



THE MINERALOGICAL SOCIETY OF NEW SOUTH WALES INC.

C/o School of Natural Science
B.C.R.I. Parramatta Campus University of Western Sydney
Locked Bag 1797 Penrith South DC N.S.W. 179
Website: www.minsocnsw.org.au

NEWSLETTER

DECEMBER 2010

The December Meeting will be held on Friday the 3rd of December 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.

ANNUAL CHRISTMAS SOCIAL AND SWAP N' SELL

The December Meeting will be the annual Christmas Social and Swap and Sell. At the Meeting there may be a few announcements made but otherwise there will be no formal program or lecture, the evening being devoted entirely to the sale or exchange of mineral specimens and mineralogical material, books, magazines and equipment. The Meeting venue would be open some time before 7.30 p.m. so members with material to place on display for sale could arrive a little earlier to get set up.

There will be a substantial and comprehensive range of snack food refreshments organised and provided by Society members, as well as a range of cool and hot drinks, beer, wine and other beverages. Pizzas will be ordered to arrive about 8.00 p.m. Members attending the Christmas Social Meeting are requested to pay \$10 towards the cost of the refreshments.

FORTHCOMING MEETINGS

The Society does not hold General Meetings in January. After December 3rd 2010 the next Meeting will be on **Friday the 4th of February 2011**. Subsequent Meetings will be held on the first Friday of each month through the year. The long weekends in 2011 of Easter, (April 22nd to 25th), Queen's Birthday, (June 13th) and Labour Day, (October 3rd), will not affect Society Meetings being held on the first Friday of each month.

Subject to circumstances some changes to the following schedule of program subjects and speakers may have to be made in due course.

February 4th 2011: 'New Minerals Update' talk by Peter Williams and a lecture by Peter Leverett on 'Mines in the Mist – Mt Lyell'.

There will also be a mineral sale of donated specimens to be held for the **Kids with Cancer fund**.

- March 4th 2011: Tucson 2011 Update by Penny Williamson and Arthur Roffey.
Lecture by John Rankin on 'Collectors of the New England'.
- April 1st 2011: 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 2011: Member's Mini Auction.
- June 3rd 2011: 'The Prospect Intrusion. Brief History, Geology & Member's Experiences.

Kids with Cancer Mineral Sale February 4th 2011

A mineral sale to raise money for Kids with Cancer will be held during the first Society Meeting in February. Donations are requested.

If you are able to donate minerals for this sale, bring the specimens along on the night. Include a label showing the price.

It will help to sell the specimen if we are able to send out a list of the specimens in advance of the sale. Contact Jim Sharpe on (02) 9871 2502 or e-mail sharpemin@tadaust.org.au

If you do not get around to sorting out surplus specimens and providing a list by mid-January, just bring the specimens along on the night although with a description and price label.

2011 Society Membership Fees:

Society membership fees are due from January 1st 2011. Subscription renewal forms will be sent out with this Newsletter 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. Members with e-mail capability may still wish to receive hard copy communications also and can indicate so on the subscription form.

Members are particularly urged to avoid assailing the Treasurer at the Christmas Social with subscription payments presented in cash without a renewal form. This necessitates the Treasurer to be continually writing out receipts for cash payments when he would prefer to be looking at minerals. Members wishing to pay their subscriptions at the Christmas Social are asked to present a completed renewal form with a cheque payment when a receipt can be issued later or to leave paying altogether until next year.

The renewal form may also be used to pay a premium of \$3.00 for **Personal Accident Insurance**. The names of members paying for insurance will be registered with the Gem & Lapidary Council as soon as possible after submitting the renewal form with insurance payment and the insurance will be valid for the whole of 2011 providing payments are made before March 31st which is the cut-off date for the insurance period.

Information on the degree/s of cover provided by the **Personal Accident Insurance** is available from the Society Secretary or the Gem & Lapidary Council of N.S.W. Inc. The insurance has been arranged for many years by the Council for member clubs and associations through brokers Webster Hyde Heath in Adelaide with QBE Commercial Insurance Ltd and provides a number and scale of benefits for personal injuries.

THE SOCIETY COMMITTEE

PRESIDENT:	Dieter Mylius	Tel: (02) 9477 1060
VICE-PRESIDENT:	John Chapman	Tel (02) 9808 3481
	E-mail:	<i>chapmanjr@optusnet.com.au</i>
SECRETARY:	George Laking	Tel: (02) 9636 7145
	E-mail:	<i>bglaking@tech2u.com.au</i>
TREASURER:	Graham Ogle	Tel: (02) 9876 5224
COMMITTEE MEMBERS:	David Colchester	Tel: (02) 9449 3862
	Arthur Roffey	Tel: (02) 4572 5812
	John Smedley	Tel: (02) 9688 1284
	Gary Sutherland	Tel: (02) 9871 1379
	Peter Williams	Tel: (02) 9685 9914

WELCOME

Welcome to new members Doug and Robyn Endersby of Cessnock

NOVEMBER MEETING

The November General Meeting was opened by the Society President, Dieter Mylius, who initially recommended that members make sure that they sign the **Attendance Register** when they arrive at the Meeting. This was to ensure that should they be involved in a personal accident whilst on the way to, from or at the Meeting the attendance book might have to be referred to in order to establish that they were present.

The President advised that the program for the evening had been intended to include a **Member's Forum** discussion about any queries on mineralogical subjects that members might have which then could have been dealt with by a panel of experts. Unfortunately there had been virtually none made by members to incorporate into a Forum discussion, other than a question from John Smedley for which Noel Kennon had provided a written answer and this had been distributed in the Newsletter. John Chapman urged members to think of any mineralogical queries they might have and to send these to him so that a Forum discussion to answer and/or discuss them could be included in a future Meeting program.

John Chapman also described the forthcoming **field trip** to the Bathurst - Orange area which was being held over the 13th and 14th of November weekend to coincide with the annual **Open Day** organised by the mining company **Cadia Valley Operations**. The company would be conducting bus tours of the Cadia mining

area with visitors being picked up at intervals in the village of Millthorpe about 20 klm from the Cadia mine. Society members attending the Trip would need to be at Millthorpe before 10.00 a.m. on Sunday 14th November to catch the tour bus.

The trip was recommended to be for two days with attendees traveling first to Bathurst on Saturday 13th November and meeting at 11.00 a.m. outside the **Australian Mineral and Fossil Museum** housing the **Warren Sommerville Collection** in Howick Street, Bathurst. The party would take a tour of the Museum before moving on for the afternoon to a local mining site. John Chapman had hoped to get permission to enter a site at Cow Flat but this had been refused and at the present time he was not sure where the party might spend the afternoon but would have decided upon a site by the weekend. He had also organised overnight accommodation for trip attendees at a converted farmhouse, Newhaven Park, in the Cow Flat area.

The President announced that **Bernie Day** who had been a founding and long-time member of the **Mineralogical Society of Victoria** serving for many years on the their committee and was also often to be seen tail-gating at various shows had passed away on the 9th of September after a battle with lung cancer. The (N.S.W.) Society had sent a wreath of flowers for the funeral. A letter of thanks from his widow Margaret had been subsequently received and which the President read out to the Meeting.

The first lecture of the evening was given by Gary Sutherland on the topic 'Bollywood Beauties' which in spite of his first slide showing several elegant Indian ladies turned out to be on Zeolites.

'Bollywood Beauties. Indian Zeolites' **Gary Sutherland**

After apologizing for there being no more views of Indian modeling ladies in his presentation Gary Sutherland proceeded to show a selection of photographs of spectacular zeolite specimens from the Indian sub-continent. The first one of these was of an apophyllite specimen recently acquired which the speaker compared with a later view of a similar specimen originally bought from Albert Chapman at a Society Christmas Social in 1976, then for about a third of the price of the recently bought one.

The history of mining in India particularly for gemstones goes back to about 400 BC. An issue of the Mineralogical Record for January-February 2003 referred to by the speaker contains an article providing a good summary of the history and current mining in India. By the early 1800s mining for metalliferous deposits had got underway in an increasing number of places but unfortunately very few specimens were collected or have been preserved from that period. It seems that it was only by the 1970s with an increased interest throughout the world in collecting minerals with magazines such as the Mineralogical Record coming into existence and a great deal more mining for various materials and construction projects throughout the country that Indian miners became aware that there was substantial significance and profit in specimens and opportunities to be established on the World market.

By reference to a map the speaker showed the main source areas of zeolites in India which come from a large area, mostly Maharastra State, in the central west of the subcontinent. It is a huge area of some 500,000 square kilometers of basalt strata up to 1,500 meters thick in which the zeolites are found. There are many locations throughout the area where excavations, initially for road metal or to dig wells or make road cuttings have turned up zeolites in cavities and whilst it is not certain what is the extent of the mineralisation there is still a huge area more which potentially contains minerals. A slide showing the large number of locations from which zeolites have already been recovered indicated that these locations were very widespread across the whole of the basalt block and all have been producing substantial amounts of spectacular specimens. Many specimens have come from quarries within Mumbai, (Bombay), itself as well as many other sites.

There is quite an extensive number of zeolite species that have been found in India and after having shown a list of these with the chemical formulae which in the case of zeolites can be somewhat complex, the speaker proceeded to display views of a number of specimens. Apart from apophyllites there were views of fine specimens of scolecite, mesolite, stilbite, and others and of a few non-zeolite but associated minerals such as calcite and cavansite.

In answering questions from the members at the Meeting and with various points being made it was acknowledged that Indian zeolites in view of their being so plentiful had been fairly cheap in the past. It was noted that on occasion some dealers or collectors had been selling quantities of zeolites by weight, irrespective of quality, rather than as individual specimens. This situation had however changed substantially in recent years, most likely due to generally increased interest in collecting if not increased numbers of collectors, and prices had risen considerably.

A point made by Peter Williams about the Indian metalliferous ore mining and smelting was that some of this had become established much earlier than the 1800s. Indian miners were the first people in the World to perfect zinc smelting technology, long before this was being done elsewhere. The technology was revived during the British occupation of India when an archeological excavation discovered a series of zinc smelters which were copied to re-establish a zinc smelting industry. Indian workers had also been quite early in smelting iron and producing good-quality steel.

The talk by Gary Sutherland was followed by a lecture given by Society member Glen Diemar who had previously lectured to the Society two years ago to the month on the subject of his Honours degree thesis then just completed on the Antimony Minerals of Hillgrove. He is now a Masters student of the University of Tasmania. The following summary of his talk has been edited by the speaker who has also changed the title.

**‘Olympic Dam, in all its ~~Glory~~...Ummm...Mineralogy’
Glen Diemar**

Olympic Dam is 560 kilometers north of Adelaide. The attractive and perfectly-built town of Roxby Downs was established in 1988 and now has about 4,500 residents with a third of the population under twelve. It was said by the speaker to be one of the most beautiful places to live, the town having all modern amenities and opportunities for recreation and with the clearest night skies.

On a map of South Australia Glen Diemar pointed out the main features of the area of South Australia including the locations of the three main iron oxide-copper-gold deposits of Carapateena, Olympic Dam and Prominent Hill. Carapateena is not being mined at the moment since the ore body is under 500 meters of overburden. Olympic Dam is the largest underground mine in Australia with over 350 km of underground tunnels and the mine is currently producing 9.8 million tonnes of ore a year. Processing of this ore produces 190,000 tonnes of copper, 4,500 tonnes of uranium, 110,000 ounces of gold and over 900,000 ounces of silver per year. Olympic Dam is the largest uranium resource in the World by about eight times although at the moment the Ranger mine in the Northern Territory is producing a little more uranium, about 5,500 tonnes per annum. Olympic Dam is expected to surpass this figure considerably if the planned expansion was to proceed. Currently all mining is underground but the expansion will convert the workings into an open pit system.

In order to direct the underground mining the geologists conduct mine site exploration geology and plan drilling fans and then tunnels with the aid of underground rigs to resource where the stopes should go. 30-tonne trucks transport ore into ore passes then trains, which carry the ore to the hoists. Mining ore also generates an amount of granite and haematite, the main gangue or waste materials encountered. Unfortunately all of the mining is into dense rock with few vughs and therefore there are very few specimens to be found.

Preliminary work on the Olympic Dam site was conducted with a great deal of core drilling which to date has produced over two and a half million meters of core to define the resource. The core farm is possibly the largest in Australia. The Mine currently uses about 10% of South Australia's electric power, but if the planned expansion goes ahead which could quadruple the output of ore produced, power demand will obviously also increase substantially. There are several large tailings dams established away from the mining and plant area and a new tailings dam is being planned which will be larger in area than the Adelaide CBD. All information can be found on the BHP Billiton website by downloading the Olympic Dam Expansion Environmental Impact Study.

Views were shown of the original dam itself which it is supposed was so named because it was constructed during the year of the 1956 Melbourne Olympic Games. Early drilling work was conducted in the area by a team working for Western Mining Corporation. The first diamond drill hole into the ore body was made in 1975 and the drilling had to pass through about 335 meters of sediment before it found ore and a plinth now marks the spot. WMC had made a decision to commence drilling in the area because geophysics had suggested the presence of possible metalliferous dense rock at depth.

The W.M.C. teams started drilling numbering their drill holes RD1, 2, 3 etc – ('RD' for Roxby Downs). RD1 which had to pass through the 335 meters of sediment then drilled into a haematite-rich basement assaying at 38 meters of 1% copper which would have been a good result for any first drill hole except that at that depth the copper content was sub-economic. RD2 was drilled at the Acropolis ore body about 20 km south of Roxby Downs. The next few drill holes proved to be either barren, insignificantly or uneconomically mineralised until the team put down RD10, the – 'real discovery hole' which under the 350 meters of sediment gave 170 meters of 2% copper mostly as chalcocite. This was a very economic finding and would have elated the geology personnel immensely. After this result much more drilling commenced to prove out the extent of the ore body which by now has been estimated to contain about nine billion tonnes of ore. The first shaft, named the Whenan after the man who had operated the first drill hole, was completed in 1982 and by 1987 W.M.C. had commenced mining and ore production and building the Roxby Downs township. The company was fully acquired by BHP Billiton in 2005.

The deepest strata of the overburden are dated at approximately 600 million years and the ore body at about 1.59 billion years although Glen Diemar is examining this date for his Masters degree. Several lists of the minerals found in the deposit were displayed by the speaker. The main ore minerals are chalcopyrite, chalcocite, bornite, digenite, djurleite and large amounts of gangue minerals also occur such as pyrite and siderite. There are a small amount of rare earth minerals in the deposit, about 0.3 to 0.4%, mainly in the form of bastnäsite, $(\text{Ce,Lu})\text{CO}_3(\text{F,OH})$ and florencite, $(\text{Ce,Lu,Nd})\text{Al}_3(\text{PO}_4)_2(\text{OH})_6$. These are not commercially significant but their presence is also being examined by the speaker as part of his thesis. Other minerals indicated some electrum, haematite and magnetite. A large number of slides of samples, specimens and microscopic views of micro specimens and polished sections were shown to demonstrate the distribution and appearance of the various minerals. The deposit is also substantially salt-bearing with mine drainage water containing about 5-7 times the amount of salt in seawater and the underground workings salt stalactites and stalagmites have formed 'everywhere'. Green salts have been x-rayed and minerals found were of the Atacamite group.

At the end of his lecture Glen Diemar was asked a number of questions. One of these was about the ventilation of such a mine, of some considerable concern due to the presence of radon elaborated from uranium decay. Much larger amounts of air are blown into the mine compared to other large underground mines such as Mt Isa. Water usage is also considerable as the mine draws from the Great Artesian Basin by a pipeline although the planned expansion will not draw any more water from that source according to the EIS.

Orange field trip, 13-14 November

Twelve members took part on the Saturday leg of the field trip. We visited the Warren Somerville collection at Bathurst and the Wisemans Creek mine near Oberon (which took a bit of finding). A few copper minerals were found but the workings were all fenced off and inaccessible. Molybdenite and garnets are present in an exotic stockpile of skarn ore from the Mount Tennyson Mine near Yetholme.



The field trip party on the Mt Tennyson stockpile at Wisemans Creek mine (John Chapman also present was taking the photograph).

There followed a pleasant sociable evening at the Newhaven Park Homestead accommodation. On Sunday another couple of members joined us for a tour of the awesome Cadia Valley (gold and copper) Operations. The scale of the operation is immense with production of approximately \$700 million worth of gold a year. The Cadia open cut is 700 metres deep and the underground extensions could last for over 30 years. After the tour, staff kindly made exploration geology samples available to us, including some spectacular wollastonite-bornite-chalcopyrite samples from the Browns Creek Mine. A couple of visible gold specimens were also collected.

The management and staff of Newcrest are thanked for their time and assistance.

Report by John Chapman
November 2010



The Cadia open cut

FORTHCOMING EVENTS

The WINDSOR JEWELLERY, BEADING, GEM & MINERAL SHOW

Saturday & Sunday, November 27th & 28th 2010

At the Windsor Function Centre on the corner of Dight & Macquarie Streets, Windsor.
Next door to Windsor Public School.

Saturday open from 9.30 a.m. to 5.00 p.m. & Sunday from 9.30 a.m. to 4.00 p.m.
Admission \$5, children \$1. Light refreshments.

Demonstrations including faceting gemstones, wire wrapping stones,
precious metal clay beading and hand made jewellery.

Displays from private collections including mineral specimens, cut & polished stones, carvings & gemstones.
SALES of jewellery, gemstones, beads, opals, mineral specimens from all over the world,
tools and equipment for lapidary and beading work, metaphysical and healing crystals.

Proudly supported by the Hawkesbury Valley Lapidary Club
Inquiries to Peter Beckwith on 0412 333 150.

ILLAWARRA LAPIDARY CLUB 2010 ROCK AND MINERAL FAIR

Sunday 27th February 2011, 8.30 am - 2.00 pm. In Stuart Park, by the beach, North Wollongong

Members of the Lapidary Club sell minerals, fossils, lapidary work, jewellery, books, equipment and other wares. "Rock Scramble" around mid-day for children and young people.

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.

Inquiries to : - Ernst Holland. Tel: (02) 6337 3661

Arthur Roffey. Tel: (02) 4572 5812

Publicity Officer Alan McRae. Tel: (02) 6332 1622 or e-mail amcrae@lisp.com.au

THE MINERALOGICAL SOCIETY OF N.S.W. INC.

2011 MEMBERSHIP RENEWAL

Membership fees for 2011 are due from January 1st 2011

Please provide your full name, postal address, telephone number/s and e-mail address, (if available). Unless otherwise indicated members giving their E-mail addresses will receive the Newsletter only by E-mail.

Please do not send cash by post. Return this form with a cheque or Australia Post money order payable to: - The Mineralogical Society of N.S.W. Inc. and send to: -

The Secretary or Treasurer
 The Mineralogical Society of N.S.W. Inc
 c/- School of Natural Science
 B.C.R.I. Parramatta (North) Campus
 The University of Western Sydney
 Locked Bag 1797 Penrith South DC N.S.W. 1797

NAME :
 POSTAL Street No:
 ADDRESS: Town/Suburb:
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If an E-mail address is supplied please indicate if the member wishes to receive hard copies of any Society correspondence or E-mail only. ? E-mail only: ? Hard Copy also:

FEES: Adult membership, Sydney metropolitan area: \$25
 Country and interstate adult membership: \$20
 Non –adult or student member: \$15

PERSONAL ACCIDENT INSURANCE

I (Full Name).
 Of (Address).
 (Post Code)
 Telephone, (Home) (Business):
 Date of Birth:

wish to apply for the Personal Accident Insurance cover arranged by the Gem & Lapidary Council of N.S.W. Inc available to members for a premium of \$3.00. **(Members who provided their D.O.B. on a previous application for this insurance need not do so again).** If more than one family member is intended to be insured a separate one of these forms should be filled out for each member.

The names of members paying for insurance will be registered with the Gem & Lapidary Council as soon as possible after submitting this renewal form with insurance payment and the insurance will be valid for the whole of 2011 providing payments are made before March 31st which is the cut-off date for the insurance period. Personal Accident Insurance cannot be provided for members over the age of 80 years.

Insurance payment : - \$
 Signed: Date :