for sharing her excitement and imagery of the harbour.



8 Appendix A – Cultural Collection Images



[Underground coal seam], Watt Street, Newcastle, Australia - 5 March, 1979

This image was scanned from a photograph in the University's historical photographic collection held by

Cultural Collections at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/2805301460>

<http://www.flickr.com/photos/uon/2805301370>



Watt St.

This image was scanned from the original glass positive. It is from a collection of glass slides of Newcastle and coastal shipping, c.1870-c.1940, and was presented by Mr. E. Braggett to the University of Newcastle on October, 1975. It is held by Cultural Collections at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/6957450913/>



Cloudy's Metropolitan Hotel, Scott and Watt Streets Newcastle, NSW, [1880-1893]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by Cultural Collections at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/6081006415/>



Great Northern Hotel and Metropolitan Hotel, Scott and Watt Streets, Newcastle, NSW, [n.d.]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/7161316396/>



Coal Miners, Hunter Valley, NSW [n.d.]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/6469612441/>



Mine Tunnel, Hunter Valley, NSW, [n.d.]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/6469613139/>



Coal Miners and a pit pony, Hunter Valley, NSW, [n.d]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/6081012611/>



[Stonedusted mine tunnel at Wallarah Colliery, Catherine Hill Bay, NSW, n.d.]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/6469614409/>



C918-0153 Colliery staff, Lambton Colliery, Lambton, NSW, 27 May 1897.

This image was scanned from a photograph or slide taken by the late Dr John Turner (1933 - 1998), local historian and lecturer. His collection is rich in Australian history and local studies.

<http://www.flickr.com/photos/uon/6828095610/>



Mine workers, [Newcastle, NSW, n.d.]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](http://www.flickr.com/photos/uon/5639067509/) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/5639067509/>



The Glebe Colliery.

C918-0145 The Glebe Colliery, Merewether, NSW.

This image was scanned from a photograph or slide taken by the late Dr John Turner (1933 - 1998), local historian and lecturer. His collection is rich in Australian history and local studies.

<http://www.flickr.com/photos/uon/6828086314/>



THE BOREHOLE MINE

C917-0035 The Borehole Mine, Hamilton, NSW, Australia

This image was scanned from a photograph or slide taken by the late Dr John Turner (1933 - 1998), local historian and lecturer. His collection is rich in Australian history and local studies.

<http://www.flickr.com/photos/uon/5124324231/>



C918-0131 Hunter Valley Coal series - Dudley, c.1900.

This image was scanned from a photograph or slide taken by the late Dr John Turner (1933 - 1998), local historian and lecturer. His collection is rich in Australian history and local studies.

<http://www.flickr.com/photos/uon/6953961295/>



C918-0025 Newcastle Coal Company's "A" Pit, which mined the lower borehole seam, Merewether, NSW, Australia [c.1900s]

This image was scanned from a photograph or slide taken by the late Dr John Turner (1933 - 1998), local historian and lecturer. His collection is rich in Australian history and local studies.

<http://www.flickr.com/photos/uon/8017958891/>



C918-0161 Lambton "B" Pit Colliery, c.1900.

This image was scanned from a photograph or slide taken by the late Dr John Turner (1933 - 1998), local historian and lecturer. His collection is rich in Australian history and local studies.

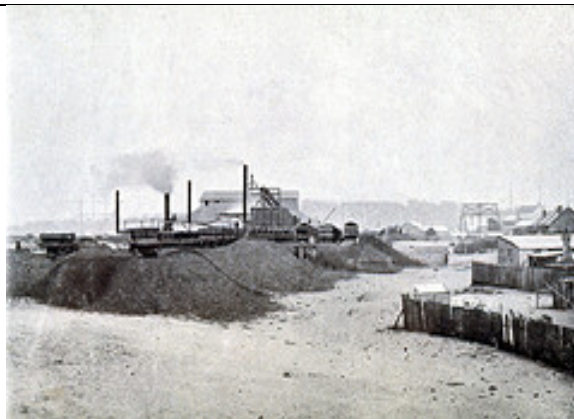
<http://www.flickr.com/photos/uon/6828942786/>



Australian Agricultural Company's Sea Pit, Cooks Hill, NSW, [1887]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](http://www.flickr.com/photos/uon/6507980081/) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/6507980081/>



C918-0134 "A Stockton Coal Mine", c.1900

This image was scanned from a photograph or slide taken by the late Dr John Turner (1933 - 1998), local historian and lecturer. His collection is rich in Australian history and local studies.

<http://www.flickr.com/photos/uon/6807852504/>



C918-0143 Dudley Coal Mine, Lake Macquarie, NSW, 1906.

This image was scanned from a photograph or slide taken by the late Dr John Turner (1933 - 1998), local historian and lecturer. His collection is rich in Australian history and local studies.

<http://www.flickr.com/photos/uon/6974204499/>



Hetton Colliery, Carrington, NSW, [n.d.]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](http://www.flickr.com/photos/uon/6507988059) at the University of Newcastle, NSW, Australia. <http://www.flickr.com/photos/uon/6507988059>



Sea Pit, Darby Street, Cooks Hill, NSW. [n.d.]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](http://www.flickr.com/photos/uon/5678078339/) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/5678078339/>



South Waratah Colliery, Charlestown, NSW, 16 May 1898

This image was scanned from the original glass negative taken by Ralph Snowball. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](http://www.flickr.com/photos/uon/3271382152/) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/3271382152/>



New Lambton C Pit strike, Adamstown, NSW, September 1888

This image was scanned from the original glass negative taken by Ralph Snowball. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](http://www.flickr.com/photos/uon/3270567955/) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/3270567955/>



Co-operative Colliery, Wallsend, NSW, [12] June 1897

This image was scanned from the original glass negative taken by Ralph Snowball. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](http://www.flickr.com/photos/uon/3271387022/) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/3271387022/>



New Tunnel Colliery, Jesmond, NSW, [n.d.]

This image was scanned from the original glass negative taken by Ralph Snowball. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](http://www.flickr.com/photos/uon/3270562229/) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/3270562229/>



Wickham and Bullock Island Coal Company mine, [Wickham or Carrington], NSW, [n.d]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/6507979113/>



Hetton Colliery, Carrington, NSW, [n.d.]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/6356234047/>



C918-0135 Coal train, Merewether, NSW.

This image was scanned from a photograph or slide taken by the late Dr John Turner (1933 - 1998), local historian and lecturer. His collection is rich in Australian history and local studies.

<http://www.flickr.com/photos/uon/6953963183/>



C918-0139 Dudley Colliery horse-drawn coal wagon

This image was scanned from a photograph or slide taken by the late Dr John Turner (1933 - 1998), local historian and lecturer. His collection is rich in Australian history and local studies.

<http://www.flickr.com/photos/uon/6807854970/>



Coal train leaving Hebburn No 2 Colliery, 1969

This photograph is from the collection of Mr George Davison via Mr Barry Howard.

<http://www.flickr.com/photos/uon/6044494230>



Coal Stage, Port Waratah Locomotive Depot, Carrington, NSW [1908]

This image was scanned from the original glass negative taken by Ralph Snowball. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/3835428449/>



B Pit, Merewether, NSW, 24 February 1899

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<http://www.flickr.com/photos/uon/3271381868/>



Locomotive Number 62xx at Newcastle Coal Mining Company's A Pit, Newcastle, NSW, [24 February 1899]

This image was scanned from the original glass negative taken by Ralph Snowball. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](http://www.flickr.com/photos/uon/4044470299/) at the University of Newcastle, NSW, Australia.
<http://www.flickr.com/photos/uon/4044470299/>



Seaham Coal Company's Locomotive Number 1 'Maori', West Wallsend Colliery siding, West Wallsend, NSW, 28 March 1898

This image was scanned from the original glass negative taken by Ralph Snowball. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](http://www.flickr.com/photos/uon/4044482161/) at the University of Newcastle, NSW, Australia.
<http://www.flickr.com/photos/uon/4044482161/>



Mineworkers, Gartlee Colliery, 159 Railway Street, Teralba, NSW, 28 May 1898

This image was scanned from the original glass negative taken by Ralph Snowball. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](http://www.flickr.com/photos/uon/3024162636/) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/3024162636/>



Lambton Colliery, Lambton, NSW, 1886

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<http://www.flickr.com/photos/uon/3271381966/>



A Pit Colliery, Newcastle, NSW, 24 February 1899

This image was scanned from the original glass negative taken by Ralph Snowball. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](http://www.flickr.com/photos/uon/3257486888/) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/3257486888/>



Coal Train on incline, Newcastle, NSW, [n.d.]

This image was scanned from a photograph or negative held in the J and A Brown collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/4275842068/>



Australian Agricultural Company railway bridge, Hunter Street Newcastle, NSW, [n.d.]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/6513899407/>



Port Waratah, Carrington, NSW, [n.d.]

This image was scanned from a photograph or negative held in the J and A Brown collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/4275097123/>



Port Waratah, Carrington, NSW, [n.d.]

This image was scanned from a photograph or negative held in the J and A Brown collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/4275097215>



The Dyke, Carrington, NSW, 1906

This image was scanned from a photograph or negative held in the J and A Brown collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/5203418998/>



Vessels Waiting to Load Coal.

C917-0526 Newcastle Port. 'Vessels Waiting to Load Coal', c.1900

This image was scanned from a photograph or slide taken by the late Dr John Turner (1933 - 1998), local historian and lecturer. His collection is rich in Australian history and local studies.

<http://www.flickr.com/photos/uon/5124948680/>



C918-0011 Coal Basin, Carrington, NSW, Australia, c.1900

This image was scanned from a photograph or slide taken by the late Dr John Turner (1933 - 1998), local historian and lecturer. His collection is rich in Australian history and local studies.

<http://www.flickr.com/photos/uon/5834312397/>



Coal staiths, Newcastle, NSW, [n.d.]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/6513908553/>



Coal loading at The Dyke, Carrington, NSW, [n.d.]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/6171092815/>



Mcmyler Hoist, Carrington Dyke, Newcastle, NSW, [1908-1916]

[Newcastle and Hunter River Steamship Company wharf, Newcastle Harbour NSW, 1900] Photographs of Newcastle, Lake Macquarie and the Hunter Valley, taken and collected by Bert Lovett in the 20th century. The Bert Lovett Collection is part of the Norm Barney Photographic Collection which was donated to the University of Newcastle by Mrs Daphne Barney.

<http://www.flickr.com/photos/uon/7167862660/>



The ship "Dumosa" on Newcastle Harbour, Newcastle, NSW, Australia [n.d.]

This image was scanned from a photograph in the Newcastle and Hunter District Historical Society archives which are held by [Cultural Collections](#) at the University of Newcastle, Australia.

<http://www.flickr.com/photos/uon/5551776393/>



Loading coal, [Newcastle Harbour, NSW, n.d]

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<http://www.flickr.com/photos/uon/5576304092/>



Loading coal, [Newcastle Harbour, NSW, n.d]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/5576304810>



Loading coal, [Newcastle Harbour, NSW, n.d]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/5576304496>



Coal loading at the Dyke, Carrington NSW, [n.d.]

This image was scanned from the original glass negative taken by Ralph Snowball. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/4558889929/>



Coal loading at Number 15 Dyke, Carrington, NSW, 25 February 1904

This image was scanned from the original glass negative taken by Ralph Snowball. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/3324479942/>



Water Police launch, King's Wharf, Newcastle, NSW, [n.d.]

This image was scanned from the original glass negative taken by Ralph Snowball. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/3323641053/>



Tallships at the Dyke, Carrington, NSW, [n.d.]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](#) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/5779101925/>



[Coal line from Hamilton and Cook's Hill at Hunter Street, Newcastle, NSW n.d.]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](http://www.flickr.com/photos/uon/5732482382/) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/5732482382/>



C917-0510 Newcastle Port, NSW, c.1900 [n.d.]

This image was scanned from a photograph or slide taken by the late Dr John Turner (1933 - 1998), local historian and lecturer. His collection is rich in Australian history and local studies.

<http://www.flickr.com/photos/uon/6787707000/>

<http://www.flickr.com/photos/uon/6832277916/>



Panorama of Newcastle, NSW, [n.d.]

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by [Cultural Collections](http://www.flickr.com/photos/uon/6855470256/) at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/6855470256/>

<http://www.flickr.com/photos/uon/7001585595/>



A5193-033a - "Durisdeer"

This image was scanned from the original glass positive. It is from a collection of glass lantern slides of Newcastle and coastal shipping, c.1870-c.1940, and was presented by Mr. E. Braggett to the University of Newcastle on October, 1975. It is held by Cultural Collections at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/6913412255>



C917-0520 Barque "Adolphe" wrecked on Oyster Bank, 1904.

This image was scanned from a photograph or slide taken by the late Dr John Turner (1933 - 1998), local historian and lecturer. His collection is rich in Australian history and local studies.

<http://www.flickr.com/photos/uon/6933824997/>



A5193-065 - The S.S. "Federal"

This image was scanned from the original glass positive. It is from a collection of glass slides of Newcastle and coastal shipping, c.1870-c.1940, and was presented by Mr. E. Braggett to the University of Newcastle on October, 1975. It is held by Cultural Collections at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/6913807385/>



A5193-067 - "Mainbar", Wrecked on Nobby's Beach, 5th May, 1940

This image was scanned from the original glass positive. It is from a collection of glass slides of Newcastle and coastal shipping, c.1870-c.1940, and was presented by Mr. E. Braggett to the University of Newcastle on October, 1975. It is held by Cultural Collections at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/6913815161/>



Sygna, Stockton Beach, NSW, May 1974

This image was scanned from a negative in the Bert Lovett collection. It is part of the Norm Barney Photographic Collection, held by Cultural Collections at the University of Newcastle, NSW, Australia.

<http://www.flickr.com/photos/uon/6356228525>

9 Appendix B – Allan Chawner Images



MG 2858



MG 2899



MG 2910



MG 2977



MG 2997



MG 3056



IMG_6893



IMG_6914



IMG_6920



IMG_6921



IMG_6945



IMG_6965



IMG_6974



IMG_7012

10 Appendix C – Paul Foley Images

COAL-IND0082



COAL-LOADER-1914



COAL-MINING-1939



COAL-MINING-IND0067



COAL-NEWCASTLE-IND0070



COAL-SHIPPING-2129



NEWCASTLE-COAL-0584



NEWCASTLE-COAL-0627



NEWCASTLE-IND0073



NEWCASTLE-SCE0049



NEWCASTLE-SHIP-IND0061



NEWCASTLE-SHIPING-NEW0070



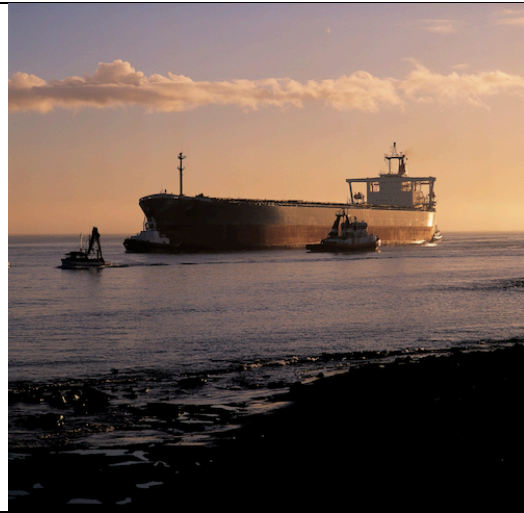
PASHA-BULKER-0009



PASHA-BULKER-0010



PASHA-BULKER-0012



SHIPPING-0052



SHIPPING-IND0062



SHIPPING-IND0063



SUNRISE-SCE01380

11 Appendix D – Keith Nesbitt Images

Kooragang_1488



KCL_1180



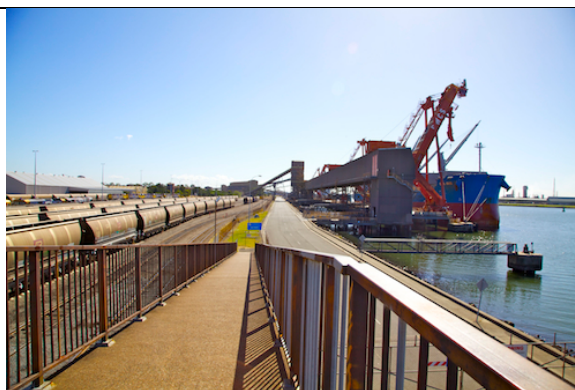
Kooragang_1179



Kooragang_01



Kooragang_02



PWC_0022



PWC Loader_0036



PWC Loader_0049



PWC_0093



PWC_0099



IMG_1204



IMG_1209



IMG_1241



IMG_1351



IMG_1374



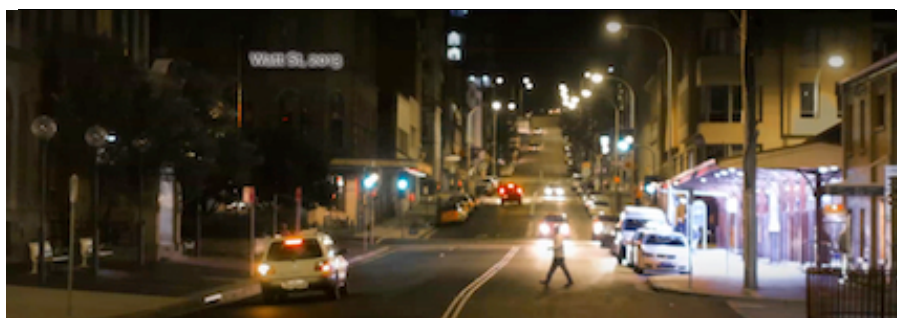
IMG_1397



IMG_1415



IMG_1441



Watt_m