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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 BHPs 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.