

Mineralogical Society of Western Australia Inc May 2013 Newsletter

Editorial

Many thanks to those members supplying articles for this newsletter. The policy that members may submit short adverts free of charge will remain.

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For Sale The three volume set of Simpson's "Minerals of Western Australia". For further details contact Barbara Donati at 9279 5303 The Rock Shop would like to inform Minsocwa members that we have some very aesthetic crystalline gold nuggets from the Bulong Area, Eastern Goldfields in W.A. **The Rock Shop** 49 London Court, Perth 6000 Ph: 08 93257052 Email: rockshop@optusnet.com.au

General Meeting held on Wednesday 20th March, 2013.

Following the General Meeting, Dr Belinda Godel from Earth Sciences and Resource Engineering at CSIRO gave a presentation on "High resolution X-ray computed tomography – examples of application to igneous petrology and ore deposits". Geert Buters reported on the talk.

Even abbreviated to HRXCT, the technique is a mouthful and perhaps some members found the title a little daunting, hence the disappointing turn out. Those who did make the effort to attend enjoyed an extremely interesting talk, as was evidenced by the animated Q&A session that followed.

Computed tomography is perhaps better known to most of us from having some medical ailment investigated and being sent for a CT scan. Dr Godel's talk was about how this medical technology has been applied to create 3D images of ore samples, and what this non-destructive technique can tell us about the minerals.

In simple terms a HRXCT machine consists of an x-ray source, a revolving object to be investigated, and a screen to image the rays scattered by the object. Add a few incidental cogs, enough computing power to run five dozen laptops, and a wee bit of shielding to protect the operator, and you have a 3.5 ton instrument costing over a million dollars. As the object revolves through 360 degrees 2000 images of the sample are projected onto the screen, and the computer can combine these slices, or "tomograms", into a 3 dimensional image. The result can be filtered to reduce noise, and selectively coloured to highlight such characteristics as dissemination, crystal morphology, mineral species, etc.

Each mineral absorbs/scatters X rays in a specific way, known as its "attenuation coefficient", allowing identification of individual micro crystals. Resolution is down to 0.7 microns, and can even go as low as 0.3 microns! But, as with all techniques, there are limits to its application. While extremely useful in the investigation of samples containing heavy minerals such as chromite, sulphides, PGE, or gold, it doesn't distinguish between silicates such as quartz and feldspar, making them appear equally black.

The technique has been variously applied to meteorites, komatiites, iron ores, PG concentrates, gold bearing samples, etc. The greater part of the presentation illustrated results obtained from ore samples from all over the world. From the Merensky Reef, Bushveld Complex, came a core showing two layers of chromitite separated by a layer of melanorite. Both layers contained fine grained chromite crystals, but larger dendritic chromite crystals with silicate inclusions only occur in the lower layer. The explanation is supercooling during the influx of the lower layer, which did not occur when the upper lava layer was emplaced.

Other samples came from the Skaergaard Intrusion in Greenland, type locality for skaergaardite (PdCu), and from the Stillwater Complex in North America, the only PGE deposit in the USA. The slides provided clues about Pd deposition, revealing the mineral boundaries on which it occurs.

In Australia samples reviewed came from Nebo-Babel in the West Musgrave block (Ni-Cu-PGEsulphides), the Mount Keith deposit, and other localities. The Mount Keith sample illustrated the relationship between the sulphides and olivine. Other Mount Keith slides showed obvious mineral orientation. Evidence of formation and deformation was sufficient to conclude that some of the sulphides were formed in situ, while others had been transported.

HRXCT is a powerful technique with obvious implication for exploration, beneficiation and mineralogy, of which many of us were previously unaware. We thank Dr Godel for bringing the subject to our attention with her stimulating presentation.

The Crystal Universe bi-annual gala evening was held on Saturday April 27th.

This event, held at the Crystal Universe Showroom located at 205 Hay Street, Subiaco was attended by half a dozen Minsocwa members who enjoyed complimentary drinks and tasty canapés while viewing their showroom overflowing with new stock from all over the world. Allan Hart was there and sent in a couple of photographs.



Vanadinite. Mibladen, Morocco

Photograph: Allan Hart



Stibnite. Wuling Mine, Wunite Jiujiang, Jhangxi, China

Photograph: Allan Hart

Micromounters Workshop, Sunday 28th April, 2013

This informal workshop was attended by 9 members and a couple of guests who brought specimens, microscopes and micromounting tools for a hands-on session. Everybody was kept very busy, teaching, learning and observing (see photographs). There was a flurry of activity when all attempted to locate the small (and I mean small) diamond that Ted had temporarily misplaced. It was eventually found adhering to a tissue and then successfully mounted onto a needle.

The door prize was won by Clive Daw.

Thanks to Ted Fowler for organizing the day.



Micromounters at work. Photograph by Sue Koepke.



Concentration – Clive Daw at his microscope. Photograph by Allan Hart.

Gemboree, Murray Bridge, SA.

This event, held between 29th March and 2nd April, 2013 was attended by members of the Minsocwa. Allan Hart submitted the following report and photographs.

This year the Gemboree was held at the showgrounds in Murray Bridge. Murray Bridge is about 80 km east of Adelaide along the main highway to Melbourne. The showgrounds are about 3 km from the city centre and are on the opposite side of the Murray River to both Adelaide and the city centre.

Entry cost was \$6 (or \$5 concession) and there was abundant parking available. There were an estimated 50 to 80 tailgaters with a similar number of traders in the main hall. There was another hall containing exhibitions, an excellent display of minerals from the DeGrussa Copper mine and a display of early minerals from South Australia.

On the Saturday I went on the field trip to Milendella to collect andradite garnets. Cost to go on the field trip was \$2. We met at the Palmer Oval (about 35 km from Murray Bridge) and then travelled about 8 km along a dirt road to reach our destination. A relatively flat area close to the right close of where we parked the cars was a fossicking area suitable for those who could not walk far. On the left hand side were two fossicking areas which involved more walking and steeper terrain.

On the initial handout we were warned that the garnets were specimen only, not suitable for cutting and are in hard garnet matrix. The quality of specimens found would rate between mediocre and poor (or very poor), and could only be considered as reference specimens for that locality – they certainly would not rate as display specimens. The most you could expect to find is a few crystal faces in the garnet matrix. Also found at the location was green epidote and pink feldspar. Some specimens of the feldspar with epidote (with or without the black andradite garnet) were reasonably attractive.

After the field trip we were told that we could visit the mineral museum in Mannum free of charge (for those attending the field trip). The mineral museum had a large number of mineral specimens including a display case of fluorescent minerals as well as a display case of shells and a number of fossils. It was a challenge to take photos of the fluorescent minerals. Many people attending the field trip took advantage of this offer.

On the Sunday there was a field trip to Mannum to collect fossils, and also a metal detectors field trip. As I did not go on either of these I cannot comment further on them. On the Thursday and Friday after the Gemboree there was a field trip to Olary and Radium Hill.

The weather was variable. On the Friday it was too hot to wear a jacket (when the sun was shining) but too cold not to wear one when the sun went behind a cloud. Fortunately there was no rain on the Friday. While I was on the field trip on Saturday there was no rain, but I did strike some rain when driving back to Adelaide after the field trip. On the Sunday it rained quite heavy (fortunately I was inside the main hall at the time). This rain damaged many of the labels which the tailgaters had on their minerals specimens.

The display of minerals by Murray Thompson from the DeGrussa Mine received many favourable comments.

Book Release

It may be worth recording that the "Mineralogical Record" is selling a hard-bound, limited-edition version of a new book "Mineral Collections in Arizona". It is 240 pages, same as the beautiful book "Minerals of Broken Hill", and at USD 60 plus postage, is a good buy. The soft cover version comes as an accompaniment to the next issue of the Record.

Tailgaters at the Gemboree

















Photographs by Allan Hart

Gemboree - Competitive Display Room & Main Hall



Minerals from DeGrussa Copper Mine



Competition Hall



Main Hall



Treasures from Early SA mines



Mineral display in competition Hall



Main Hall



Main Hall



Main Hall

Photographs by Allan Hart Mineralogical Society of Western Australia November 2012 Newsletter

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Field trip to Milendella Garnets



Area where garnets are found





Epidote in Andradite



feldspar (pink) & epidote (green)



Mineral Museum Mannum

Looking for garnets



Epidote (green), Andradite (black) & feldspar



Mineral Museum Mannum



Fluorescent display

Photographs by Allan Hart

May Meeting

There will be a General Meeting on**15th May, 2013** at the WA Lapidary Club rooms located at 31, Gladstone Road, Rivervale (corner of Newey St).

This will be followed by a talk on "Alexandrite and other rare beryllium minerals" delivered by Susan Stocklmayer, Gemmologist.

Susan is a geologist by training and held the position of Mineralogist in the Geological Survey of Zimbabwe before obtaining her FGA. She worked as a jewellery valuer in London before coming to Western Australia where she spent many years as a lecturer at the Gemmological Association of WA. She has had a long-standing interest in beryl minerals and has published several scientific papers on Zimbabwean emerald, euclase and alexandrite.

Visitors Welcome

A light supper will be served after the meeting.

2013 Future Meetings and other Activity Dates

May, 2013. The, previously postponed, four hour workshop session on "Map Reading and Navigational Skills" organized by Tom Bateman is now re-scheduled to take place sometime during the last fortnight in May. The workshop will commence at 12 noon with a BBQ and finish at 5pm. Tom is seeking expressions of interest and his contact details are:

Email: tom@enigma.id.au

Mobile: 0417 908 188

July, 17th. General Meeting. Speaker TBA.

September, 18th. General Meeting. Speaker TBA.

November, 20th. General Meeting. Speaker Kevin Morgan on "Early Exploration and Mineral Collecting".

Society Notices

Training in GSWA databases and online systems

The Geological Survey of Western Australia (GSWA) offers free training sessions in the use of their various databases. A summary of these sessions is given below:

You are invited to attend a free training session to demonstrate GSWA's online systems. The format is an interactive presentation which includes navigating the DMP website, searching for geoscience publications, finding mineral deposits using MINEDEX, finding digital datasets using the Data and Software Centre, open- file mineral exploration reports using WAMEX, and bringing it all together with the interactive map viewer (GeoVIEW.WA). GeoMap.WA, a standalone GIS viewer for Windows, will also be demonstrated.

The morning sessions will be a high-level fast demonstration and overview of the use of all the programs. At the afternoon sessions, participants will be able to practise using the programs with their own actual examples and get some one-on-one advice about individual issues. You can attend one or both sessions

Further details including registration details can be found at <u>http://www.dmp.wa.gov.au/5677.aspx</u>

Field Safety

Tom Batemen, Field Trips Leader, came across the following article on safety in the field.

Follow these dos and don'ts for brighter prospects

by Malavika Santhebennur

19 April, 2013



Prospecting can be exciting. The possibility of finding gold, gems and minerals is thrilling. Many prospect as a hobby and if they know where to look for gold, all the better. But what starts as an escape from daily life can quickly turn dangerous if proper precautions are not taken.

There have been an increasing number of prospectors going out into the bush and getting lost. A 63year-old man went missing for a night in remote bushland in Western Australia after he went for a walk. He and his son had been prospecting around 20 kilometres west of the Thunderbox gold mine in Leonora.

A missing prospector was found dead and his companion was taken to hospital after their 4WD became bogged in mud near Broken Hill in outback NSW. William Coles, 78, and Raymond Davis, 81, were believed to be going to a sheep station north of Broken Hill when their Holden Jackaroo got stuck in mud.

They had plenty of food and water with them, and medical authorities looked into whether Coles died from a pre-existing medical condition.

A 46-year-old man went missing in the Western Australian Goldfields in January after he wandered away from his camp site 70 kilometres north-east of the Goldfields town Menzies. A 13-day search ensued, yielding no results.

The most experienced bushman can go missing when prospecting. Taking precautions, making a checklist, brushing up on direction concepts, and carrying the right equipment can prevent mishaps and perhaps save a life.

Also, when people walk, they take a bigger step with their right foot than the left foot if they are right handed. As they keep walking, they will eventually go around in a complete circle and come back to where they started.

John Wilkshire is a member of the Prospectors and Miners Association of Victoria (PMAV) and the Prospectors' Home Club in Sydney. He has been a member of the Sydney club for 20 years and has been prospecting since the 1970s.

He told *Australian Mining* <u>complacency is one of the key reasons why prospectors get lost</u>. He wrote an article in *The Eureka Echo*, the Journal of PMAV about a friend who got lost while prospecting. He said many of PMAV East Gippsland branch members, including him, met in Western Australia in winter last year for a trip.

At Duketon, near Laverton, one of the party members, who he calls 'Vern', went off to detect. As he was about to leave the campsite, Wilkshire enquired if he had a two-way radio, compass, water, food, snakebite, bandage and matches.

His response was "stop nagging me; I'm only going for two hours".

Vern had none of those items except the GPS and a box of matches. He was still sure he would be safe because he had his new GPS with the camp co-ordinates marked on it.

Yet when he looked to use it to get back to the campsite, he found the only waypoint in his GPS menu was at Laverton, 120 kilometres to the east. This was a place he had been to a week ago.

The camp co-ordinates were nowhere to be seen on the GPS.

"The GPS here works on satellite and it gets a fix on four or maybe six satellites up in the sky, up in space," Wilkshire said.

"The prospectors are not waiting for the satellites to lock on. And that causes the machine not to malfunction, but to misread. It might send you to Germany or somewhere like that."

Vern's other option was to follow the sun. But he had not looked at a hard copy map of the area to get an idea of where the camp was in relation to the sun.

He was now lost.

"He made every mistake he could make," Wilkshire said.

The first thing prospectors should do when they get lost is remain calm. But Wilkshire said they do the opposite.

"They completely lose all common sense. They panic and they cannot think." Even slight Dehydration adds to this panic

It is essential for prospectors to carry a hard copy map to determine their location in relation to points of a compass, roads or tracks. They must also mark the camp location on their GPS.

It is also a good idea to observe the sun's location before leaving the camp.

"When I walk out in the morning or the afternoon, I look at where the sun is and I say, okay, the sun's on my left cheek. When I come back I've got to have the sun on the right cheek. It doesn't tell you exactly where you're going but it gives you an idea you're going in the right direction," Wilkshire said.

Being properly equipped is key. It is important to carry UHF radios or walkie talkies, matches and cigarette lighters for warmth, a watch, and food and water. Spare batteries for the GPS will also come in handy.

Vern did not carry any of these things except the GPS. But he lost the GPS in the outback when he set it down on the ground while resting. He had left his three UHF radios in the car.

According to the president of PMAV Rita Bentley, prospecting in Victoria is safer than in harsher outback regions like Western Australia. She said the state is more closely settled and many regional towns developed from goldfield tent cities.

Victoria does not have the vast open spaces of the outback. The outback climate is also hotter and everything in the area can start to look the same.

She also implored prospectors to take every precaution possible before venturing out.

"We urge everyone to ensure they are thoroughly prepared for any excursion to areas they aren't familiar with and never go into the outback along and without giving someone full details of your plans," she said.

Vern eventually saw a herd of cattle, which was travelling on a well-worn cattle track. He followed the cattle. Shortly after he heard a motor start and ran towards the sound. It was a windmill, where a station hand had started the generator.

He was only four kilometres from camp when he reached safety.

"This country is not to be messed with. It can kill you in a short time. Carry all gear necessary for your own safety," Wilkshire said.

If you're prepared for an emergency, you will have better prospects.

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http://www.miningaustralia.com.au/features/follow-these-dos-and-don-ts-for-brighter-prospects

Joint Mineralogical Societies of Australasia 36th Annual Seminar

The next Joint Mineralogical Societies of Australasia 36th Annual Seminar will be held in Sydney on Saturday 8th June to Monday 10th June 2013. Details, as supplied by the Secretary, George Laking, are shown below.

The MINERALOGICAL SOCIETY OF N.S.W. Inc

As you are aware the 2013 36th Australasian Mineralogical Societies Joint Seminar is being hosted by this Society over the Queen's Birthday long weekend, Saturday 8th to Monday 10th of June 2013, next.

The theme is to be: - 'The Wonderful World of Minerals'

The Seminar will be held in the Eastwood – Ryde Leagues Club in Ryedale Road, Eastwood, which we have decided upon since it is a fairly central location in Sydney but well away from the CBD area with adequate parking nearby and well served by public transport. All Seminar activities other than field trips or Australian Museum and private collection visits will be held in the Club which has substantial convention and catering facilities. Activities will include the Seminar dinner on Saturday evening 8th of June and mineral and micromount displays and sales probably on the Sunday afternoon and Monday the 10th of June. Interstate visitors and attendees from outside Sydney will be advised about suitable accommodation in the Eastwood area which has a number of hotels. It is hoped that there will be field trips to one or more locations held in conjunction with the Seminar but details have not yet been finalized.

Our Committee has been deliberating for some months already about Seminar arrangements and we have already spoken to or lined up a number of speakers including several from interstate. However this e-mail is to invite all the other Australasian societies to suggest or nominate any other speakers who would be able to deliver a lecture. (If we get too many we may have to start saying 'thank-you, - maybe the following year').

Field Trips

Western Australia Lapidary and Rockhunting Club Inc.

By arrangement, members of the Mineralogical Society are able to go on field trips organized by the Western Australia Lapidary and Rockhunting Club Inc. If you are interested in attending these field trips please put your name on the notice board at the Lapidary and Rockhunting Club for the relevant field trip.

The following proposed events are shown on the notice board:

June 8, 9 and June 15, 16 Exhibition.

July 22 to August 10. Long trip to Marble Bar area.

Please register with MinSocwa Field Trip organizers prior to attending any of the field trips to confirm event details.

Committee Members

Committee Members		
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