



# AUSTRALIAN MINING HISTORY ASSOCIATION

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## Newsletter No. 1 MARCH 2006

**Patron: Professor Geoffrey Blainey, AC**

ABN 96 220 329 754

Web page: [http://www.ecom.uwa.edu.au/research/links/australian\\_mining\\_history\\_association](http://www.ecom.uwa.edu.au/research/links/australian_mining_history_association)

**ISSUE 44**

### **Editorial**

Members will no doubt be pleased to know that we have recently received an affiliation by a new not-for-profit organization, the Lightning Ridge Opal and Fossil Centre Inc.. This adds another dimension to our field of interest and we look forward to future interaction with the organization and its members. The LROFC is currently raising funds to complete its new architect designed public underground museum that will provide an exhibition centre for gem-quality Lightning Ridge Opal (its black opal rivals diamond in value per carat), fossils (including dinosaur bones, that have been preserved in opal), a geological interpretation centre, mining and cutting exhibitions, and exhibitions to illustrate the social and work lives of the miners and their families and of the local indigenous culture. The centre will also contain a cinema, conduct educational and research programmes and provide housing for heritage items.

The Centre is also involved in developing the tourist and heritage potential of the field but like other mining centres is involved in negotiating with State authorities over the dilemma between rehabilitation as against preservation of sites and artefacts, and no doubt they would appreciate any support in their campaign.

Anyone interested in joining the organization (they put out an excellent news sheet) can join for a mere \$10, a sum that puts to rest my idle boast in the December newsletter that we must be the least expensive organization in the country. Perhaps I should have said national!

Contact LROFC inc, PO Box 229,  
Lightning Ridge, NSW 2834.  
Tel. 02-68291667.

E.mail: [opalfossil@wj.com.au](mailto:opalfossil@wj.com.au)

### **Forthcoming Conferences**

*AMHA 11<sup>th</sup> Annual Conference,  
Kadina, SA, 5-9 July 2006*

We've a full programme of interesting papers on offer – and indeed such was the response that there is a waiting list of people anxious to see retirements from the field. We already have a fair number of registrations but would like to see pens put to paper by those who are delaying. This will help the South Australian committee to smooth their planning for the benefit of everyone. If you've lost your registration form then check the web page or e.mail me at [mel.davies@uwa.edu.au](mailto:mel.davies@uwa.edu.au) Also, **book your accommodation soon.**

*Gold Dredging Conference, New Zealand 19 to 21 April 2006*

Thirty papers offered. For Registration details Contact Nic MacArthur at [nicol.macarthur@clear.net.nz](mailto:nicol.macarthur@clear.net.nz) Web page at: [www.centralstories.com/dredging.html](http://www.centralstories.com/dredging.html)

### **Location 2007 Conference**

We are still awaiting a mass response to the query in the last newsletter (thanks to the peerless few who have responded) as to whether we should hold the 2007 AMHA Conference at Kununurra, WA, or at Armidale, New England in conjunction with the Australian Historical Association. Just a quick e.mail with your preference will be enough!

### **Journal**

Another **plea for articles**, for the 2006 edition. As Ed. Of the journal it would be greatly appreciated if papers could be sent in sooner rather than later. There's a great deal of preparation, referees have to be consulted for some papers and a lead time of at least four months should be given to keep me sane. Please don't leave until the Conference in July – that's only two months from publication. Thanks.

### **Information Wanted**

#### *Head Frame*

Pember Deane from the Department of Conservation and Land Management, Geraldton District, WA, is desperate for information and wonders whether any of our members can help. As part of his role with the District, he manages Coasleam Conservation Park within the Shire of Mingenew. They are currently designing a lookout platform over an open mine shaft and interpretive signage regarding the first coal discovery in WA by the Gregory brothers and the history of coal mining on the Irwin River and Irwin River South since that date. The Johnson shaft was put down in 1917 and cleaned out and re-sampled in 1945. Pember has a picture of the shaft with the concrete footings but to date, despite all his efforts has been unable to trace a picture of the headframe.

As a second best, he would be happy to receive a drawing or other images, or references to photos of other coal mine shafts with headframes, of the same era (circa 1917). As a lead, Pember has attached the following photos of the footings.

QuickTime™ and a  
TIFF (LZW) decompressor  
are needed to see this picture.

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Pember can be contacted at [deannep@calm.wa.gov.au](mailto:deannep@calm.wa.gov.au)

## **Bits-and Pieces**

### ***China Replays the Industrial Revolution***

We have all heard that those who do not understand history are doomed to repeat it. Referring to a subject that was broached in the newsletter some time ago, anyone who reads the newspapers will have noticed that China's coal mining industry is repeating the dark side of the Industrial Revolution. For about a century from the early nineteenth century onward, the coal mines of western Europe and the USA were plagued by a horrific accident rate, with major underground explosions in nearly every year, many involving hundreds of deaths. The problem eased gradually with better scientific understanding of the causes of coal mine explosions, public horror at the human cost of industrial energy, and more stringent safety regulations imposed by government. However, the crucial steps in reducing the death rate in coal mines in recent decades were mechanisation and opencutting, so that fewer people were employed underground.

Now China is doing it all again. China has the world's largest coal-consuming industries, and as its economy booms, coal production is rising by 20% per annum. It seems impossible to sustain production from safe, well-regulated mines, and the toll from accidents has risen to between 6,000 and 7,000 deaths each year. China at present produces slightly less than a third of the world's coal, and has 75% of the world's mining fatalities.

The fatality rate in coal mines is measured as the number of deaths for every million tonnes of coal produced. China has a fatality rate of 4. The average rate in developed countries, where coal mining is highly mechanised, is about one-tenth of that, or 0.4. However, in China's relatively few mechanised opencut mines the fatality rate is also about 0.4 or even lower. China's disproportionate mining fatality rate is occurring mostly in small, poorly-regulated underground mines.

*Peter Bell*

### ***Donating Material to AMHA***

In the last few years several people have enquired about donating historical documents and other research material to the Australian Mining History Association. While it is very gratifying to have the Association so highly respected in mining history circles, we are not really set up to act as effective custodians of valuable research materials. We have no fixed base or office for the storage of material (except Mel's filing cabinet!) and we have no policy for the management of collected material. The Association is simply not equipped to act as a library or archive.

If members or other people have published papers, photographs or research notes which they wish to make available to other researchers, AMHA recommends that they be deposited in a professionally-managed public collection such as a State, Territory or University library. This will ensure that the material is properly looked after, and it will also be available to a much greater number of people than if it was held within AMHA, and known only to our membership.

*Peter Bell*

### ***Toadbuster!***

No – not the title of a new film but recording the activities of our indefatigable member Wendy Carter who has been hitting the billabongs in the Victoria River area to ‘mine’ and slow the advance of the dreaded cane toad into WA. On one wet and muddy night last December, Wendy and her cohorts managed to bag 175 toads and myriads of toad tadpoles. For the statistical minded their efforts when multiplying the female toads by egg capacity represented the sacrifice of a possible 3,175,000 cane toad eggs. Well done lassie for trying to stem the tide.

### ***Saving our Census***

We have just received the following information on the forthcoming census that takes place on 8 August 2006. As historians we should be concerned that material that will be of great value to future historians will be destroyed unless we spread the word and alert people to tick Question 60 with a 'YES'.

The next Australian census contains 61 questions, of which all will be compulsory except the ones on religion and census retention. The retention question (Q60) reads:

'Does each person in this household agree to his/her name and address and other information on this form being kept by the National Archives of Australia and then made publicly available after 99 years?'

If this question is ignored, it will be treated as a NO. The Census Information Legislation Amendment Bill (2005) was introduced into the House of Representatives of the Australian Parliament on 3 November 2005 and passed later that month unopposed. It was passed by the Australian Senate on 27 February 2006 and awaits Royal assent to become law. The Bill amends the Census and Statistics Act (1905) and the Archives Act (1983) relating to the retention of identified census information by the National Archives of Australia. The Bill ensures that name identified information collected in all future Australian censuses will be preserved for future genealogical and other research. Retention only applies to information supplied by those households that provide explicit consent on the census form. Some 51 percent of Australian's answered 'YES' to the retention of their forms in the 2001 census survey. This was in effect a national referendum of the Australian people and a majority voted that our history matters. We can do even better this year.

As with the 2001 survey, during the 99-year period, the name identified information will not be released by the National Archives under any circumstances. The Australasian Federation of Family History Organizations (AFFHO) is working closely with the Australian Bureau of Statistics and the National Archives of Australia to assist in the national public education campaign prior to census night. Please support us by encouraging as many Australians as possible to answer YES in the census question concerning the retention of this vital record of the Australian culture. Unless you answer YES your census form will not be retained in the archives.

More details will soon be published on the AFFHO webpage of the campaign and how you can help.

Nick Vine Hall, Chairman, AFFHO  
Census Working Party  
[nick@vinehall.com.au](mailto:nick@vinehall.com.au)

### **Additional Kadina Conference Information**

Please note that all places on the Wheel Hughes Mine Tour have now been taken. The alternative is the evening Moonta Cemetery Tour as listed on the registration form.

### **Memberships**

The treasurer anxiously awaits return of membership forms and cheques of all who have so far forgotten to renew.

MJD/March



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ISSUE 45

### Editorial

Its again heartening to see the great support that we are receiving from members for our forthcoming Kadina Conference. To date the conference has attracted about 70 participants and supporters and as members will note from the information at the back of the newsletter, they will be treated to a variety of interesting topics that look into the past history of Mining in our part of the world and especially the contribution played by Yorke Peninsula in mining development. The conference has also attracted speakers from the USA and Canada, both Jeremy Mouat and Jay Fell being prominent office-bearers in our equivalent body in North America. There will also be a few fresh faces in the audience and hopefully the experience will encourage them to join our illustrious body and become regular contributors to our proceedings.

### Forthcoming Conferences

*International Mining History Congress, Bhubaneswar, India, 13-16 December 2007.*

The date for the 7<sup>th</sup> International Congress that is supported by the Indian Department of Mines has just been set for December 2007. There will soon be a call

for papers and expressions of interest to attend the proceedings. Bhubaneswar is in Orissa (see to the left of Calcutta on the map) and looks an exciting venue from both a mining history and cultural experience point of view. As well as mining that extends from ancient times to the modern, the city of Bhubaneswar is set in the Hindu pilgrimage triangle, and the 'old town' of Bhubaneswar can boast over 500 temples, some of them dating back to the 3<sup>rd</sup> century. So keep the dates in mind and await further information in the September newsletter, or look for updates on our webpage.

### Journal

Thanks to those who have contributed articles for the 4<sup>th</sup> volume that's due to be published in September. Thanks also to all those valiant referees, some of whom are at this very moment pouring over the manuscripts. Just one point to would-be contributors, please either download the journal stylesheet, or e.mail the Secretary for a copy before you submit.

### Webpage

When searching for the AMHA's webpage please use the address given under the newsletter heading above. Apparently our old page is still active (I'm trying to track it down!) but as this

was abandoned about three years ago then obviously the information contained on those pages will be dated.

## **Bits-and Pieces**

### ***Australia's first iron works, 1848***

Ruth Kerr draws attention to the following information on Australia's first iron works at Mittagong in 1848, that comes from the December 2005 newsletter of the Australasian Society for Historical Archaeology

The history of iron production in Australia started with the commissioning of a small blast furnace for the Fitzroy Iron Works at Mittagong. Documentary evidence suggests the Fitzroy Iron Works included structures such as a Catlan Furnace (1848), Rolling Mills (1859/60 to 1886 & 1896) as well as a Puddling Furnace, and possible Engine House from approximately 1865. During its initial phase of operation, the iron works produced good quality iron.

1886: The Iron Works was only intermittently successful and failed a number of times before finally closing down in 1886. It was purchased in 1892 by William Sandford in an attempt to produce steel and by BHP in 1941. The subject site, which formed the lower, and likely original section of the works, was subsequently used for market gardening and as an egg farm.

An IHO was placed over Roscoe Road, 185, 193 – 197 Old Hume Highway, Mittagong on 17 December 2004 which includes the Iron Works site. In 2005, a preliminary archaeological assessment and investigation by Godden Mackay Logan using historical information from Leah Day and Tim McCarthy, Mittagong historians, confirmed the presence of early structures including machinery bases, footings, parts of furnaces and brick working surfaces. These investigations also confirmed a separation between the primary and secondary

processing areas at the former iron works. From September to November 2005 Godden Mackay Logan on behalf of Woolworths, undertook more extensive archaeological investigation of the site. An unexpected range of fairly intact masonry and metal structural features associated with various phases of the iron processing and rolling activities that took place at the site were revealed, excavated and recorded. Remains of the rolling mill, boiler bases, engine and fly-wheel pits, and puddling furnaces are all discernable and readily interpretable. Nearly 200 people visited the site on a very rainy public open day in early November. Negotiations about in-situ retention and interpretation of the remains are now being undertaken with the Heritage Council and Woolworths. Woolworths are to be acknowledged and congratulated for funding the extensive excavations of this important site. GML wish to thank them for all their help.

The newsletter also shows photographs of what is believed to be a Chilean Mill and an engine base of a rolling mill.

For further information and photographs see: [www.asha.org.au](http://www.asha.org.au)

## **Recent & Forthcoming Publications**

*Furnace Fire & Forge - the history of Lithgow's iron & steel industry*

In September, the Light Railway Research Society of Australia is publishing its comprehensive history of the Lithgow iron and steel industry.

The book is the result of a seven-year collaboration between a number of societies and a broad range of researchers and writers, many of whom are considered to be specialist experts in their fields. Among other things the book covers the history of the steelworks; the technology of 19th & 20th century steelmaking; labour history issues, including working and social conditions; the associated resource industries

including the Central West NSW iron ore quarries, limestone quarries and coke-making.

It will be lavishly illustrated and includes many maps and plans. The Light Railway Society is currently offering substantial discounts for early-bird orders. The recommended retail price of the book is \$59.95 but for orders placed before 1 June 2006, the price will be \$44.00 plus postage, while orders placed between 1 June and 15 August 2006 will cost \$49.00 plus postage.

The pre-publication flyer can be accessed at: [www.lrrsa.org.au](http://www.lrrsa.org.au)

### **Documentary – available in DVD or Video Cassette**

There is a rich history of gold hidden beneath the snowline of Victoria's alpine high country.

Bright based historical site consultant and documentary maker Andrew Swift has made it his passion to seek out historic mine sites in the mountains. It is a fascination that began twenty years ago, 'as kids we used to wander around the old abandoned mineshafts that were behind the school. We often saw the old miners initials, names and dates scrawled on the walls dating back to the 1890's. That struck a bit of an interest in me. I wanted to find out who those people were that carved their names in those tunnels over 100 years ago'.

In a radio interview with ABC Local Radio and the Goulburn Murray Region, Swift stated that the mountains around Eastern Victoria hide places that are like Australia's equivalent of the lost jungles in the Amazon. 'You know people sort of have an idea there out there but they don't really know exactly where they are'.

Following the 2003 bushfires Swift and colleague Sean King were engaged by Parks Victoria and the Department of Sustainability and Environment to

undertake opportunistic surveys while the undergrowth was clear. 'We looked at all these mine and infrastructure sites that are associated with the gold mining era in this part of Victoria. That work took us to some remarkable places discovering industrial wonders in the bush'. The flames exposed a treasure trove of cultural relics including the remains of historic miners huts. 'Fortunately all of these areas were not specifically burnt. We found huts that had collapsed around tables and they still had enamel plates, bowls and cast iron cooking pots lying scattered around the old sites. You get a real good sense of that personal aspect of the miners that once worked there'. Swift is fascinated by the personal odds that pioneering miners faced, 'the mining life was one of isolation, adventurousness and hardship. The elements up in those mountains would have been extreme, stinking hot days to snow blizzards in winter. You sort of had to be a certain type of character to live in these places and that often is reflected in these hut sites and mining camps in the bush'.

The conditions endured in these remote mining sites were as gruelling as the journey it took to reach them. 'You often see examples when you go into mines that really small tunnels or really big open spots where you think these are not safe places to work', says Swift.

Out of the venture have come two new documentaries about his adventures into the mountains: 'Beneath the Razorback' and 'Journey to the black hole'. These will be screened at the 2006 Bright Autumn Festival. He recalls, 'We discovered a few years ago that there was a big mining site beneath the Razorback Spur and Mt Feathertop that generally most people didn't know about. There is this massive infrastructure immediately below one of the most popular walking tracks in the high country'. Swift with a group of friends made a two-day expedition to capture the site on film. 'These particular

mines date back from the 1850's to the 1890's so they have a long period of mining there. There was a big mining revival up there spurred on by the Government money. They encouraged miners to get out there and find gold in the hills' and a local group of miners from Harrierville made a big reef discovery to create the Razorback mine. 'As the reef was developed they decided to set up more infrastructure and at one time there were as many as 30 men working there. They lived in little weatherboard huts above the snowline and they erected big crushing plants and a tramway network that extended over one kilometre to convey the ore from the mines down to the battery. It would have been a dynamic and interesting place'.

The Black Hole was an area known by the miners in the east branch of the Ovens River because it never saw the sun in the winter months. 'All the miners that were camped there cursed the place as the black hole because the sun never thawed out their bedding or anything like that. So it was a damp old cold place'. Two days after the bushfires in 2003 and with ash and smoke still thick in the air Swift went exploring in the Black Hole. 'I knew this area well and with all the scrub cleared away we were able to have a look at it in a new light'.

The documentary they made of their journey into the scorched valley shows a sense of rediscovery as they come across a number of small mining sites. Swift says, 'The greatest discovery is this hut site of a mad old Scottish prospector called Peter McDuff. We discover his hut and all of the interesting bits and pieces that he set up at his hut site to make his living comfortable in the black hole'.

The lure of the golden vein has caught Swift himself who has spent the last 18 months in a partnership working a local gold mine. 'A level teaspoon of gold, which is about an ounce of gold is worth

about \$850 so that is pretty good incentive to go out and find some. I spent a fair bit of time tunnelling rock myself looking for the precious metal. We wont say I quite made wages but I did find gold'.

Now available for sale on DVD and Video Cassette, the three documentaries – 'The Rose, Thistle and Shamrock Goldmine' – 'Journey into the "Black Hole"' and 'Beneath the Razorback' can be obtained for \$24 each, or \$44 any set of two, or \$59 for the three (including GST), from Andrew Smith, Alrima Court, Bright, Victoria 3741. Tel. 03-57501386.

### **Congratulations**

Congratulations to **Ralph Birrell** who started life as an electrical engineer but who late in life turned his mind to academe. We are pleased to announce that he recently obtained his **doctorate** from the University of Melbourne for a thesis titled 'The Development of Mining Technology in Australia, 1801 - 1945'.

Also congratulations to our President **Peter Bell** who has just been awarded the prestigious **John Kerr Medal of Distinction** by the Royal Historical Society of Queensland for his scholarly contribution to that State's history. Peter was delighted with the award that is in memory of John Kerr, late husband of our enthusiastic committee member Ruth Kerr and who was himself a member of the AMHA and a distinguished historian. This is the second time that the award has been presented and is in acknowledgement of the very extensive contribution that Peter has made to the historiography of Queensland.

### **Kadina Registrations**

If you haven't already done so, please return your registrations for the conference asap. If you've lost the form then check the web or send me an e.mail.

MJD/June'06

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

## PROGRAM

### Thursday 6 July

#### Conference Opening

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

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

### Friday 7 July

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

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

**Saturday 8 July**

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

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## ABSTRACTS

### **Peter Bell, Historical research Pty Ltd, Adelaide**

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

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

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

### **Anne L Both, Burnside Historical Society**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

### **Jim Enever**

#### *Copper Mining in Victoria in the Nineteenth Century*

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

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

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

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

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

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

### **Philip Hart, University of Waikato**

*Michael Dineen O'Keeffe: Union Leader*

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

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

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

### **Nic Haygarth**

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

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

### **Brian R. Hill**

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

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

**R. Keith Johns***The Cornish at Burra*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

### **Ken McQueen**

*Hidden copper: The early history of the*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

### **Gilbert M Ralph**

#### *An Illustrated History of WMC*

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

### **Ian Schomburgk \***

#### *The Role of Mining in Pioneering a New Society*

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

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

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

### **Victor J Taylor, Australian National University**

#### *The Woolgar's Lost World: A framework of theory and method in an attempt to establish its provenance*

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

### **Jan Wegner, James Cook University, Cairns Campus**

#### *Gardening under difficulties: gardens on inland mining fields, North Queensland*

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

### **T.M. (Mike) Williams**

#### *A Man We Know and Trust*

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



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## Newsletter No. 3 SEPTEMBER 2006

Patron: Professor Geoffrey Blainey, AC

ABN 96 220 329 754

Web page: [http://www.ecom.uwa.edu.au/research/links/australian\\_mining\\_history\\_association](http://www.ecom.uwa.edu.au/research/links/australian_mining_history_association)

**ISSUE 46**

### Editorial

Another reason to laud a success, as once more the annual conference turned out to be a great triumph. Since returning from Kadina we have received a large number of congratulatory e-mails – so thanks in particular for the efforts of our stalwart local organizers, Peter Bell, Ross Both, Greg Drew and Graham Hancock. The standard of papers was again excellent and started with an excellent illustrated keynote presentation by Greg Drew who looked at the development of the Copper Triangle. This was later augmented with another inspiring keynote talk on the local history by Philip Payton, who had travelled from the Institute of Cornish Studies in Exeter to present his talk (see the account this year's journal). Having set the tone, other presentations also inspired interest and many penetrating questions from the 80 or so members who attended the conference.

Everyone was impressed by the efforts of local volunteers who provided their services to feed and entertain the visitors. There were a couple of civic receptions, a very entertaining choir performance by the children of the Kalori Catholic School, and in true mining tradition, a wonderful repertoire by the Kadina Wallaroo Moonta Brass Band – the latter

somewhat drowning out the efforts of the Secretary to sing the Welsh national anthem after being coerced onto the stage by the bandmaster – despite his being well oiled by Graham Hancock's liberal doses of Cornish Swanky! One unscheduled event attended by half-a-dozen of the visitors was the appearance of 'The King'. Yes folks, its true – Elvis is alive and well in Moonta and there are witnesses to prove it – photographs were even taken of Him dressed in sequined suit, slashed back black hair, and arriving in a pink Cadillac. The field trips and museum visits proved very popular, again with excellent commentary from Greg Drew, Ross Both and local historians, that brought the remnant remains to life. The tram ride around the fields, despite a cold blasting wind was another highlight and it was on the trip that the mystery of Keith John's saga of the missing coat hangers was resolved, it being revealed that the precipitation pits had not only taken abandoned farm machinery, iron pots and pans but also 'coathangers' for the copper to congeal to. This exonerated the local Hotel that had suffered a dearth of such objects, allowing Keith to concentrate on his passionate grumble about the limited number of pasties to be found in local townships.

Our overseas visitors, Jeremy Mouat, Linda Ross (Canada) and Jay Fell (USA) went back with pleasant memories of their visit, as did everyone we spoke to who attended. It was also a pleasure to see our Patron, Geoffrey Blainey present for a short while at the proceedings.

All in all, it was undoubtedly a success and set a standard for future organizers to emulate or exceed.

### **Annual General Meeting**

It was again reported that we were in a healthy financial position with our only expense being associated with the printing of the journal and newsletters and the cost of postage. However, also discussed was the ageing of our membership as exposed by the membership fee receipts, and thus the request that attempts be made to try to recruit younger members.

Emphasis was also stressed on the need to find organizers for future conferences, for while it was decided that it was desirable to maintain our contacts with the AHA, especially when they held regional conferences, we also wished to promote in-house meetings. Following an appeal, there were in fact a number of people who volunteered their services to organize locally - with Greg Dickens and Nick Haygarth promising to look for interesting venues in Tasmania; Leonie Knapman and also Ken McQueen in NSW; Mike and Nick Williams at Beechworth in Victoria; Howard Tew locations in WA (with still an option from Wendy Carter for Kununurra); and Brian Hill and Philip Hart for locations in New Zealand. This exercise it was felt would allow us to plan well in advance bringing benefits both to organizers and those wanting to attend.

Election of officers and committee went smoothly, Geoffrey Blainey again being elected as Patron, and Peter Bell as

President (see list of officers and committee members at end of newsletter).

### **Forthcoming Conferences**

#### ***12<sup>th</sup> AMHA Conference Armidale, NSW 23-26 September, 2007***

As decided at the recent Kadina conference we will be participating alongside the Australian Historical Association's regional conference at Armidale. Perhaps a positive for those who have picked up various debilitating diseases caused by cold weather during the last two conferences is that this will be held in the Spring. The September date also gives more time to prepare papers for the proceedings. Local organizers will be long-time members Graydon Henning and Graham Wilson. More details next newsletter.

#### ***International Mining History Congress, Bhubaneswar, India, 13-16 December 2007.***

Details of the 2007 Congress were provided in the last newsletter but the latest information is that for those wishing to give papers the abstracts will have to be submitted by 15 May and registrations paid by September. More info in the next newsletter and keep your eyes open for updates on the webpage at the address given on the newsletter masthead.

### **Journal**

Thanks to those who have contributed to volume 4 of the Journal. Thanks also to our stalwart referees for performing their thankless tasks during the year. Because of lag times, please don't hold back if you have an article that you would like considered for publication in 2007 – but let me remind you that it is imperative to try to follow the Journal style sheet (see web page, or e.mail me for a copy). Also

note that if supplying photographs you will have to ensure that sources are identified or permission is obtained from

the owners (including libraries) to ensure that copyright laws are not breached. Reference numbers from library sources should be supplied to the editor who will then seek permission to publish them in the journal.

## **Information Wanted**

### ***Miners & dress***

This is a chance for all those fashion conscious members that we see every year at the AMHA conference to strut the walk by coming up with some information that will help Kate Miners (no – not a misprint) with her research. Kate is trying to find sources for the period 1890-1905 on the clothing worn by Australian miners, their wives and children. If you have come across a source, or if you have information, would you please contact Kate at [katherin@iinet.net.au](mailto:katherin@iinet.net.au)

## **Bits-and Pieces**

### ***Australian Dictionary of Biography***

Thanks to member David Carment for drawing attention to the fact the *The Australian Dictionary of Biography* is now on line at no charge. This invaluable publication will be of great use to mining and other historians for quick reference and can be viewed at:

<http://www.adb.online.anu.edu.au/adbonline.htm>

Incidentally, should you find any incorrect information or believe that some vital element of a biography is missing, contact Barry McGowan who has worked on updating the biography these last few years. Barry's contact details: LPO Box 8336, ANU, Canberra ACT 2601; Tel. 02-62842827; e.mail: [barry@cyberone.com.au](mailto:barry@cyberone.com.au)

### ***'Freedom, Fortitude and Flies: Daily Life on Tennant's Goldfields***

This is the title of the currently running exhibition at Tennant Creek that looks at the challenges of early mining activity and the hardships faced by those living at

Tenant Creek. The exhibition is open daily from 9.00am to 5.00pm.

### ***World Heritage Status***

The good news is that the Cornwall and West Devon Mining Landscape has gained World Heritage status (recognised as having cultural importance on a global level. The decision was taken by UNESCO's World Heritage Committee meeting in Vilnius, Lithuania following a submission by the British Secretary of State for Culture, Media and Sport on behalf of the World Heritage team. Will the York Peninsula be next?

Thanks to Greg Drew for drawing attention to this information that can be viewed at: <http://www.cornish-mining.org.uk/news/news.htm>

### ***Ode to a Cornish Pasty!***

Enthused by his visit to the Copper Triangle, Kiwi compatriot, Philip Hart, sent in this abridged report culled from a copy of the *Bulletin* of ancient vintage (14 December 1889, p. 13):

'Gentlemen from the Australian quartz-mines will tell you that the toughest contestible at present undergoing consumption is of Cornish origin, and is known 'below' as the Cousin Jack pasty ... The Cousin Jack pasty is a gob of dough, shaped like a crescent and enfolding a barrow-load of scraps, chiefly cold potatoes, left steak, cabbage-stems, bread-crumbs, sour grass, and other remains and waste ends within reach of the particular Jenny who is fabricating the hamper of desiccated hash. This heap of quiescent dyspepsia is then subjected to pressure and untold degrees of Fahrenheit, and appears later as the crib of a long, yellow Cornishman, who looks wasted and in consequence of the great

aggregation of indigestible substances weighing solidly on his conscience and

dragging him down to an early funeral ... The pasty has been dropped down mines ... wrecked the cage, and smashed through the well-boards; ... it has survived incalculable falls of immeasurable masses of rock; slipped into battery-boxes and wrecked the stampers, withstood the waste and wear of devastating years, and hung to the poppet legs as a symbol of eternity ... If you are a man and a brother and ever go digging for a living, and chance to board with a Cousin Jenny, shun her pastry ... many a promising youth has dashed his good-as-new constitution to chips against this monument of immutability'.

*Ed's Note:* For this scurrilous article, P. Hart can expect a lawsuit to be brought on by the venerable Keith Johns, who has appointed himself as Australian protector of this Cornish delicacy.

### ***Heritage Mine Closes***

Our President informs that because of a rockfall early last year one of Australia's earliest metal mines, the Wheal Watkins silver/lead mine that was placed on the Register of the National Estate in 1996, will be closed to the public for the foreseeable future. Wheal Watkins, which is located in the Burnside area of Adelaide and in proximity to Wheal Gawler (1841) and Glen Osmond (1844) was worked from 1843 to 1851 when it was closed because of the exodus of labour to the Victorian goldfields. It reopened in 1888 and continued in production until 1916. In 1984 it was placed on the State Heritage list and from 1990 until the aforesaid rock fall it had proved a popular tourist attraction. The decision whether the mine can again be made safe for the public will be determined by the local Burnside Council, with the decision probably coming down to the cost of making the mine safe.

### ***Fame and Fortune***

Those who had the good fortune to see

the SBS film on Hoover on the WA goldfields will no doubt have recognised some of the 'Stars' who are even today glowing in the adulation of public recognition. While not yet recognised as easily as Russell Crowe or of having strained their wrists writing out autographs, our esteemed members, Pat Bertola, Criena Fitzgerald and Richard Hartley have enjoyed almost cult status among neighbours and colleagues for their fine performances. Perhaps we can expect a repeat performance at a future conference where the main actors may condescend to wave and nod at us normal mortals!

### **Recent & Forthcoming Publications**

Liz Coole & J.R. Harbison, *Mine Captains of the Copper Triangle, Yorke Peninsula, South Australia*, Pioneer printing Office, Yorke, SA, 2006 – 60 pages.

Cornish Mine Captain's carried great influence and attracted almost mystical status in mining communities in the 19<sup>th</sup> century, no more so than on the Yorke Peninsula's Copper triangle where it is claimed that Captain Henry Richard Hancock was the unannointed king of the copper coast. The book provides biographical details of over 150 men who bore the title 'Captain' – most in the copper mines but a few at the Wallaroo smelting works.

Cost is \$10 plus \$2 postage, and can be obtained by contacting Liz Coole, Pedler Lane, Cross Roads, Moonta, SA 5558. e.mail: [lizcoole@inet.net.au](mailto:lizcoole@inet.net.au)

Kuntala Lahari-Dutt & Martha MacIntyre (eds), *Women Miners in Developing Countries: Pit Women and Others* (Ashgate, Aldershot, 2006), ISBN-10: 0 7546 4650 5.

This excellent publication came out of a conference run by Kuntala Lahari-Dutt & Martha MacIntyre at the ANU in 2005

and should appeal to any mining historian. It examines the often hidden role of women in mining and addresses gender related issues that have faced and still face women in the mining workforce, especially in developing countries. Issues dealt with range from the effect of introduction of new technologies and large-scale mining, to health, human rights, economic situation, cultural issues, and identity within society. There are a number of country studies ranging from Africa to China, Colombia, India, Malaysia, Papua New Guinea, the Philippines, India and Japan – the latter with an account of the Chikuhô coal mining communities by our esteemed member Sachiko Sone. Well worth a read if only with a view of appreciating the hardships and problems faced by miners and especially female miners even today.

### **Congratulations**

The following abridged excerpt lauding member Graham Hancock who was instrumental in much of the organizing of the Kadina Conference is taken from the web:

#### *Graham "Cap'n" Hancock retires*

In what was a total surprise for recently retired District Council of the Copper Coast Project Officer, Graham 'Cap'n' Hancock, a special morning tea was held at The Farm Shed, Kadina, recently, by Kadina National Trust members, volunteers, and Visitor Information staff, to mark his years of commitment to the region's development and heritage.

Attending under the guise of making arrangements for the forthcoming Australian Mining History Conference, Graham found himself receiving a 'mystery parcel', a 'jewel of the underground', and a specially mounted collage of photographs depicting his working life and all in which he had been involved.

Graham has been a member of the Kadina

National Trust for more than 20 years and had begun as a representative of the District Council of the then Northern Yorke Peninsula in the mid 1980s, and Secretary 1988-1993, and is currently the Yorke Peninsula Region representative and State Vice-President of the National Trust of South Australia.

As the Copper Coast Council Project Officer, Graham wore many caps of responsibility, including the Executive Officer of the Kernewek Lowender.

Graham has held various positions and been a representative on numerous State and District Committees and organisations for tourism, local government, and educational organisations. He has maintained his position on the Yorke Peninsula Marketing Board, and will continue working with the World War I Gun Display committee at Moonta until this project is completed. Over the years, his other interests as a volunteer have included Rotary, the Cornish Association, Camp Quality, Jaycee International, Northern Yorke Peninsula Homes, Moonta/Wallaroo Mines Management, St John Ambulance Brigade, a Kadina Football Club coach, Cunliffe Tennis Club, and the Ayers House Advisory Committee.

With a major in Geographical Studies followed by working Graham was Principal of various primary schools in the northern areas of South Australia in the 1960s. A change of direction, occurred when he became manager of the Saddleworth General Motors Dealership, and in the early 1980s, he took up the opportunity to go into private enterprise as a partner, and act as General Manager in a rural-based transport company.

Graham's passion for geography saw him teaching once again from 1980-1987 as a secondary teacher and as part-time TAFE lecturer when he gave special emphasis to

environment, global village, human impact and resources subjects as well as tourism studies.

Graham also acted as Economic Development Officer for the Northern Yorke Peninsula, during this time being responsible for community and commercial developments, tourism promotion and research projects.

A passion for heritage saw a new direction and a move to Adelaide, firstly as the National Trust of SA's Asset Manager and then the Acting Director with the National Trust, responsible for property management, branch liaison and project management.

Recognising volunteers as the backbone of this organisation, he placed high importance in fostering a strong working relationship with management and volunteers.

Yorke Peninsula had strong ties for Graham so when the diverse and challenging position of Project Officer for the District Council of the Copper Coast came to his notice in 1999, he couldn't pass it up. This role saw him overseer of the Dryland Farming Museum project (later re-named to The Farm Shed,, where the AMHA Conference was held in July 2006), and enabled him to be there at the start and to take it to reality - The National Trust of South Australia, Kadina National Trust and the District Council all contributing to its existence.

Graham retired from the local Council in May 2006 and has now moved into the Copper Coast Lifestyle Village at Moonta, with his wife, Raelene. Future plans include enjoying a slower pace, turning a piece of timber or two into fine art works, and continuing an active involvement in the preservation of the region's 'magnificent' heritage.

Graham's 'mystery parcel', which, layer

by layer, was unwrapped at his special presentation on June 2, saw each layer marking a special interest or occasion that evoked many memories. Its final wrapping revealed a book of cuttings (local and state newspapers) dating from 2006 back to the 1980s, detailing interesting and pertinent articles to Graham, depicting his involvement through the National Trust, tourism, council, Kernewek Lowender, and other interests. The inside its cover read:

'To Graham "Cap'n" Hancock-our friend, colleague, co-ordinator, presenter, and ambassador:

"You are an inspiration to us all, with your commitment and passion for South Australia's history and, in particular, the heritage and mining on the Yorke Peninsula. We recognise the dedication and commitment you have shown throughout the years and we look forward to continue working together with you through your retirement-Your Friends and Mates'.

#### **AMHA Officers**

Patron: Prof. Geoffrey Blainey

President: Peter Bell

Secretary/Treasurer: Mel Davies

#### **Committee Members**

ACT: Chris Carter, Barry McGowan, Ken McQueen.

SA: Ross Both, Greg Drew, Graham Hancock.

NSW: Graydon Henning, Leonie Knapman, Ross Mainwaring, Graham Wilson.

NT: David Carment.

NZ: Brian Hill, Philip Hart.

Qld: Ruth Kerr, Diane Menghetti Jan Wegner.

TAS: Greg Dickens, Nick Haygarth

Vic: Sandra Kippen, David White, Mike Williams.

WA: Patrick Betola, Wendy Carter, Charlie Fox, Richard Hartley, Gerry MacGill.

MJD/Sept'06



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## Newsletter No. 4 DECEMBER 2006

Patron: Professor Geoffrey Blainey, AC

ABN 96 220 329 754

Web page: [http://www.ecom.uwa.edu.au/research/links/australian\\_mining\\_history\\_association](http://www.ecom.uwa.edu.au/research/links/australian_mining_history_association)

**ISSUE 47**

### Editorial

My experience in October gives me licence to use the editorial space to publicise the 7<sup>th</sup> International Mining History Congress that will take place in India between 13-16 December 2007. Your truly as Secretary of the IMHC was fortunate to be invited to speak to the local organizing committee in Bhubaneswar where I spent five days during October. I can promise those who are keen to attend that this should be a meeting to remember. The venue alone can only be described as magnificent – the Mayfair Lagoon Hotel is set in 12 acres of magnificent grounds and in addition to the main hotel has a number of chalet type residences for visitors alongside a lake. The architecture is delightful – marble – cool niches and gardens – a magnificent swimming pool that will take your breath away – gorgeous colours – a gymnasium – saunas – boutique restaurants and bars, conference rooms – and a wonderfully peaceful ambience. Also attractive is that the price for this 5-star-plus accommodation will be well within the pockets of participants. The organizers have also promised a cultural feast – Bhubaneswar is renown for its dancers and people come from all over India and

elsewhere to train at some of the academies that teach various forms of traditional dance.

Bhubaneswar, is a pleasant town of less than 250,000 people and as noted in a previous newsletter, has over 500 temples, for it is one of the major religious centres in India, being part of what is called the religious triangle – the other towns being Konark and Puri. Puri attracts many pilgrims and apart from its importance as a major religious centre and in particular location of the Hindu Temple of Sri Jagannath, it is set alongside an extensive beach that sports attractive hotels, including some from the days of the old Raj. Konark the other town in the triangle has a magnificent temple (I thought it was breathtaking) dedicated to the Sun God, which was built about 1250. This is a truly magnificent building and the detail included in the carving is exquisite, making it hard to believe that the carvings were made some 850 years ago. There are also many other magnificent sites that I was fortunate enough to visit including the hermitage carved into the rocks at Khandagiri by the Jains over 2000 years ago. All these sites, and more, are within 30 to 60km of Bhubaneswar.

For all those who have visited the country, India is a place of tremendous contrasts but despite the obvious poverty in parts, there is a vibrancy that attracts. People are extremely friendly – English is widely spoken, and of course if you say that you're from Australia they'll immediately start talking about cricket, a game that also seems to have spiritual significance with them!

The local organizing committee for the Congress is led by Dr Sarangi and members of the Society of Geoscientists and Allied Technologists – academics and people active in the mining field - a surprising number of whom have worked or have links with mining in Australia.

For those who like shopping, there is an abundance of shops and markets in and around Bhubaneswar and perhaps needless to say the prices are attractive. The food is also excellent and while there I didn't have any trouble with the equivalent of the dreaded Delhi belly, though I must admit to having restricted my intake to hotels.

I was informed that December is the best time to be in Bhubaneswar and other parts of Orissa, as the days are pleasant and the evenings cool – though even in October I found the conditions quite bearable and did a lot of walking as well as being driven around. Driving, incidentally is something that you won't want to do unless bent on suicide – here, as in other parts of India, the rules of the road as we know them don't apply. The only essential piece of equipment is a horn and any driving is best left to the locals. Taxis are cheap as are train or bus travel and the town has an airport just 5km from the centre that is serviced frequently from the major cities in India. The web page should be on line soon. If interested, register that interest with the Secretary and the web details will be forwarded as soon as they are available.

## **Forthcoming Conferences**

### ***13<sup>th</sup> AMHA Conference Armidale, NSW 23-26 September 2007***

As agreed at the Kadina conference, in 2007 we will be participating alongside the Australian Historical Association's regional conference at Armidale. Please note that while you should register with the AHA as detailed on the enclosed form, all abstracts should be sent to me at the address at the top of this newsletter by 10 April. Abstracts not to exceed 200 words. Please also submit your title, and if applicable, your institution details.

Our local representatives Graydon Henning and Graham Wilson are currently arranging mining tours, so have no fears that our social activities will be curtailed or blighted because of the fact that we will be in mixed company.

For registration, accommodation and other information (the registration forms should be posted on the web within the next week or so) see:  
[www.une.edu.au/campus/confco/aha2007/](http://www.une.edu.au/campus/confco/aha2007/)

## **Journal**

Thanks to those who have already contributed to the next edition of the Journal but aspiring authors please get your articles in sooner rather than later, especially if you want the piece to go through the refereeing process. Please note that in the past a number of papers presented to the editor after the July conference have found their way to the journal pages. However, this year as our conference will be conducted in September and the date for publication of the journal is also in September then any such aspiring authors hoping to appear in volume 5 will be disappointed. So please get your manuscripts to the editor asap. As a reminder, all articles should be appropriately formatted. To obtain details look at our web page (address at top of this newsletter), or contact me for a copy of the instructions.

## Information Wanted

### *South Australian Mining*

A query has been received from Kay Williams who is trying to trace the background of a William Henry Brown an immigrant born in England about 1874/75. He spent 12 years in the 10<sup>th</sup> Hussars before coming to Australia, probably arrived around 1900, and in 1914 enlisted in the AIF and subsequently fought at Gallipoli and elsewhere. The mystery relates to the time between 1900 and 1914. There is some evidence to suggest that he worked a silver mine called the 'Triangle Mine' on Kangaroo Island and that he might also have worked on the Yorke Peninsula (or is there some confusion re the 'Copper Triangle' on the Yorke Peninsula?). If anyone has any information on the gentleman could you please contact Kay Williams at [williams@terrigal.net.au](mailto:williams@terrigal.net.au) or [kay.williams@bigpond.com.au](mailto:kay.williams@bigpond.com.au)

## Bits-and Pieces

### *Keeping your cool*

Thanks to Ruth Kerr for the following interesting piece that she picked up in December from an article by Lou Caruana. It shows what technological developments have taken place since the days when all that was done was to excavate two shafts and rely on the natural circulation of air.

Xstrata Copper's Enterprise copper mine in Mount Isa is Australia's deepest underground mine. Its development and those of the other shafts at Mt Isa have a long history dating back to 1953 when the mining of copper there began, along with lead, zinc and silver.

Under Mt Isa's former owner MIM, ore bodies located between levels 21 and 36 were developed in the early 1990s. MIM drove a ramp down from the U62 loading station and an ABB-Kiruna electric truck hoisting system was fitted. In 1996, MIM launched the \$370 million Enterprise Mine project, which was designed to raise deep copper output to 3.5 million tonnes per annum.

The 713m-deep internal M62 shaft opened in 2000, with refrigeration and paste backfill plants completed in 2001. In June 2004, Xstrata approved development of the Northern 3500 ore body to maintain rated capacity by supplying 5.3Mt ore grading 4.5% copper over 11 years, starting in late 2006.

When tunnelling reaches 1800m underground – as it does at the Enterprise mine – a number of challenges and hazards are faced, according to Mount Isa Copper Operations general manager Steve de Kruijff. "As part of our commitment to very high safety standards, we constantly review how we manage occupational health hazards, in line with international benchmarks," de Kruijff said.

"Mount Isa Mines has a comprehensive planning process in place to ensure all of our underground mine workers are supplied with high quality ventilating air at an acceptable temperature."

Underground, the virgin rock temperatures approach 60C but due to Xstrata's strategic ventilation and refrigeration planning, temperatures in most working areas of the mine are air-conditioned to below 28C wet bulb.

Mount Isa Mines has a robust process for strategic ventilation and refrigeration planning, and all occupational hygiene hazards are managed in accordance with the Mining and Quarrying Safety and Health Act 1999 and the Mining and Quarrying Safety and Health Regulation 2001.

De Kruijff said the first step in the process involved a careful study of the "life of mine" plan. "We determine what hazards are present at the mine and we examine the source and quantity of any contaminants [such as diesel engines, blasting operations, etc] and heat [such as diesel engines, auto compression, rock surfaces, ground water, etc]," he said. "We always pay particular attention to areas where people will be working, areas like development ends, drilling ends, mucking ends, haulages, workshops, stores and declines.

"Taking everything we know into consideration, we then determine the amount of ventilating air required to remove contaminants and heat, and we identify how much refrigeration is required to ensure temperatures are acceptable."

As part of Xstrata's high safety standards, all calculations are double- and triple-checked. Xstrata also has a procedure for short-term ventilation planning. The planning engineer consults with a rock mechanic engineer, a ventilation engineer and a geologist to plan each working area. That plan is then presented to the operational superintendents and other technical personnel at a stope meeting, where it is discussed at length.

Following the stope meeting, the final design – containing a section dedicated to addressing the ventilation of the development headings, the drilling, the ring firing and the mucking exhaust – is compiled.

The final design is then distributed for sign-off by operational and technical personnel, and is carefully scrutinised by the ventilation engineer before it receives the tick of approval.

Before development commences, the planning engineer draws up what is referred to as a "primary development and rehabilitation design and sign-off sheet".

This sign-off sheet includes a section for the ventilation engineer to detail all development ventilation requirements.

On completion of development and drilling, the planning engineer must produce the Firing Sequence and Ventilation Note for the stope production.

This often occurs more than 12 months after the final design, and the ventilation network therefore needs to be re-assessed and where necessary, re-designed.

The Firing Sequence and Ventilation Note is then presented to production and services personnel at the stope pre-start meeting, which takes place shortly before production commences. "We take both strategic and short-term ventilation planning very seriously," de Kruijff said.

As part of Xstrata's commitment to manage heat-related illnesses, the company has also implemented a "Working in Heat" procedure to ensure people work safely in the humid conditions underground.

De Kruijff said Mount Isa Mines had great success with the "Working in Heat" procedure, having virtually eliminated the occurrence of heat-related illness at the mine.

"This procedure is given due emphasis in our induction program, and we regularly promote it through our safety and health committees," he said. "It is also a discussion topic at our daily 'Positive Attitude Safety System' meetings." Documented in a training manual, Xstrata's "Working in Heat" procedure articulates a wide variety of heat management activities.

The underground supervisors at Mount Isa Mines take daily environmental heat measurements. All underground workers are encouraged to do monthly dehydration tests and regular health assessments in an attempt to proactively identify and treat heat-related illnesses. "Furthermore, an energy drink, which is especially designed for Mount Isa Mines to replace the salts and minerals lost due to working in heat, is issued free to our workforce," de Kruijff said.

In addition to the issue of heat, underground miners face a number of other occupational health hazards, including noise, dust and diesel particulate matter.

While not all of these hazards are present at every operation, Mount Isa Mines has comprehensive processes and procedures to address and mitigate each possible hazard.

Ventilation and refrigeration networks are designed around the hazards associated with each particular mine.

The development of the Deep Copper/Enterprise Mine ore bodies at Mt Isa Mine has also made emergency warning, and travel to refuges, a major issue in the mine design. It was identified that quick, reliable communications was a key requirement to minimise the impact of an emergency situation. The existing communication systems did not provide signal coverage to the whole mine area, hence the Mine Site

Technologies PED system was chosen to provide this complete coverage via its 'through-the-earth' transmission characteristics.

*Ruth Kerr*

### **An Excursion to Bobadah Mines 2006**

Yet another piece by Ruth Kerr:

"The Tottenham Historical Society organised a historical excursion to Bobadah on 6 May 2006. Sixty-two people from the Bobadah, Tottenham and Nyngan areas and myself visited the Bobadah mine and town site. There were two school buses full from Tottenham and eight motor vehicles travelled the 68km from Tottenham, mostly over gravel road.

The visit to the mine site was led by George Harley, a farmer and member of a long-standing Bobadah family. His father had died in the mine, aged 48 years. Most of the excursionists walked down from the Bobadah hall to the mine sites. The gold, copper, silver, lead, zinc deposit outcropped along a kilometre long ridge north of the hall. Today there is a significant open cut area, a tunnel and a ventilation shaft. There were three periods of activity - 1880s and 1890s (silver boom), 1930s (gold) and 1940s and early 1950s (copper). The main mines were: Overflow, West Bogan, Star of the Range, Recovery, Long Panel, Yellow Mountain and Thomas Sampson.

The period for which most evidence survives is of the cyaniding of gold. There are two concrete vats remaining and extensive heaps of cyanide sands (of similar extent to those at the Richmond mine on the Croydon Goldfield). Large brick engine mounts survive from the last period of working - for a diesel engine. There is little evidence of the silver smelting - a small collection of slag nodules on the western side. There is also a small brick engine mount there. The most obvious structure is the splintered headframe which collapsed in the same December 2005 windstorm which unroofed part of the Bobadah hall. The Sheaffe wheel survives.

There were tramways for disposal of the mullock and the tailings. There is evidence of a tramway of about 200 metres from the haulage shaft on the hill. The bed is quite clear and it

was very likely horse drawn, down a steady grade to the treatment plant.

Significant work was done at the Bobadah mines in 1938-1939. Frederick Charles Brookes Packer, an accountant and company director of 243/5 Sussex Street, Sydney, negotiated an agreement with Thomas George Summers and Sydney Walter Lack on 18 February 1938 to test an extraction process from Lack's Gyro Centrifugal Concentrator at Bobadah. Packer, Summers and Lack obtained a Mineral lease 3937, the Thomas Sampson, at Bobadah. They also obtained a sub lease of Mining Purposes Lease 693 on which they agreed to pay 1% royalty of the gross value of gold and minerals won by Lack's patent syndicate during the term of the sub lease. They then formed a public company, Packer Summers Limited.

Lack lived on site. During this time he corresponded with Packer on the erection and testing of the machinery. Correspondence held at Mitchell Library in Sydney contains a colourful picture of life at Bobadah in the period 1938-1939. He described it in the following way: "I'm doing my damndest here and it's not a holiday. It's freezing cold and as far as personal comfort, I haven't spent time and money on it. I could do with a fire place but haven't had time to build one, when times get right I will build a shed to live in." (MSS6862/1, Mitchell Library).

On 21 June 1938 he wrote again to Packer: "It's bitterly cold here. I can hardly hold the pen. I will want a further credit at Tottenham." The Bobadah store and Post Office had also burnt down.

Although Tingha South Limited had taken some interest in the new machine, by January 1939 no work had been done on the lease and Lack had disposed of his shares in the company in accordance with his agreement."

*Ruth Kerr*

### **Recent & Forthcoming Publications**

Mel Davies (Compiler), *Bibliography of the Mining History of Australia, New Zealand and Papua New Guinea, published by the AMHA, University of Western Australia, 2002, pp. 318. Indexed by State, minerals, social & economic, heritage, etc..*

Not exactly a new publication but the paper copy being out of print we are offering the Mining History Bibliography as a CD. The item is sold at the bargain price of \$11 to members (\$12 NZ and \$13 elsewhere). While the original was published at the end of 2003, the CD contains *some* updates. Anyone doing research will find this invaluable as a source for published material, especially as a click of your computer 'find' button will save you many frustrating hours of bleary-eyed hunting.

### **Congratulations**

Congratulations to member Naomi Segal who recently heard that she has gained her PhD at the University of Western Australia, when completing a thesis called 'Capital, Gold Mining and Labour: Collective Action in Western Australian Gold Mining Industry, 1896-1914', Members might remember that Naomi presented an article from her thesis in the last AMHA Journal – Vol. 4, 2006.

### **Annual Memberships**

If the Christmas spirit is still with you then it's time to dip into your pockets so as contribute to that deserving cause – the AMHA. Membership forms are enclosed. The subs remain as they have for the last two or three years, making this good value for money. Why not also take the opportunity to purchase some of our publications that are listed on the form? – Be generous with your publication purchase demands so as to help me move around my cluttered office.

Last year we had a record 171 members, plus 10 institutions but we have room for many more. Why not photocopy your form and present to a friend interested in mining history?

### **The Mining Magnate**

By A.E. (Darky) Wallace, Meekatharra, W.A.

(A contribution and a bit of light relief from Ken McQueen)

He was talking stopes and underlays,  
The night I met him first,  
And drinking beer at Baker's,  
That would shame a camel's thirst,  
He talked of forking water,  
With his ninety-horsepower pump,  
And his eighty-five head battery,  
And the value of his dump.

The gold was on the hanging wall,  
The reef was dipping north ---  
As he grabbed his second pint of beer,  
And he blew away the froth ---  
He spoke about his crushings,  
From his levels down below,  
And I thought he was the owner,  
Of a six or eight ounce show.

He talked of drives and crosscuts,  
As he gripped another pot,  
And about two thousand feet of backs,  
That assayed pretty hot,  
And at the thousand level,  
The lode was twenty feet,  
He reached out for another pot,  
And lapped it up a treat.

He was swaying slightly sideways,  
With a sort of starboard list,  
And he hiccupped: when she junctions,  
In a kind of hornblende schist,  
He drove along a jasper bar,  
Another beer he quaffed,  
And he said he'd make things merry,  
When he sunk another shaft.

His voice was getting husky,  
And his mind was getting deep,  
And I left him leaning quietly,  
On the counter fast asleep,  
I enquired of Con. O'Brien,  
Who this mining boom had been,  
And he laughed and said: "Gor-bli-me,  
He's a trucker on the Queen."

