

Journal of Australasian Mining History

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AUTHOR DETAILS AND ABSTRACTS OF ARTICLES

PATRICK BERTOLA: *Depression and Surviving: Gold Mining at Kalgoorlie from World War 1 to 1931*

Dr Patrick Bertola researches and teaches history at Curtin University. He writes on mining and labour history in WA and is working on aluminium dust 'therapy' and on histories of Gwalia.

After the boom following discovery of gold at Kalgoorlie, several factors combined to produce a depression in its mining industry. They were such that survival largely depended upon industry's capacity to alter local conditions. Thus, companies attempted to gain state assistance and to vary the nature and terms of labour relations. One company went further, taking advantage of conditions favouring concentration of capital and centralisation of production. It expanded its leaseholdings and effected considerable alteration to the scale and efficiency of mining and treatment, changes that helped it become the predominant company on the field in the 1930s.

DAVID CARMENT: *Presenting Mining's Past in the Northern Territory*

David Carment is Professor of History and Dean of the Faculty of Law, Business and Arts at Northern Territory University. He has published widely on aspects of Northern Territory history and is currently President of the Australian Historical Association.

Mining has long been a principal Northern Territory industry and a key factor in its social, economic and political development. It has an important role in cultural heritage strategies. The paper examines some of these strategies, particularly those reflected in national parks, museums and heritage trails. While the standard of interpretation is often high, the overall picture created avoids historical conflicts and tensions. Critical history is clearly not prominent.

MEL DAVIES: *The South Australian Mining Association: An Early Australian Cost-book Company*

Mel Davies is Senior Lecturer in Economic & Social History at the University of Western Australia, who has published in mining and other areas. He is currently Secretary/Treasurer of the Australian Mining History Association and Secretary of the International Mining History Congress.

The Cost-book system is associated with Cornish tin and copper mining but often the system that determined the form of company organization was transmitted abroad. This paper describes how the system was adopted and adapted by the South Australian Mining Association at its Burra Burra Mines during the 19th century, so as to suit the prevailing capital and labour conditions in the colony.

CHARLIE FOX: *Work and Welfare at Mt Lyell 1913 – 1923*

Charlie Fox teaches Australian history in the History Department at UWA. He is the author of two books on work, has published on the history of intellectual disability and has a particular interest in the history of mining work.

The Mt Lyell Mining Company's welfare programme was started in 1913 and expanded during and after the First World War. It was a top-down initiative, designed to produce 'good industrial citizens'. However the programme became part of industrial relations and, because it represented a substantial invasion of the private sphere of home and family, it broke down the division between the public sphere of paid work and the private sphere of the home. Because it is difficult to gauge the success of welfarism in reducing industrial conflict, other ways of analysing it seem to be needed. Its conceptualisation, its incorporation into industrial relations and its impact on family and community offer better ways.

PHILIP HART: *Maori and Mining: A Case Study of Hone Werahiko and Te Aroha*

Before he took voluntary retirement in 2001, Philip Hart was Chairperson of the History Department at the University of Waikato, Hamilton, New Zealand, where he had taught from 1969. He is now a Research Associate within the Department.

This paper examines how Maori very quickly became involved in prospecting throughout all the auriferous regions of New Zealand. Whilst many Maori were criticized for failing to adapt successfully to the European wage economy and to modern skills, those that did were commended. Hone Werahiko, the discoverer of gold at Te Aroha, was an example of one who had so adapted. While Maori contributions to the economic development of the colony have often been overlooked, this paper addresses the life of a Maori prospector who succeeded where European prospectors failed.

RICHARD G. HARTLEY: *Western Australian Gold Smelters in the 1900s*

Richard Hartley is a retired civil engineer. He has completed a history doctorate at Murdoch University on Kalgoorlie Gold Metallurgy 1895-1915. His main areas of research are metallurgy, Australian mining and Western Australian public works engineering.

Between 1897 and 1904 over three quarters of a million ounces of gold from Kalgoorlie's Golden Mile, representing nearly a quarter of Kalgoorlie's total production was extracted by smelting. Most was smelted in the eastern colonies but over a quarter was produced in three now largely forgotten smelters in Western Australia. The paper examines their significant role in Kalgoorlie's development and the reasons why they largely failed to fulfill the expectations of promoters.

BRIAN R. HILL: *Dredging in New Zealand*

Recently awarded a PhD in history from Flinders University, South Australia, for his biographical study of mining entrepreneur David Ziman, Brian Hill recently retired to New Zealand. In a former life he was involved in promoting mining and exploration ventures and now finds the academic study of the industry extremely rewarding.

Unlike many 'Free Standing Companies', Snowy River Gold Dredging Ltd. proved highly successful. The paper examines the causes of this success that had much to do with the supervisory role of local directors, the expert selection of equipment and the technical expertise of management. The question also posed is why the New Zealand company was financed largely from Adelaide.

TIMOTHY JONES: *Ping Que – Mining Magnate of the Northern Territory*

Timothy Jones, now retired, was for many years the Canberra based Public Inspector for the Northern Territory. He has written extensively on Northern Territory History. His main interests lie in the history of mining, the Chinese. His publications include articles and items in the *Northern Territory, Dictionary of Biography*.

Ping Que, a Chinese immigrant, spent several years at Creswick before going to the Northern Territory in 1875. For the next 30 years he was a mainstream mining entrepreneur. He owned a store, several mines at Union Reefs and other places, a hotel and abattoirs, and was a major employer of Chinese labour. He was friendly with other European miners and often had joint ventures with them. This standing with the community was recognised by his appointment to the Mining Board.

ALAN LOUGHEED (1927-2002): *Europe and Western Australian Gold Mining: 1885-1914*

Alan was a highly respected academic who published extensively on aspects of Australian economic history, the development of the international economy, and mining history. Alan presented this paper at the AMHA/AHA Conference held in Brisbane in 2002, just months before he passed away. The paper is published as presented at the conference.

Little has been written on the influences of Continental European countries on West Australian gold mining during the two decades before 1914. Discussed is the role of European investors, principally from Germany and France, with emphasis on the companies operating on the Golden Mile. An assessment is made of the importance of European funds to the WA industry and also to the direct contribution of Europe in the winning of gold from the ores.

BARRY MCGOWAN: *The Working Miners of Southern New South Wales: Adaptability, Class and Identity*

Mining historian and heritage consultant Barry McGowan, has written four books on local mining communities in southern New South Wales. He has a PhD from the Australian National University where he is currently a Visiting Fellow at the School of Archaeology and Anthropology.

Miners in the colonial and immediate post colonial period worked either on their own account, independently, in co-operative groups, as wage employees, and tributers. The discussion focuses on the 'working miners', those working on their own account and as tributers, and their adaptability. Working miners, in particular, were considerably more prominent and persistent than most historians have recognised. Questions of class and identity are central to the discussion. It is argued that the popular image of working miners as subsistence miners is too limiting, and that it is more appropriate to apportion them to the middling class.

KEN MCQUEEN: *Difficulties with Refractory Ores: History of the Tolwong Mines, Shoalhaven Gorge NSW*

Ken McQueen is Associate Professor in Landscape Evolution and Mineral Exploration at the University of Canberra. His professional training is in ore deposit geology and applied geochemistry and he also has a keen interest in metalliferous mining history. He is currently the Assistant Director of the Cooperative Research Centre for Landscape Environments and Mineral Exploration.

Attempts were made between 1907 and 1912 to mine and process copper-tin-arsenic bearing ores at the Tolwong deposits in the Shoalhaven Gorge, east of Bungonia in the southern highlands of New South Wales. The difficult terrain and metallurgical characteristics of the ore presented major hurdles. Engineering ingenuity overcame problems with the terrain but the ore mineralogy, particularly the presence of stannite (Cu₂FeSnS₄) as the main copper-and tin-bearing mineral and the high arsenopyrite

(FeAsS) content, rendered treatment of the ores very difficult. These technical difficulties combined with over-expenditure on plant before proper assessment of the lodes led to the failure of the venture. The history of the Tolwong mines illustrates the interplay between nature, technology and management practices in determining the success or otherwise of mining ventures.

MICHAEL PEARSON: *The Early Copper Mining Industry in Central Queensland, 1863-1879 – History and Place*

Michael Pearson is a heritage management planner and archaeologist who has worked in the heritage conservation field for nearly 30 years in the NSW National Parks and Wildlife Service, the Australian Heritage Commission, and since 1993 as head of the consulting firm Heritage Management Consultants. He is a past-Chairman of Australia ICOMOS, Adjunct Professor of Cultural Heritage Management at University of Canberra, and Deputy Chair of the ACT Heritage Council.

The paper focuses on a suit of early isolated copper mining sites and their smelting technology. Being far from supplies of 'standard' materials encouraged adaptation of traditional smelter construction and operational practices. Indicated is the potential of these generally unspectacular mine sites for further research and historical enquiry into the relative efficiency of small-scale smelting in less-than perfect conditions.

JUSTINE THORP: *The Curious Case of the Disappearing Gold Mining Town: The Cultural Landscape of the Clohesy River Gold Field, North Queensland*

Justine Thorp is a PhD student at James Cook University, Cairns, researching the emergence and development of the tourism cultural landscape of the Cairns region, 1890 – 1970.

Clohesy township emerged in the 1890s to serve the needs of miners on the Clohesy gold field. This was '...a small settlement of thumbnail variety'. Reputedly, the town was in existence until the 1950s. Despite this, no-one including government departments and descendants of early residents are able to pinpoint its location. Today, few are aware that the Clohesy area was once the scene of mining activity and that shafts and mullock heaps dot the landscape. The paper attempts to provide a description of the Clohesy gold field in the 1890s, pinpoint the likely location of the township and offer explanations for its 'disappearance'.

JAN WEGNER: *Underground Gold Prospecting Techniques on a Late 19th Century – Early 20th Century Queensland Goldfield*

Jan Wegner lectures in history at the Cairns Campus of James Cook University. Her research interests are in North Queensland history, especially mining history, while her PhD on gold mining technology has directed her to mining heritage issues.

Before WWI, underground miners could call on a range of ideas to help them decide where to mine next. These ranged from the scientific, in the form of geological theories, to the decidedly unscientific. Most operated on the basis of previous experience, with variable results. The major technological solution apart from exploratory workings was the diamond drill, which suffered from a number of drawbacks. An examination of techniques in use on the Croydon goldfield shows that local experience and familiarity with ore-bodies were the most useful methods for underground prospecting for gold.

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CLIVE BEAUCHAMP: *The Anatomy of a Strike: Wentworth Proprietary Co. Ltd, Orange, New South Wales 1897*

Clive Beauchamp retired in 1999 from Charles Sturt University, Bathurst where he was a Senior Lecturer in Politics. He has published in the area of American politics and Australian political history.

The paper examines the causes and course of the thirteen-week strike at the Wentworth gold mines at Lucknow, New South Wales, in 1897. It demonstrates how management intransigence, ministerial interference, suspension of labour conditions, the introduction of 'black-legs' from interstate in the context of the economic dislocation of the 1890s, all contributed to the defeat of the striking miners. The controversial dispute highlighted the need for compulsory arbitration, threatened the colony's government and influenced development of the NSW Labor party.

RALPH W. BIRRELL: *The Extraction of Gold by Amalgamation and Chlorination*

Ralph Birrell is a retired electrical engineer. His research interests include the development of mining technology and mining law in Australia.

Until the 1890s most gold was extracted from the crushed ore by amalgamation with mercury. The process of dissolving fine gold in a solution of chlorine in water was developed in Europe in the 1840s but in Australia was not used to any extent until the 1880s. From that time the process was applied for extracting fine gold from Mt. Morgan ores and gold from very refractory ores. The cyanide process, also developed at this time, was very efficient in extracting gold from mill tailings but less efficient with pyritic ores containing small amounts of impurities such as copper. This paper examines the use of the amalgamation process and the development of the chlorination process in Australia.

JIM ENEVER and ROD DOYLE: *The Thick and Thin of Australian Coal Mining, A Comparative Mining History of the South Maitland and Powlett River Coalfields*

Jim Enever is a retired mining engineer now follows a life long interest by studying and Australian writing mining history. During a career in mining research with CSIRO he worked mainly in the Australian coal mining industry, authoring a large number of papers and book chapters on his work related to the geotechnical design of mining operations. Rod Doyle has worked in the NSW coal industry for 25 years, with a focus on investigations for mine planning and operational problem solving. He has qualifications in geology and mining geomechanics, and has, like his co-author, a keen interest in mining heritage.

From around 1910 on, the South Maitland and Powlett River coalfields expanded in parallel. On the Victorian market they were in competition. Geologically, the two areas represented opposite ends of the spectrum, the former area being blessed by large extents of high quality coal in thick seams with relatively few geological discontinuities, the latter characterised by inferior coal occurring in thin and discontinuous seams. Both areas developed/adapted specific mining practices to cope with the extraction of these disparate resources. The paper describes the evolution of these mining practices and compares the relative performance of the two areas.

PHILIP HART: *Australian Capital in New Zealand: The Te Aroha Silver and Gold Mining Company*

Before he took voluntary retirement in 2001, Philip Hart was Chairperson of the History Department at the University of Waikato, Hamilton, New Zealand, where he had taught from 1969. He is now a Research Associate within the Department.

The Waiorongomai goldfield, like so many others, suffered from lack of capital. This was sought overseas, for the complex ores required expensive treatment plant beyond the means of local capitalists. During the 1880s there was some interest from Australian investors in New Zealand mining, and BHP's William Robert Wilson visited the field in 1888 and acquired both mines and battery. The best battery in Australasia was erected but insufficient preparatory investigations of the extent and nature of the ore saw failure for that company, as with others who worked this field.

BRIAN HILL: *Explaining the Reefion Paradox*

Following retirement, Brian Hill not only indulged in a life-long interest in mining history but took the opportunity to complete an M. Litt. at UNE and a PhD at Flinders University. His current research interests include 19th century British investment in overseas mining and Australian and New Zealand

mining company histories. Early in his business career Brian was involved in the mining industry for some years when he promoted and floated several mineral exploration companies and developed a substantial gold mine in Western Australia

Economic theory has it that during the period of the gold standard, because of gold's fixed nominal price, the output of gold should have varied counter-cyclically with fluctuations in the level of economic activity. However, the history of Reefton, which was New Zealand's second biggest gold field, poses something of a paradox in the field's first 40 years to 1912. Although Reefton's level of output varied during the periods of price inflation and deflation experienced in New Zealand, the variations in Reefton's output of gold demonstrated the opposite to this theory. This paper analyses the factors pertaining to the gold mining industry in Reefton from 1872 to 1912, the economic effects of which were more dominant than the effect of the changes in the real price of gold, so as to explain the 'Reefton paradox'.

RUTH KERR: *John Moffat – the Broken Hill Proprietary Co. Ltd, and Establishment of the Chillagoe Smelters, Queensland*

Ruth Kerr has researched and written extensively on Australian mining history, particularly north Queensland. Ruth among her many publications, has written and published a biography of north Queensland's major mining investor, John Moffat of Irvinebank.

The silver discoveries in north Queensland in 1883 at Mount Albion west of Herberton were quickly described as the new Broken Hill. From then on the north's entrepreneur, John Moffat, sought out Broken Hill and Melbourne capital to develop the mineral region. He succeeded at Chillagoe and Mount Garnet in 1896. Directors of Broken Hill Proprietary, William Knox of Melbourne, and James Reid formerly of Bowen and Ravenswood and editor of Broken Hill's *Silver Age* were attracted to promoting new regional industrial complexes. They enlisted Herman Schlapp, metallurgist, and Alex Stewart, manager, of Broken Hill. Their enterprise transformed north Queensland, produced amazing share windfalls for the directors, but their smelters closed and had to be subsidised and taken over by the State to maintain local population centres for the next 50 years. This paper analyses what the Broken Hillionaires sought to achieve in the north.

RONALD H. LIMBAUGH: *'There is a game against us': W.J. Loring's Troubled Years as Bewick-Moreing Company's General Manager and Partner in Western Australia, 1905-1912*

Dr. Ronald H. Limbaugh retired in 2000 after 34 years teaching at the University of the Pacific, Stockton, California. A specialist in regional history of the American West, he recently co-authored a book on the southern Mother Lode of California, *Calaveras Gold*.

Brought to Australia in 1902 by Herbert Hoover, William J. Loring, a California practical engineer, proved his worth as manager at the Sons of Gwalia mine in Leonora, and by 1905 was supervising all Bewick Moreing operations in Western Australia. Unfortunately, Loring's rise coincided with a period of decline in Australian precious metals mining. Deeper mining of lower-grade orebodies, increasingly complex milling problems, financial difficulties and upheavals in management personnel within the organisation, all contributed to Loring's distress. Caught in the middle during the personal conflict between Hoover and C.A. Moreing, Loring was under heavy pressure and wrote agonising letters to friends and even underlings in the firm. His papers provide first-hand accounts of the technological problems facing Australian mine and mill managers during the crucial first decade of the twentieth century. They also reveal the emotional strain of mid-level management in this important transitional period.

IAN PHIMISTER: *Coal Mining and its Recent Pasts in Comparative Perspective*

Ian Phimister is Professor of International History at the University of Sheffield and Honorary Professor at the University of Pretoria. He has published widely on mining history, particularly on mining finance and development in Africa.

Coal mining's contested pasts have attracted the attention of historians for much of the last century. Taking as its historiographical base line the Second International Mining History Congress, this article tracks subsequent developments in the field. Section one notes studies that have focused on mining communities, strikes, ethnicity and gender, while section two compares and contrasts the coal mining histories of Australia and Southern Africa. Patterns and processes over time of state intervention, community and conflict, and of class, race and gender are noted. The final section takes up the observation that coal mining history achieved its greatest sophistication at precisely the moment that the industry had lost importance in Western Europe, before pointing to the likely methodological direction in which African, Asian and Australian studies of coal mining will go.

TIMOTHY JONES: *Adam Johns: prospector, Miner & Explorer of the Northern Territory 1840-1896*
Timothy Jones, now retired, graduated from Melbourne University in 1954 following wartime service in the RAAF. He was for many years the Canberra based Public Service Inspector for the Northern Territory, which explains his fascination with that area. His main interests lie in the history of mining and of the Chinese in the Northern Territory and his publications include two books as well as articles and items in the Northern Territory *Dictionary of Biography*.

Adam Johns, an outstanding bushman, prospector and explorer was the first to discover a really rich gold deposit in the Northern Territory in the early 1870's. For the next twenty years he prospected, managed mines and made exploration trips in the Northern Territory and Western Australia, entirely self-financed and without any formal Government recognition. He was a member of the NT Mining Board and a Justice of the Peace who often sat on the Bench. He was a highly respected citizen of the Territory but died in an accident with very little cash or assets.

SANDRA KIPPEN and YOLANDE COLLINS: *Radical Reformers: The role of medical men in improving working conditions in the Bendigo goldmines, 1890-1910*

Sandra Kippen is a lecturer in the Department of Public Health at La Trobe University, Bendigo. One of her major research interests is in occupational health and safety, particularly related to mining history. Yolande Collins is a lecturer in the Department of Arts, La Trobe University, Bendigo. Her interests lie in conserving local heritage and she is currently secretary of the Bendigo Branch of the National Trust.

Mining disease, became an issue of public concern in Bendigo, particularly between 1890 and 1910 when its epidemic proportions amongst Bendigo goldminers was becoming evident. This paper examines the work of a few medical men who went further than their expected role of management of the disease, to engage in public lobbying and activism on behalf of the miners. They added momentum to the negotiations between management, government and workers for improved conditions in mines and recognition of the occupational nature of the disease.

GILBERT M. RALPH: *The Broken Hill - Collins House Connection: Mining Personalities*

Before retirement in 1994 from an executive role in WMC, Gilbert Ralph spent more than 40 years in the mining industry in Adelaide, Port Pirie, Kalgoorlie, Perth and Melbourne in engineering, operations management, corporate affairs and a directorship. He has an interest in mining history and remains a consultant to industry.

Collins House built in Melbourne by W.L. Baillieu in 1910 from wealth he had accumulated from his Broken Hill investments, became the headquarters of all the major mining companies at Broken Hill (except for BHP). This paper reviews the inter-relationships between the directors of the Broken Hill companies involved and the many new enterprises that emerged from their creative minds. It highlights the involvement of the Baillieu, Brookes, Clark, Cohen, Fraser, Gepp, Massy-Greene, Robinson, Shackell, Stewart and other families.

NICOLA WILLIAMS: *Brass among the Gold*

Nicola Williams has held an honorary position at Monash University's School of Chemistry since retiring as a senior lecturer in March 2002. Her interests in fields of mineralogy and mining are linked to her special fascination with old assay balances, especially those made by the UK firm of Oertling. She is currently compiling a database of assay, bullion, chemical and other balances that were exported to Australia and other Colonies in the late 19th and 20th centuries and is collaborating with two UK scientists who are writing a history of the firm. The data will be part of an Oertling Survivors Index, which will contribute to the understanding both of the overseas activities of the firm, and scientific activities of the Colonies. This paper describes some of the highlights of the search for Oertling balances around Australia between 1990 and 2003.

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ROBERT ASHLEY: *Mining the Victoria Government Gazette.*

Retiring early from the State Electricity Commission of Victoria he completed a Master's degree in 1994. He has been active in historical circles for 45 years and has published several volumes. He served on the committee appointed to build the Gold Museum at Ballarat and in 1976 with Peter Staughton was awarded an Architectural Citation for the history of iron ore mining and smelting at Lal Lal near Ballarat.

This paper is a description of creating a database and comprehensive index of applications to register mining companies under limited liability Acts in Victoria. This work includes shareholders, legal managers, witnesses to signatures and mining companies covering Australia, New Zealand, Asia and the Western Pacific. The paper expands upon projected lines of research using the database.

DAVID BRANAGAN: *Seeking Hidden Millions - Metallurgists and the Broken Hill Lode*

After stints in government and industry, Professor David Branagan spent most of his career at the University of Sydney, specializing in teaching engineering geology and field studies. He retired in 1989 and is presently an Honorary Research Associate, researching the history of geology and mining.

The Broken Hill Orebody, with its complex mineralogy, caused treatment problems, and there was always interest in improving the recoveries of the metals. This paper outlines the work of three metallurgists: William John McBride (1879-1970), Thomas Andrew Read (1886-1972) and George Kenneth Williams (1896-1974), who made significant metallurgical contributions. Their work was interwoven, McBride and Read through the Broken Hill South Company, McBride and Williams through Broken Hill Associated Smelters.

PETA CHAPPELL: *Tales of Merton's Reward: the gold that Fred won*

Peta Chappell is a former exploration geologist. She is currently teaching mineralogy and mining to extractive metallurgy students at Murdoch University whilst completing a history M.Phil. on Merton's Reward gold mine.

In March 1899 Fred Merton discovered the gold deposit which became Merton's Reward gold mine. He took the unusual step, for a prospector, of developing the mine himself, acting as mine manager, engineer, metallurgist and assayer. In so doing, he earned a special place in the mythology of gold in WA, particularly with regard to his battery and the gold won from it. Using detailed analysis of the production records for Merton's Reward, this paper assesses the efficiency of the battery and its proprietor and also explores some of the more scurrilous tales of Fred Merton and his gold.

MEL DAVIES: *Taking coals from Newcastle - smelting location and fuel costs at Koorunga, South Australia in the 19th century*

A Senior Lecturer at the University of Western Australia, Mel Davies has had a long time interest in mining history and continues to research and write on copper and gold mining.

Because it takes more than one ton of coal to smelt a similar quantity of minerals it makes good economic sense to transport the mineral to the coal rather than *vice versa*. Yet in nineteenth century South Australia, common sense appears to have been turned on its head. With no local coal supplies, the smelter erected by the Patent Copper to serve the Burra Burra Mines was situated at Koorunga 160km inland from Port Adelaide. The paper sets out to examine the reasoning behind the decision to locate at the site and to try to determine whether the decision was rational.

JIM ENEVER: *Victoria's other Eureka, The Conflict over Mining Leases on the Mount Alexander Goldfield*

Now retired, Jim Enever studies Australian mining history. His working life, in the area of geotechnical engineering and particularly in the study of in-situ stress related to excavation design saw him involved in mining research with CSIRO. This brought him into contact with many current mining operations and exposed him to Australia's mining past.

In October 1853, diggers at Fryers Creek rose up to resist the Victorian Government from giving a mining lease to the Port Phillip and Colonial Gold Mining Co. that threatened to displace them from their small claims. This brought to a head resentment simmering since the first gold discoveries in 1851. The

Government backed down thereby avoiding more serious conflict but the issue did not go away, becoming caught up in the rising hostility to the license system that eventually led to Eureka.

PHILIP HART: *Self-Confidence, Self-Promotion, and Self-Delusion: A Case Study of a Saviour Who Failed*

Now retired from the University of Waikato, New Zealand, where he had taught from 1969, Dr. Philip Hart is now a Research Associate within the Department of History. He is currently writing up his research into the social history of mining in the Te Aroha Mining District of New Zealand.

Joseph Campbell, a scientist and clergyman based in Sydney, had great faith in his ability to solve a variety of scientific problems, especially geological ones. In the 1890s he moved to Te Aroha, New Zealand, to put into practice a method of treating ore he claimed to have invented, but was unwilling to accept its lack of success. Campbell was one of many potential 'saviours' who genuinely believed that they could solve the goldmining industry's problems but whose solutions failed to produce the promised results.

BRIAN R. HILL: *Reefton's Forgotten War Hero: Mining Engineer A. Winter Evans*

Early in his career Brian Hill was involved in the mining industry for some ten years when he floated several exploration companies and developed a substantial gold mine in WA. In his retirement Brian has obtained MLitt and PhD degrees.

The general manager of the Consolidated Gold Fields of New Zealand Ltd group in Reefton, A. Winter Evans, was a war hero of some distinction, having been recommended for the Victoria Cross while a teenage soldier in the Boer War. In 1912, Evans led the Consolidated group to victory in a major industrial dispute, resulting in the introduction of changes to work practices which improved productivity substantially, enabling the mines to continue operating through the next two decades when price inflation in New Zealand increased costs by some 67 per cent.

R. KEITH JOHNS: *Uranium in South Australia – Politics and Reality*

During 44 years of Government employment and until retirement in 1992 as Director General of the South Australian Department of Mines and Energy, Keith Johns was closely involved with uranium exploration and development.

This paper traces the 100-year history of the industry in South Australia where, initially, state and federal governments accepted the challenges offered and sought to maximise the benefits that might accrue. However, uranium became a divisive political issue in the 1970s and the adoption of the Labor Party '3-mine policy for uranium' in 1983 changed the momentum. It brought exploration to a halt and killed off the opportunity for enrichment associated with the potential to add greatly enhanced processed value to product from the world's largest resource. It also led to rejection of a national radioactive waste repository near Woomera.

RUTH R. KERR: *Rufashell Street and the Tin Mill at Rocky Bluffs on the Stannary Hills Tramway, north Queensland, 1903 to 1920s*

Ruth Kerr is a Principal Policy Officer on Native Title for mining and petroleum tenures within the Department of Natural Resources and Mines in Brisbane. Ruth, well known in history circles, serves on several peak body committees such as Federation of Australian Historical Societies Inc, the Professional Historians Association, the Royal Historical Society of Queensland and is on the committee of the Australian Mining History Association Inc.

This paper examines the development of a small remote frontier mining town and its school and tramway. The mines, mill and tramway were financed by a South Australian company that purchased the mines from the Irvinebank Mining Company. The development and subsequent history is typical of base metal mining investments in north Australia early in the twentieth century. Remains of the mill and tramway have now been listed on the Queensland Heritage Register.

JAMES LERK: *Robert Gray Ford - A man before his time!*

James has a deep interest in history and was a foundation member of The Bendigo Trust, the organization that helped to develop the Central Deborah Gold Mine that presents to the public an example of Bendigo's fabulous gold mining history.

Robert Gray Ford came to Victoria's gold rush in 1852 as a teenaged blacksmith. A man of immense talent and inventiveness, he designed and had manufactured numerous mining implements, his rock drill

being years ahead of any others in design. Ford went on to become engineer in charge of construction for the Victorian Railways. This paper examines his contribution to the mining history, a contribution that historians have tended to overlook.

KEN McQUEEN: *The Mount Boppy Gold Mine, NSW: A Leader in its Day and More to Come*
Associate Professor in Landscape Evolution and Mineral Exploration at the University of Canberra, Ken McQueen's professional training is in ore deposit geology and applied geochemistry. He is currently the Assistant Director of the Cooperative Research Centre for Landscape Environments and Mineral Exploration.

Mount Boppy gold mine illustrates many of the developments in gold mining and processing technology from the late 19th to the early 21st centuries. First phase mining was completed in 1922 and attempts to process the tailings from this period culminated in the construction of the first carbon in pulp (CIP) gold extraction plant in Australia in 1974. More recently this technology has allowed the successful reprocessing of sands used to backfill underground workings by the early miners, as well as remnant ore, both extracted from new open pits. Modern exploration has detected additional ore.

DIANE MENGHETTI: *Bowen Coke Works: State Enterprise or State Subsidy?*

Dr. Diane Menghetti was formerly Head of the School of History and Politics and Associate Dean of the Faculty of Arts, Education and Social Science at James Cook University. Since her retirement she holds an adjunct position at JCU and works at a consultant historian.

Coke works have attracted scant attention from mining historians, despite their undoubted importance for some metallurgical processes. Indeed, many Mining Wardens and Inspectors regarded coking as a purely industrial process outside their reporting responsibilities. This paper examines the construction and operation of Bowen Coke, which was a State Enterprise from 1932 to 1988. It fits the works into the context of mining and metallurgy in North Queensland to explore some aspects of state support for mining in general and for Mount Isa Mines in particular. It concludes that Bowen Coke operated less as a State Enterprise than as a state subsidy for Mount Isa Mines.

ELEANOR HERZ SWENT: *Yanks and Aussies: A Symbiosis. A Look at Some Illustrative Careers*

Dr. Eleanor H. Swent, retired research interviewer/editor and mining historian, and currently Project Director for the Mining Series, Regional Oral History Office, University of California-Berkeley, was born at the Homestake Mine; holds degrees B.A. Wellesley College, M.A. Denver University, L.I.D. South Dakota School of Mines & Technology; and holds the Rodney Paul Award from the Mining History Association (USA).

This paper draws from oral histories of six Australians and Americans whose work significantly influenced mining in both countries. Their recollections vividly illustrate important changes in the last half-century that involve a globalized economy, environmental protection, increased mechanization, care for worker safety and health, and scientific exploration for minerals.

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AUTHOR DETAILS AND ABSTRACTS OF ARTICLES

PETER BELL: *Great Expectations, Bad Geology: Edward Head and the Keelbottom Freehold Copper Mines 1872-1902*

Dr Peter Bell is a historian who has been writing about the Australian mining industry for thirty years. Formerly an academic and public servant, he now has an Adelaide-based consulting business, Historical Research Pty Ltd.

This paper tells the story of the Keelbottom Freehold Copper Mines in North Queensland, and the company's principal, Edward Head, who raised five separate companies to work the mines over a period spanning thirty years. The mines absorbed tens of thousands of pounds in investment capital, but never produced any copper. It is a compelling example of the power of delusion to outweigh both personal experience and professional advice.

RON M. CALLENDER: *The Baile an Or Project: Robert Nelson Gilchrist (1821-1877), A Scottish 'Hargaves'*

Ron Callender is a former scientist and an authority on 19th century photographic history, but he relishes researching obscure aspects of Scotland's past. As co-ordinator of the Baile an Or project, (funded by the UK's Heritage Lottery Fund), Ron and his colleagues have just completed successful investigations in local history, applied photography, archaeology, geology, reconstruction and tracing people.

Home on leave from the Australian goldfields in the winter of 1868, Robert Nelson Gilchrist's discovery of gold in Sutherland, Scotland, sparked a gold rush the following year. The Duke of Sutherland tolerated the gold miners on his land for 12 months and then issued an ultimatum to close the goldfield. By then, Gilchrist had returned to Victoria.

VALERIE FLETCHER: *Value Adding to Northern Territory Copper, 1901-1910*

Valerie Fletcher was awarded a history doctorate from the University of Queensland on 'Nineteenth Century Railways and the Constitutional Conventions'. Her other areas of research are the building of transcontinental/interstate railways in Australia and the history of the Northern Territory, especially the 1895-1910 period and the Commonwealth takeover of the Territory.

Mining in the Northern Territory has always been considered the means of attracting population and capital as well as providing the means for improving infrastructure and industry. The 1901-1910 period was one of isolation, an uncertain political future and hopes for a brighter future. The construction of two copper smelters during this period was seen as the promise of this better future.

PHILIP HART: *The Thames Miners' Union: Defending Miners and the Mining Industry*

Philip Hart is a Research Fellow in the Department of History, University of Waikato, Hamilton, New Zealand, and is enjoying the long-awaited freedom to write up research accumulated over many years into the history, especially the social history, of gold mining in the Te Aroha district.

The Thames Miners' Union was modelled on its Australian counterpart, and shared its structure and philosophy. It united miners to defend and improve their conditions and to provide friendly society benefits. It boasted of its moderation, and any strikes that occurred were forced upon it. A declining mining industry united both miners and managers in seeking assistance from government and capital from investors, and union leaders accepted that the interests of miners, managers, and owners were intertwined.

BRIAN R. HILL: *A Reinterpretation of the History of the Acquisition of the Blackwater Gold Mine, New Zealand*

Early in his career Brian Hill optioned and sold to mining companies several prospects he had located. None turned out to be a bonanza. Later he developed a substantial gold mine in WA. In his retirement Brian has obtained MLitt and PhD degrees.

The Blackwater Gold Mine, the second biggest gold producer in New Zealand, was originally purchased by a speculator from its discoverers for a pittance. The extensive literature concerning the history of this mine decries this and affirms that he made a huge and unjustified profit when selling to a large mining company, but the enormous profit made by this company in floating the mine is not remarked upon. A critical and more 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 an opposite interpretation to this accepted theme.

R. KEITH JOHNS: *The Cornish at Burra, South Australia*

Following retirement from his position as Director General of the South Australian Department of Mines and Energy, Keith Johns has taken a special interest in mining history. That interest has focused, in particular, upon the Cornish influence in the mining sphere – not surprising, as he traces his Australian ancestry back to the early days of European settlement in South Australia.

Opened in 1845, the Burra Burra Mines proved a magnet for immigrants from all over the world but especially Cornwall. The cultural impact upon the locality can still be felt and indeed is set in stone in the many fine buildings that have survived the impact of time. This paper examines the growth of the town of ‘Burra’ – an amalgamation of a number of townships that sprang up in and around the property of the South Australian Mining Association.

TIMOTHY JONES: *David and Isaac Daniel and the Mt Wells Tin Mine*

Following wartime service in the RAAF, Timothy Jones graduated from Melbourne University in 1954. For many years he acted as the Canberra based Public Service Inspector for the Northern Territory. Taking an interest in the Territory’s history, he has, since retirement, published a number of books and articles on mining and on the activities of the Chinese.

That versatility and tenacity was a virtue among early miners is illustrated by the activities of the Daniel brothers from the 1880s to the second decade of the 20th century. The paper focuses on their activities at the Mt. Wells Tin Mine but also examines the vital role of Chinese tributors. Following the deaths of the brothers, the paper examines developments at Mt Wells to the 1970s.

KEN McQUEEN: *Hidden Copper: The Early History of the Cornish, Scottish and Australian (C.S.A.) Mine, Cobar, NSW*

Ken McQueen is a geologist with a keen interest in mining history. He currently holds the positions of Associate Professor in Landscape Evolution and Mineral Exploration at the University of Canberra and Reader in Applied Geochemistry at the Australian National University.

The Cornish, Scottish and Australian mine is now recognised as the largest copper resource in the Cobar region with an estimated 1.6 million tonnes of copper metal. However, it took more than 30 years from discovery of the outcropping gossan to location of the first payable ore and another 60 years before the full potential of the deposit was identified. The history of discovery and development of the C.S.A. mine illustrates the difficulties encountered in exploring for Cobar-style ore deposits in an ancient, deeply weathered and semi-arid landscape.

PHILIP PAYTON (Keynote address 11th AMHA Conference, Kadina, 7 July 2006):
Making Moonta: The Invention of ‘Australia’s Little Cornwall’

Philip Payton is Professor of Cornish & Australian Studies at the University of Exeter, and Director of the Institute of Cornish Studies, based at the Cornwall Campus near Penryn in Cornwall, UK. Professor Payton obtained his PhD at the University of Adelaide and has published widely with respect to the Cornish identity and Cornish influence on mining.

In the second half of the nineteenth century, South Australia’s 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’. As this paper seeks to demonstrate, although Moonta had much in common with other Cornish settlements, throughout the world, it sought early on to distinguish itself as ‘Australia’s Little Cornwall’

NAOMI SEGAL: *Danger and Health Hazards: Western Australian Gold Mining – the Early Decades*

Naomi Segal has recently submitted her PhD in Industrial Relations in the School of Economics and Commerce at the University of Western Australia where she is a tutor and occasional lecturer. Her other publications include an article on the McArthur-Forrest patent dispute in Western Australia and an article on the genesis of compulsory arbitration in Western Australia.

This paper explores the labour process in the gold mines of Western Australia in the period up to World War I, especially as related to changes associated with the technical stages of production. Attention is brought to the logic that drove some of these changes and the particular tasks, dangers and hazards that this entailed for workers. The main thrust is to examine the labour experience. The assumption behind this micro-study is that knowledge of the labour process and worker grievances provides an appropriate departure point for a wider study of the sense of class that emerged in the mines.

JAN WEGNER and JUSTIN LAMBERT: *The Emuford Battery, North Queensland: A study in survival*

Jan Wegner is a lecturer in history and heritage at the Cairns Campus of James Cook University. Justin Lambert is a fourth year student at James Cook, and is the 2003 winner of the W.T. Johnston Memorial Prize in History.

Well preserved tin mills dating from before the First World War are rare in Australia. This paper looks at the reasons why the Emuford Mill in far north Queensland survived virtually intact to the present. It found economic, political and personal motives were important, as well as isolation and the recent interest in heritage.

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AUTHOR DETAILS AND ABSTRACTS OF ARTICLES

PETER BELL: *Copper Triangle's Spanish Legacy: Leaching the Waste Dumps at Moonta Mines 1901-1944.*

Peter Bell is an Adelaide-based consulting historian with a particular interest in mining history. His interest in the Moonta cementation plant began when he was on the staff of the South Australian Heritage Branch while the site was being developed for public interpretation.

Moonta Mines was the site of Australia's first successful acid leaching plant, which extracted nearly 20,000 tons of copper from the mine's waste dumps, contributing close to 6% of the total output of the Moonta and Wallaroo mines complex. Intended in 1900 to operate for a decade, the plant ran for over forty years, not closing until the Second World War. Its highly successful technology was based on practice at Rio Tinto in Spain, recommended by John Stewart MacArthur and brought to Moonta by the enigmatic Antonio Delgado, one of many virtually unknown international contributors to the technological complexity of the Australian mining industry.

DAVID BRANAGAN: *Australian Geochemical Mineral Exploration: It all began at Moonta through V.P. Sokoloff.*

David Branagan is an Honorary Research Associate, School of Geosciences, University of Sydney, where he taught for thirty years. His biography of Edgeworth David was one of four works short-listed for the first Prime Minister's Prize for Australian History awarded in July. He continues research on aspects of Australasian geology and mining.

Vladimir Petrovich (Pete) Sokoloff (1904 - 1995) carried out the first mineral exploration using geochemical methods at Moonta in 1948, through the encouragement of (Sir) Maurice Mawby and others of the Zinc Corporation and with the support of the South Australian Department of Mines. While technically successful no economic ore body was located. Nevertheless the method became widely applied in Australia and continues to be used in mineral exploration today.

JIM ENEVER: *'Another Broken Hill': The Mount Deddick Silver-Lead Field.*

Jim Enever is a retired mining engineer with interest in the colorful history of Victorian mining. Jim has published several papers on various aspects of Victorian mining.

The Mount Deddick mineral field in East Gippsland, Victoria was discovered in 1896. Soon it was being promoted as 'another Broken Hill', promising riches to help the Victorian economy recover after the crash of the early 1890s. The relatively large size of the field, coupled with the timing, meant that it would inevitably attract the interest of promoters and investors. From discovery in 1896 to 1898, the field was strenuously promoted by several members of the Melbourne Stock Exchange, despite the very conservative view of the field's worth offered periodically by the Victorian Geological Survey. By the end of 1898, prospecting on the field's multitude of thin elongated lodes had all but ceased. Rather than proving to be 'another Broken Hill', Mount Deddick had in fact proved to be another Victorian mining bubble.

PHILIP HART: *Michael Dineen O'Keeffe: Union Leader - a 'colourful personality*

Philip Hart retired from the Department of History, University of Waikato, Hamilton, New Zealand in 2002, and has spent the subsequent years exploring, both in the archives and on the ground, the Te Aroha goldfields. In particular, he is interested in the social history of the district.

Following on from an article on the Thames Miners' Union in the last issue of this journal, the paper deals with one of its most prominent, and certainly the most colourful of its leaders. Michael Dineen O'Keeffe who rose from an ordinary miner struggling to meet his debts became, through further education, a manager of small mines and a forceful advocate for miners and mining. Of Irish extraction, sometimes his choice of words amused or embarrassed his listeners, but they were in no doubt about his opinions.

KEVIN R. KAKOSCHKE, OAM, *Radium Hill: From Bindi To Boom Town*

Kevin Kakoschke worked in the mine from 1953 until its closure in 1961. He is a retired mechanical engineering lecturer and is the President of the Radium Hill Historical Association whose objective is to preserve the history and heritage of Radium Hill, Australia's first uranium mine and town.

This paper examines the development of services for the mine and town including the provision of water, power, transportation, accommodation, communication and their planning, costing and development as an integral part of the overall mining project. Despite a shortage of materials, manpower in the early 1950's and the tyranny of distance, a very astute State Premier had a Director of Mines able to recruit and head a team of outstanding 'young Turks' whose specialist knowledge and 'can do' approach ensured the project's success.

W.A. McGEE: *Tragedy on the Strickland: Jack Hides and the Investors Ltd Expedition of 1937*

Bill McGee is a geologist who works in mineral exploration projects in Australia and around the Pacific Islands. He has an interest in Papua New Guinea mining history.

Jack Hides, a noted but controversial explorer of the time, led a prospecting expedition up the Strickland River in now Papua New Guinea in 1937. The expedition failed to reach its objective and resulted in at least eight deaths as well as that of Hides himself. This contribution outlines the course of the expedition and the role of its leader. It discusses reasons for the expedition's failure.

BARRY MCGOWAN: *Hegemony, localism and ethnicity: The 'Welsh' mining communities of Currawang and Frogmore in southern New South Wales.*

Barry McGowan is a Canberra based historian and heritage consultant specialising in mining history and Chinese-Australian history. He is a Visiting Fellow at the School of Archaeology and Anthropology at the ANU. His most recent books are *Australian Ghost Towns* and *Fool's Gold. Myths and legends of gold-seeking in Australia.*

Currawang and Frogmore are two 19th-century copper mining towns in southern NSW. The paper examines the dynamics of both mining communities on the basis of hegemony, localism and ethnicity. Both communities had a Welsh connection and paternalistic elites. The paper suggests that an analysis of mining communities by looking at hegemony acting either in concert with or against forces for diversity like ethnicity and localism is a useful approach.

KEN McQUEEN: *A Thirsty and Confusing Diggings: The Albert Goldfield, Milparinka-Tibooburra, north-western NSW.*

Ken McQueen is a geologist with a keen interest in mining history. He currently holds the positions of Associate Professor in Landscape Evolution and Mineral Exploration at the University of Canberra and Reader in Applied Geochemistry at the Australian National University.

From 1880 to 1882 a succession of confusing discoveries established the Albert Goldfield in the outback of far north-western NSW. The diggers who flocked to the field suffered immense hardship in the arid environment. Four towns were established, but ongoing drought and isolation eventually led to the decline and abandonment of the field. Just over 62,000 ozs, of gold were produced by a combination dry blowing and sluicing or puddling during brief periods of rain, more than a quarter of this during the rushes of the first two years.

Erratum: In Ken McQueen, 'Hidden Copper: The Early History of the Cornish, Scottish and Australian (C.S.A.) Mine, Cobar, NSW', in *Journal of Australasian Mining History*, vol. 4, September 2006, the caption on Figure 2, page 27, should read. 'The mine captain Mathew Bryant is at the front right and Peter Snelson, local Director, is second from the left'.

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AUTHOR DETAILS AND ABSTRACTS OF ARTICLES

CLIVE BEAUCHAMP: *Dudley Colliery Disaster, Newcastle, New South Wales, 1898.*

Dr Beauchamp is an Adjunct Senior Lecturer at Charles Sturt University, Bathurst, NSW and holds a PhD from the University of NSW. His research interests include mining disasters and strikes and the mining industry and the NSW Parliament. In 2006 he published *Parliament, Politics and Public Works 1888-1930*.

In March 1898, a violent underground explosion at the Dudley mine resulted in the death of fifteen miners. The paper traces the history of the mine; describes the unsuccessful rescue attempts; details the extent of structural damage, the resultant fire and the temporary sealing of the mine. There is special focus on the Coroner's inquest and on the conclusions and recommendations of the Court of Investigation. Evidence given at the investigation (regarding the presence of fire-damp and inadequate reporting practices) is examined. The impact of the disaster is considered, including the introduction of regulations requiring miners to be equipped with safety lamps.

ROSS A. BOTH and GREG DREW: *The Glen-Osmond silver-lead mines, South Australia: Australia's first metalliferous mines.*

Prior to retirement in 1999, Ross Both was Reader in Economic Geology in the Department of Geology and Geophysics, University of Adelaide, where his teaching and research interests were concerned with mineral deposits.

Greg Drew is a senior geologist in the South Australian Department Primary Industries and Resources (PIRSA) and has been involved in the research and implementation of numerous interpretive programs at historic mine sites throughout South Australia.

The silver-lead mines at Glen Osmond in the Adelaide foothills represent the birthplace of Australia's metalliferous mining industry. The mines operated from 1841 to 1850-1851, with some further production in the late 1880s. Although the Glen Osmond mines proved to be small, historically they are of national significance. They marked the beginning of Australia's first mining era which took place in South Australia during the 1840s, predating the discovery and working of rich gold deposits in the eastern states by a decade. The Glen Osmond mines were also the first indication of the important role mining would play in the State's economy in the second half of the 19th Century. These mines acted as a catalyst for further discoveries of metalliferous ores and Glen Osmond was the first location to attract skilled Cornish miners to South Australia. Cornish miners brought with them their traditional mining expertise and social customs, and went on to play a pivotal role in the more significant mines in the Kapunda, Burra and Moonta-Wallaroo areas.

DAVID 'FRED' CAHIR: *The attraction of gold mining in Victoria for Aboriginal people..*

Fred has recently completed his PhD on the role of Aboriginal people on the Victorian goldfields, 1850-1870. He works as a volunteer at Sovereign Hill outdoor museum, has also a Masters degree on the topic of Victorian Aboriginal history and teaches at the University of Ballarat in tourism, cultural resource management and Aboriginal history.

Aboriginal people were a very visible presence on the goldfields in nineteenth century Victoria. This paper examines why Aboriginal people were attracted to the gold fields of nineteenth century Victoria and explores the extrinsic and intrinsic motivating factors such as new wealth, new sights, new sounds, new alliances which prompted Aboriginal people to participate in 'gold society'.

YOLANDE COLLINS and SANDRA KIPPEN: *'A social disease with medical aspects': Miner's phthisis and the politics of occupational health in Bendigo, 1880s-1910.*

Yolande Collins is a Senior Lecturer in the History Program at La Trobe University. Her doctorate was concerned with the development of hospitals in country Victoria and her publications have been in the sphere of public health and medical history.

Sandra Kippen is an adjunct lecturer in the School of Public Health at La Trobe University. Her research interests centre on social issues relating to mining, particularly in her home city of Bendigo.

The growth of public awareness concerning the social consequences of miners' phthisis were influenced by a variety of factors, particularly an increased visibility of risk and human agency in the form of energetic medical professions who reflected contemporary views about health and safety. An apparent lack of action/concern by the Bendigo Branch of the Amalgamated Miners Union can be slated to the stiff opposition of powerful mine owners, and divisions caused within ranks by the 'tributing question'.

JIM ENEVER: *'Not for Want of Trying': The history of the Cooper's Creek Copper Mine, Victoria.*

Jim Enever, a retired mining engineer has published several papers on various aspects of Victorian mining and has a Graduate Diploma in Archaeology and Classics, and a Post Grad Diploma in Public History, all obtained at Melbourne University.

The paper follows the development of the copper mining and smelting industries in North Central Gippsland following the first significant discovery of copper near Walhalla in 1864. The driving force was provided by a number of local mining promoters, versed in the art of quartz mining for gold, but not base metal mining and smelting, for which there was no real precedent in Victoria at that time. The technical knowledge was mainly provided by managers imported from South Australian copper mines, though they found the testing environment of Coopers Creek extremely difficult. In particular the 1860s and 1870s proved difficult for smelting because the fuel came from local timber that was invariably wet. The cost of transport in the rugged terrain also posed an insurmountable problem and helps explain the limited viability of the various operations.

CHARLIE FOX: *Contract Work at Mt Lyell, 1903-1923.*

Charlie Fox teaches Australian history at the University of Western Australia. He has published widely on the history of work, unemployment and his other research interest, the history of intellectual disability.

This paper examines the history of contract work at the Mt Lyell Company mines in Queenstown, Tasmania. It shows how the system operated, the complex relationship between contract and waged work and the way it became an industrial issue with both the miners unions and the contractors themselves. It shows the ambiguities of contract work in worker's organisations and culture at Mt Lyell. Finally it suggests ways in which contracting can be conceptualised in the debates about the labour process in Australian mining.

KEN McQUEEN: *Abandoned Hopes: Reef Mining on the Albert Goldfield, north-western NSW.*

Ken McQueen is a geologist with a keen interest in mining history. He is Associate Professor of Landscape Evolution and Mineral Exploration at the University of Canberra and also an adjunct Professor at the Australian National University.

After alluvial gold was discovered in the Milparinka-Tibooburra region in 1880, attention turned to developing the nearby gold-bearing quartz reefs. There were great hopes that the area, with similar geology to Bendigo would prove to be a rich reef-mining field. Companies were set up locally, in Melbourne and in Adelaide, but lack of water and difficulties in supplying such an arid and isolated region greatly hindered testing and development of the reefs. The crushing plant that was finally constructed proved inadequate. Capital was soon exhausted under the difficult conditions and although the local miners were persistent in their efforts, all attempts at reef mining were eventually abandoned. Until recently there have been only limited attempts to test the area using modern exploration methods.

JEREMY MOUAT: “*Just Now the ‘Merican expert is the Prominent Man*”: *American mining engineers and the Australian mining industry 1880s-1910s.*

Jeremy Mouat is a professor of history and chair of the Social Sciences Department at the Augustana Campus of the University of Alberta in Canada. His interest in Australian mining history dates from the mid 1980s, when he completed his dissertation on a comparative topic that included an examination of Broken Hill’s early years.

This paper examines 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. Most 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; indeed, mining engineers began to imagine themselves as members of an epistemic community with a global reach. Thus 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 internationalisation.

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AUTHOR DETAILS AND ABSTRACTS OF ARTICLES

CLIVE BEAUCHAMP: *Beyond Philanthropy: The New South Wales Miners' Accident Relief Act 1900.*

Dr Beauchamp is an Adjunct Associate Professor at Charles Sturt University, Bathurst and holds a PhD from the University of NSW. His research interests include mining disasters, mining reforms, strikes and the migration of Welsh coalminers to the Northern (NSW) Coalfield. In 2006 he published, *Parliament, Politics and Public Works: A History of the NSW Public Works Committee 1888-1930.*

For sixteen years, this legislation provided financial relief to the dependents of those killed in mining accidents and to those injured accidentally. The measure was a significant development in miners' welfare. The account traces the background to the passage of the 1900 Act, examining the incidence of accidents (fatal and non-fatal), the influence of the colliery disasters at Stockton and Dudley, as well as outlining the traditional sources of accident relief for miners. The NSW political environment (1896-1900) is considered with focus on the role of former miners in the embryonic ALP in pressing Governments for reforms; the administration and funding of the Accident Relief Fund are detailed; its limitations discussed, and its termination in 1916 described.

DAVID BRANAGAN: *Australia's First Marble Quarry.*

David Branagan is an Honorary Research Associate, School of Geosciences, University of Sydney, where he taught for thirty years. His major research interests are in the history of the geological sciences in the Antipodes in relation to mining and mineral exploration, concentrating largely on biographical studies.

Australia's first marble quarry, near the Wollondilly River, County Argyle, NSW had a short life in the 1830s, ten years after its discovery in 1824 by Hume and Hovell. It later became a source of lime, operating sporadically until 1915. The site can still be readily identified. This paper concentrates on the first short period, identifies features of the site and on the people (notably George Clewitt and Peter Stuckey) probably involved in its development.

JIM ENEVER: *'The Politics of Oil Shale' The Tasmanian Oil Shale Industry from 1910 to 1935.*

Jim Enever, a retired mining engineer has published several papers on various aspects of Victorian mining and has a Graduate Diploma in Archaeology and Classics, and a Post Grad Diploma in Public History, all obtained at Melbourne University.

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.

PHILIP HART: *A Carter, a Businessman, and a Prospector with Several Things in Common.*

Philip Hart retired from the Department of History, University of Waikato, Hamilton, New Zealand in 2002, and has spent the subsequent years exploring, both in the archives and on the ground, the Te Aroha goldfields. In particular, he is interested in the social history of the district and a number of his articles have appeared in past volumes of this journal.

In the 19th century the lure of gold attracted a varied assortment of people from all over the world to both Australia and New Zealand. Many were described as 'characters' and such, some

certainly lived colourful lives - none more so than those described in this paper. The link between the three was that of 'colour' and an interesting feature is how the three not only survived but thrived, and that in a society where at this time in history we would expect prejudice to have strongly worked against them.

BRIAN R. HILL: *Exciting career of an obscure mining entrepreneur: David Ziman (1862-1920).*

In his retirement after a long career in business including involvement in gold mining and mineral exploration, Brian Hill is able to indulge his interest in mining history with a focus on researching and writing on topics concerning New Zealand mining history.

In the late 1890s an obscure mining investor from South Africa, (David Ziman 1862-1920), was instrumental in the restructuring and modernisation of the gold mining industry at Reefton, New Zealand's second biggest gold field. Born in Czarist Poland, which he fled as a teenager, Ziman was a barrow boy in London before emigrating to the Cape Colony where he became a trader in ostrich feathers. He was a founding broker of the Johannesburg Stock Exchange in 1887. He soon amassed considerable wealth, but was bankrupted in a collapse of the Rand share market in 1890. With adroit trading in a few years he restored his wealth. On a holiday to New Zealand in 1895 to visit his wife's family, his attention was directed to Reefton which was in a prolonged slump despite the favourable economic conditions for gold mining associated with price deflation in New Zealand during most of this period. Ziman devised an audacious plan to gain control of the main mines in Reefton for floating in London, forming a substantial company with the Rothschilds. This company transformed and modernised the industry in Reefton. Ziman spent the last years of his life struggling to prove his disputed assertion that the orebody of the Blackwater mine extended at depth into the contiguous Prohibition lease that he controlled. Vindication of his vision came only after his death.

TIM JETSON: *'That some rich lode amongst these hills is waiting for us yet': Balancing Mining and Environmental Concerns in the Cradle Mountain – Lake St Clair National Park, Tasmania.*

Tim Jetson is lecturer in SOSE in the Faculty of Education at the University of Tasmania. He is interested in and has researched many aspects of Tasmanian history.

This paper outlines the development of mining at the Barn Bluff and Pelion mining fields located in what is now the Cradle Mt-Lake St Clair National Park. Mining phases from the early 1890s until the end of World War II are delineated and analysed. Reasons for the demise of the fields, including the change in land status of the area, are given. The role of key figures, such as prospectors, mine managers, speculators and politicians, associated with the mines are identified and details of mining operations are provided. Tentative conclusions are drawn about the environmental impact of mining and its significance in the history of the national park.

JAMES LERK and SANDRA KIPPEN: *Suicide on the Bendigo Goldfields 1860-1880.*

James Lerk made a major contribution towards the restoration of Bendigo's Central Deborah Gold Mine and development of its underground tours for the public. James has a deep interest in Bendigo's history, has produced a number of books and for the past eleven years he has written articles for the *Bendigo Weekly*. He has a Graduate Diploma of Museum Studies and does part time teaching.

Sandra Kippen is an Adjunct Lecturer at La Trobe University where she taught and carried out research for almost twenty years. Her particular interest is in the social history of the Bendigo goldfields.

The rich Bendigo goldfields (called Sandhurst up until 1891) attracted miners from all over the world. Many became extremely wealthy, but even more lived with poverty, sickness and shame at their lack of success. One of the untold stories of this side of the goldfields life is that of suicide – an outcome of the desperation experienced by some residents. This paper documents a selection of the stories as recorded in *The Bendigo Advertiser* over a period of twenty years, identifying motives and methods and concluding that, whilst the environment may change, the human condition remains much the same.

KEN MCQUEEN: *Quidong Mineral Field, NSW: An intriguing discovery of W.B. Clarke.*

Ken McQueen is a geologist with a keen interest in mining history. He is Associated Professor in Landscape Evolution and Mineral Exploration at the University of Canberra and also adjunct Professor at the Australian National University.

The Quidong Mineral field has held a fascination for prospectors, promoters and mineral explorers since its discovery by the Revd. W.B. Clarke in February 1852 during his exploration of the southern goldfields of NSW. Two early attempts between 1864 and 1871 to mine the copper and lead-silver ores failed, but the field's encouraging geological features continued to attract attention. From the 1950s numerous exploration companies have tested the field using the full array of exploration techniques. Despite no

significant ore deposits being found as a result of this long history of extensive exploration, the interest goes on.

ALAN MURRAY: *'Dead Men Talking' – Oral History in the Making.*

Alan Murray has published several books on coal mining and miners in Australia and has contributed to three film documentaries on coal miners. He holds degrees from Queensland University and James Cook University and is an Honorary Research Adviser in the School of History, Philosophy, Religion and Classics at the University of Queensland. He has recently completed the first of three volumes on the miners' union in Australia as well as a history of the West Moreton Coalfield from 1920 to 2000. His work with the Australian Coal Miners' Oral History Project is supported by the Mineworkers' Trust. The paper discusses the Australian Coal Miners' Oral History Project that began in 1986.

ANTHONY WEBSTER: *The Hart's Shaft Cornish Plunger Pumps: Historical Archaeology in an Operating Underground Gold Mine.*

Tony is a mining geologist and industrial archaeologist based at the ARC Centre of Excellence in Ore Deposits at the University of Tasmania. His primary role is the management of a postgraduate economic geology programme but he is active in the field of structural geology research and retains a working interest in the historical archaeology of Australian mining. Tony reinterpreted over 120 years of historic mine data to complete his doctorate on the geology of giant Broken Hill orebody; the first time this had been done since 1939.

This paper presents a summary of the later dewatering efforts at the Tasmania Gold Mine in Beaconsfield, Tasmania. The historical background provides a context for the description of the archaeological recording of elements of the pumping machinery that were discovered at the base of the Hart's Shaft in 1998. The machinery had lain submerged and buried since mine closure in 1914. It has now been restored at the Grubb Shaft Museum where it forms an important, tangible reminder of one of the main historical themes of mining on the Beaconsfield Goldfield.

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AUTHOR DETAILS AND ABSTRACTS OF ARTICLES

CLIVE BEAUCHAMP: *Clive Beauchamp: Double Disaster: Lithgow Valley Colliery, Lithgow, New South Wales, 1886.*

Dr Beauchamp is an Adjunct Senior Lecturer at Charles Sturt University-Bathurst, NSW and holds a PhD from the University of NSW. Before retirement he lectured in History and Politics. His research interests include mining disasters, mining reform, strikes and the migration of Welsh coalminers to the Northern Coalfield, New South Wales.

Two separate accidents at the Lithgow Valley Colliery in 1886 resulted in the death of eight miners. On 13-14 February (stemming from an underground fire) three men died, whereas the second on 19 April (attributed to a 'wind blast') resulted in five fatalities. The background, critical events that led directly to the disasters and a brief history of the Lithgow Valley Colliery Company, its management and early operations are described. Evidence submitted at the Coroner's Inquests is outlined and its findings detailed, as are 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'.

PETER BELL and JUSTIN McCARTHY, *The Evolution of Early Copper Smelting Technology in Australia (Part 1)*

Peter Bell is an Adelaide consulting historian with a particular interest in mining history. Justin McCarthy is principal of the archaeological consultancy Austral Archaeology Pty Ltd, with offices in Adelaide, Sydney and Hobart.

The paper gives an overview of the evolution of copper smelting methods in Australia from the origins of the industry in the 1840s until the end of the First World War. It illustrates the overall picture with case studies of seven smelting sites which the authors have studied in the course of consulting projects. The paper is divided into two parts, the 2nd part to be published in Vol. 9 of this journal in 2011.

GEOFFREY BLAINEY: *A Brief History of BHP Billiton.*

Geoffrey Blainey completed his first book on mining history in 1954 - 'The Peaks of Lyell', published by Melbourne University Press. He has since written many more. He successively held chairs in economic history and in plain history at Melbourne University from 1968 to 1988. He has worked for long periods as a freelance historian.

BHP Billiton is the largest minerals company which the world has known. It was formed in 2001. It has three main lines of ancestry: Billiton which was a tin company founded in Holland in 1860 to mine in the Indonesian archipelago; Broken Hill Proprietary which arose after the discovery of a massive deposit of silver and lead in outback Australia in 1883; and two South African gold companies which were created in the late 1890s and, a century later, briefly owned Billiton's scattered mines and smelters.

MEL DAVIES: *Financing the Burra Burra Mines, South Australia in the nineteenth century: Liquidity Problems and Resolutions.*

Mel Davies who is an Honorary Research Fellow in the Business School, University of Western Australia, has a passionate interest in mining history and in this paper follows up on previous articles published on the Burra Burra Mines.

From 1845 to 1877, the South Australian Mining Association that owned the Burra Burra Mines exported both copper ores and copper. In the 1840s and 1850s it was noted as the richest copper mine in the world, yet this belied the liquidity problems that the Association faced in its early days. This paper examines the reasons for the problems, and also looks at the strategies undertaken by the Association to rectify this situation. Also covered are some of the cost-saving and profit maximising actions taken to look after the interest of shareholders.

JIM ENEVER: *'Mining for Oil in Victoria': The Lakes Entrance Oil Shaft.*

Jim Enever, a retired mining engineer, has published several papers on various aspects of Victorian mining and has a Graduate Diploma in Archaeology and Classics, and a Post Grad Diploma in Public History, all obtained at Melbourne University.

From 1942, a novel attempt was made to recover oil from a sand horizon at 360 m depth near Lakes Entrance in Eastern Victoria. The Lakes Entrance Oil Field was the only then known source of liquid 'well' oil in Australia. Pressed by the need for an indigenous supply of petroleum during war-time, the Commonwealth and Victorian Governments sank a shaft through the soft, water bearing strata, and

drilled a number of short horizontal holes into the sand to test the oil flow. The Governments terminated their direct involvement in 1945. Handed back to private enterprise, the project was continued until 1951. By this time, it was clear that commercial production would never be achieved.

PHILIP HART: *Joseph Harris Smallman: a Prospector who became a Pakeha Maori.*

Philip Hart lectured at the University of Waikato, Hamilton, New Zealand, from 1969 to 2002. Since taking early retirement he has been a Research Associate in the Department of History, which permits him to research mining and social history at Te Aroha, at the southern end of the Coromandel Peninsula.

Tracing once prominent but now obscure miners is a challenge for historians. In the case of Joseph Harris Smallman, it is more of a challenge because he worked in both England and New Zealand, and some important details of his life were lost or never recorded. A pioneer prospector he explored amongst Maori who resented his intrusion, though he eventually became a 'Pakeha Maori', living and farming with them and occasionally prospecting untried districts but without success. His story is both typical and untypical of many prospectors and miners of his day.

BRIAN R. HILL: *New Zealand's 1896 Mining Boom.*

Retirement enables Brian Hill to indulge an enthusiasm for mining history. His main areas of research interest include gold mining in New Zealand and Australia, and the history of British investment in overseas mining.

In 1896 New Zealand experienced an unprecedented mining investment boom. During that year the number of British mining companies operating in New Zealand multiplied sixteen times from 10 at the beginning of the year to more than 160 at year's end. This influx of overseas capital caused the values of gold mining properties to briefly skyrocket; employment in the industry lifted 50 per cent; and the output of gold eventually soared. Most of the new companies failed, but the 1896 mining boom ushered in the end of New Zealand's long depression.

KEN McQUEEN & ROBERT BARNES: *The Maitland Bar Nugget: A key link to the gold rush heritage of New South Wales.*

Ken McQueen is a geologist with a keen interest in mining history. He is Professor of Geochemistry and Landscape Evolution at the University of Canberra and also an adjunct Professor at the ANU.

Robert Barnes has had a long career investigating mineral deposits in New South Wales and is currently Chief Geoscientist at Ash-Minerals in Geological Survey of NSW where he is responsible for the economic rock & mineral collection, which includes the Maitland Bar Nugget.

The Maitland Bar nugget is the sole surviving large gold nugget from the New South Wales gold rushes of the 19th century. It was discovered in 1887 in a terrace along Meroo Creek at Maitland Bar by three alluvial gold miners. The nugget contains 313.093 ounces of gold and was purchased soon after its discovery by the New South Wales government for exhibition by the Department of Mines. It has a fascinating history and has been displayed at many exhibitions around the world. Its present value as a specimen probably exceeds \$A1m, but its heritage and scientific value would exceed this. The Maitland Bar nugget provides an irreplaceable physical link to the gold rush heritage of New South Wales.

KEITH PRESTON: *Mount Bischoff Tin Mines: Pioneers of water power in the Tasmanian mining industry.*

Keith Preston, a retired engineering geologist and geotechnical engineer, has published studies on the industrial applications of water power by the mining and manufacturing industries in Australia and New Zealand during the 19th and early-20th centuries.

Water power was used extensively on most of the Tasmanian tin mining fields, initially through the use of vertical waterwheels, and from the 1880s through the introduction of turbines and pelton wheels. This paper outlines the measures adopted by the various mining operations at Mount Bischoff to meet the power requirements over a 65-year period (1875 - 1940). The water supply systems that were established, incorporating water storage dams and water races for distribution, are also detailed.

TONY WESTON, *Mining Lower Grade Ore through Changes in Mining Technology at The Mount Lyell Mining and Railway Company, Queenstown, Tasmania from 1927-1939.*

Tony practices as a mining consultant, after a career working mainly at underground mine sites in New South Wales, Queensland, Western Australia and Tasmania, including five years at the Mount Lyell mine.

The Mount Lyell mining and smelting operation at Queenstown in Tasmania was established as a single robust economic enterprise in the early twentieth century. It was based on a high grade copper resource, following earlier separate mining developments, and mainly used underground mining methods. The development of a low grade resource was primarily driven by changes to the underground mining technologies employed, followed by large scale opencut mining in the period 1927-1939.

Erratum:

In **Clive Beauchamp**, 'Beyond Philanthropy: The New South Wales Miners' Accident Relief Act 1900', *JAMH*, vol. 7, September 2009, p. 119, Table 1, note ** should read 'Includes Mt. Kembla Disaster when there were 96 fatalities' - and not 75 as stated.

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AUTHOR DETAILS AND ABSTRACTS OF ARTICLES

CLIVE BEAUCHAMP: *The Bellbird Colliery Disaster, Cessnock, NSW, 1923 and the Mines Rescue Act 1925.*

Dr Beauchamp is an Adjunct Associate Professor at Charles Sturt University, Bathurst, N.S.W. His research interests include mining disasters, strikes and reform. He is currently researching the migration of Welsh coal miners to the NSW coalfields.

In September 1923, 21 miners perished as the result of a fire and explosions at the Bellbird Colliery near Cessnock, NSW. The account, firstly traces the history and description of the mine, rescue attempts and the recovery efforts using breathing apparatus. Secondly, it identifies the various factors and influences that led to the establishment of mines rescue stations in NSW. Finally, it considers the importance of the disaster to the eventual passage of legislation in the form of the Mines Rescue Act 1925

PETER BELL and JUSTIN McCARTHY: *The Evolution of Early Copper Smelting Technology in Australia (Part II)*

Peter Bell, consulting historian and adjunct Senior Research Fellow at Flinders University has a particular interest in mining history. Justin McCarthy is principal of the archaeological consultancy Austral Archaeology Pty Ltd, with offices in Adelaide, Sydney and Hobart.

This is the second part of the paper presented in Vol. 9 of this journal in 2010. It gives an overview of the evolution of copper smelting methods in Australia from the origins of the industry in the 1840s until the end of the First World War. It illustrates the overall picture with case studies of seven smelting sites the authors have investigated in the course of consulting projects.

RALPH W. BIRRELL: *Anatomy of a Failed Miner – The Colonial Gold Company 1852-1857*

Ralph Birrell is a retired electrical engineer. His research interests include the development of mining technology and mining law in Australia.

The Colonial Gold Company was one of some fifty mining companies floated in London from 1852 to mine in California and Australia. By 1857 most had failed. The company sent two Superintendents, each with a party of miners to Australia, one to Louisa Creek in N.S.W. and a second to Bendigo in Victoria. This paper discusses the problems encountered by each Superintendent due to the different mining laws in each colony, the problems of transport over long distances, and the difficulties in developing suitable processes to extract the gold. The company was wound up in 1857, when the available capital was spent and the shareholders refused to invest further funds.

ANNE BOTH: *From Plants and Miners Hats to Magnetic Exploders: Gutta percha in the service of miners*

Anne Both who has presented several papers at AMHA conferences on a variety of topics has mining in her family background. She has a special interest in its social and safety aspects. After a career in Nursing and Nursing Education she taught unemployed care workers, students of English in Spain and University of Third Age students Spanish in South Australia. The seeds of her interest in mining history were sown when in the late 1950s she worked in the mining town of Queenstown Tasmania.

In this paper the properties of gutta percha, and its uses in mining are examined. The sap of this tropical tree was used to create a product that could be used for a great variety of both useful and decorative purposes. Among many other uses, its insulating properties were something that was recognised by miners and which contributed to safety and cost-saving in mines around the world. .

LLOYD CARPENTER, *Reviled in the Record: Thomas Logan, and origins of the Cromwell Quartz Mining Company, Bendigo, Otago*

Lloyd Carpenter, B.Sc., Dip.Tchg., Dip.Bib.Min, Grad.Dip.Arts (dist.), B.A.(hons) is a 47 year-old scholar of Ngati Toa Rangatira, English, Irish and Highland Scottish descent. He has worked in sales, the insurance industry, has taught at both an exclusive private school and a low socio-economic high school, was a Salvation Army officer and is now studying towards his Ph.D at the University of Canterbury, New Zealand.

The received narrative of the discovery of the rich quartz mine at Bendigo in Central Otago has the success of Thomas Logan, Jack Garrett, Brian Hebden and George Goodger of the Cromwell Company predicated on a fraud committed by Logan. It is an intriguing tale of a significant theft by a dishonest man in the midst of a famous gold rush to an iconic town and is found in all popular histories of the goldfield. But is it correct? Using primary sources and contemporary narratives, the evidence of Logan's actions during the early days at Bendigo is evaluated and a new conclusion reached.

P.D. GARDNER: *The Duke United Mine GCo. Maryborough; Baillieu's 1897 Take-over and Outcomes*

The Author is a Gippsland regional historian who has worked mainly in the area of frontier conflict. His published works in this area include *Gippsland Massacres* (Warragul Education Centre, Warragul 1983) *Through Foreign Eyes* (Centre for Gippsland Studies, Churchill, 1987). More recently he has written *A Gippsland Union: the Victorian Coal Miners Association 1893-1915* (Ngarak Press, Ensay 2004) and has been researching the career of W.L. Baillieu, one of the coal capitalists. He has been the holder of a C.H. Curry fellowship, and has been awarded grants from the Search Foundation and the Victorian Ministry of Arts.

This essay is an in-depth study of the takeover of the Duke United Gold Mining Co by W.L. Baillieu's brothers and the subsequent career of the mine. It is a study of the mine capital and the somewhat questionable methods the Baillieus used to takeover and operate the mine.

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

Nic Haygarth is a professional historian, freelance writer and Honorary Associate of the School of History and Classics, University of Tasmania. While passionate about wild places, high country and those who populate them, he is very interested in mining wherever it occurs.

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. His mastery of the Mersey-Don field that lay at his doorstep was proven in 1884 when diamond drilling upheld his prediction that no coal would be found beneath the Silurian limestone.

BRIAN HILL: *The 'Merican Expert' L. R. Menzies and his Role in S.A. Mining Fiasco*

Since his retirement from business Brian Hill has been able to indulge an enthusiasm for mining history. His main research interests include capitalist involvement in mining, British investment in overseas mining in the 19th century, and gold mining in New Zealand.

American 'mining expert' L.R. Menzies, the discoverer of the Menzies gold field in WA, was the promoter of a gold mining venture in South Australia that in 1898 resulted in the biggest mining fiasco in the colony's history. Menzies floated the Menzies Barossa Gold Mining Company NL which installed the biggest stamp battery in the colony on its gold mine in the Barossa Goldfield: the 40-head stamp mill dwarfed all other gold treatment plants in the colony. Designed to treat 600 tons a week, the mill ran for only a couple of weeks and crushed only 1,500 tons before it was shut down. The mine closed after a calamitous crushing result when only 30

ounces of gold rather than the anticipated 750 ounces was recovered. Instead of the expected half an ounce, the grade of ore in the mine was only 10 grains per ton, just 1/25th of the predicted grade that had been used to justify the decision to install the large mill. Menzies later wrote a curious autobiography noted for its wild claims and tall yarns.

KEN McQUEEN: *Mercury Mining: A Quick History of Quicksilver in Australia*

Ken McQueen is a geologist with a keen interest in mining history. He is Professor of Geochemistry and Landscape History at the University of Canberra.

Australia has had limited production of mercury despite an historic demand, particularly related to mercury use in gold recovery by amalgamation. The paper summarises the various discoveries of mercury deposits in Australia and the attempts to work them. These attempts were largely unsuccessful due to the limited nature of the deposits, metallurgical difficulties and the niche nature of the mercury market. Australian production is discussed in the context of world production with comments on the apparent deficiency in discovery.

KEITH PRESTON: *Mount Victoria Goldfield, Tasmania: a case of unfulfilled potential?*

Keith Preston is a retired engineering geologist and geotechnical engineer who continues to research aspects of the Tasmanian mining industry, particularly the widespread application of waterpower for mineral processing.

Development of the Mount Victoria Goldfield proceeded spasmodically between 1882-1940, initial ventures characterised by under-capitalisation and a continual requirement to reduce operating costs. The resulting dominance of water-powered processing plants is detailed and contrasted with later technological advances that included the introduction of electrically-powered pumping and winding plant into the state in 1899, when mainland finance became available. This paper also outlines the repeated attempts to establish the field as a major producer in an era when systematic exploration was not routinely undertaken.

PETER SCHULZE: *North Mount Lyell Disaster – A Miscarriage of Justice.*

Peter Schulze's father, Ernie Schulze, and grandfather, 'Johnno' Pearton, both worked for the Mount Lyell Mining and Railway Company. He followed them, serving the Mount Lyell Company for 26 years as an electrical engineer and ultimately as Engineering Superintendent. During his distinguished career he was awarded a fellowship with both the Institution of Engineers and the Institute of Mining and Metallurgy. This expertise, personal knowledge of the old style Mount Lyell underground workings and fittings, and family knowledge has equipped him to assess the evidence in the North Mount Lyell fire case.

Forty-two perished in Tasmania's North Lyell mine fire in 1912. A Royal Commission singled out a miner as a possible arsonist, but evidence suggests that this was a serious miscarriage of justice. The most likely cause of the blaze was an electrical fault. Much of the evidence given by the Mount Lyell Company lawyers and its expert witnesses to convince the Royal Commission otherwise was in itself faulty, yet was accepted by the Commission. Evidence given by experienced miners, on the other hand, was discredited. Social deference and political power appear to have influenced the Commission's conduct and deliberations. Lessons can be learnt from how 50 men survived more than four days in a smoke-filled mine before being rescued.

PETER YULE: *Victorian Gold Mining and the Recovery of the Baillieu Fortune in the 1890s.*

Peter Yule is a Research Fellow of the School of Historical Studies in the University of Melbourne. He has written widely on Australian economic and social history. Among his books are *The Forgotten Giant of Australian Aviation: a History of Australian National Airways*; *Ian Potter: Financier, Philanthropist and Patron of the Arts*; and *Steel Spies and Spin: the Collins Class Submarine Story*. His biography of W.L. Baillieu will be published in 2012.

W.L. Baillieu founded one of Australia's most enduring family fortunes, yet he is remembered primarily for his secret composition in 1892 following the loss of his land boom riches. How he accumulated a new fortune during the depression years of the 1890s has always been a mystery. Using newly opened records in the University of Melbourne Archives, together with records still privately held, this article argues that Victorian gold mining was the largest contributor to his regained wealth.