

AUSTRALIAN MINING HISTORY ASSOCIATION INC.
15th ANNUAL CONFERENCE
LITHGOW, NSW 2009

PROGRAMME

Saturday 24th – Sunday 25th October
Two Day Tour

- 8.00 am 24th Oct. Bus pickup at Lithgow Workmen's Club carpark. 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.
- 9.00 am 25th Oct. Tour of Bathurst.
- 10.00am Visit Somerville Collection at the Australian Fossil & Mineral Museum.
Proceed to Portland to see remains of 1st cement works in NSW. Return to Lithgow in time to change for Welcome Reception.
- 6.30pm Welcome Reception hosted by the Lithgow Council at the Union Theatre (opposite Court House, Bridge Street)

Monday 26th October – Venue Lithgow Workmen's Club

- 9.00-9.30 am Registration
- 9.30-9.40 am **Welcome Address by Mel Davies.**
- 9.40-10.30 am **Keynote Address:**
Mr. 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 (Chair: 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 (Chair: 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 iron works site.
- 4.00-5.00 pm Visit the spectacular Hassans Wall Lookout.
Free evening. Dinner at Workmen's Club (own cost).

Tuesday 27th October - Venue Lithgow Workmen's Club

- 9.30-10.30 am **Session 3 – Mining Overseas (Chair: 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 Photos (Chair: Brian Hill)**
Barry McGowan - *Ideology and union conflict at Captains Flat in the late 1940s and early 1950s*
Greg Drew – *Heritage in photos.*
- 12.00-1.00 pm Lunch
- 1.00 pm Leave for Scenic World mining site for Session 5 and activities
- Session 5 – Scenic World (Chairperson, Graham Hancock)**
Philip Hammon - *Shale and Coal mining in the Blue Mountains of NSW & 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 – Venue Lithgow Workmen’s Club

- 9.30-10.30 am **Session 6 – Entrepreneurs and Geologists (Chair: Ken McQueen)**
David Branagan - *The opencut era (late 1940s – mid 1960s) in the western coalfield of New South Wales*
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 & Tourism (Chair: 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 (Chair: 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 (Chair: 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*
- 4.30 pm **Annual General Meeting (Paid up 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 (Chair: 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 (Chair: 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)

Friday 30th October

One Day Tour – Glen Davis & Power Station

- 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 Mt Piper Power Station
- 2.00 – 3.00 pm Mt Piper Power Station visit
- 3.00pm Leave for Lithgow

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ABSTRACTS

Clive Beauchamp, Charles Sturt University - Bathhurst

Double Disaster: Lithgow Valley Colliery, Lithgow, NSW. 1886

[present in 1st two days]

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'.

Gordon Boyce, University of Newcastle

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

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'.¹ 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.² 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 'snapshot' 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.

David Branagan, School of Geosciences, University of Sydney

The opencut era (late 1940s – mid 1960s) in the western coalfield of New South Wales

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 postwar 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.

¹ Craig, *British Tramp Shipping*: 22

² C. Knick Harley, "Coal Exports and British Shipping, 1850-1913," *Explorations in Economic History*, vol. 26 (1989): 311-38.

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.

Alex Brown, Regional Technical Services Manager - West

"Can do" is still part of the vernacular at Centennial Coal.

Centennial coal has substantial historic precedents: among their assets, the Airly and Ivanhoe mine sites were operative in the late 1800s. Airly, originally a pastoral property, was established in the mid 19th century (the original homestead, Airly House has been restored by Centennial). Subsequently gold, oil shale, coal and diamonds, were discovered and relics of these activities still remain. 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.

Ray Christison - Keynote address The New South Wales central Tablelands.

The New South Wales Central Tablelands has an important place in Australia's history. In the 19th and 20th 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.

Greg Drew, Senior Geologist, PIRSA

"The Historic Significance of the Whyalla Blast Furnaces"

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 19th 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 20th century historic iron smelting sites in Australia, USA and Europe including:

- Lithgow Blast Furnace Park
- Pittsburg, 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.

Greg Drew, Senior Geologist, PIRSA

Photo presentation.

Jim Enever

'The Politics of Oil Shale': Government Involvement with the Tasmanian Oil Shale Industry, 1915 to 1935

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.

J.E. Ferguson

On the Gympie Goldfield: Of W.H. Rands

The Gympie Goldfield is the focus of a Book, entitled "The Gympie Goldfield 1867-2008" (Ferguson J.E. and Brown E., Gympie Regional Council, 2009) to be published as part of the Queensland 150 Celebrations. This illustrated, factual overview highlights geology, mining eras, larger mines and some players.

William Henry Rands arrived at Maryborough in 1884 as a geologist employed by the Government and began general geological survey work. At Gympie, he recorded the basic geology, historical information, the development of the major mines, production data by year and mine, and the progressive understanding of issues such as the Inglewood structure. In 1899 he published his geological Map of the Goldfield, still available as a Historical Map. Rands advocated: the sinking of deeper shafts down to the black slate in the eastern ground; larger leases; the systematic use of the diamond drill; mine-specific exploration methods and plans; and promoted the field in the UK. In 1899 Rands became Queensland Government Geologist but his tenure was shortened by budget cuts in 1902.

In the historical context, Rands is an enigma. In Queensland, his brief tenure as Government Geologist was juxta-positioned between two, long term legends, R.L. Jack and B. Dunstan. At Gympie, he is not remembered as either a resident or associated with any particular mine, but present-day geologists still defer to his Maps and Reports for their precise detail.

This paper seeks to examine the role of W.H. Rands.

Philip Hart

Joseph Harris Smallman: a Prospector who became a Pakeha Maori

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.

Nic Haygarth

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

Philip Hammon (Owner of Scenic World)

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

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 19th 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 20th 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.

Adrian Hutton, University of Wollongong

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

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?

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.

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 19th 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.

Kevin Kakoschke, OAM

'No Gold Medals'

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 man 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 1930's 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.

Roger Kellaway, University of Tasmania

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

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.

Brian Kelly, Regional Manager Mines Rescue Pty Ltd

Western Miners 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.mtr. 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.

Ruth S. Kerr, OAM

Irvinebank state treatment works - the recent history

The Irvinebank State Treatment Works remains substantially intact but is surrounded by a 3.6 metre 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.

Barry McGowan, School of Archaeology & Anthropology, ANU

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

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.

Dr Robin McLachlan, Charles Sturt University and Times Past Productions.

Diggers on the Klondike

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.

Ken McQueen, University of Canberra

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

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.

Leonie Knapman

Researching the Past, the Present and the Future Joadja Creek Southern Highlands of NSW

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.