



THE MINERALOGICAL SOCIETY OF NEW SOUTH WALES INC.

C/o School of Natural Science
B.C.R.I. Parramatta Campus University of Western Sydney
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NEWSLETTER

MARCH 2011

The March Meeting will be held on Friday the 4th of March at 7.30 p.m. in the LZG14 lecture theatre on the ground floor of Building LZ in the Science campus of the University of Western Sydney on the corner of Victoria Road and James Ruse Drive in North Parramatta.

The March program will comprise the Tucson Update by Penny Williamson and Peter Williams.

The talks will be followed by a lecture to be given by John Rankin on : -

‘Collectors of the New England’.

FORTHCOMING MEETINGS

Society Meetings will be held on the first Friday of each month through the rest of this year. Subject to circumstances some changes to the following schedule of program subjects and speakers may have to be made in due course.

- April 1st : Talk by John Smedley on ‘Labels for Minerals’ and a lecture by Gary Sutherland on : -
‘A Photographic Tour of the British Museum of Natural History’.
- May 6th : Member’s Mini Auction.
- June 3rd : Symposium on ‘The Prospect Intrusion. Brief History, Geology & Member’s Experiences.’
- July 1st : Lecture on ‘The Mt McDonald Goldfield’ by William Butterfield.
- August 5th : A.G.M. and Memorial Lecture.

The MAY 2011 MEMBERS MINI AUCTION

Members are reminded that the program at the Meeting on the 4th of May will be a **Mini Auction** of members' mineral specimens. Last year a total of 60 specimens were auctioned over about two hours with a number of specimens also sold in trays as a silent auction. As before there would be no cost to sellers; the Society takes no commission on sales. If a member does not like the final bid for one of their specimens they can retain it by making a bid for it themselves.

Members are recommended to start looking now to what specimens they may wish to sell and after the April Meeting or by April 17th should send a list to Jim Sharpe so that a catalogue can be prepared and distributed before the sale.

If more information is required members should contact Jim Sharpe by phone 9871 2502 or E-mail: sharpe4min@tadaust.org.au

CONGRATULATIONS and THANK YOU

Congratulations and thank you to all those members who donated specimens to sell at the February Meeting and to the members who dug deep to buy the specimens with the proceeds to be donated to the **Kids with Cancer Foundation at Westmead**. The sale raised \$965 which is a record, (so far) for one of these charity sales held by the Society.

2011 SOCIETY MEMBERSHIP FEES

Society membership fees were due from January 1st 2011. Subscription renewal forms were sent out last year and more are available from the Secretary or Treasurer at any Meeting. Members are recommended to provide their e-mail addresses if available in the interest of placing as many people as possible within electronic communication, not to mention cutting down the cost of posting out hard copies of the Society Newsletters.

The renewal form may also be used to pay a premium of \$3.00 for **Personal Accident Insurance** for 2011.

Members may pay their subscriptions by **Internet Banking** if they wish. Funds should be paid to :-

Account name: Mineralogical Society of NSW Inc
BSB: 062 016 Account number: 28023647

Please put your name(s) in the memo line.

If you do pay by bank transfer, you must also return the filled membership form to the Treasurer –

Either :-

- 1). at the next General Meeting
- 2). or by scanned e-mail to [Graham Ogle@hopeww.org](mailto:Graham_Ogle@hopeww.org)
- 3). or by fax to 02 9868 5281 (direct fax)
- 4). or by post to: -

The Treasurer
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THE SOCIETY COMMITTEE

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FEBRUARY MEETING

At the commencement of the February Meeting the Society President, Dieter Mylius reminded members that the Society would be setting up a display and information stand at the **Bathurst Gemboree** over next **Easter**, 22nd to 26th April. Volunteers were needed to help set up and then supervise the stand, on a roster basis. Any members who were expecting to be visiting Bathurst at all over Easter and who could spare at least a few hours to man the display stand were urged to make this known to the President, John Chapman or Arthur Roffey.

John Chapman described the intention of the display which was to present a selection of **Mineralogical Society member's specimens of New South Wales** and he asked that members prepared to lend specimens should get in touch with him.

The **Society Micromineral Group** were meeting at the President's house on February 26th and were also planning a display stand for the Bathurst Gemboree.

Jim Sharpe introduced the speaker for the evening. Professor Peter Leverett originally graduated in chemistry and geology from the University of Tasmania moving to Monash University where he received his doctorate. His next move was to the University of Technology in Sydney to work for a few years in the School of Chemistry and Earth Sciences before joining the faculty of the University of Western Sydney in the early 1980s where he has remained. At U.W.S he has the post of Professor of Chemistry which the University regards as including Geochemistry, Chemical Mineralogy and Environmental Chemistry. As part of the studies for his degree course at the University of Tasmania in the early 1960s Professor Leverett was able to work for a time at Mount Lyell.

‘Mines in the Mist – Mt Lyell’.

Professor Peter Leverett

Initially Professor Leverett advised that collectables from the Mt Lyell mine were not plentiful but Jim Sharpe had found a number of specimens of chalcopyrite, bornite, quartz and mawsonite to bring to the Meeting to display.

Mt Lyell is situated towards the west coast of Tasmania near Queenstown and a number of views of the area were shown by the speaker. Initially the west coast had been penetrated by settlers and colonial authorities in the early 1800s, finding the large inland bay which they named Macquarie Harbour, establishing the deep-water port of Strahan and a convict settlement on Sarah Island. Entry to the Harbour was through a narrow and shallow passage with a fierce tidal race named Hell’s Gates. By the 1880s prospectors looking for gold, silver and other metals were traveling all over Australia and the deposits in the Queenstown and Zeehan areas were gradually discovered and mining commenced. Transportation in the 1880s and 1890s was very arduous and the speaker spent some time pointing out on maps and projected images the various tracks through rugged country which settlers and miners had to use to reach sites inland.

The Iron Blow mine on the side of Mt Lyell was the first working started in 1883 and the syndicate that was established to mine it formed the Mt Lyell Company in 1891. It was a massive ironstone outcrop which would not have interested gold prospectors except that they started finding alluvial gold in the creeks around the mountain. A crafty Irishman, James Crotty, who had a lot of experience working in the Victorian gold fields and at this time was working as a ‘Linda digger’, living in the Linda township outside Queenstown, purchased a £20 one-third share in the syndicate which held the lease for the Iron Blow mine not realising that this would make him a millionaire in a few years. The Iron Blow syndicate worked the deposit for a while for gold and initially the returns were reasonable but as the excavation got deeper the gossan and bedrock became harder and the mining more difficult. Accordingly the syndicate hired a geologist from Sydney to examine the mine and advise about its economic prospects. The syndicate decided to disregard the first report and obtain a second opinion from the Tasmanian Government Geologist which was more favourable but which unfortunately was not correct. The Tasmanian geologist said that the deposit contained sufficient gold and silver to be profitable and also a small amount of copper which might be economic if this was sustained at depth. The syndicate ignored the advice about the copper, continued digging a larger and larger hole looking for gold and soon lost all their money.

With mining prospects in the Queenstown area initially being poor the Mt Lyell gold mine might have passed into history were it not for the discovery of silver at Zeehan and in 1888 absolutely frenzied fortunes were being made in the silver market. The discovery attracted the attention of the wealthy Broken Hill Company director, Bowes Kelly, who had become a millionaire by today’s standards investing in silver at Broken Hill and who decided to support the silver mining at Zeehan. However unlike at Broken Hill, Zeehan’s silver lodes were shallow and soon exhausted by about 200 feet. Over that time Zeehan had grown to be about the third largest town in Tasmania behind Hobart and Launceston with thousands of people and ‘hundreds of pubs’. The boom lasted for only about three years but is commemorated in the Mining Museum in Zeehan where a photo montage of the town at its mining height displays the ‘Rise and Fall of Zeehan’.

When the lodes ran out Kelly lost a lot of money but he was a gambler and started casting around for other mines in the area to invest in. Kelly heard about the Iron Blow and arranged to meet James Crotty and be shown around the mine. He also arranged to send ore samples from the mine to Herman Schlapp the famous metallurgist at Broken Hill. Schlapp replied back that if there was enough of the ore that he had been shown the samples of the mine should be economic. He was impressed with the amount of copper in the samples but not with the gold and silver content. Kelly purchased a majority interest in the Iron Blow mine and formed the Mt Lyell Company. He was a clever businessman and was able to work the price of the mine down since it had been effectively broke in 1891 and obtained his controlling interest for virtually nothing. James Crotty was the only other large owner still with his third of the shares.

Unfortunately for the new company by 1892 there was a world depression in metal prices and the company was not able to attract any other investors to supply operating capital. The mine metallurgist was Edward Peters, one of several medical doctors in the history of the Mt Lyell area who had become more interested in mining and metallurgy than in continuing with medicine. Peters had been brought to Mt Lyell by Bowes Kelly from America and in looking through the mine workings noticed a seam of grey mud-like ore in one of the tunnels. He recognized that the grey ore was similar to seams of rich silver ore that he had seen in mines in America and when he had some dug out it assayed at over 2,000 ounces of silver to the ton and about 6% copper. The seam which was effectively argentiferous chalcopyrite was a bonanza for the company and over the next two years, 1894 and 1895, 840 tons of ore yielded nearly 900,000 ounces of silver and 176 tons of copper. This lucky find kept Mt Lyell going and the £106,000 profit from the ore literally saved it from going under, given that Zeehan by then had passed its heyday.

A feud between James Crotty and Bowes Kelly had developed from when Kelly purchased the controlling interest in Mt Lyell. This was partly due to Kelly having worked down the price of the shares so much and obtained his interest cheaply and partly because Kelly kept Crotty off the board of directors. So began the war.

Both men wanted to build railways from the coast to the mines to transport ore out and bring supplies in. Kelly wanted to build his railway from Queenstown through the King River Valley to Strahan whereas Crotty wanted a railway from Mt Lyell to Kelly Basin on the eastern end of Macquarie Harbour, in the process establishing his own smelters at the township of Crotty, just south of Queenstown. Crotty also owned the North Mt Lyell lease and was rewarded with another bonanza when he was out of the country in England in 1897 trying to raise money to finance his railway. A road gang cut into a rich seam of chalcopyrite and bornite on the North Mt Lyell land. This find very conveniently funded Crotty's railway and his efforts to keep going. The feud between Kelly and Crotty separately building their Mt Lyell and North Lyell railways was a costly one in Australian mining history which was effectively ended in 1904 when the two companies amalgamated. By that time Crotty had died, in London in 1898.

In 1893 Dr Edward Peters and Otto Schlapp, who was a nephew of Herman Schlapp, were looking at improving the traditional way in which copper ore was then being treated, by roasting, smelting in a blast furnace to produce copper matte and then Bessemer-refined to produce blister copper. Then arrived an important man in the history of copper refining in Australia. This was Robert Sticht who became the chief metallurgist for the Mt Lyell mine. He decided that the high-pyrite content Mt Lyell ore could be smelted using minimal coke, relying on burning the sulphur content of the ore to provide one-step pyritic smelting. This would provide a considerable saving of coke supplies because at that time the railways had not yet been completed and coke had still to be hauled by horse-wagons from Strahan. So in 1896 at Penghana in Queenstown two 25-foot high, 150-ton pyritic blast furnaces were set up and lit. After a whole days smelting Sticht knocked out a plug and out poured slag to be followed the next day from a lower plug with a flow of 50% copper matte. Whilst Sticht on occasion experimented smelting by using no coke at all he generally ran the furnaces with about 5% coke.

James Crotty had also set up smelters at the township named for him of Crotty to the south of Queenstown. They were referred to as 'toy' smelters because at about nine feet high instead of twenty-five feet they were smaller than the Sticht pyritic smelters and were also less efficient.

A large number of slides were shown by Professor Leverett of the Mt Lyell mine, from its first few years and through to the present day. Views of the pyritic smelters in 1896 were compared with ones in 1900 when the number of furnaces had been increased to eleven. There were many other slides from the area, showing early Queenstown around 1900, the Queenstown flux quarries and a number of views of stretches of the two railways. Views from this period also indicated the countryside denuded of timber which had been cut down to fuel all the furnaces, countryside which for decades could not recover due to the sulphurous fumes being generated from the smelting.

The Queenstown area receives about 120 inches of rain a year and when the Mt Lyell smelters were running the large amounts of sulphurous fumes were converted to sulphuric acid which burnt the remaining vegetation and prevented re-growth. Images from the early 1900s were compared with ones from near to the present day when the countryside vegetation around the mining and smelting areas is recovering.

The fumes undoubtedly caused health problems for all the people living in the area in the early years of the mines. It was said that on a rainy day with all the smelters in the area running at capacity the people could become lost in the sulphurous pea-soup fog. Today acid-mine drainage from all the mine dumps in the area which still contain an amount of pyrite continues to severely pollute the King River all down its length to the Harbour.

With the aid of a number of projected images Professor Leverett also described the railway systems in some detail showing the laying of the tracks in 1896 which involved the construction of many long trestle bridges to span the various creeks. There were more views of the engines hauling trucks. The Mt Lyell track ran from Queenstown to a small township of Teepookana a few kilometers up the King River from its entrance on Macquarie Harbour. Boats would take the blister copper ingots from the Queenstown smelters round to Strahan or through the Harbour entrance to the mainland. The engineers had to use the Abt system because the grades in places were anywhere from 1:20 to 1:16 which were too steep for the small steam engines in use there to climb. Even with this system the engines could still not haul very many trucks up the steepest grades. A section of the Abt system rail was shown indicating that it was two rails with a central double cog system, a third extra toothed rail being laid in between the main rails. The engine had three drive pistons, the two usual ones on each side to drive the wheels and an extra one underneath to drive the Abt cog which would be dropped down to engage with the toothed extra rail on the steepest sections.

By 1910 the railway transportation situation had changed a little. Penghana had been given up and the route down to Teepookana discontinued with copper smelted at Crotty going down to Kelly Basin and out through the Heads. The railway on this discontinued route was largely dismantled after 1910 although some of the Abt sections have been recently restored and a view was shown from about the year 2000 at a point on the rail system called Double Barrel because trains could pass there. The speaker noted that in the same picture examining the railway section were some visitors including Peter Williams and Jim Sharpe. By 1912 a new route had been established with the railway from Strahan to Queenstown being linked up with a railway which went up to Zeehan, Roseberry and to Burnie on the north coast.

1912 also saw the now amalgamated Mt Lyell and North Lyell mines and railway at their peak of production and it was the largest copper mine in Australia and one of the biggest in the World at that time. This year saw what was said to be one of the worst disasters in Australian mining history when a fire, possibly deliberately lit by a disgruntled employee, in the North Lyell mine underground workings killed forty-two men and trapped a number more for a period. In the Zeehan Mining Museum there is a room attributed to and describing the tragedy with photographs and letters which had been written and lowered down shafts to the trapped men, many of whom did not survive.

The production from Mt Lyell has been quite staggering. The mine has indeed been one of the classic mines in Australia if not the World and over its life has produced over one million tons of copper, 750 tons of silver and 45 tons of gold. To the present day the Mt Lyell mines have seen almost continuous operation with the mines being taken over in 1994 by the current operator, Copper Mines of Tasmania Ltd.

In conclusion Professor Leverett spent some time describing the minerals that have been found at Mt Lyell referring to a number of specimens which had been brought in for display. He also showed a series of images of the Mt Lyell area, Queenstown and Zeehan today, noting that in the case of Zeehan, if one ignored the modern cars to be seen, the town was probably not much different to how it had looked in its heyday. In showing views of Zeehan including the Law Courts, Mining School and Gaiety Theatre the speaker related a story about the Theatre having booked the opera singer Dame Nellie Melba for a performance in the early 1900s.

Unfortunately the singer had got fed up with the time taken in traveling through Tasmania from Melbourne and got off the train at Roseberry refusing to go any further !.

At the end of his lecture Professor Leverett answered a number of questions. Prospects for more mining and production in the Mt Lyell area were encouraging. The C.M.T. company was conducting drilling operations and had established so far that there were some 24 million tons of ore still to be mined. It was all low-grade and would have to be mined underground and not by open cut.

FORTHCOMING EVENTS

BACK FROM TUCSON MINERAL SALE

Being held from 10.00 a.m. to 5.00 p.m. on Saturday and Sunday the 5th & 6th of March 2011
at 52 Macpherson Road, Londonderry.

Featuring:

Sales by Crystal Habit, Quality Gem Rough Supplies and Quality Alpaca Supplies of a fine selection of mineral specimens, decorator pieces, faceting and capping rough, gemstones, beads, metaphysical needs and fine Alpaca products.

Hosted by Arthur and Christine Roffey, Peter & Debbie Beckwith and John and Val Tunzi.

Inquiries to Arthur Roffey on (02) 4572 5812 or Peter Beckwith on 0412 333 150

GLENN INNES MINERAMA GEM, MINERAL AND FOSSIL SHOW

Glen Innes District and Services Club, 120 Grey Street, Glenn Innes
10.00 a.m. to 6.00 p.m. Friday to Sunday, 11th to 13th March.

ANNUAL GEM & CRAFT SHOW by the **NEW ENGLAND LAPIDARY AND FOSSICKING CLUB INC**

Being held in the Armidale Showground on Saturday, 19th March, 9 am - 4 pm.

Spectacular craft, gems, rocks, crystals, jewellery, gifts, lapidary books, supplies & equipment on sale

CANBERRA ROCK SWAP 2011

Saturday 2nd and Sunday 3rd of April in the EPIC park, off Northbourne Avenue, Canberra.

GEMBOREE 2011

Incorporating the

NATIONAL GEM AND MINERAL SHOW

In the Bathurst Showgrounds, Bathurst.

Easter 2011. Good Friday 22nd April to Monday 25th April.

Friday 10.00 a.m. to 5.00 p.m., Saturday 9.00 a.m. to 5.00 p.m.,

Sunday 10.00 a.m. to 5.00 p.m. and Monday 9.00 a.m. to 1.00 p.m.

Displays of minerals, gems, crystals, fossils and jewellery. National exhibition and competition.

Over 30 leading Australian dealers in attendance. Lapidary, Gemstone and Mineral trading.

Tailgate sales. Refreshments. Plenty of parking.

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