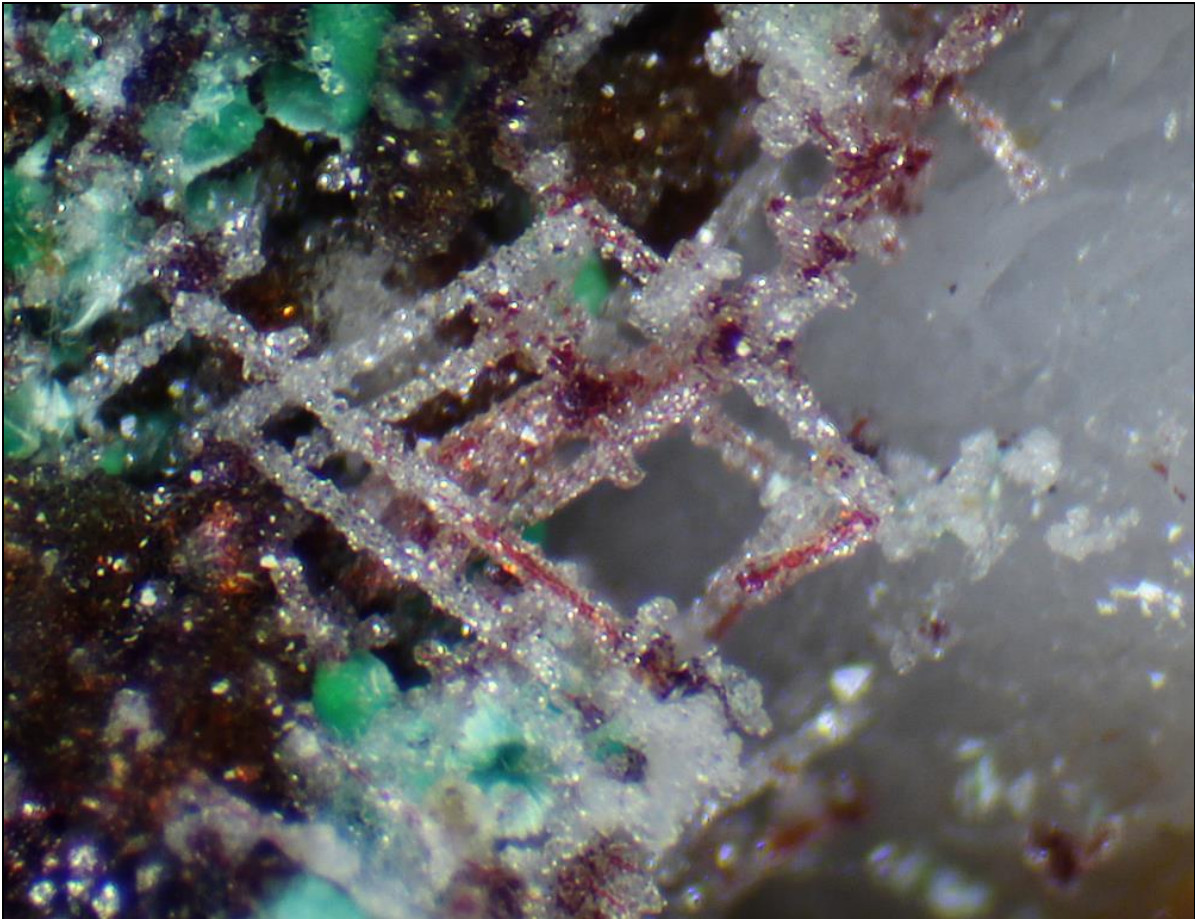


Australia and New Zealand Micromineral News

Issue 6 – May 2013



Cover photo: Quartz on chalcotrichite, Virneberg Mine, Rheinbreitbach, Germany
Photo width 2.5mm across.
Photo and Specimen: Steve Sorrell.



Editor:
Steve Sorrell
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Introduction

This issue is going out primarily due to the efforts of John Haupt, who once again has provided not just one, but two articles. This is starting to sound like déjà vu. My request for articles in the last issue has gone somewhat unnoticed. I do have reports from Mal Southwood and from Suzie Ericsson on the Gemboree, and a short article from Noel Kennon ready for the next issue, so thanks to each of you. But we need much more participation. Therefore I have repeated my request below.

Contributions – We Need Your Input!

Dear reader. You may be astute enough to notice that the last issue was published in November, and it is now May. There is a reason for this. LACK OF CONTRIBUTIONS! There is little point in publishing something that is only a few pages in length. When this concept was first mooted, there were promises of articles and information. If you want this venture to continue, CONTRIBUTE! Otherwise, it is doomed to fail.

Articles should be submitted to the editor in Word format, and any photos should be of a sufficient quality for publication. If you believe that you can provide a suitable article for the next issue, please advise the editor as soon as possible. Planning for the next issue begins as soon as the current one is published!

Contacts

If you want to find out what's happening in your region with micromounting or microminerals, get in touch with one of the following:

- ✉ New South Wales: George Laking – bglaking@tech2u.com.au
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- ✉ Western Australia: Susan Koepke – minsocwa@hotmail.com

Forward Diary

Please send details of upcoming events (up to six months ahead would be good) for inclusion in the next issue of the Australian and New Zealand Micromineral News.

May 2013

May 26th - Mineralogical Society of Victoria - Micro Group Meeting: Venue - John Haupt's home. Topic - "Minerals crystallising in the Tetragonal system".

June 2013

June 8th to 10th - "The Wonderful World of Minerals", Joint Australasian Mineral Societies Seminar, Eastwood-Ryde Leagues Club, Ryedale Road, West Ryde, New South Wales – incorporating a micromineral day on the Sunday.

October 2013

October 25th to 29th - New Zealand Micromount Symposium, Omaui Camp, Greenhills, near Bluff, South Island, New Zealand.

By John Bosworth and John Haupt

The first meeting of our micro mineral group for 2013 was a combined meeting with the Mineral Appreciation Group, which was held in the Nunawading Lapidary clubrooms. The topic was striations, hoppers and other surface features. Selecting specimens proved a little difficult, as most had to be viewed before selection, rather than specimens of species or from localities, with the more organised members who had all this on the collection database also having to go through their collection to select specimens. However there were numerous examples to view and discuss, both of hand size specimens and micros. A common surface feature was lustre and it was noted that there is a general relationship between the lustre and hardness of a mineral - minerals with higher hardness having a greater or more brilliant lustre. The different striation features of pyrite were interesting, with no striations on specimens from Spain and heavy ones from Peru. Similarly observed were the varying striations on galena, rutile, hematite and gypsum, which in most cases were along the crystal axis.

Hopper faces and pyramidal growths (possibly the opposite of a hopper) were seen on a few species and their pattern of crystal growth discussed. Some examples being pyromorphite from Broken Hill, quartz from Cloncurry, mimetite from Mt Bonnie, galena from Peru and the triangular faces on diamond crystals.

We also looked at iridescence, such as on goethite, undulations on the surface of pyrite and fluorite, the 'cogwheel' pattern of some Tasmanian cerussites (especially the yellow ones) and the curved faces of the campylite variety of mimetite and the zinnwaldite-polyolithionite micas. We discussed etches, the skeletal surfaces of chabazite and gmelinite crystals and peculiar edge-patterns on some quartz, pyrite, Chinese fluorites, where instead of a sharp meeting of the crystal surfaces, the edge may be flattened or stepped. We also saw specimens with other species, selectively growing on some crystal faces, such as fluorite on quartz. A very thought provoking meeting indeed!



Hopper crystals of pyromorphite from the Kintore opencut, Broken Hill. 15 mm FV. Photo and Specimen: J. Haupt.



'Cogwheel' shaped crystals of yellow cerussite, 2 cm across, from the Magnet Mine, Waratah, Tasmania. Photo and Specimen: J. Haupt.



Curved crystals of pyromorphite from the Orlando Mine, Tennant Creek, Northern Territory. 15mm FV. Photo and Specimen: J. Haupt.



Striated twin rutile crystal, 5mm across, from Carver's claim, Wadnamanga goldfield, South Australia. Photo and Specimen: J. Haupt.

The subject for our February meeting was danburite, vesuvianite and ferro-axinite from Victoria compared to other world localities. As the topic was limited to these species, there were fewer than normal specimens to view and discuss. Only three Victorian localities were represented - Dookie, the nearby Ascot Hills and Morass Creek in Gippsland.

Axinite

Most if not all specimens were of the species ferro-axinite, or now as currently named axinite-(Fe), rather than the Mg and Mn species. However it is difficult to identify the particular axinite species unless they had been previously analysed from that locality.

The Mineralogical reserve at Dookie has produced some particularly attractive micros of axinite, consisting of pale mauve transparent wedge shaped crystals which commonly occur with andradite, clinozoisite, and fibres of actinolite (see separate article). The other Victorian axinite specimens were pale mauve opaque crystals from the Lake Cooper Quarry at Corop in northern Victoria. Probably the best Australian axinite specimens have come from Colebrook Hill in Tasmania and several specimens were displayed at the meeting. These were deep brownish purple and had been etched out from calcite in a tough actinolitic rock. There was also a specimen from Murrin Murrin in Western Australia.

Several overseas specimens included one from the type locality of St Christophe near Bourg d'Oisans in France and excellent lustrous thumbnail size crystals from Dal'negorsk in Eastern Russia.

Danburite

The Gravel Hill quarry at Ascot Hills has produced specimens of danburite, its first reported occurrence in Victoria. Whilst it mainly occurred as white parallel crystals, at least one specimen had free standing clear crystals, to 1mm tall. There were several specimens from overseas localities, with exceptional specimens from Charcas, San Luis Potosi, Mexico. A specimen consisting of a small sharply terminated crystal from the type locality Danbury in Connecticut, USA was particularly noted.

Vesuvianite

Vesuvianite is also an uncommon mineral in Victoria. Several specimens were from Gravel Hill quarry at Ascot Hills, where it occurs as small blebs in the skarn rock, associated with danburite and fluorite. Better specimens were from Morass Creek near Benambra in Gippsland, where it occurs as small yellowish-brown crystals.

Several specimens were from Barraba in NSW which had lustrous crystals associated with wollastonite. There was also a specimen from the Broken Hill lode. There were many fine specimens from overseas localities, including Norway, the Vilyui River in Russia and particularly lustrous crystals from Aosta Italy, the Jeffrey Quarry Quebec Canada and Afghanistan.



A 2cm tall cluster of axinite-(Fe) crystals from Colebrook Hill, Tasmania. Photo and Specimen: J. Haupt.



A group of danburite crystals from the Gravel Hill quarry, Ascot Hills, Victoria. 2mm FV. Photo and Specimen: Judy Rowe.



Vesuvianite crystal from Morass Creek, Gippsland, Victoria. The crystal is ~1mm tall. Photo and Specimen: Judy Rowe.

Minerals from Dookie, Victoria

By John Haupt

Introduction

An abandoned quarry at Dookie has produced an interesting range of silicate minerals which are uncommon in Victoria. Located 30km east of Shepparton, it is the most northerly extension of the Cambrian age rocks of the Mt Wellington axis. The Dookie rocks were formed in a shallow marine environment and consist of interbedded basaltic lavas, mudstones and limestones. These have undergone low grade metamorphism to form cherts, shales, tuffs and 'greenstones' including spilites and albite dolerites. Quarrying operations removed the surface soil and exposed the greenstone bedrock, which was used as roadmetal. Quarrying ceased in the early 1970s and part of the site was used as a council tip. The site has been designated a mineralogical reserve by agreement between the Mineralogical Society of Victoria and the Shepparton City Council.

The majority of the minerals generally occur in veins in the spilite rocks which have been almost completely altered to actinolite. The veins are usually less than 1 cm wide and zoned from the actinolitic host rock inwards to clinozoisite-epidote, axinite, andradite, prehnite and calcite.

Minerals

Actinolite

Actinolite is the most common mineral at Dookie, where it is the dominant rock forming mineral. It is best developed as free standing fibrous crystals up to 10mm long, when etched from calcite. The fibres are typically light green but the colour ranges from white (possibly the magnesium rich group member tremolite) to deep green.

Andradite

Analysis of the Dookie garnets show that they are almost pure andradite. The crystals form as rounded trapezohedrons and dodecahedrons, commonly in veins infilled with calcite. Their colour ranges from golden yellow, to brown and pale green and is commonly associated with ferroaxinite, actinolite and datolite.

Axinite-(Fe)

Formerly named ferroaxinite, it is the most sought after mineral at Dookie. It occurs as transparent to translucent violet tabular crystals, with wedge shaped edges. It can be discoloured and become opaque with weathering, with the finest crystals being etched from calcite in-filling. All reference to axinite in this article is the species axinite-(Fe).

Calcite

Calcite occurs as a late stage in-fill in the epidote-garnet lined veins. When etched out it may leave attractive specimens of andradite, axinite, prehnite and epidote, the calcite having protected these minerals from surface weathering.

Clinozoisite

Clinozoisite frequently occurs with axinite, occurring as small light yellow-green glassy crystals to 1mm.

Epidote

Epidote is also a common mineral at Dookie, where it occurs as veins and masses. It occasionally forms as small prismatic olive green crystals to 2mm long.

Ferrotschermakite

Ferrotschermakite is also common at Dookie, where it occurs as brown to black fibrous sprays.

Prehnite

Prehnite occurs in a range of habits at Dookie, including prismatic, pyramidal, tabular and rounded masses of radiating crystals. The six sided flat tabular crystals are particularly attractive under the microscope. The colour varies from colourless to white and pale green.

Other recorded minerals are chalcopyrite, datolite, mesolite, pyrite, opal (hyalite), quartz and stellerite.

All images and specimens are from the author unless otherwise shown.

References

Birch, W.D., 1976: New mineral localities in Victoria. The Australian Mineralogist, 4, p18.

Hall, P., 1992: Dookie Mineralogical Reserve, The Mineralogical Society of Victoria, Album of Minerals. Volume 4. 13p.

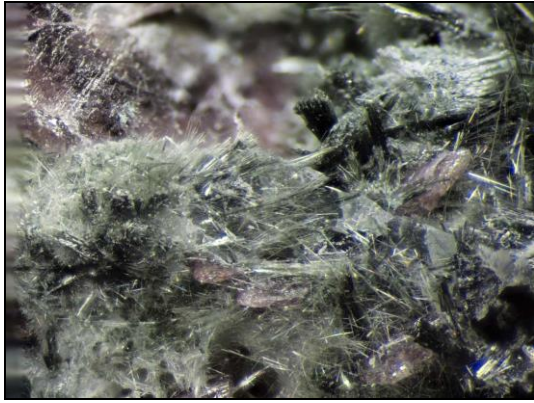
Morvell, G. L., 1976: Mineral occurrences at Dookie, Victoria. The Australian Mineralogist, 6, p21-23.



The Dookie Mineralogical Reserve, March 2013.



Typical exposure of an epidote vein, with minor axinite (mauve) in the actinolite host rock.



Actinolite fibres with axinite crystals. 6mm field of view.



A 3mm intergrown andradite crystal from Dookie.



'Honey' coloured andradite garnets, 6mm field of view.



A group of pale lilac coloured axinite crystals with clinozoisite. 5mm field of view.



A 4mm cluster of pale green andradite crystals.



Axinite crystals with andradite and clinozoisite.



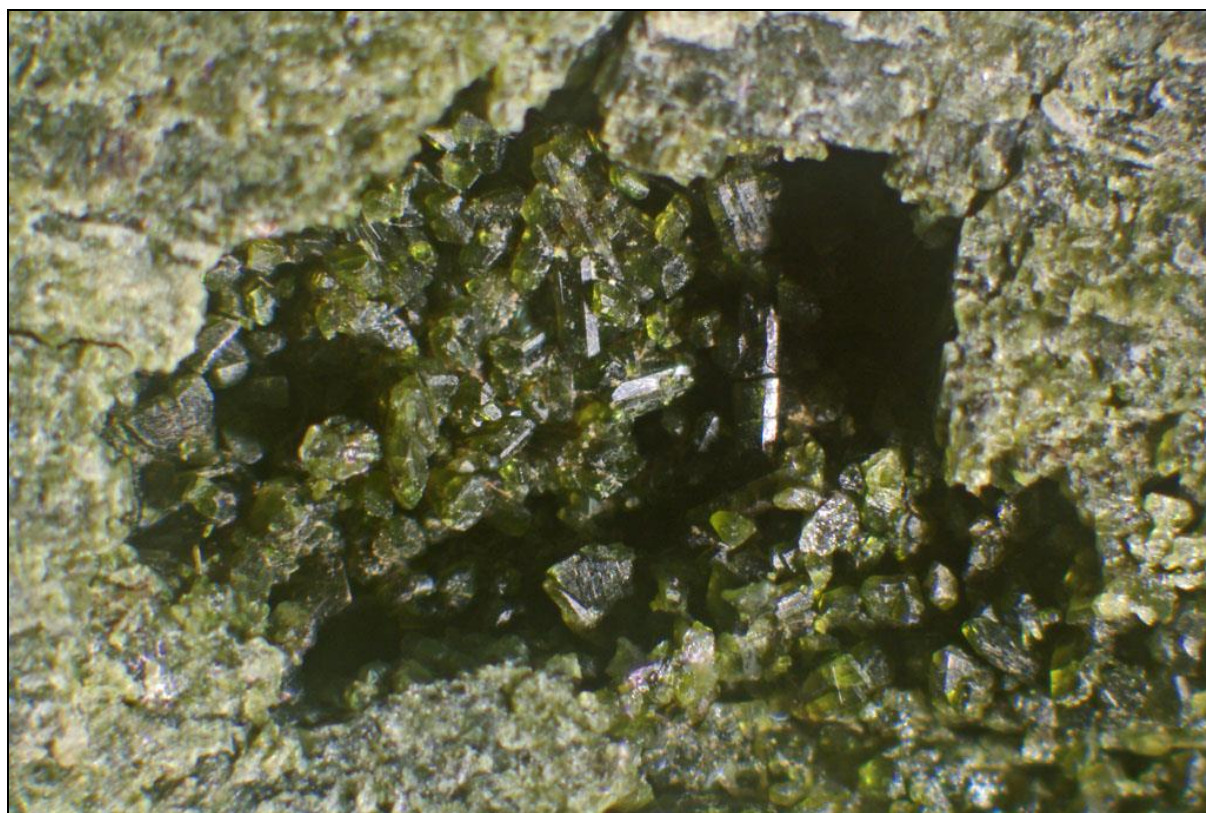
Group of axinite crystals, 15mm field of view.



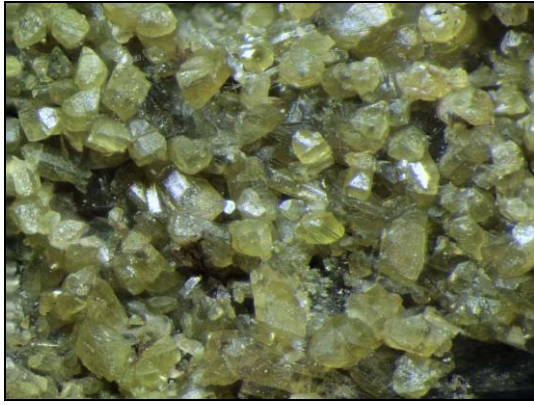
Axinite with andradite and clinozoisite, 10 mm across.



Clinozoisite crystals, 2mm field of view. Photo & Specimen: J. Rowe



Epidote lined cavity 12mm across. Photo & Specimen; J. Rowe.



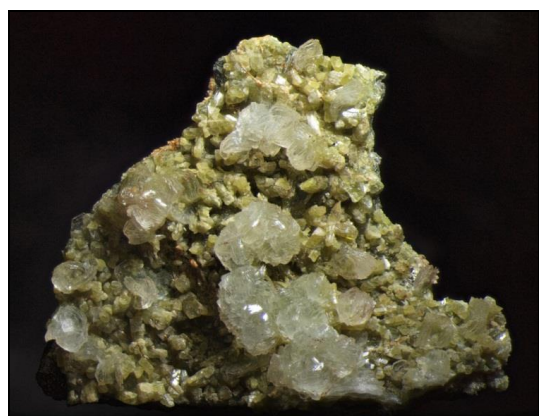
Well formed epidote crystals, 5mm across.



Globular clear opal variety hyalite, 10 mm across.



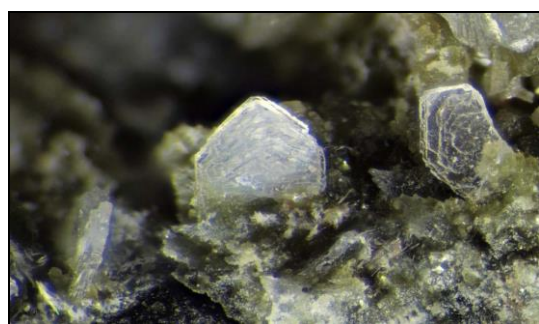
Dark brown fibres of ferrotschermackite, 10mm field of view.



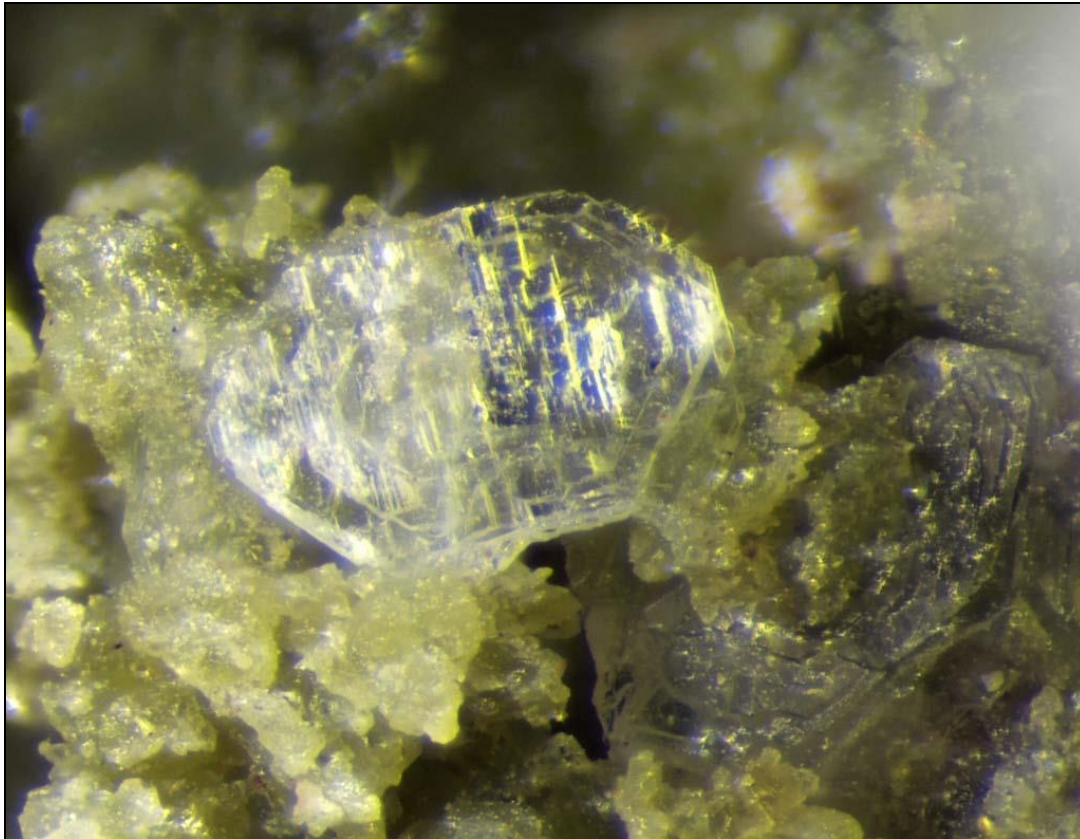
Groups of prehnite crystals on epidote. The specimen is 12mm across.



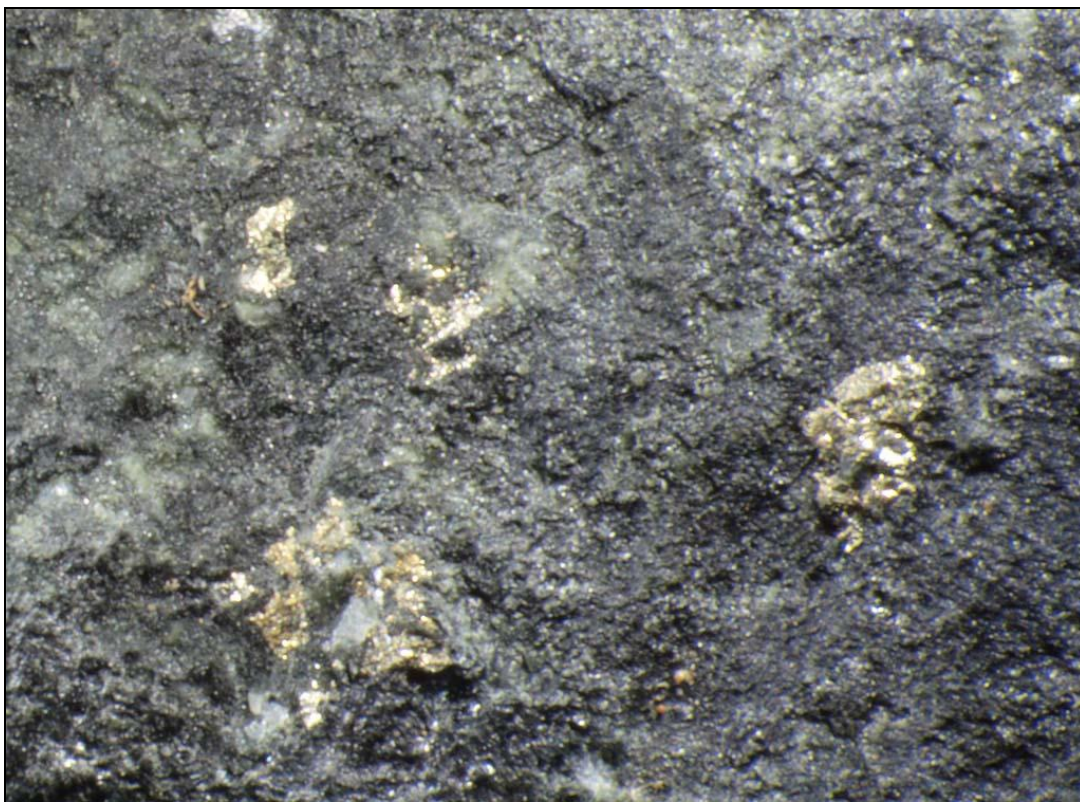
Group of gypsum crystals, 2mm field of view.



Pseudo-hexagonal crystals of prehnite from Dookie, 5mm field of view



A 1mm 'butterfly' of tabular prehnite crystals on clinozoisite.



Blebs of pyrite in actinolitic greenstone, 10mm field of view.

Around the Australian Shows in 2013 – Hobart Show

by Steve Sorrell

One week after the Victorian Gemkana at Albury (which I did not get to), the Tasmanian Lapidary Club along with the Mineralogical Society of Tasmania, held their show at the Showgrounds in Hobart. I had booked a flight down for that weekend not realising that the show was on, so for me, it was a bonus. The hall was full with tables, including a high proportion selling minerals. Amongst them were the Adelaide Mining Company, showing off their latest Red River crocoite find, Peter Beckwith (Crystal Habit) from Sydney, Dehne and Maureen McLaughlin, and more.

Crystal Habit had some interesting material including some thumbnail-sized northupite crystals, free of matrix, from Searles Lake, California, collected around 1970, and a couple of Mexican wulfenites that were unusual and attractive.

But of course, the most impressive things were the new crocoites. As can be seen from the photo, there are multiple generations of crocoite present, a stunning array under the microscope. If you can find one that will fit of course!



Above: Crocoite, Red River Find, Adelaide Mine, Dundas, Tasmania.
Steve Sorrell photo.

Around the Australian Shows in 2013 – Australian Gemboree, Murray Bridge

Photos and article by Malcolm Southwood – Reprinted from Mal's Minerals No. 4

(Ed: If you are interested in receiving Mal's Mineral Musings, get in touch with him directly on [mal\[southwood\[at\]bigpond\[dot\]com](mailto:mal[southwood[at]bigpond[dot]com)).

Easter weekend, for each of the past five years, has seen Ange and I travelling to a mineral show somewhere in Australia. The national “Gemboree” gets rotated from state to state, so that in 2009 we were relatively close to home, in Horsham, Victoria, while last year we flew up to Queensland, where the event was held in Bundaberg.

We had almost given up on these shows; there tends to be a very heavy lapidary emphasis, with not too much to interest the serious mineral collector. Moreover, the events are held in places that, frankly, are rather difficult to get to. It would make good sense, to me at least, to hold the event in, or close to, a major city, so that interstate visitors could fly in without having to worry about car hire etc. But this is not the way the organisers think about things; last year Bundaberg was a four hour drive north of Brisbane; the year before that, Bathurst was a three-hour drive west of Sydney. (Just to develop my “grumpy old man” image a little further, I have to say that I hate this “Gemboree” title; it makes me think of jewellery and scout camps rather than mineralogy!).

This year's event was in Murray Bridge, which is a mere 70km east of Adelaide or, coming from the other direction, some 750km by road west of our home in Melbourne. We chose to drive, and had a generally pleasant run across western Victoria, spoiled only by a brief (and expensive) encounter with a traffic policeman and his radar device. We live and learn I suppose!

Anyway, the show was most enjoyable! We spent two days there and, I'd have to say, it was the best of the Gemborees we've been to. The weather was a bit mixed. This matters at these events because a large proportion of the show consists of “tailgaters” – collectors and informal dealers, selling from a table in the open air, or simply from the back of a vehicle.



Mineral show Australia-style; great when the weather is kind...

The indoor event attracts the more formal vendors with a larger volume of stock which, I suppose, would be tricky to cope with in adverse weather conditions. What I find particularly enjoyable with these shows is wandering around the “tailgaters” looking for interesting minerals at what can only be described as very fair and reasonable prices.

I’ve chosen to highlight three acquisitions here, all of them at a fraction of what they might have cost me in Tucson, or from an online dealer. They are – unusually for me – all Australian specimens. We must have been living here too long!



Tarnished wires of native silver on matrix, from the Junction Mine, Broken Hill, New South Wales. Specimen MS2013.087 is 52mm in maximum dimension.

My favourite, I suppose, is a native silver from the Junction Mine, at Broken Hill. I’d been on the lookout for a wire silver from this locality for some time and this one fits the bill quite nicely.

Next up is a cerussite arrowhead twin, also from Broken Hill, where this habit of cerussite is quite common.



Anglesite pseudomorph after an arrowhead twin of cerussite, from the Blackwoods Pit, Broken Hill, NSW, Australia. Specimen MS2013.086 is 40mm in maximum dimension.

I liked the matrix association with this piece, but I also wanted to have a closer look at the frosted texture on the cerussite surface. Magnification reveals that the faces of the arrowhead comprise a mosaic of tiny anglesite crystals. I can't discern if the replacement is complete, or if the anglesite is merely an encrustation, but I have labelled this as a pseudomorph of anglesite after cerussite; rather interesting!

DeGrussa: a new mineral locality in Western Australia

Finally, a leaf of native copper, from the DeGrussa Mine, in Western Australia.

This is not a wonderfully aesthetic mineral specimen but it is, hopefully, a harbinger of better things to come. The DeGrussa copper mine exploits a Proterozoic volcanogenic hosted massive sulphide (VHMS) deposit some 900km north of Perth and commenced production only last year. The near-surface ore is sufficiently high grade that it is being shipped directly to the smelter (i.e. without the need for beneficiation) and, not surprisingly therefore, it offers considerable specimen potential.



Native copper, from the Degruessa Mine, near Doolgunna, Western Australia. Specimen MS2013.085 is 70mm in maximum dimension.

More encouraging still, is the fact that mine owners Sandfire Resources recognise the scientific and commercial value of these specimens. The company had an impressive display case at the Murray Bridge show, with some fine specimens of native copper, cuprite, calcite, chrysocolla, a fine native gold on copper, malachite, and “duhamelite”. (I had to look this last one up; it is not a valid species, but a variety of mottramite containing calcium and bismuth).

Specimen material has been collected and retained by the company; a few native coppers have been sold to date (indeed, some were available in Tucson this year) but, if the company’s display case is anything to go by, there will be some more exciting things to come in the not too distant future. My understanding is that sales of specimen material by the company will benefit local charities.

Watch this space!

Around the Australian Shows in 2013 – Australian Gemboree, Murray Bridge

Photos and article by Suzie Ericsson

The 49th Annual Gemboree was held at the showgrounds at Murray Bridge in South Australia. While the grounds were open from midday Wednesday, we didn't arrive until the Thursday afternoon. The halls were open for the dealers and competitions on Wednesday and Thursday and there were a lot of man hours spent in the two halls as the displays were set up. There appeared to be a few less dealers this year, but still many beautiful minerals to tempt even the tightest of purses.

The competition entries were well down with about 1000 entries from 300 odd entrants. However the entries were of a wonderful standard. MinSoc Queensland was represented by Denise Whitehead with entries in several mineral sections as well as in polished face section. She had 9 entries and managed to land 3 third prizes. Peter Whitehead had entries in cabochon, opal and faceting sections. With 8 entries, he landed two Highly Commended in tight competition. John Sandifort had 1 faceting entry but sadly missed any prize. Jan Lippold had a total of 10 entries in 10 sections which resulted in her winning 1 first and 5 seconds and also winning the Tony Annear OAM Memorial Trophy. Congratulations to all of our members but especially to Jan ... WELL DONE!!!

The halls and tailgaters opened at Midday on Good Friday for trading with much spending happening in the first couple of hours. While the number of tailgaters were down there was good selection of macro and micro minerals for sale in tailgaters' alley.

Over the weekend there were three field trips – metal detecting, fossils and a mineral trip (for garnets).



Tailgaters looking for those bargains!

The evening programme for the Gemboree was good. Thursday evening was a get together with a reasonable attendance of old friends meeting again and the meeting of new ones. Friday night was the wine and cheese night that was attended well. They were rewarded with excellent entertainment provided by Phil King. Sadly this event clashed with the Micromineral gathering which was held in the next room. This meeting was also well attended.

Saturday evening began with crowning of the Prince and Princess of Gemboree. Then Don McColl presented the Jack Taylor Memorial Lecture. In typical Don style, his talk on Australian Tektites was extremely interesting. He spoke of the recent discussions on how, when and where the tektites landed in Australia, the reason for their unique shapes and what those shapes are. The Australian tektites form as round, oval, teardrop boats and dumbbells. Due to the fact that Don had a lot of the Micro people enthralled in his lecture, the Micro evening was somewhat late starting but was still well supported by micro enthusiasts. Once again there was a clash of events as the fancy dress party was held in the adjoining hall. Much hilarity ensued and again they were treated to the fine music and songs of Phil King.

Sunday started with a gentle wake-up call with a call to breakfast and the Easter Bonnet Parade in the entertainment hall. We were given a good breakfast of egg in toast, tomato, bacon and sausage. Easter Bunny and his helper arrived to rewards all the good girls and boys of all ages then the bonnets were judged with acclamation. Bonnets varied from very simplistic to quite complex.



Don McColl delivering the Memorial lecture on Australites.

Then it was back to buying mode as we checked out the tailgaters and dealers yet again.

Over the weekend there were various activities for the youngsters ... and their Dads ... including a scavenger hunt and colouring contests.

The evening entertainment commenced with the trophy presentation followed by the rather entertaining Auction led by Rennie D'Arcie (the Gemboree Convenor) and Ashley Watt. There were 102 lots up for auction including a bridal outfit from the previous night's fancy dress evening and paraded at the Auction by Rennie. Subsequently it attracted vigorous bidding. The auction raised in the region of \$2,000 so was a successful venture.

Monday was a quieter day with last minute visits to the tailgaters and dealers looking for those "specials". The afternoon was full of farewells and much chatting. Final departures were on Tuesday morning. Weather wise we were lucky. Two nights saw a small amount of rain and a short shower mid Sunday morning. The remainder of the time was just overcast thankfully.

Another Gemboree over Gatton here we come !!!



Gemboree Princess

Around the Australian Shows in 2013 – Gemboree Micro Meeting

Article and photos by Suzie Ericsson

The first Micro session was held on Friday evening at 7.30 pm with 35 interested people in attendance.

Don McColl presented a talk entitled “The making of Micromounts” which was an excellent introduction to micromounting. He started with the reasons for micromounts and micromounting. He spoke of the various requirements that a beginner needs to begin the hobby. He spoke of the various types of microscopes and the advantages of each one and why he feels that 10x to 40x is the only range needed for most Micro work.

He spoke of the various light sources that are available, the various boxes available, and he stressed the importance of labelling each specimen. He demonstrated how the specimens and labels give a complete story about the minerals and their formation. He showed a lot of mineral photos and explained how he does his labels on the computer. He finished with a physical demonstration of mounting a small specimen on to a pedestal.

Six microscopes were then set up and swapping began with a lot of conversation going on until after 9pm. John Weir had a box of swaps and I provided several bags.



Don McColl demonstrating micro mounting at the first session.

The second Micro night was held on Saturday evening but the start had to be delayed until 7.50pm as most of the participants were enthralled by Don McColl as he delivered the lecture on Australian Tektites.

There were five microscopes set up and 24 people in attendance. John Weir from the Port Pirie Group spoke on the basics of micromounting with emphasis on his methods of collecting and mounting.

John Haupt from Melbourne spoke of the Micro News that is produced by Steve Sorrell, urging people to subscribe to the magazine. He also urged people to contribute articles to Steve for inclusion in the magazine.

Once again there were several swap boxes put out for us to add to our collections. There were specimens from Arkaroola which were popular now that the area is now closed to collectors. Several other boxes and bags were offered for the taking as well.



Frenzy at the freeby table.

Around the Australian Shows in 2013 – Ballarat Show

by Steve Sorrell

We have been living in Ballarat for a little over twelve months now. There is a local gem club, the Ballarat Gem Club, that meets in Sebastopol on a regular basis. What I didn't know until a couple of weeks before the event itself, is that the Ballarat club have been holding a small show for the last three years in Creswick, north of Ballarat. This show is held at the Creswick Woollen Mills.

There were only about nine tables, but three at least had quite an array of minerals available for sale. There were quite a few "locally acquired" specimens, some from older more obscure localities. There were some familiar faces amongst the visitors too, including friends from Bendigo and Hamilton.

Although I did not pick up anything micro-related, there was material that would be suitable for micros. There was also talk of the possibility of holding a mineral show in Ballarat at some point. Stay tuned for that one!



Drusy quartz on barite, Palomo Mine, Peru, 60mm across. Picked up for only \$10. Steve Sorrell specimen and photo.

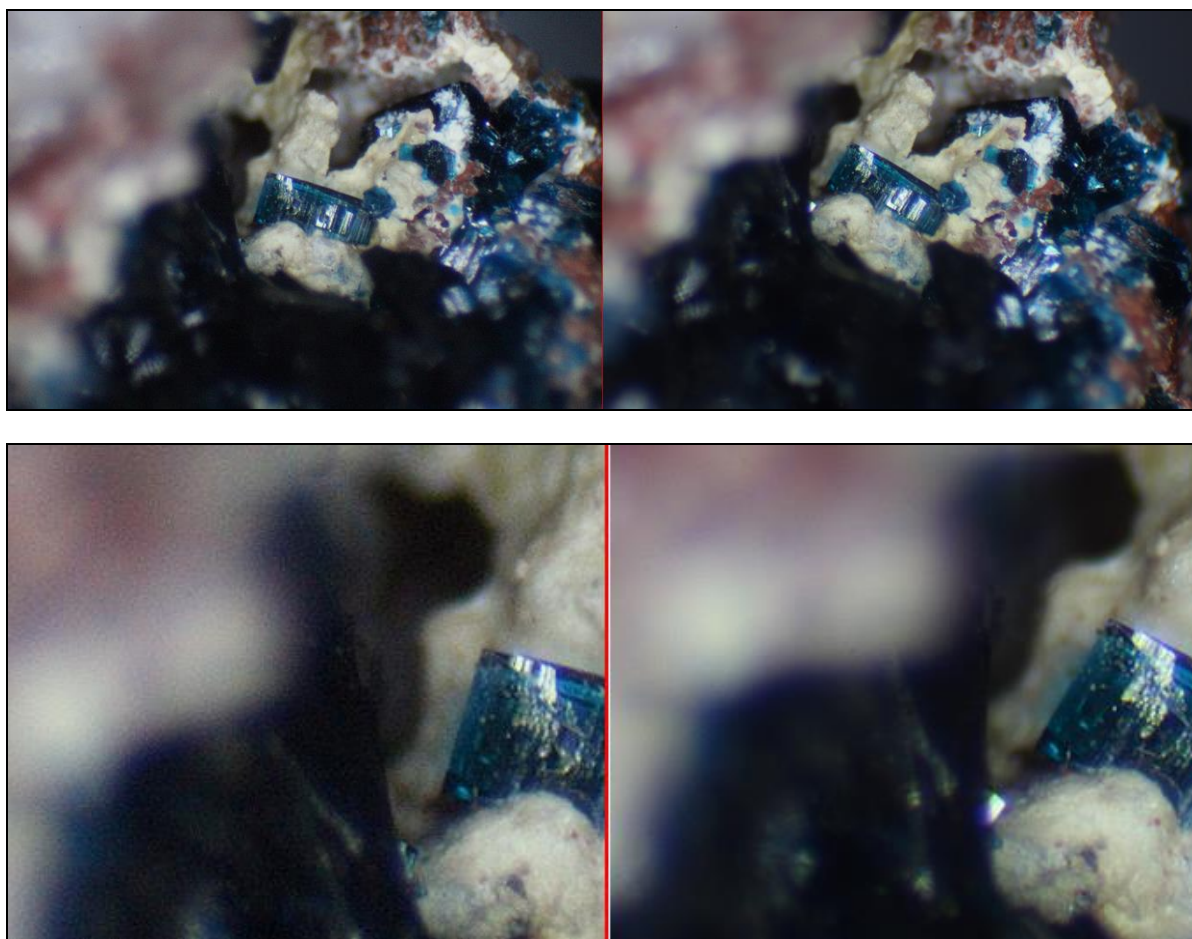
Problem Corner

by Steve Sorrell

Have you come across a particular problem that you are having trouble solving? Or have you come across a particular problem that you have solved and the solution may be of use to others? If the answer is yes to either of these, send me the details.

Personally, I recently had noticed an issue with lots of noise (graininess) in my photos. This was particularly evident when taking photos at higher magnification. I use a Canon 600D DSLR with a lens that fits into the eyepiece of my Olympus microscope. Although it took a while to solve, I found that the problem seemed to be with my ISO setting. When on auto, it was selecting an ISO rating of 6400. When I manually set it to ISO-200, the results were much better.

Compare the two images below. The photo on the left was taken with ISO set to automatic and on the right, ISO-200. Can't see the difference? Have a look at the closeups.



By the way, the actual specimen is a clinoclase from Wheal Gorland, Cornwall, and is a vintage micromount previously in the Bob Rothenberg collection, and before that, in the John Frederick Calvert collection (who died 1897). The width of the full size photo is 2.5mm.

Classifieds

Want to advertise something related to micromounting or microminerals? You can do so here. Willing to trade or sell, want lists, etc. Simply email the editor: steve@crocoite.com to get your listing in the next issue. Please keep ads as short as possible.

Mineral Paradise – Richard Bell

Periodic listings of mainly British micro and thumbnail-sized mineral specimens made available for sale or swap. To view, go to <http://www.mineral-paradise.net>

Sauktown Sales – Jim Daly

Periodic listings of micro mineral specimens for sale. Jim also sells micromounting supplies. To view, go to <http://www.sauktown.com>

DarkArtsMinerals – Steve Sorrell

Minerals for sale by auction, many micro-material specimens regularly listed. To view, go to <http://www.darkartsminerals.com>.