



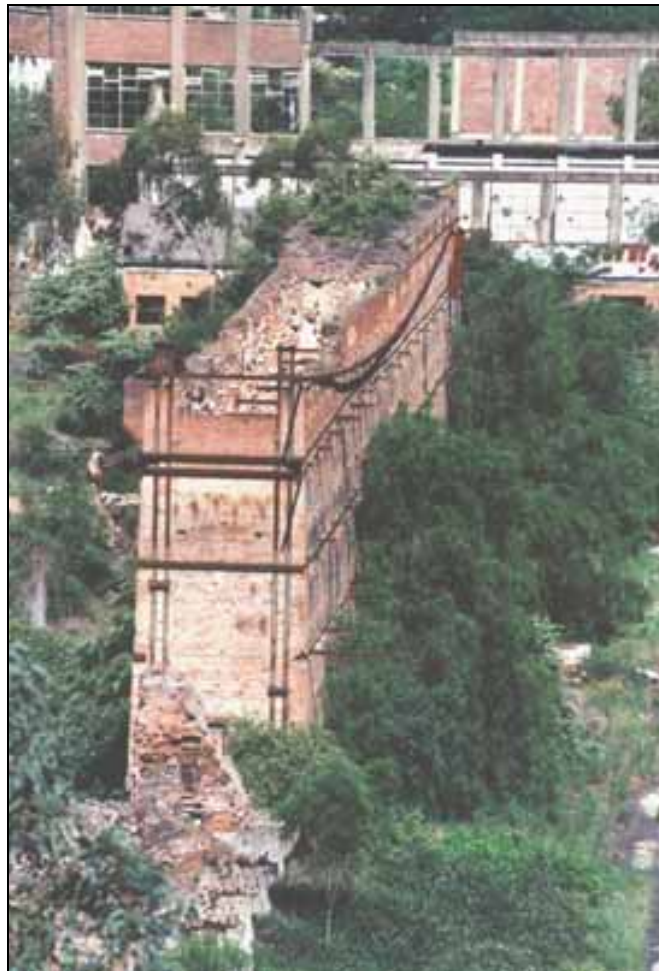
**AUSTRALIAN  
MINING  
HISTORY  
ASSOCIATION**

**15<sup>th</sup> ANNUAL CONFERENCE**

**Lithgow, NSW**

**24–30 October, 2009**





*Ruins of the National Oil Pty Ltd, Glen Davis. In the foreground are the bench of retorts with the power house ruins at the rear. Courtesy of Leonie Knapman*



*Looking down on the 1800s Torbane refinery in the Capertee Valley that is part of the area about to be mined by Centennial Coal. Courtesy of Leonie Knapman*

Front cover:

Top: *Group of miners at the Lithgow State Mine, c.1930s.* Courtesy of Lithgow Regional Library

Bottom: *Mine Rescue equipment has come a long way since this photograph was taken at the original Western Mines Rescue Station in Hassans Wall Road Lithgow, c.1925.* Courtesy of Lithgow Regional Library



## **MAYORAL MESSAGE**

Lithgow has a large and diverse economy, driven primarily by a vibrant mining sector, as well as a burgeoning manufacturing, retail and tourism sectors. The city also boasts access to some of Australia's most pristine World Heritage listed wilderness. With our cool climate and enviable lifestyle, Lithgow is a picture perfect location.

As the crucible of Australia's early industry, Lithgow has always been at the forefront of industrial innovation and development. From the manufacturing of iron and steel, ammunitions, meat refrigeration and of course our coal mining industry, the Lithgow area has significantly shaped the history and development of Australia.

Large scale coal mining commenced in the Lithgow area after the construction of the Great Zig Zag Railway in 1869. A total of 17 collieries have mined the black gold in the coal seams of Lithgow since 1850. The Western coalfields continue to be an active coal mining area supporting electricity generation and coal for the export industry.

I am proud of the fact that our city will host the 15<sup>th</sup> Annual Australian Mining History Association Conference its speakers, delegates and exhibitors and I believe that it provides a wonderful platform for the widespread and high-profile promotion of Lithgow as a tourist destination.

Lithgow is experiencing a new energy and confidence in its exciting role as a fast growing region in New South Wales, and that energy is reflected in the way we come together to celebrate our heritage. If you are visiting our region for the first time, enjoy our history, the many attractions, our wonderful lifestyle and our people who will make you feel at home.

On behalf of the Lithgow City Council and the residents of the Lithgow area, I welcome all participants and delegates to the 15<sup>th</sup> Annual Australian Mining History Association Conference.

Mayor Neville Castle  
Lithgow City Council



## PRESIDENT'S FOREWORD

The AMHA executive thank you for joining us at the 2009 conference in Lithgow. This is another of our stand-alone conferences in a major historic mining centre. Our previous conferences have been held in Townsville, Melbourne, Newcastle (twice), Sydney, Hobart, Adelaide, Kalgoorlie, Brisbane, Broken Hill, Bendigo, Kadina, Queenstown and Armidale. Our early conferences were held under the auspices of the Australian Historical Association, and few of those were held in mining districts. In the past six years we have ventured out alone and organised our own conferences incorporating visits to places of historic interest, and greater interaction with mining industry and with mining communities.

Typically when we visit a historic mining area, our conferences focus on the mineral commodity for which that particular area is most famous: gold in Kalgoorlie, coal in Newcastle, copper at Mount Lyell and so on. But what a wealth of historical themes we have waiting at Lithgow! Within a few hours drive we can visit sites where coal, iron ore, clay, gold and oil-bearing shale were mined, and in some cases still are. And not just any old gold, clay and iron, either. Lithgow was famous for its ceramic industries for decades. It was also where Australia's iron and steel industry got off to a faltering start which would bear fruit in other places. And ninety minutes' drive from Lithgow is the place where gold was discovered in 1851. Although it was by no means the first gold find in Australia, it was the one which triggered the gold rushes which shaped Australia's destiny for generations. In many ways, this region is the heartland of Australian mining.

The conference could not have happened without the enthusiasm and energy of Leonie Knapman and her team, who have been working hard on this event for the last two years. Many of our members see conferences as the essential activity of our association, and it is the dedication, skill and sheer hard work of local volunteers which makes them possible.

Dr Peter Bell  
President, AMHA



*Lithgow District Map*

# WELCOME TO THE BLUE MOUNTAINS

Just 145km from Sydney, the rich heritage of the Lithgow area provides a wealth of experiences for visitors and those with a love of mining and mineral history. Surrounding Lithgow are historic areas of coal and shale mining, some in almost inaccessible areas: limestone, silver, gold, copper, zinc, quarries for brick works and pottery, cement works, power stations and the steel industry – plus more.

When Blaxland, Lawson and Wentworth crossed the Blue Mountains in 1813, (now known as the Great Western Highway) they found grazing land that the colony desperately needed in what became known as the Hartley Valley. Governor Macquarie named the fertile valley the Vale of Clwyd after a valley in Wales. An alternate route across the mountains was found in 1823, but not fully completed until 1949 as a wartime effort. Today it is known as the Bells Line of Road, so named after Archibald Bell who was the first white man to cross the mountains with the help of local aboriginals

Between these two main roads, a road constructed in to the Hartley Valley during the mid 1800s uncovered a three-foot “coal” seam, which was later proven to be shale. Mining commenced with the ore being carried across the mountains by horse and cart to Sydney and by train once the railway went through. The now ghost town was named Hartley Vale and the Comet Inn is the only remaining hotel. The Inn was named after the brand of Kerosene produced from the valleys shale. Kathy and Greg Noble have furnished it as it would have been in 1879 and an over night stay at the Comet Inn is a great way to step back in time.



*Lithgow Miners' Eight Hour Procession, 1900.*

Courtesy of Lithgow Regional Library

# Lithgow

Lithgow has grown and prospered on the mineral wealth below the ground since the early 19<sup>th</sup> century. One of the first settlers Andrew Brown took up a grant for the “getting coals for lime burning” in 1838. Coal was mined on Browns property in the 1850s for the firing of a steam boiler at his Lithgow woolen mill. Once the railway was constructed through the area in 1869, large scale commercial mining commenced. Of the five collieries commencing at that time, only three were still in production into the latter part of the 20<sup>th</sup> century. Since 1850, some 17 collieries have been worked in the Lithgow valley. These were underground mines worked either by drift entry or shafts. With the extension of the railway beyond the Lithgow Valley, mines were established through the Wallerawang to Mudgee areas in the 1880s. Today the Western Coalfield continues to be an active coal mining area supporting electricity generation and a healthy coal export industry.



Lithgow District Coal Mines, 1961

Lithgow is a meeting place. It is located near the crown of the Great Dividing Range where the sandstone country of the Blue Mountains meets the granite country of the Central Tablelands. Prior to European occupation the areas around Lithgow were meeting places for various Aboriginal nations, the Wiradjuri from the west and north, the Darug from the east and the Gundungurra from the southeast. After crossing the sandstone ridges of the Blue Mountains the explorers Blaxland, Lawson and Wentworth climbed a volcanic cap a few kilometers south of Lithgow that is today called Mount Blaxland. At this point the party knew they had crossed the sandstone barrier that had hemmed the colony in for decades.

The City of Lithgow also sits across a point at which the massive coal seams of the Sydney Basin meet the mineral rich hills and plains of Western New South Wales. When Europeans first ventured into the Lithgow Valley in the early 19th century they noticed coal seams outcropping at the base of the valley slopes.

In the 19<sup>th</sup> and 20<sup>th</sup> centuries the region's natural mineral wealth supported the creation and development of mining and industrial enterprises that have become Australian legends. The first official report of gold was made by Assistant Surveyor James McBrien who noted 'numerous particles in sand near the Fish River in February 1823. The great Australian Gold Rush commenced in this region when Edward Hammond Hargreaves discovered alluvial gold in Summer Hill Creek in February 1851. There were numerous rushes in the region followed by over a century and a half of gold mining. The gold reef at Hill End yielded great wealth, including the famous Holtermann nugget. Holtermann's wealth funded an amazing photographic record of Hill End and Tambaroora in 1872.

Gold is not the region's only mineral resource. From the 1870s, Lithgow's coal deposits provided the energy for industries processing copper ore from Burruga and Cobar, iron ore from Carcoar, Cadia and Tallawang and fine clays from the Lithgow region. The Eskbank Iron Works, established in 1874 by various local commercial interests, including Cobb & Co, developed under the guidance of various entrepreneurs to host commercial steelmaking by 1900. By 1907 William Sandford, 'the father of the Australian iron and steel industry', had created Australia's first integrated iron and steel works in Lithgow. The presence of this works led to the establishment of the Lithgow Small Arms Factory, Australia's first modern manufacturing facility.

The Lithgow Pottery, established in 1879 to use the black coal from the Lithgow Valley Colliery, created fine domestic ware that has become highly sought after by collectors. The area surrounding Lithgow contains some of the world's richest deposits of oil shale. From the 1860s, oil shale was mined and processed at Hartley Vale, Katoomba, Torbane, Newnes, Glen Davis and other places. In the 19<sup>th</sup> and early 20<sup>th</sup> centuries, this industry supplied kerosene and during World War II Glen Davis supplied Australia's petroleum.

The region continues to support an active mining industry based on coal and gold. It has an impressive mining heritage. Aspects of this heritage have been conserved and interpreted at Scenic World Katoomba, Blast Furnace Park Lithgow, Lithgow State Mine Heritage Park, Newnes Oil Shale Works, Glen Davis Oil Shale Works, Bathurst Goldfields, Sofala, Hill End Historic Site, and Wentworth Gold Mine Lucknow.

*Courtesy of Ray Christison*

## Scenic World

After the Three Sisters, Scenic World is probably the most recognizable and visited attraction in the Blue Mountains. In the 1800s, payable seams of Kerosene shale and coal were found at the base of the massive sandstone cliffs. Access to the mines in the valley was via an incline and an incredible railway system, which ran for kilometers around the mountains involved. Today the mining shelf is keeping alive the history of this early mining area. Tourists instead of miners now travel down in modern transport to the mining shelf, via the original incline: or you can travel both ways in the new Gondola. Interpretive signage and an audio visual help tourists understand the conditions under which miners worked. If time allows a ride on the skyway takes visitors across a wide gorge with spectacular views including the famous Three Sisters.



*View of the 1800s railway incline down to the mining level at Katoomba. Today access down to the mining shelf can be via the original railway incline or the new Gondola. Courtesy of Scenic World*

## State Mine Heritage Museum

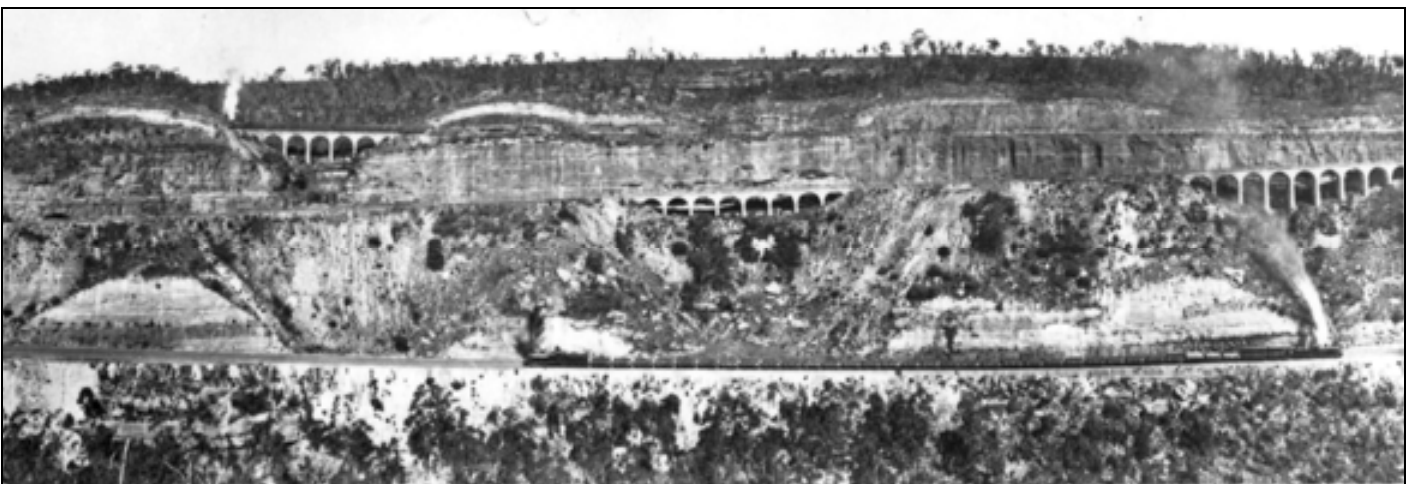
The last day of the conference will be held in one of the large workshop areas of the State Mine Heritage Museum. In 1916, the Lithgow State Coal Mine was the first government owned coalmine in NSW and became the biggest coal supplier in NSW. After severe floods in 1964, the mine was deemed dangerous and ceased operations. Today the site and its railway branch line have been conserved as a mining and industrial museum dedicated to the history of mining in the Lithgow area. In the period following the establishment of a Victorian State Coal Mine at Wonthaggi in 1909 the NSW Government began to explore the possibility of venturing into its own coal mining operation. Legislation for the establishment of the mine was debated in the NSW Parliament in 1912. Concern was expressed that this was a threat to private enterprise and the beginning of a move to nationalize the coal industry. The Government said they would not "trespass upon the field of private enterprise".



*Lithgow State Coal Mine, c.1960. Courtesy of Ray Christison's Pictorial History of the Lithgow State Coal Mine*

## **Zig Zag Railway**

Lithgow Valley's first European settlers arrived in 1824 but the area did not grow until the railway arrived in 1869. Twenty minutes out of Lithgow along the Bells Line of Road is the Great Zig Zag Railway, hailed as one of the world's technological feats of the 19<sup>th</sup> century. Constructed between 1886 and 1889, engineers devised a series of gently sloping gradients in the form of the letter Z. The railway is no longer part of the main railway across the mountains. Today with its magnificent old engines it takes tourists on a return trip from Clarence down the mountain to Lithgow and back through two tunnels and over three spectacular sandstone viaducts.



*Looking south across the various levels of the Zig Zag Railway between Clarence at the top of the mountain to Lithgow at the bottom. Courtesy of Leonie Knapman*

## Lithgow Iron and Steel Works

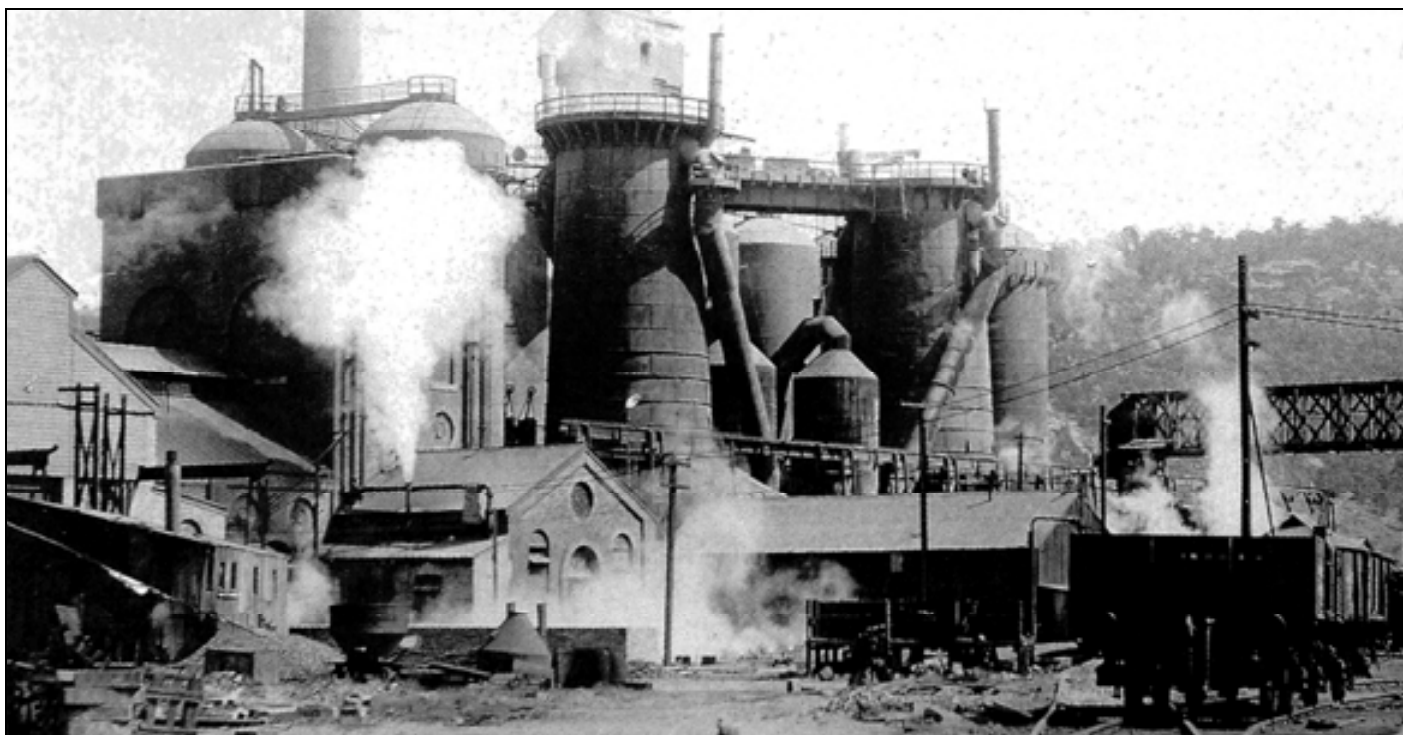
The first Lithgow blast furnace built in 1875 heralded the beginning of the iron and steel industry in NSW. Over subsequent years a major ironworks developed around the blast furnace. With the first steel furnace in 1900 and Australia's first large scale blast furnace for iron making in 1906, Lithgow laid the foundations of Australia's iron and steel industry.

In the 1870s, James Rutherford, the NSW manager and main shareholder in the Cobb and Company was persuaded that Lithgow was an ideal location for an ironworks because of the plentiful supply of coal. At this time iron ore was discovered in one of the railway cuttings going through the area, whilst limestone was found in another cutting. Rutherford along with Dan Williams leased coal bearing land from Thomas Brown, the owner of Eskbank Colliery and commenced construction of the Eskbank Ironworks in 1874.

The foundation stone for the sandstone blast furnace was laid on New Years Day 1875. The furnace was 55 feet high and twelve feet across the bosh (melting zone) with a 70 horsepower horizontal blowing engine fitted with a 5 foot diameter air cylinder and a hot air oven. It was a crude furnace by comparison with contemporary overseas furnaces but was considered capable of producing 100 to 120 tons of pig iron per week. All fuel came from the local Eskbank Colliery but the ore came from a variety of sources. Some local poor grade clay band was used with the railway being used to bring in brown hematite from Back Creek near Blayney, 77 miles away and Clarence tunnel, seven miles away. A red siliceous hematite was also railed from Mount Wilson near Bell some 12 miles away. Lime stone came from Pipers Flat 14 miles away.

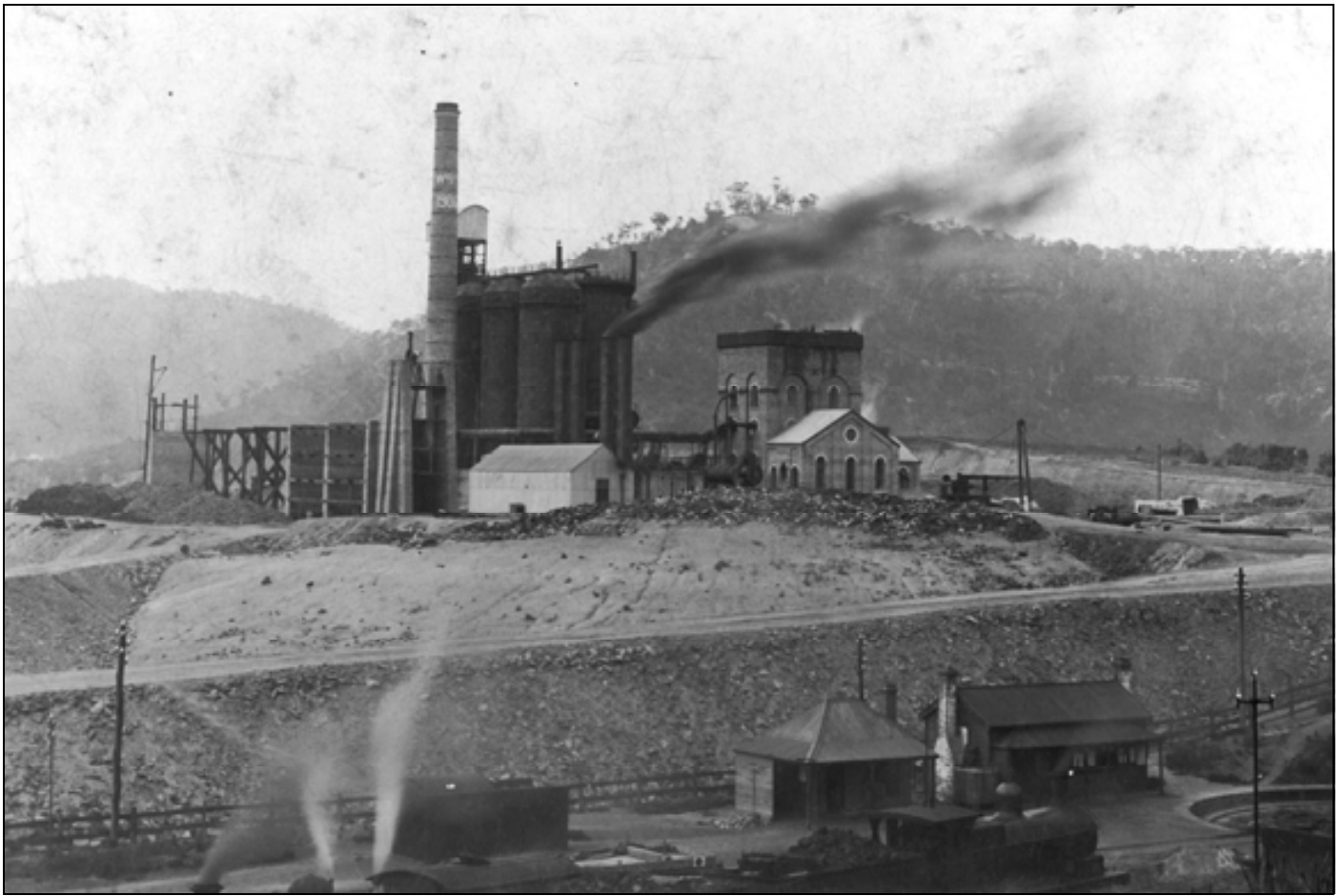
For a number of reasons the plant failed to show a profit. Rutherford was so distressed at the failure of his project that it was reported that he took two wagonloads of blasting powder to the site in the dead of night and blew the furnace up. He did so that he would not be tempted to repeat his folly of starting it in the first place. Thus iron making ceased and was not to recommence for a further 25 years.

*Information courtesy of JLN Southern and JEA Plat's book - The history of Iron making in Australia 1848-1914*

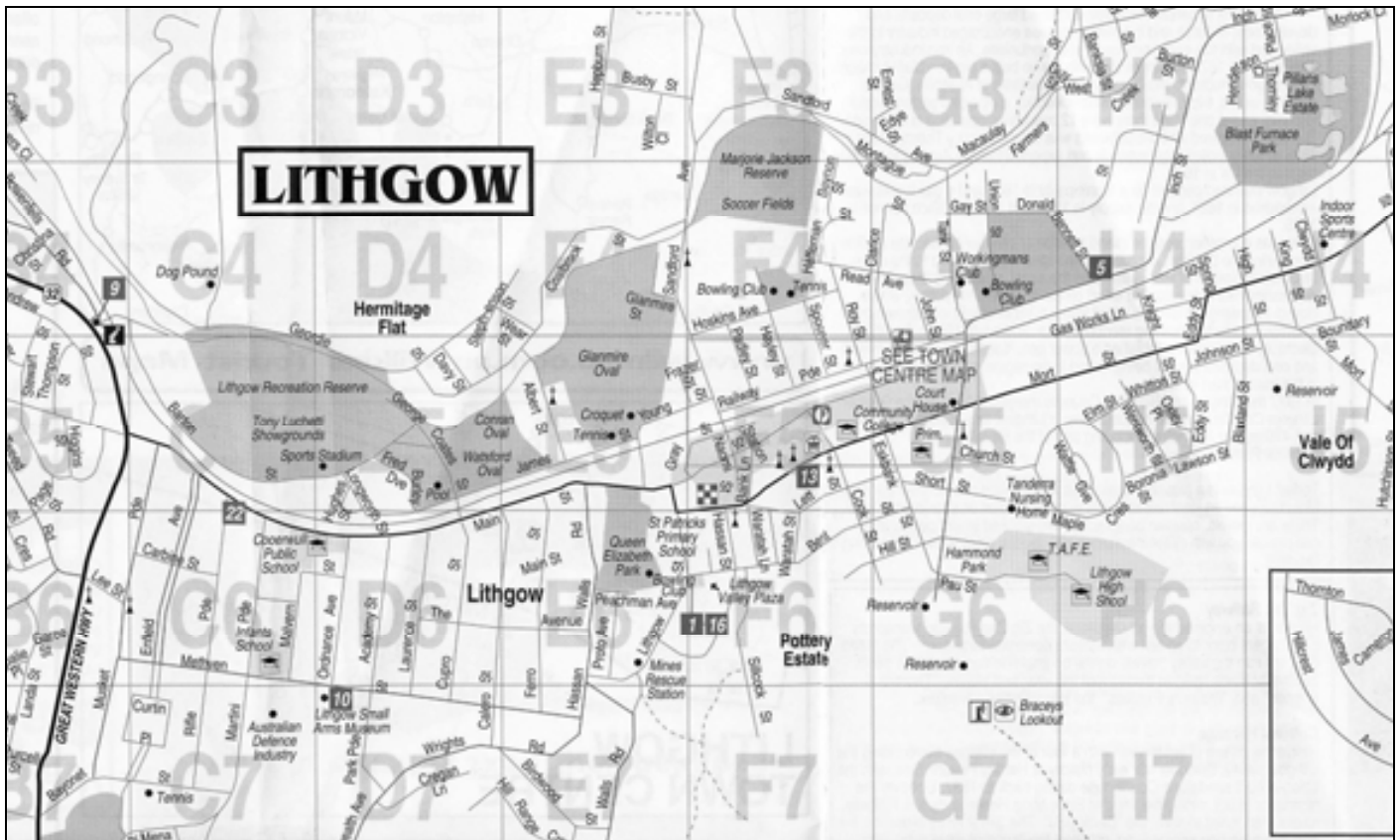


*Lithgow was the site of the first modern blast furnace for smelting iron ore in Australia. Today interpretive signs at the site tell the turbulent story of the site and the ruins that still remain.*

Courtesy of Lithgow Regional Library



Early view of Sandford's No.1 Blast Furnace on Coal Stage Hill, 1907. Eskbank Locomotive depot is in the foreground.  
 Courtesy Ray Christison



# PROGRAM

## PRE-CONFERENCE TOUR

### Saturday 24 October

8.00 am Bus pickup at Lithgow Workmen's Club carpark – assemble at 7.30am  
Proceed to Hill End Hotel for morning tea. Visit township and lookouts.  
Lunch at the Ranch, Hill End.  
Visit old goldmine and other sites.  
Proceed to Bathurst. Dinner at Stumpy's Bistro, Bathurst (own cost).  
Overnight at Bathurst.

### Sunday 25 October

9.00 am Tour of Bathurst  
10.00 am Visit Somerville Collection and Museum.  
Proceed to Portland to see remains of first cement works in NSW.  
Return to Lithgow in time to change for Welcome Reception.  
6.30 pm **Welcome Reception** hosted by the Lithgow Council at the Union Theatre  
(opposite Court House, Bridge Street)

### Monday 26 October - Lithgow Workmen's Club

9.00-9.30 am **Registration**  
9.30-9.40 am **Welcome Address** – Mel Davies  
9.40-10.30 am **Keynote Speaker** – Ray Christison - *The New South Wales Central Tablelands*.  
10.30-11.00 am Morning tea  
11.00-12.00 pm **Session 1 – Safety in Mines** – Chairperson: Adrian Hutton  
Clive Beauchamp - *Double Disaster: Lithgow Valley Colliery, Lithgow, NSW. 1886*.  
Brian Kelly – *Western Mines Rescue Station*.  
12.00-1.00 pm Lunch  
1.00-2.00 pm **Session 2 - Metal Smelting** – Chairperson: Gordon Boyce  
Ruth S. Kerr – *Irvinebank State Treatment Works – the recent history*.  
Greg Drew - *The Historic Significance of the Whyalla Blast Furnaces*.  
2.30-3.00 pm Afternoon tea  
3.00-3.45 pm **Tour of Blast Furnace Park**  
4.00-5.00 pm **Visit the spectacular Hassans Wall Lookout**  
Free evening. Dinner at Workmen's Club (own cost)

### Tuesday 27th October - Lithgow Workmen's Club

9.30-10.30 am **Session 3 - Mining Overseas** – Chairperson: Roger Kellaway  
Gordon Boyce - *Britain's Coal Export Trade, 1902-1915: Evidence from Edward Bates & Sons*.  
Robin McLachlan – *Diggers on the Klondike*.  
10.30-11.00 am Morning tea  
11.00-12.00 pm **Session 4 – Labour conflict/Heritage Images** – Chairperson: Brian Hill  
Barry McGowan - *Ideology and union conflict at Captains Flat in the late 1940s and early 1950s*  
Greg Drew – *South Australia's Cornish Mining Heritage in Images*  
12.00-1.00 pm Lunch  
1.00 pm Leave for Scenic World mining site for Session 5 and activities  
2.00-4.30 pm **Session 5 – Scenic World** – Chairperson: Graham Hancock  
Philip Hammon - *Shale and Coal mining in the Blue Mountains of NSW and its development to the tourist infrastructure at Scenic World, Katoomba*  
7.00–10.00 pm **AMHA Conference Dinner – Lithgow Workmen's Club**

### Wednesday 28th October – Lithgow Workmen’s Club

- 9.30-10.30 am **Session 6 – Entrepreneurs and Geologists** – Chairperson: Ken McQueen  
David Branagan - *The opencut era (late 1940s – mid 1960s) in the western coalfield of NSW*  
Roger Kellaway - *E.G. Stone and the Co-production of Shale Oil and Cement: Railton, Tasmania 1922-1926*
- 10.30-11.00 am Morning tea
- 11.00-12.00 pm **Session 7 – Tasmanian Mining and Tourism** – Chairperson: Adrian Hutton  
Tim Jetson - *‘I ... have done more for tourists and Mining in Tasmania than any other man or Men’: The Tasmanian mining activities of EC James.*  
Nick Haygarth - *Observation and the amateur geologist: the success of ‘self-culture’ in Thomas Hainsworth’s exploration of the Mersey-Don Coalfield, Tasmania*
- 12.00-1.00 pm Lunch
- 1.00-2.00 pm **Session 8 – Oil Shale development** – Chairperson: Ross Both  
Leonie Knapman - *Researching the Past, the Present and the Future Joadja Creek Southern Highlands of NSW*  
Jim Enever - *‘The Politics of Oil Shale’: Government Involvement with the Tasmanian Oil Shale Industry, 1915 to 1935*
- 2.00-2.30 pm Afternoon tea
- 2.30-3.30 pm **Session 9 – Gold discovery** – Chairperson: David Branagan  
Adrian Hutton - *An Old Shopping Bag and a Couple of Tipples – Enough to Change the History of the Discovery of Gold in Australia?*  
Ken McQueen - *Gold in the ‘Mundic’: The Story of Dargue’s Reef, Majors Creek, NSW*
- 4.00-6.00 pm **AMHA ANNUAL GENERAL MEETING (members only) -**  
Free evening – dinner at Lithgow Workmen’s Club (own cost)

### Thursday 29th October – State Mine Heritage Park

- 9.30-10.30 am **Session 10 – Race and Gender** – Chairperson: Ann Both  
Kevin Kakoschke - *‘No Gold Medals’*  
Philip Hart - *Joseph Harris Smallman: a Prospector who became a Pakeha Maori*
- 10.30-11.00 am Morning tea
- 11.00-12.00 pm **Session 11 – Coal Mining** - Chairperson: Jim Enever  
Alex Brown – *Centennial Coal*  
Ray Christison – *Lithgow State Coal Mine becomes Tourism attraction for \$1*
- 12.30-1.30 pm Lunch
- 1.30-2.00 pm **Tour of State Mine Museum**
- 2.00-4.30 pm **Zig Zag Railway trip**  
Free evening – dinner at Lithgow Workmen’s Club (own cost)

### POST-CONFERENCE TOUR

### Friday 30th October Glen Davis and Mount Piper Power Station

- 7.30 am Assemble at Lithgow Workmen’s Club
- 8.00 am Leave from Lithgow Workmen’s Club
- 9.30 am Morning tea at Glen Davis
- 10.00-11.45 am Visit work site
- 12.00-1.00 pm Lunch at Glen Davis
- 1.00 pm Leave for Mount Piper Power Station
- 2.00 3.00 pm Mount Piper Power Station visit
- 3.00 pm Leave for Lithgow

# ABSTRACTS

## **Double Disaster: Lithgow Valley Colliery, Lithgow, NSW, 1886**

*Adjunct Assoc. Prof. Clive Beauchamp*  
Charles Sturt University, Bathurst

In 1886, there were two separate accidents at the Lithgow Valley Colliery resulting in the death of eight miners in total. The disasters were the most serious mining accidents ever experienced in the Western Coalfield of New South Wales. The first accident on 13-14 February 1886 (stemming from an underground fire) left three men dead whereas the second on 19 April (attributed to a 'wind blast') resulted in five fatalities. The paper traces the background to the disasters including a brief history of the Lithgow Valley Colliery Company; its management and early operations. It also considers the critical events that led directly to the disasters. Evidence submitted at the Coroner's Inquests is outlined and its findings detailed. There is special focus on the proceedings, conclusions and recommendations of the Royal Commission of Inquiry. This includes examination of the conflicting evidence and theories presented, together with the Commission's censure of the management on account of 'unsafe working practices'.

## **Britain's Coal Export Trade, 1902-1915: Evidence from Edward Bates & Sons**

*Prof. Gordon Boyce*  
University of Newcastle

This paper considers new evidence relevant to the debate regarding the importance of British coal export to the nation's shipping industry in the pre-World War era. Contemporary observers thought that outbound coal shipments were vital in establishing and maintaining the nation's leading position in shipping. Craig suggested that 'Britain's unique endowment of high quality steam coal was to become the most potent agent of Britain's supremacy in tramp steamships'. According to Buxton and Palmer coal exports (22 million tons in 1886 and 73 million tons in 1913) helped establish Britain's lead in the tramping sector. Palmer also found that Britain retained a tight grip on non-European trades characterised by high value imports and low value coal exports.

In contrast, C. Knick Harley used quantitative data to show that coal exports did not enhance the profitability of British shipping because these outward shipments caused homebound freight rates to fall. By comparing changes in market share, he inferred that coal exports did not contribute to the competitiveness and efficiency of the British fleet. However, Harley's interpretation is based on aggregate data complemented by 'snap-shot' analyses of isolated two-way, outbound and inbound voyages conducted after 1890. The present study uses uninterrupted time series evidence drawn from voyage accounts to develop a dynamic view of one company's operations, which also included cross-trading and multilateral voyages, within the context of later changes in the structure of the coal export business.

## **The Open Cut Era (late 1940s – mid 1960s) in the Western Coalfield of New South Wales**

*Prof. David Branagan*  
School of Geosciences, University of Sydney

Production of coal from the western side of the Blue Mountains began in the 1850s from a series of small underground mines in the vicinity of Lithgow. Coal production was quickly overtaken by interest in oil shale production at a number of sites from Hartley to Genowlan some km to the north, production beginning in 1866. Understanding of the geology of the region came through the detailed mapping by J.E. Carne and his assistants, presented in his two classic works: *Geology and Mineralogy of the Western Coalfield* (1908) & *Kerosene Shale Deposits of New South Wales* (1903).

Production limped along during the interwar years, but in the immediate post-war years increased call for energy supplies suggested the possible open-cut mining of coal in the Western Coalfield, following its successful introduction in the Northern Coalfield. Geological plane-table mapping by staff of the NSW Geological Survey and a large drilling program, under the control of the newly-established Joint Coal Board, indicated a number of localities suitable for open-cutting. However the logistics of getting suitable mining equipment (large shovels and draglines) took some solving as they could only be brought by road from the

coast, and the Great Western Highway was not built for such traffic. Open cut mining began in the Blackman's Flat area and extended in time to localities near Lidsdale, a few isolated small workings west of Cullen Bullen and at Ben Bullen. A railway spur line was surveyed in to the Ben Bullen open cut, but the line was not constructed and coal was transported by road. During the initial period of open cut mining little thought was given to conservation matters and it took some time before rehabilitation of the mined areas was undertaken properly.

A major endpoint for the coal was the Wallerawang Power Station constructed in the early 1950s. Much later (1980s) a second power station was constructed near Piper's Flat, but by that time all Western coalfield production (except at Ulan to the far north) was from underground mines. The establishment of vibrant offices of the NSW Mines Dept, Joint Coal Board and a number of private companies saw a re-invigoration of Lithgow and surrounding villages which has largely continued to the present.

### **“Can do” is still part of the vernacular at Centennial Coal**

*Alex Brown*

Regional Technical Services Manager – West

Centennial coal has substantial historic precedents: among their assets, the Airly and Ivanhoe mine sites were operative in the late 1800s. Mining at Ivanhoe was originally associated with iron ore smelting and then the supply of high quality coal to the nearby Portland Cement Works, relics of which are now heritage listed and historically significant. In the mid 1980s Coal and Allied and R.W Miller, both coal mine operators in the Hunter Valley and Newcastle, merged their operations. In the subsequent re-organisation, one of the mines affected was Preston Extended, located at Curlewis near Gunnedah in northern NSW. In 1989 Bob Cameron, a former employee of Coal and Allied, raised finance to purchase the mine. A private company was formed (Preston Coal Pty Ltd) and the mine purchased. The mine operated successfully until 1999 when it finally closed due to depletion of economically recoverable reserves.

In 1994, Blue Circle Southern Cement Ltd (BCSC), a subsidiary of Boral, placed its Charbon, Ivanhoe and Berrima (Medway) mines on the market. Established to fuel cement kilns and generate power at cement works located at Charbon, Portland and Berrima respectively, the closure of the Charbon and Portland cement works meant the base market was no longer available to two of the mines. Bob Cameron and Preston Coal seized the opportunity and formed Centennial Coal Company Limited (named after the original Centennial, or possibly Centenary Mine established in 1888 at a location within the Preston leasehold), to acquire the BCSC mines. With a market capitalisation of A\$20m in mid 1994, Centennial subsequently acquired interests in many other mining properties. Through recent acquisitions and organic growth Centennial's market capitalisation is now (at the time of writing) in excess of \$1.2bn, or 60 times greater than at public listing in 1994. These early mining operations were established by mining entrepreneurs with a “can do” philosophy, which is still present within the modern day Centennial Coal.

### **Keynote address The New South Wales Central Tablelands**

*Ray Christison*

President of the City of Greater Lithgow Mining Museum Inc.

The New South Wales Central Tablelands has an important place in Australia's history. In the 19<sup>th</sup> and 20<sup>th</sup> centuries the region's natural mineral wealth supported the creation and development of mining and industrial enterprises that have become Australian legends. The great Australian Gold Rush commenced in this region when Edward Hammond Hargreaves discovered alluvial gold in February 1851. Gold is not the region's only mineral resource. From the 1870s Lithgow's coal deposits provided the energy to supply industries processing copper ore, iron ore and fine clays. From the 1860s oil shale was mined and processed at various places in the region. By 1907 William Sandford had created Australia's first integrated iron and steel works in Lithgow. The region continues to support an active mining industry based on coal and gold. The region has an impressive mining heritage. Various aspects of this heritage have been conserved and interpreted at Scenic World Katoomba, Blast Furnace Park Lithgow, Lithgow State Mine Heritage Park, Newnes Oil Shale Works, Glen Davis Oil Shale Works, Bathurst Goldfields, Sofala, Hill End Historic Site and the Wentworth Gold Mine Lucknow. This address will look at the key developments of the area that have left an indelible mark upon the landscape of Australian mining history.

## **Lithgow State Coal Mine becomes Tourism attraction for \$1**

*Ray Christison*

President of the City of Greater Lithgow Mining Museum Inc.

Established in 1916, the Lithgow State Coal Mine was New South Wales Government's first venture into coal mining. It produced coal from 1921 until 1964 and was one of the biggest mines on the Western Coalfield. This paper attempts to outline the history of the mine during its 43 year operating life. After its closure the site lay idle for many years until it was sold and then handed over as a museum site for the costly sum of \$1. The site and its railway branch line have been conserved as a mining and industrial museum. With many of the large buildings still intact tourism is bringing the site back to life as visitors and not miners walk around this once important worksite.

## **The Historic Significance of the Whyalla Blast Furnaces**

*Greg Drew*

2007 marked the centenary of the modern blast furnace in Australia. This paper will briefly outline the history of iron smelting in Australia and consider the historic significance of the blast furnace at Whyalla. The smelting of iron in Australia began in the mid 19<sup>th</sup> century but none of those early ironworks survived the decade of their birth. In 1907, the first modern blast furnace was blown in near Lithgow. These operations eventually proved to be uneconomic and, in 1928, the industry moved to Port Kembla. BHP established a steelworks at Newcastle in 1915, based on Middleback Ranges iron deposits. That plant closed in 2000 wiping out 2500 jobs and the remaining blast furnaces have been demolished. During the 1930s, BHP assisted by the BHP Indenture Act of 1937, decided to establish steelworks at Whyalla since the site was less vulnerable than Newcastle from a defence point of view. Whyalla No.1 Blast Furnace, the sixth in Australia, began smelting ore in May 1941. No.2 Blast Furnace, commissioned in 1965, is the oldest remaining furnace in Australia.

The paper will explore the management of 20<sup>th</sup> century historic iron smelting sites in Australia, USA and Europe including:

- Lithgow Blast Furnace Park
- Pittsburgh, Pennsylvania – the *Steelmaking Capital of the World*
- Sloss Furnaces, Birmingham Alabama
- Landscape Park Duisburg Nord, Germany.

This may provide an insight for the Whyalla site when iron smelting eventually ceases.

## **South Australia's Cornish Mining Heritage in Images**

*Greg Drew*

Photography was introduced to South Australia in the mid 1840s at the time of Australia's first mining era. A few daguerreotypes were taken including one of the Burra Mine but there were few images of people as the process required a lengthy exposure. Fortunately the artist S.T. Gill, who arrived in SA in 1839, captured images of the newly discovered mines at Glen Osmond, Kapunda and Burra. These images were commissioned by the mining companies presumably to promote their activities and along with several other drawings and paintings provide visual evidence of the country's first mining boom.

By the late 1850s, the development of cheaper and easier to manage photographic processes saw the establishment of photographic studios and the first significant photography of South Australian mine sites commenced in the 1860s. The most prominent photographer of mines of this period was Robert Stacy who established a studio in Adelaide but spent most of his time in country SA. He took the first photos of the Moonta and Wallaroo mines in 1865 and was commissioned by Henry Ayres to photograph the Burra Mine in 1866 prior to the commencement of open cut operations. He also photographed gold mining activities in the newly discovered Teetulpa and Wadnaminga Goldfields in the mid 1880s. The most prominent South Australian mining photographer was Matt Mitchell who emigrated from Cornwall as a boy in 1867. He worked as a miner at Wallaroo Mines but his interest was in photography and, in 1890, he was employed as official photographer by the Wallaroo and Moonta M&S Co. where he remained until closure of the mines in 1923. This paper will use examples of these artists' work to illustrate aspects of Cornish mining heritage.

## **The Politics of Oil Shale: Government Involvement with the Tasmanian Oil Shale Industry, 1915-1935**

*Jim Enever*

By the 1920s, the oil shale industry in NSW was in decline and focus was shifting to the Tasmanite deposits of the Mersey Valley. These deposits had been known since the mid nineteenth century, but it was not until the early twentieth century that a serious attempt was made to develop them. In the period from around 1915 to 1935, a number of activities were initiated in an attempt to perfect commercial extraction of the valuable products.

A notable feature of this period was the role played by governments, both state and federal. At a state level, government involvement ranged from an attempt to set up a state run enterprise, to the granting of a monopoly to private industry aimed at engineering a critical mass of activity, to sponsoring of an amalgamation of small scale operators to the same end, to the direct funding and co-ordination of research into processing technologies. At the federal level, the period in question coincided with a marked change in policy from active support for the oil shale industry through the agency of a bounty on oil production, to the introduction of a bill to expedite the establishment of a domestic crude oil refining capability in Australia, based on imported crude, and encouragement of exploration for conventional oil within Australia.

By the 1930s, it had become obvious that the Tasmanian oil shale deposits were not going to meet Australia's need for a strategic oil supply, and, in the absence of significant domestic conventional oil discoveries, attention was re-focused on NSW with the establishment of Glen Davis.

## **Shale and Coal mining in the Blue Mountains of NSW and its development to the tourist infrastructure at Scenic World, Katoomba**

*Philip Hammon*

Owner of Scenic World

Philip Hammon has been associated with the Scenic Railway since birth, probably conceived after a celebratory drink by his father when the lease for the old coal mine was purchased in 1945, and so Philip was born into the business. As a child he played on the 'monkey vines' in the rainforest at the foot of the Scenic Railway, and the mysteries of the many relics upon which he stubbed his toes prompted his curiosity. Today with time to spare, and as his children become more active in the business, he has had time to devote to unearthing, sometimes quite literally, the relics of the 19<sup>th</sup> century mining infrastructure of the area. This resulted in his 258 page hard covered book *The Burning Mists of Time* released earlier this year. Philip and his publishing partner Phillip Pells have created a successful history that is accurate and informative. The book has several authors who contributed chapters relating to their particular area of expertise.

Utilising information and photographs from the book Philip will detail the development of the coal and shale mining in the Katoomba area, the highs and lows, both mechanically and economically. He will also look at the mechanical details of operating the aerial ropeways, overrope tramways and dual inclines, powered by steam engines. Philip will then leap into the 20<sup>th</sup> Century and briefly go through the development of the abandoned coal mine and its journey through time to its present day configuration as a world renowned Tourist Attraction.

## **Joseph Harris Smallman: a Prospector who became a Pakeha Maori**

*Dr. Philip Hart*

University of Waikato

English-born Joseph Harris Smallman spent some time on the alluvial goldfields of Australia before moving to New Zealand. In 1867, with another miner he was employed by a Maori chief to prospect for gold on his land, part of the future Thames goldfield. This chief saw the economic advantages of opening his land to mining; other chiefs did not, and the prospecting caused much controversy amongst Maori. When their prospecting found evidence of gold, which they wrongly hoped would be alluvial, the field was declared open by the government. Smallman mined on this and other goldfields on the Hauraki Peninsula for several years before settling down with his family on a farm on Maori land near Te Aroha, where he became what was known as a Pakeha Maori.

**Observation and the amateur geologist: the success of 'self-culture' in  
Thomas Hainsworth's exploration of the Mersey-Don Coalfield, Tasmania**

*Dr. Nic Haygarth*  
University of Tasmania

The senior student of Tasmania's Mersey-Don coalfield was a self-educated ex-Yorkshire pit boy, Thomas Hainsworth (1832-96). This amateur geologist's part in establishing Tasmania's second coal horizon and an understanding of the Mersey-Don geology vindicated his lifelong habits of careful observation and voracious study, which were tenets of the popular Victorian-era pursuit of self-culture or self-improvement. Hainsworth's mentors were Scottish journalist Hugh Miller and the amateur geologist William Branwhite Clarke. While work, family responsibilities and poverty restrained his geological exploration of Tasmania generally, his local expertise was constantly in demand. Such was Hainsworth's mastery of the Mersey-Don field that in 1884 he staked his wife's drawers on his belief that no coal would be found beneath its Silurian limestone. Happily, diamond drilling failed to disrobe Mary-Jane Hainsworth's nether regions.

**An Old Shopping Bag and a Couple of Tipples – Enough to  
Change the History of the Discovery of Gold in Australia?**

*Dr. Adrian Hutton*  
University of Wollongong

Edward Hammond Hargraves is generally given credit for the discovery of payable gold in Australia in 1851. Hargraves' place in history came only after a reward given to him by the then Government, but only after Hargraves had embarked on a program of lectures and correspondence to publicise his case. In 1890, Hargraves claim was dismissed by a Government Select Committee which acknowledged that 'Messrs Tom and Lister were undoubtedly the first discoverers of gold in Australia in payable quantities'.

Documents, some predating Hargraves 1851 claim, held in both London and Sydney make the case that William Tipple Smith discovered commercial gold in 1848, three years before the accolades showered upon Hargraves. Smith, also involved in the early iron industry in the Southern Highlands of NSW, made some valiant efforts to support his claim as the discoverer of commercial gold but he died in 1852 and hence his battle for recognition lapsed. Thomas Tipple Smith took on his father's case in the 1890s, but to no avail.

Another descendent, William Tipple Smith also made a case for the recognition of William Tipple Smith in the 1920s, again without success. A well-researched case was mounted by Lynette Ramsay Silver in her 1986 book, *A Fool's Gold?* Her case relies heavily on 'copies of letters made in 1924' and 'held by various people for over fifty years until only tattered sections remain'. 'Untattered' copies of the originals sent and received by the first William Tipple Smith have been found in a shopping bag. Are the contents of a shopping bag the answer to this mystery?

**'I ... have done more for tourists and Mining in Tasmania than any other man or Men':  
The Tasmanian mining activities of EC James.**

*Dr. Tim Jetson*

This paper examines the life of entrepreneur Edward Charles James whose mining ventures at Catamaran in Southern Tasmania, at Zeehan, and in the Cradle Mountain – Lake St Clair National Park spanned half a century. During his life, James participated in the heroic pioneering days of late 19<sup>th</sup> West Coast mining and witnessed its subsequent transformation into more orderly activity. By illuminating James' activities it is hoped to shed light on the role of entrepreneurs in Tasmanian mining. It is also a case study of financiers who straddle the worlds of the miner/pro prospector and the big company.

**'No Gold Medals'**  
*Kevin Kakoschke, OAM*

Women did it tough on the North-Eastern gold fields of South Australian during the depressions. Many who followed their man in his quest for gold only experienced disillusionment, deprivation and loneliness in that harsh desert land. Children were most at risk and the decaying, forgotten cemeteries and lonely graves bear witness to their passing. Some deaths were caused by diphtheria, pneumonia, typhoid, and 'visitation of God'. Women folk became the 'unsung heroines' as they battled the elements caring for their men and children. They grappled with the loneliness, of having no doctors, shops, nor female company to share their day to day worries. This paper will explore some of the trials and tribulations that Dorothy Kakoschke (from age 21years) experienced on the Wadnaminga goldfields near Mannahill during the 1930s depression when rearing up to six boys under the age of seven years in a dugout. In the four years that 'Dorrie' lived in this environment she left her dugout home twice for 'holidays': by going down to Peterborough to give birth to two more boys.

***E.G. Stone and the Co-production of Shale Oil and Cement: Railton, Tasmania 1922-1926***

*Dr. Roger Kellaway*  
University of Tasmania

E.G. Stone, a civil engineer with an Australia-wide reputation in reinforced concrete, was involved in the formation of the Tasmanian Cement Company. The initial plan was to build a cement plant in the northern suburbs of Hobart. By mid 1923, the company reassessed the original scheme and decided to locate at Railton, the site of superior limestone. It was also only a few miles from the oil shale mines at Latrobe. Stone was entranced by the shale and devised a plan to co-produce oil and cement. His theory was that oil from shale could never be profitable by itself, but could be made competitive by linking it with the production of cement. Waste heat from the cement kiln would be used to retort the shale. Uncondensed volatile gases and some of the oil could then be used as fuel in the cement-making process. Extra cost savings were also possible by using the spent shale in place of clay in the cement kiln.

By late 1924, the Railton works had been virtually completed to Stone's design. However, the additional capital required to build a dual facility forced the company to seek backing from Dorman and Long, a British engineering firm that held the contract to build the Sydney Harbour Bridge. Production was delayed while Stone worked on the complexities of upsizing a trial plant into a full-scale operation capable of retorting 180 tons daily. Further injection of capital by Dorman and Long in June 1925 led to Stone's dismissal and the abandonment of the co-production scheme. The Railton plant opened using conventional cement technology but the company retained an interest in oil shale. Retorts were erected at their mine at the Great Bend and shale briefly integrated into the cement-making process.

The aim of this paper is to place the Railton scheme into the general history of the Tasmanian oil shale industry through an appraisal of the role of Stone in oil shale technology, oil shale politics, and the management/mismanagement of an oil shale company.

**Western Mines Rescue Station**

*Brian Kelly*  
Regional Manager Mines Rescue Pty Ltd

Coal Services Pty Ltd has developed the most advanced real world simulator of its kind, exposing staff to dangerous situations that may be encountered in a hazardous environment. Their Virtual Reality Training System is accurate and realistic, allowing staff to experience and respond to real hazards in a safe and controlled environment before actually encountering them in the work place. It is the most advanced real world simulator of its kind, providing a panoramic environment using 12 hi-resolutions video projectors, six computers and a massive 120 sq.mt circular screen that completely surrounds and immerses the audience. Training modules have initially been developed for the coal industry, with the technology available also for use in other industries. Training Modules also cover Rib and Roof Stability, Truck Pre-Shift Inspection, Isolation, Outburst of a violent release of seam gas, Hazard Awareness, Unaided Self Escape and Industry Related Modules that can be tailor made for any industries that need training.

## **Irvinebank State Treatment Works - the recent history**

*Dr. Ruth S. Kerr, OAM*

The Irvinebank State Treatment Works remains substantially intact but is surrounded by a 3.6m fence and its administration is again under review. The mill was established in 1884 and operated by the Irvinebank Mining Company until taken over by the Queensland government as a state enterprise in 1919. It operated as a State Treatment Works until 1983 except for 1929 to 1934. The collapse of the world tin price in 1985 cast a death spell over the future of the operation. The Hilla family struggled on and stopped the mill finally in 1996. The Irvinebank State Treatment Works were placed on the Queensland Heritage Register in 1991 - the only operating business on the list. That proved a perceived disadvantage to the operation of the mill. This paper examines the recent history of management of the Irvinebank complex and its plight as a significant heritage in Australia.

## **Researching the Past, the Present and the Future**

### **Joadja Creek Southern Highlands of NSW**

*Leonie Knapman*

In 1878, the Australian Kerosene Oil and Mineral Company heralded the beginning of one of Australia's richest pioneering industries of the time. The company introduced large-scale production methods and solved their own transport problems by building a 30km narrow gauge railway to Mittagong. The company produced kerosene, candles, wax, oils and other products such as soap that had earlier been imported. After two books and a DVD on this interesting 1800s township and industry, more material has come to life revealing evidence of the trademarks of the AKO products, with one label found in an American candle label collection.

## **Ideology and union conflict at Captains Flat in the late 1940s and early 1950s**

*Dr. Barry McGowan*

School of Archaeology & Anthropology, ANU

The great coal strike of 1949 and its aftermath are well known to most labour and social historians in Australia. Less well known was the Captains Flat lead bonus dispute which ran from late 1948 to early 1949, a period of almost seven months, and the shaft sinking dispute, which ran from mid 1954 to early 1955, also over a period of seven months. The Captains Flat mines were tucked away in the foothills of the Dividing Ranges near Canberra and a long way from any other mining field of importance. It is tempting, therefore, to dismiss the disputes as of merely local interest. I argue that both events, but in particular the lead bonus dispute, had a much greater significance, and should be viewed in the context of the great inter-union conflicts that racked Australia during that period, in particular those between the AWU and the Communist dominated Miners' Federation.

## **Diggers on the Klondike**

*Dr Robin McLachlan*

Charles Sturt University and Times Past Productions

The Klondike Gold Rush (1897–1899) attracted several hundred Australians, including many experienced miners. Drawing on letters and memoirs, as well as archival sources from the Yukon, this paper will explore their experiences in travelling to the Yukon and, for those who made it, living and working on the Klondike. Although historians have largely overlooked the contribution of Australians to Klondike history, it was of some significance, especially given their small numerical presence. Drawing on fifty years of antipodeans' goldfields experience, Australians made important contributions to political, social and business developments in the Yukon, as well as to gold mining on the Creeks. Reflecting their own history of goldfields militancy, for example, Australians were at the forefront in the Miners' Association and the battle against Canadian government corruption and incompetence. They contributed as well to a definitive, if disappointing, professional assessment of the nature of the goldfield.

Although few achieved any wealth, the Klondike experience provided returning Australians with a heightened sense of national identity on the eve of Federation. Some of those who remained in the Yukon went on to become significant characters in the development of the territory – often with their Australian connection in time largely forgotten. The ongoing research for this paper is being undertaken for a documentary film, *Diggers on the Klondike*, with Ronin Films (Canberra), now in pre-production, and a book, with Peter Bridge, to be published by Hesperian Press. The presenter would be pleased to hear from anyone with news of an Australian or New Zealander Klondiker.

## **Gold in the 'Mundic': The Story of Dargue's Reef, Majors Creek, NSW**

*Dr. Ken McQueen*

University of Canberra

Dargue's Reef is the largest known bedrock gold deposit in the Majors Creek goldfield of southern NSW. It was discovered in 1869 by Joseph Dargue while he was mining alluvial gold. Dargue sampled an 'ant bed' and was surprised to find colours of gold. He powdered and washed the complete bed, recovering about 6 ozs of gold, and concluded that there must be a rich lode nearby. With a syndicate of mates he located the source and mined the weathered and oxidised upper part of the deposit in shallow workings. Ore was carted by horse to a crushing plant on Majors Creek. At this stage the mine was known as the Homeward Bound.

In 1871, fresh rock was reached and it was realised that much of the gold was held in the disseminated 'mundic' or pyrite making up the deposit. Unsuccessful attempts were made to find equipment to extract the gold locked in the 'mundic'. In 1882, the Dargue's Reef Gold Mining Company was set up by the Warren brothers to redevelop the mine but the 'mundic' was intractable. In 1889, Thomas Merton took an interest in the deposit and the pyritic ore was treated by chlorination at Parramatta and Cunnigar. A chlorination plant was built at Dargue's in the latter part of 1889 but the operation was not a financial success. Most recently, exploration has defined a much larger resource at Dargue's Reef and it is hoped to develop a new mine with both gravity separation of gold and shipment of pyrite concentrate for processing by modern CIP technology.

# TOURS

## PRE-CONFERENCE TOUR

October 24-25

### Hill End

In NSW as gold fever spread in the 1870s, men were drawn from everywhere hoping to strike it rich. In 1872 at Hill End, on Hawkins Hill the world's richest quartz reef was found. At a depth of 300m the miners on Hawkins Hill came across more gold in the quartz than has ever been found in one place, anywhere before or since. Hill End suddenly had 28 pubs, 6 churches and it is hard to imagine, the 1.5km long street filled with shops to service thousands of residents. Our AMHA group will have morning tea in the only hotel left in Hill End. Whilst there we will have time to walk around the interpretive photographic signs indicating the shops and homes that once stood there. After lunch we will go underground at the 1800s Bald Hill mine and learn the history of this unusual goldmine. Later in the day we will explore the reef and alluvial gold mining areas.



*View of the famous Hawkins Hill Mines at Hill End in 1872 by Beaufoy Merlin in 1872. The lookout now bears his name.*  
Photo courtesy of the National Parks and Wildlife Service.

### Bathurst

Australia's oldest inland settlement and the birth place and home of the Australian Prime Minister (1945 to 1949) Ben Chifley and his wife Elizabeth. Over night stay for AMHA on Saturday night at Bathurst. Sunday morning we will take a leisurely drive over Mount Panorama Motor Racing Circuit, famous for the running of "The Great Race" every October. It was in October 1963, that the flag dropped for the "inaugural" Bathurst Race, which today draws thousands of spectators to the town every year. Our next stop is the Australian Fossil and Mineral Museum to see the Somerville Collection. Professor Warren Somerville was nine years old when he found his first fossil, and today it is part of one of the most spectacular collections of fossils, minerals and the only complete T Rex skeleton in Australia.

### Portland

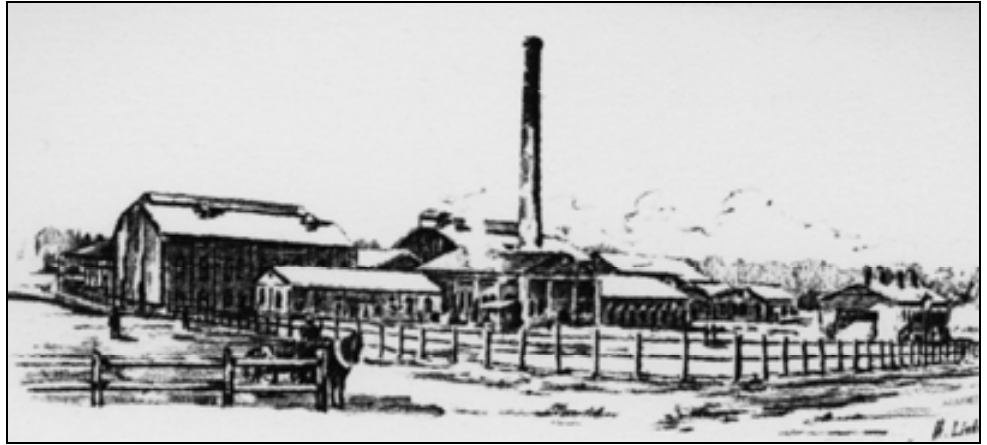
The Portland area was settled in the 1830s with limestone being used as building material. Thomas Murray took up portions 52 and 53 (main part of works site) in 1863 and a small lime kiln was built in the vicinity of Post Office in 1871. Pipers Flat railway station opened 1882 and the Cullen Bullen Lime Company bought portions 52 and 53 (and later 90) to erect four lime kilns from 1883 to 1885. Two of the lime kilns are the only ones in NSW still standing today. Cullen Bullen Lime and Cement Company registered to produce Portland cement in 1889. Based on English technology the first Australian commercial production of Portland cement began in May 1890. The railway siding became known as Portland in 1890 and the contract post office was called Portland 1891, with the village of Portland gazetted 1894.

The plant was put to auction in May 1898. New Zealand Mines Trust led by Dr Scheidel bought the works, Ivanhoe colliery and some 1300 acres of land in 1899. Commonwealth Portland Cement Ltd began production in Sept 1902 with one of the most modern plants (with German technology) in the world including coal fired rotary kilns (the first in Australia). Dr Scheidel was Managing Director until 1918 and continually expanded capacity: in 1914 they were producing about 45% of Australia's Portland cement usage. Dr Scheidel was a world renowned metallurgist before turning to cement. He wrote a book on gold extraction with cyanide and has a street named after him in Frankfurt.

*Information courtesy of Peter Benkendorff*



Left: *Although now closed, remains of two of the bottle kilns at the Portland Cement Works are still standing along with many other buildings on the site.* Courtesy Leonie Knapman



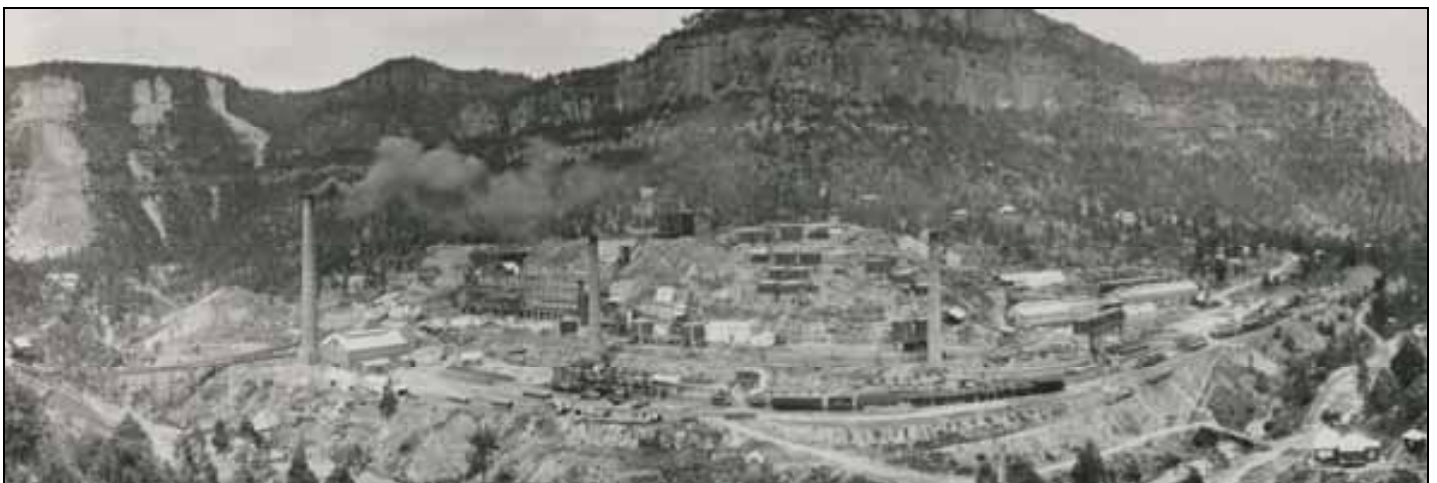
Right *Early drawing of the Portland Cement Works.* Courtesy of Peter Benkendorff

## **POST-CONFERENCE TOUR**

Friday October 30

### **Capertee Valley**

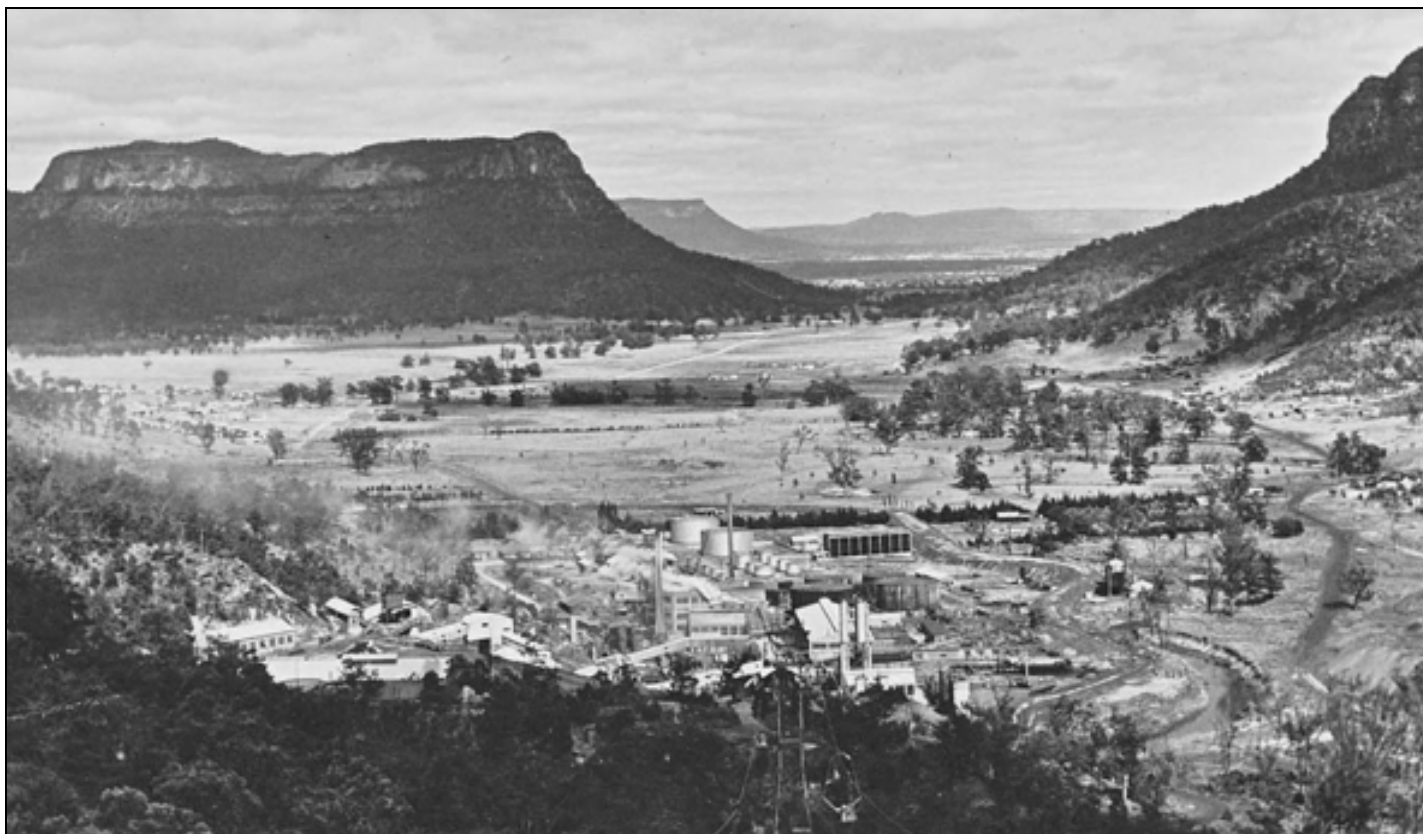
Today's tour takes us across the Capertee Valley, which is the World's second largest canyon. In the center of the valley is the well known Pantoney's Crown, this geological formation is called a Butte (French for small hill). Defined as an isolated hill with steep sides and a small flat top, Pantoney's Crown is the remnant of volcanic rock that was left when the softer rock of the Capertee Valley was eroded away over millions of years. The Butte was named after William Pantoney, a member of James Blackman's first party of Europeans to enter the valley in 1821. The shale mining ghost town of Newnes is located in the valley behind Glen Davis and worked the same shale seam. The Capertee Valley also produced gold, diamonds and sapphires.



*In 1905 this plant was built at Newnes to refine shale and to use coal also found close by. The seams are the same as those in the next valley at Glen Davis where they also had a mine at this time.* Photo Courtesy of Mines Department

## Glen Davis - National Oil Pty Ltd

Nestled in one of the many valleys around the rim of the Capertee Valley is the ghost town of Glen Davis and the remains of the operations of the National Oil Pty Ltd. Built in 1938 to produce petrol for the war effort, the plant closed when the threat of war was over. By 1954 it was auctioned off and only ruins now cover the area of the work site and the Government designed town. The NOP had its own coal mine in the valley east of the work site. When the Post Office closed, Glen Davis was stripped of its town status and reverted back to farming. At Glen Davis we will enjoy morning tea, a tour of the NOP work site and up to the mining shelf with spectacular views back through the valley to the only entrance in and out of the township and worksite.



*Glen Davis (1938-1954) The now ghost town of Glen Davis was built by the National Oil Pty Ltd to produce petrol for the Second World War effort. Courtesy of Leonie Knapman*



*View across the main workshop to the mining shelf on the side of the hill at Glen Davis, c.1940s. Courtesy of Leonie Knapman*

## Mount Piper Power Station

In the early days of the colony, timber was the major source of heating, with wind and water mills used to provide power. The Energy Expo centre at Mount Piper Power Station (25km from Lithgow) uses high-tech interactive exhibits to show how electricity is made and how it is distributed. Delta Electricity owns and operates four black coal-fired power stations and several renewable energy facilities in NSW. Together the stations have a capacity of 4,240 Mw making Delta Electricity one of Australia's largest electricity generators. Today Mount Piper is one of the most recently constructed thermal power stations in NSW.

## Western Mines Rescue Station

Coal Services Pty Ltd has developed the most advanced real world simulator of its kind, exposing staff to dangerous situations that may be encountered in a hazardous environment. Their **Virtual Reality Training System** is accurate and realistic, allowing staff to experience and respond to real hazards in a safe and controlled environment before actually encountering them in the work place. It is the most advanced real world simulator of its kind, providing a panoramic environment using 12 hi-resolutions video projectors, six computers and a massive 120 sq mt circular screen that completely surrounds and immerses the audience. Training modules have initially been developed for the coal industry, with the technology available also for use in other industries. Training Modules also cover Rib and Roof Stability, Truck Pre-Shift Inspection, Isolation, Outburst of a violent release of seam gas, Hazard Awareness, Unaided Self Escape and Industry Related Modules that can be tailor made for any industries that need training.



*Bringing the first payable coal from the No.2 coal mine at Running Stream at Glen Davis in 1948. A propeller from a Gipsy Moth plane was used for the ventilation of the mine. Courtesy of Leonie Knapman*



The Australian Mining History Association acknowledges, with much gratitude, the sponsorship and support provided by:

**Australian Fossil and Mineral Museum, Bathurst**

**Bathurst Explorers Motel**

**Black Rock Cafe, Lithgow:** *Garry and Lynn Boyd-Skinner*

**Blue Circle Southern Cement, New Berrima:** *Use of electronic equipment*

**Centennial Coal, Lithgow**

**Comet Inn, Hartley Vale:** *Kathy and Greg Noble*

**Delta Electricity - Mount Piper Power Station**

**Engineers Australia Sydney, Heritage Committee**

**Factory Design & Implementation Pty Ltd, Sydney:** *Glen Rigden*

**Ferguson's Newsagency, Lithgow:** *Mr and Mrs Ferguson*

**Fairground Follies, Sydney:** *Craig Robson*

**Glen Davis NOP work site:** *Mary and John Thirwall*

**High Ground Consulting:** *Ray Christison*

**Lithgow & District Workmen's Club**

**Lithgow City Council & Tourist Centre**

**Lithgow Library Learning Centre**

**Lithgow Mercury Newspaper**

**Lithgow Valley Springs**

**Rose Deco Planning & Design and Lithgow Heritage Tours**

**Scenic World, Katoomba:** *Philip Hammon*

**St Patricks Parish, Lithgow:** *Bus hire*

**State Mine Museum, Lithgow**

**Technical support during conference:** *Steven Imrie*

**Western Mines Rescue Station**

**West Fund (Health Insurance Fund)**

**Wollongong University:** *Dr Adrian Hutton*

**Conference Proceedings:** *Greg Drew*

**Bus drivers:** *Ross Mainwaring, Adrian Hutton, Mel Davies, Steven Imrie, Greg Dickens, Greg Knapman*

**The AMHA 2009 Conference Organising Committee**  
*Mel Davies, Leonie and Greg Knapman*