

AMHA Twelfth Annual Conference, Kadina, South Australia 5 to 9 July 2006

PROGRAM

Thursday 6 July

Conference Opening

Keynote speaker & first session of papers. Chair: Peter Bell

9.00-10.00 am	Greg Drew	The Moonta-Wallaroo Mining District 1859-1923
10.00-10.30 am	Anne Both	The Struggle for Water Supply in the Copper Triangle
10.30-11.00 am	Coffee Break	
11.00-12.30 pm	Second session of papers. Chair: Mel Davies	
	Ross Both	Exploration and Mining in the Moonta-Wallaroo Field after the 1923 Closure
	Peter Bell	The Forgotten Twenty Years: Leaching the Moonta Waste Dumps 1901-1943
	Ruth Kerr	South Australian Investment in the North Queensland Base Metal Industry
12.30-1.30 pm	Lunch – Kadina Visitor Centre	
1.30-3.00 pm	Third session of papers. Chair: Jeremy Mouat	
	Ken McQueen	Hidden copper: The early history of the Cornish, Scottish and Australian (C.S.A.) mine, Cobar NSW
	Jim Enever	Copper Mining in Victoria in the Nineteenth Century
	Roger Kellaway	‘Not enough to make a kettle’: copper mining at Badger Head 1877-1880
3.00-3.30 pm	Coffee Break	
3.30-5.30 pm	Wallaroo Museum and smelter site	
7.00-9.30 pm	Social evening – Wallaroo Town Hall	

Friday 7 July

Keynote speaker & fourth session of papers. Chair: Graham Hancock

9.00-10.00 am	Philip Payton	Making Moonta: the Invention of Australia's Little Cornwall
10.00-10.30 am	Nic Haygarth	Catch'em, hold'em, shave'em, shear'em: Cornish "practical mining" and Tasmanian tin
10.30-11.00 am	Coffee Break	
11.00-12.30 pm	Fifth session of papers. Chair: Philip Payton	
	Jay Fell	From Swansea to Black Hawk to Butte: the Transfer of Copper Smelting Technology from Wales to the American West
	Gil Ralph	An Illustrated History of WMC
	Ian Schomburgk	The Role of Mining in Pioneering a New Society
12.30-1.30 pm	Lunch – Kadina Visitor Centre	
1.30-3.00 pm	Sixth session of papers. Chair: Jay Fell	
	Barry McGowan	Class, hegemony and localism: the Welsh mining communities of Currawang and Frogmore
	Vic Taylor	The Woolgar's Lost World: A framework of theory and method in an attempt to establish its provenance
	Janice Wegner	Gardening under difficulties: gardens on inland mining fields, North Queensland
3.00-3.30 pm	Coffee Break	
4.00-6.00 pm	Wheal Hughes Mine Tour or Moonta Cemetery Tour	
7.00-10.30 pm	Conference Dinner – Moonta Town Hall	

Saturday 8 July

8.30-10.30 am	Moonta Walking Tour
10.30-11.00 am	Coffee Break
11.00-12.30 pm	Seventh session of papers. Chair: Ruth Kerr
	David Branagan From Russia via USA (With Love): Australian Geochemical Mineral Exploration: it all began at Moonta
	Jeremy Mouat "Just Now the 'Merican expert is the Prominent Man": American mining engineers and the Australian mining industry
	Mike Williams A Man We Know and Trust: Thompsons of Castlemaine
12.30-1.30 pm	Lunch – Kadina Visitor Centre
1.30-3.00 pm	Eighth session of papers Chair: Ross Both
	Bill O'Neil The Federated Engine Drivers and Firemens Association in Broken Hill
	Philip Hart Michael Dineen O'Keeffe: Union Leader
	Sandra Kippen & James Lerk Suicide on the Bendigo goldfields
3.00-3.30 pm	Coffee Break
3.30-5.00 pm	Ninth session of papers. Chair: Greg Drew
	Brian Hill A reinterpretation of the history of the acquisition of the Blackwater gold mine
	Pauline Payne Researching the Adelaide Assay Office – some triumphs and some pitfalls for researchers
	Keith Johns The Cornish in Burra
5.00-6.00 pm	Closing and AGM

ABSTRACTS

Peter Bell, Historical research Pty Ltd, Adelaide

The Forgotten Twenty Years: Leaching the Waste Dumps at Moonta Mines 1901-1943

Copper ore was mined at Moonta from 1862 until 1923, but copper metal was produced there for another twenty years after the mines closed. Copper was being extracted from the waste dumps by acid leaching from 1901 onward, and when mining ceased, the process continued for another generation. While the quantities of copper produced were never large, the process was capable of operating at virtually no cost, utilising principally seawater, by-product sulphuric acid and scrap metal, and consuming minimal labour and fuel.

The process was designed by Antonio Delgado of the Rio Tinto mines of Spain, an instance of the Wallaroo and Moonta Mining and Smelting Company's responsiveness to trends in international mining technology. Its principal significance to us today is that the relic industrial landscape we see at Moonta Mines was created to a great extent not by the first sixty years of mining operations, but by the final twenty years of leaching.

Anne L Both, Burnside Historical Society

"Nor any Drop to Drink" : The struggle for water supply in the Copper Triangle

Lack of water was a major problem for the mining communities of the Copper Triangle for approximately thirty years after mining began. Low rainfall, mainly in the winter months, no natural watercourses of any note and poor catchment areas meant that settlers were dependent on sporadic rains for replenishment of their water supply. Prior to the commencement of mining in 1861 the area was sparsely settled by farmers and fishermen whose water supply came largely from known native wells for stock watering and the small tanks constructed to catch rain for domestic use.

Mining activity brought rapid population growth within a relatively short time span. This rapid growth meant that the necessary infrastructure to support such influx was totally inadequate or non-existent. The water from native wells and sparse rainfall rapidly proved insufficient for domestic and other needs and settlers suffered severe water shortages and zymotic disease for almost thirty years. State and Local Government strove to meet the water needs of the population, constructing water tanks to collect rainfall and

introducing health regulations to combat the frequent episodes of infection. Local Boards of Health acting under the direction of District Councils and the Central Board of Health worked to improve poor drainage, inferior methods of refuse disposal and poor animal husbandry. In spite of the health measures precious water often became readily contaminated from domestic and industrial activity.

In 1890 the Copper Triangle saw the first reticulation of water from a Government reservoir and since that time has enjoyed water comparable to that of any modern township. This paper traces the struggle to obtain adequate uncontaminated water through the construction of reservoirs, and considers the roles of the mining community, the District Councils and the South Australian Government in provision of safe water.

Ross A. Both, School of Earth and Environmental Sciences, University of Adelaide

Exploration and mining in the Moonta and Wallaroo fields following the 1923 mine closures

The Moonta and Wallaroo mining fields are located in the easternmost part of the Gawler Craton. The ore bodies are veins hosted by metamorphosed volcanic and sedimentary rocks of Proterozoic age. An investigation of ore-controlling structures in both fields by S. B. Dickinson in 1942 (Bulletin 20, Geological Survey of South Australia) provided a geological basis for mineral exploration but, because of a complete lack of outcrop in the area, exploration has relied heavily on geophysical and geochemical methods, with follow-up diamond drilling to test anomalies. Geophysical investigations were first used in the Moonta-Wallaroo area in 1928-1929 by the Imperial Geophysical Experimental Survey and the first application of geochemical reconnaissance was that carried out by V. P. Sokoloff of the U.S. Geological Survey on behalf of Zinc Corporation Limited during their 1947-1948 exploration program. A major exploration project by Western Mining Corporation Limited and North Broken Hill Limited from 1959-1988 found further deposits at Poona and Wheal Hughes, near Yelta, but failed to make any major discoveries. The project was sold to Moonta Mining NL who between 1988 and 1994 produced 187,843t of ore averaging 4.76% Cu and 1.45g/t Au from Poona and 287,871t of ore averaging 3.51% Cu and 0.67g/t Au from Wheal Hughes. Further exploration is currently being conducted by a joint venture between Adelaide Resources Limited and Phelps Dodge Australasia Inc/Red Metal Limited.

David Branagan, School of Geosciences, University of Sydney

From Russia via USA (With Love): Australian Geochemical Mineral Exploration: it all began At Moonta

Tradition has it that the Moonta – Wallaroo field began when Cornish men spotted ‘green stuff’ in soil dug from a wombat’s hole, and noticed that burning local bushes produced a green flame, all indicative of copper. Some people were sceptical. In the late 1940s, the first systematic geochemical exploration in Australia was undertaken at Moonta by V.P. Sokoloff, apparently on behalf of the Zinc Corporation. The idea was that traces of copper could be held at varying levels in the soil profile above a mineralised zone in the bedrock. At Moonta the soil mantle varied from 2m to more than 6m. Sampling was carried out over a total length of 13km, 326 soil profiles were examined and about 2000 samples were tested chemically. Three geochemical anomalies were located. The subsequent drilling revealed mineralisation in the bedrock, but not of economic grade. Thus the method proved technically sound, but un-commercial. The method was taken up elsewhere in Australia, with varying success. Sokoloff is virtually forgotten in South Australia. Where was he from, where did he go?

Greg Drew, Senior Geologist, Mineral Resource Group, Primary Industries and Resources SA

The Moonta-Wallaroo Mining District, 1859-1923: an Overview

The Moonta-Wallaroo Mining District covers an area of about 130 square kilometres on the northern Yorke Peninsula. The area is flat-lying with a thin veneer of calcrete and soil overlying older crystalline basement rocks containing copper vein mineralisation. There was no surface expression of these veins. In 1859 and 1861, shepherds discovered brightly coloured copper ore which had been brought to the surface by the burrowing of native animals. W.W. Hughes, the owner of the pastoral leases covering the discoveries secured mining leases and formed two separate companies to work them – the Wallaroo Mining Co. and the Moonta Mining Co.

These discoveries which subsequently became the Wallaroo and Moonta mines, were made at a time when the earlier rich copper carbonate ores at Kapunda and Burra were declining and ensured the continuity

of production and employment in the South Australian mining industry. While numerous leases were taken up in the vicinity of the two mines, none of the outlying lodes proved as rich or successful, and many were later incorporated into the Moonta and Wallaroo operations.

The Moonta and Wallaroo mines remained in almost continuous production for more than 60 years during which time their combined production was about 335,000 tonnes of copper metal from 7 million tonnes of ore. They were worked as separate ventures until 1889 when they amalgamated to form the Wallaroo and Moonta Mining and Smelting Co. Large smelting works were erected at Wallaroo on the coast, treating ore from the mines from 1861 until 1923. The amalgamation of the two companies resulted in the application of new technology and diversification including the Bessemer smelting process, copper sulphate plant and sulphuric acid works.

The mining and smelting of copper had a great influence on economic activity in the district. At the peak of mining activity in the mid 1870s, the mines employed more than 3000 and the district had a population of about 20,000, predominantly Cornish immigrants and their descendants. In particular, it resulted in the establishment of three significant towns - Kadina, Moonta and Wallaroo - which form the Copper Triangle.

This paper will provide an overview of the mining history, geology, mining methods and settlement patterns in the Moonta–Wallaroo District and provide some comparisons with the Olympic Dam Mine which will eventually replace it as the longest continuously operating mine in South Australia.

Jim Enever

Copper Mining in Victoria in the Nineteenth Century

Although never of the significance of the copper industries in other Australian States, some copper mining and smelting was undertaken in Victoria during the second half of the nineteenth century and early twentieth century. Copper mineralisation was relatively widespread throughout the Victorian goldfields, but was not of commercial significance except at Berthanga, where early gold mining activities led eventually to the extraction of copper from the complex refractory ore of the area, and at the Coopers Creek (or Thompson River) Mine in the Wallhala District, where a relatively simpler copper orebody separate to the gold occurrences of the area formed the basis of an intermittently successful mining operation. Away from the goldfields, stand alone copper mining on a limited scale was undertaken during the latter part of the nineteenth century in far east Victoria at Accommodation Creek in the Mt Dedick Mineral Field, better known for its silver/lead mineralisation. Copper was also recovered from small deposits of mineralisation found in the limestones of the Buchan district of east Gippsland from the 1870's on.

The histories of the three most significant Victorian copper mining sites of the period vary much in terms of the problems that had to be overcome in their development. At Berthanga, the issues were essentially metallurgical, while at Coopers Creek, difficulties in delineation of the ore reserves made for a stop-start history. In the case of Accommodation Creek, it was the relatively small size of the resource and its remoteness, by Victorian standards, that put the break on development. Taken together, Berthanga, Coopers Creek and Accommodation Creek provide an interesting insight into a relatively little known corner of the Victorian mineral industry of the nineteenth century and early twentieth century.

James E. Fell, Jr. University of Colorado at Denver and Health Sciences Center

From Swansea to Black Hawk to Butte: The Transfer of Copper Smelting Technology from Wales to Colorado, Montana, and Other American States in the 1860s, 1870s, and After

The Pike's Peak Gold Rush of 1859 prompted the rise of mining in what quickly became first the Territory and then the State of Colorado. By the mid-to-late 1860s, however, the industry collapsed largely because of the inability to extract gold from deep ores containing small amounts of copper, iron, and other substances. In the crisis, Nathaniel P. Hill, a resourceful former college professor as well as mineowner, came to believe that the technology used to reduce copper ores at Swansea, Wales, was the solution to Colorado's technological impasse. After two trips to Britain and the Continent to study technology, he hired Welsh, Cornish, and German-trained metallurgists and workers, obtained the capital he needed, and founded the Boston and Colorado Smelting Company. In 1868, this enterprise opened a plant that used the Welsh technology so successfully that by the mid-1870s, it was reducing more than half of Colorado's total metallic output in terms of silver and gold. Meanwhile, analogous technological problems in the small gold mining town of Butte,

Montana, prompted a major mineowner there, William Andrews Clark, to visit Hill's plant to discuss the situation. Eventually, these talks led Hill, Clark, and others to create the Colorado and Montana Smelting Company, which established a plant at Butte in the late 1870s. This resolved the technological problem that Clark and others faced. But the longterm results were different. While the Boston and Colorado Company remained focused on using the Welsh technology to recover gold and silver, the continued development of Butte revealed the presence of massive copper deposits which became the focus of production as the gold and silver content of the ores there declined. As a result, Butte emerged as one of the world's greatest copper producing centers in the late 19th and early to mid-20th century. The technology brought to Black Hawk and Butte evolved dramatically in the western United States, and metallurgists from there transferred the technology elsewhere as well.

Philip Hart, University of Waikato

Michael Dineen O'Keeffe: Union Leader

O'Keeffe was an exception to the general rule that the first leaders of the Thames Miners' Union were respectable and cautious mine managers. Although also a mine manager, of very small mines, he was a notable 'character' with an 'Irish' sense of humour.

Like many other miners, in his first years in New Zealand he had attempted to be a part-time farmer as well; unlike most other people, after becoming bankrupt he repaid all his debts, even though not required to do so. As president of the union, he was a strong advocate of its members' interests. When the Arbitration ruled against the union's application for increased wages and improved conditions, his trenchant criticism of the judge offended the respectable. Despite retaining the confidence of the members, he retired soon after this conflict, and returning to managing small mines on several fields.

O'Keeffe was an example of a genuinely popular union leaders whose efforts, although largely unsuccessful, were greatly appreciated by the rank and file.

Nic Haygarth

Catch 'em, hold 'em, shave 'em, shear 'em: Cornish 'practical mining' and Tasmanian tin

It is appropriate that Tasmania's 19th and early 20th-century mining 'capital' was called Launceston, on the Tamar River, in County Cornwall, since Cornish and Devon 'practical miners' were often prized in Tasmania as mining managers and tin dressers. Under their guidance the Anchor tin mine developed, plus the Tasmania gold mine at Beaconsfield and the Zeehan-Montana silver-lead mine flourished. Yet in a colony in which German mining academy graduates such as Gustav Thureau, George Ulrich, Ferd Kayser, WH Twelvetrees and Robert Sticht were very influential, the methods and economy of Cornish miners were questioned. The Mount Bischoff tin field was a battleground between German and Cornish mining traditions. Expectations of tin lodes 'living down', as they did in Cornwall, were also disappointed. This paper examines the trials, tribulations and successes of Cornish and Devon mining managers WH Wesley, Richard Mitchell, James Hancock and William White in Tasmania.

Brian R. Hill

A reinterpretation of the history of the acquisition of the Blackwater gold mine

The story of prospectors receiving only a pittance for a mine they have found which goes on to generate great wealth evokes sympathy, and it is a not uncommon tale in mining. The historiography of the acquisition of the Blackwater gold mine in the Reefton Gold Field of the South Island of New Zealand follows a similar *leitmotiv*: the extensive literature concerning the history of this mine, which was the second biggest gold producer in New Zealand, is in agreement that the discoverers sold the mine for next to nothing to a speculator because they had no other choice; he then made a huge and unjustified profit in selling it to the biggest mining company on that gold field; and this company's vendor profit in floating a new company to operate the mine is considered so unremarkable that it is not even commented upon. However, a more critical and rigorous analysis involving the calculation of a DCF Present Value of the mine at each transaction and comparing these values with the considerations paid, leads to a reinterpretation which indicates the opposite conclusion to these generally held views.

R. Keith Johns*The Cornish at Burra*

Production of copper from the Burra Burra Mines during the period 1845-1877 was of great importance to the colony of South Australia in its early history, impacting on economic development, migration, roads, railways, ports, foundries, growth of townships which served the mining and related communities, and provision of capital for investment in other enterprises. The most important aspect was the employment afforded to numerous persons of many ranks and skills, since mining, smelting and the associated transport activities were highly labour intensive.

Mining practice was translated directly from Cornwall, and Cornish miners were recruited in large numbers specifically for work at Burra, since development there coincided with the decline of the tin and copper mines at home.

This paper briefly describes discovery and acquisition of the property, the mines, the townships and our Cornish cousins, at home, at work and at play.

Roger Kellaway, University of Tasmania*'Not enough to make a kettle': copper mining at Badger Head 1877-1880*

Two local prospectors discovered an apparently rich deposit of copper ore in December 1877 near Badger Head on the north coast of Tasmania. In January 1880, work was abandoned and the Tasmanian Copper Company dissolved: its only assets being some office furniture and shafts from which no copper had ever been removed. This insignificant operation gains historical importance from two factors, viz: its ability to retain the enthusiasm of investors for almost two years despite the failure to establish a producing mine and through its contribution to the historical landscape of the Asbestos Range/Narawntapu National Park.

Ruth S. Kerr, Queensland Department of Natural resources and Mines*South Australian Investment in the North Queensland Base metal Industry*

It is not well known that the North Queensland mining magnate, John Moffat, at the peak of his wealth but in a growing economic depression in 1891, sought to attract South Australian financial investment to his recently discovered Chillagoe copperfield. The dabble by the Wallaroo and Moonta Mining and Smelting Company stimulated other southern companies.

Of greater impact on the north was the role of the Stannary Hills Tramway and Tin Mines Company Limited and the John Darling company in the Stannary Hills tramway opened in 1902 to serve an extensive tinfield seven miles north of Irvinebank. Likewise South Australian investment fostered mining interest in Arnhem Land. This paper examines the South Australian company formation, the role of directors and determination of investment opportunities in the North.

Sandra Kippen (La Trobe University, Bendigo) and James Lerk*Suicide on the Bendigo goldfields*

As a leading nineteenth century mining community, Bendigo was a scene of great wealth, but not all who came to this thriving town were able to avail themselves of the opportunities it seemed to be offering. Side by side with riches, mining activity helped to create for some a life of sickness, poverty and uncertainty about the future. In doing so, it inadvertently fostered conditions in which the taking of one's own life became a viable option. This paper explores suicides on the Bendigo goldfields as recorded through coronial inquests which were often reported in detail in the newspapers of the day.

Barry McGowan, Australian National University*Class, hegemony and localism: the Welsh mining communities of Currawang and Frogmore*

The copper mining towns of Currawang and Frogmore in southern NSW were at their hey day in the 1870s. Though nowhere near on the scale of the South Australian copper towns they were regionally very significant, and Currawang for a time was the largest producer of copper in the NSW.

One of the unique aspects, at least for NSW, of both mine communities was the close relationship between management and workers. Labour disputes were all but nonexistent, and management took a close

interest in the welfare and well being of the work force and the communities generally. The common thread in both instances was the over arching presence of the Deer family, who were of Welsh extraction. In the case of Currawang there was also a very large proportion of Welsh people in the mine and town.

My paper seeks to look at the relationship between mine management and town from the viewpoint of localism (the elevation of local interest above all others, for instance, class), hegemony (the cultural supremacy of the dominant class) and agency (the exertion of power by the subordinate class). I also discuss the social mores of the communities and how these appeared to change over time and reflect the changing fortunes of the mines.

Ken McQueen

Hidden copper: The early history of the

Cornish, Scottish and Australian (C.S.A.) mine, Cobar NSW

The Cornish, Scottish and Australian Mine near Cobar in western NSW had an inauspicious beginning. Thomas O'Brien discovered the gossan in January 1872 and a mineral conditional purchase was taken out by George Gibb (co-discoverer of the Cobar deposit), John Connolly and Bourke businessmen Henry and Richard Nancarrow. A company was floated but despite finding rich specimens, the early miners were unable to locate a payable deposit. Other groups attempted to develop the mine but it was not until 1905 that commercial mineralisation was located by the C.S.A. Development Syndicate under the direction of George Blakemore. This was rich secondary lead ore, and its discovery sparked an exploration boom in the region. C.S.A. Mines Limited was floated in 1906 to develop this discovery. Signs of economic copper were not found until 1910 by which time the various ventures had expended more than £100,000 on exploration and development with no return to shareholders. The early miners had been beaten by the strong near surface leaching and nature of the outcropping lodes. By 1912 development extended to 4 levels and good bodies of copper ore had been located east of the old workings. The nearby Cobar Tinto mine was acquired in 1913 and a copper smelter constructed. Copper production steadily increased and in 1916 the estimated resource was 200,000 tons of 5.5% copper. A dramatic rise in copper prices during World War I led to major production and construction of a second larger smelter. Output peaked in 1918 before the collapse of the copper price in 1919. Production continued until 1920 when an underground fire closed the mine. In 1961 the newly established Cobar Mines Pty Ltd decided to reopen the C.S.A.. Exploration and deep drilling by Enterprise Exploration in collaboration with the Bureau of Mineral Resources and the NSW Geological Survey had confirmed deeper extension of the mined lodes and located a new copper system. Persistent near mine exploration from the 1960's through to the present has discovered further major blind ore bodies. The C.S.A. is now recognised as the largest copper deposit in the Cobar Basin, containing an estimated 1.6 million tonnes of copper metal. Between 1965 and 1996 the C.S.A. mine contributed more than 50% of the total copper production of NSW.

Jeremy Mouat, Chair of Social Sciences & Professor of History, Augustana Campus, University of Alberta, Camrose, Alberta, Canada

"Just Now the 'Merican expert is the Prominent Man": American mining engineers and the Australian mining industry, 1880s-1910s

This paper will examine the role of American mining engineers in New South Wales, Western Australia and Victoria in the late nineteenth and early twentieth centuries. Their presence in Australia was less random than that of Americans during the earlier gold rush era, for in most cases these engineers had been recruited to carry out specific duties. The paper will argue that the presence of these individuals in Australia forms part of a broader shift in the mining industry, one that saw larger mines relying to a far greater extent on professional engineers. At the same time, mining engineers began to imagine themselves as members of an epistemic community with a global reach. Most engineers were trained in similar ways, shared a common approach to geological and technological challenges, participated in national engineering societies, and read the same technical journals. The presence of American engineers in Australia was less a reflection of American dominance *per se* than it was an indication of the mining industry's growing internationalization.

Bill O'Neil, Former Secretary, Barrier Branch of FEDFA

The Federated Engine Drivers' and Firemen's Association in Broken Hill

The Barrier Ranges Engine Drivers and Firemen's Association was registered as a trade union in New South Wales in 1889. When Federation came, the Barrier Engine Drivers were among the founding branches of FEDFA which was formed in Melbourne in 1907, and the seven members of the inaugural executive included three Broken Hill representatives. The move to Commonwealth jurisdiction followed the Harvester case earlier that year, which had established the basic wage. FEDFA initiated a further landmark case against BHP in 1911, in which Justice Higgins upheld the right of a union to take legal action against an employer, thereby establishing an important principle of the arbitration system which dominated Australian industrial relations for the next century.

The paper will describe the role that FEDFA has played in industrial relations at Broken Hill, where two generations of the O'Neil family dominated industrial relations for decades. The timing is appropriate, because FEDFA ceased to exist in January 2006 when its last branch amalgamated with the Construction, Forestry, Mining and Energy Union.

Dr Pauline Payne, Professional Historian and is also Visiting Research Fellow in the School of History and Politics of the University of Adelaide

Researching the Adelaide Assay Office – some triumphs and some pitfalls for researchers

In 1852 the South Australian Government passed the Bullion Act. This act provided for a Gold Escort service and an Assay Office that operated in the basement of Adelaide's Treasury Building, services designed to encourage miners on the Victorian goldfields to send gold back to Adelaide where it could be assayed and sold. Research on the work of Benjamin Babbage and Edward Davy, who worked in the Assay Office, revealed large discrepancies in figures quoted for the amount of gold processed. The answer seemed to be to check the Parliamentary records. Now, parliamentary records contain a treasure trove of information but they are not always easy to use!

While this paper will discuss the challenges facing the researcher, it will also tell the brief but colourful story of the Gold Escort and the Assay Office, and outline the details that are to be found in the Parliamentary records and other sources.

Philip Payton Professor of Cornish Studies and Director of the Institute of Cornish Studies at the University of Exeter, Cornwall Campus *

Making Moonta: the Invention of 'Australia's Little Cornwall'

This paper is about Moonta and its special place in the Cornish transnational identity. Today Moonta is a small town on South Australia's northern Yorke Peninsula. Along with the neighbouring townships of Wallaroo and Kadina, it is an agricultural and heritage tourism centre for the surrounding hinterland. In the second half of the nineteenth century, however, Moonta was the centre of a major copper mining industry. Many hundreds of Cornish miners and their families settled there, making the district arguably 'the largest Cornish community beyond Land's End'. There were plenty of other 'Cornish' settlements on the nineteenth-century mining frontier – elsewhere in Australia and overseas in places such as America and South Africa – but from the beginning Moonta cast itself as unique. As this paper seeks to demonstrate, although Moonta had much in common with these other Cornish settlements, it sought early on to distinguish itself as 'Australia's Little Cornwall', founding a myth perpetuated by later writers – popular and academic alike – that remains vibrant today.

*Prof. Payton obtained his first doctorate from the University of Adelaide for his thesis 'The Cornish in South Australia', and has written widely on Cornish emigration. Recent books include *The Cornish Overseas: A History of Cornwall's Great Emigration* (2nd ed. Cornwall Editions, 2005) and *A.L. Rowse and Cornwall: A Paradoxical Patriot* (University of Exeter Press, 2005).

Gilbert M Ralph

An Illustrated History of WMC

This brief history of the Western Mining Corporation (WMC) Group from its beginnings in the early 1930s to its demise in 2005 is illustrated with over 100 fast moving photographs and diagrams of its diverse world-wide operations and the people of vision and enterprise who led this once insignificant gold exploration company into a major Australian diversified exploration, mining and mineral processing company.

Ian Schomburgk **The Role of Mining in Pioneering a New Society*

There is a popular mis-conception, on which many of us were brought up, believing that the new Province of South Australia was founded as an agricultural society. Most of us at this conference know that mining soon became important. Many know that both industries depended on a very large innovative metal working industry. In turn it provided a platform on which many new industries grew. The net result of these three industries was that within 20 years South Australia can be seen to have become the first integrated high tech society outside Europe.

If one considers the proportion of our population working directly in or directly for these industries one is fairly safe in contending that within the period say 1850-1875 it may well have been THE most highly integrated high tech society. During the following 20 years three communications-based industries became significant - Randell's paddle steamer and the Murray Darling basin, Todd's international telegraph and education. These early developments were enhanced by the appointment of some outstanding people to head up government departments and provision of the infrastructure. The claims and the factors underlying these developments will be examined and illustrated with particular reference to the contribution of the mining industry.

* Ian Schomburgk graduated from the SA School of Mines before post-graduate studies at University College London. He was the Chemical Engineer on the Mary Kathleen Uranium Mine project and his subsequent career involved the development of new technology. Since retiring a major interest has been the development of new technology in early South Australia.

Victor J Taylor, Australian National University*The Woolgar's Lost World: A framework of theory and method in an attempt to establish its provenance*

The remote Woolgar goldfield, first discovered in 1879 covers some 128 square kilometres along the southern edge of the Gregory Ranges, northwest Queensland. Following the 'rush' of 1880, three settlements were established along the banks of the Woolgar River. Two of these settlements became known as Middle Camp and Lower Woolgar and were the main processing centres for the goldfield. Approximately 10 kilometres to the northeast of the Lower Woolgar through some difficult country is a hilly area with alluvial workings not featured in the historical record. The area is known today as Lost World and in spite of what seems in places a clear archaeological record, its provenance is confused by conflicting oral histories. This paper is an account of the attempts to establish who worked the slopes of Lost World.

Jan Wegner, James Cook University, Cairns Campus*Gardening under difficulties: gardens on inland mining fields, North Queensland*

As gardening could be considered the art of growing plants that don't belong, most parts of Australia can present difficulties to the gardener. However the mining fields of inland North Queensland were particularly challenging, and most residents simply didn't bother. This paper investigates the reasons why some did, and how they overcame problems such as poor or scarce water supplies, rocky soils, marauding animals, termites, extreme temperatures, and wet season humidity. They were motivated by the need for fresh food, modifying the effects of climate, aesthetics, nostalgia, class expectations and the "civilising" impulse.

T.M. (Mike) Williams*A Man We Know and Trust*

For two generations the Thompson family owned and operated the engineering company of Thompson & Co. Castlemaine in Victoria. Their Australian fortunes were founded on successful gold mining on the Mount Alexander gold field, but the family successfully pursued flour milling before engaging in engineering work until a disastrous excursion into tin dredging equipment in the 1920s terminated their involvement in the company. This paper covers the Thompson family history from first arrival in Victoria in 1851, to 1925 when their association with the company ended. It describes the development of Thompson Co.; how it evolved what were its triumphs and disasters, and how the enterprise formed the basis of the only survivor on its original site of over eighty engineering companies established on the Victorian central goldfields during the nineteenth century.