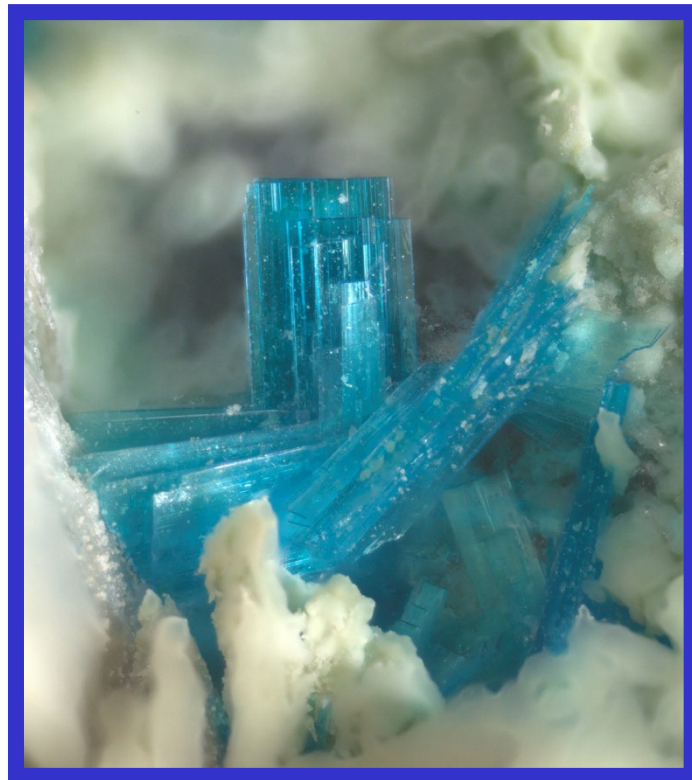




The Mineralogical Society of Victoria  
Incorporated  
A0001471E

**Newsletter No. 234**

**March 2018**



Sampleite, Lake Boga Quarry, Vic  
(Specimen: Jo Price, Photo: John Haupt)

Print Post Approved PP100003094

The Mineralogical Society of Victoria Inc.  
P.O. Box 153  
Lara, Victoria, 3212

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**Newsletter:** Editor and Layout: Alex Blount  
Assembly and Circulation: John Haupt

<b>Contact Numbers:</b>	Excursions	Micro-mineral Group	Mineral Appreciation Group
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**Membership Details:**

Joining Fee	\$5.00		
City Adult Member	\$25.00	Country Adult member	\$20.00
City Family membership (2 adults & children under 18)	\$35.00	Country Family Membership (2 adults & children under 18)	\$30.00
Student Member (full time)	\$15.00	Newsletter only	\$15.00

(N.B. - Country membership - more than 50 km from Melbourne G.P.O.)

Applications for membership can be obtained by writing to:-

The Secretary, Mr Fred Kapteina,  
P.O. Box 153,  
Lara, Vic, 3212.

General meetings are held on a varying roster of weekends (Sunday) and weeknight (typically Wednesday) approximately every two months (except January and Public Holidays). Please see the Forward Diary in this Newsletter for upcoming meeting dates and locations.

Visitors are most welcome.

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Newsletter of the Mineralogical Society of Victoria  
P.O. Box 153  
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**FORWARD DIARY**

General Meetings are held approximately every second month on Wednesday evening.

<b>NOTE:</b>	<b>For the coming year we plan to move back to Wednesday evening for General Meetings.</b>
MAR 25 Sunday	Micro Group Meeting: Jo Price's home Topic: Minerals containing zinc.
APR 11 Wednesday	GENERAL MEETING 7:30pm, at Royal Society of Victoria Building, Cnr La Trobe and Victoria Streets, Melbourne Speaker: Fred Kapteina (MinSoc), Field trips of the 2017 South Australian Seminar
APR 15 Sunday	Mineral Appreciation Group: 10:00am, Nunawading Lapidary Club, Oval Way, Nunawading. Topic: Minerals containing iron (Fe) as primary element and/or containing carbon (C) > 5%.
APR 29 Sunday	Micro Group Meeting: George Lysiuk's home Topic: Minerals containing aluminium.
MAY 20 Sunday	Mineral Appreciation Group: 10:00am, Nunawading Lapidary Club, Oval Way, Nunawading. Topic: Streak – Choose a colour (not black) and bring examples
MAY 27 Sunday	Micro Group Meeting: Jo Price's home Topic: Minerals containing either mercury (Hg), Boron (B) or tin (Sn).
JUN 9-12	<b>41<sup>st</sup> Joint Mineralogical Societies Annual Seminar – See below for details</b>
JUN 17 Sunday	Mineral Appreciation Group: 10:00am, Nunawading Lapidary Club, Oval Way, Nunawading. Topic: Choose one element and bring mineral from different crystal groups to represent it.
JUN 24 Sunday	Micro Group Meeting: George Lysiuk's home Topic: A study of minerals collected at Fish Creek, Mansfield and Peechelba.
JUL 11 Wednesday	ANNUAL GENERAL MEETING 7:30pm, at Royal Society of Victoria Building, Cnr La Trobe and Victoria Streets, Melbourne Speaker: Alex Blount (MinSoc President), Ringwoodite: A tale of a Melbournian solution to global water shortages?

**MINERAL RELATED EVENTS**

MAR 30- APR 2 Fri-Mon	<b>54<sup>th</sup> National Gem and Mineral Show - GEMBOREE</b> Wilunga Park Reserve, Railway Terrace, Wilunga, South Australia
JUN 9-12 Sat-Tue	<b>41<sup>st</sup> Joint Mineralogical Societies Annual Seminar</b> "A Golden Age of Mineral Deposits and Mineralogy" Mercure Ballarat Hotel and Convention Centre, Ballarat, Victoria
SEP 8-9 Sat-Sun	<b>Bendigo Gem Club – Annual Expo</b> Bendigo Baptist Church Centre, 757 McIvor Highway, Junortoun, Victoria
OCT TBA	<b>Nunawading and District Lapidary Club Annual Exhibition</b> Dorset Primary School, Prospect Hill Road, Croydon (Melways map 50 K7)
NOV 25-25 Sat-Sun	<b>"The Australian Fine Mineral Show", Melbourne</b> 202 Turner Street, Port Melbourne

**NEXT ISSUE:** Material for the May 2018 Newsletter to be with Alex Blount by **Friday May 11<sup>th</sup>**.

### **FROM THE COMMITTEE**

**T**rying to avoid making light-hearted comments about ‘yes, here is the Christmas newsletter..’ or ‘better late than never’, the absence of activity from the Society and near-absence of communication in recent times is probably not something that mineral-lovers would be pleased about. To instead focus on the positive news, here is a Newsletter; we have General Meetings and an AGM scheduled; the Annual National Seminar is happening in Victoria in June; the IMA 2018 Meeting is happening in Melbourne in August; and the Micro Group and Mineral Appreciation Group are holding regular meetings.

There are a number of very important things for our Members to consider at this time, noted below and covered in more detail in the Newsletter:

#### **1) MEMBERSHIP AND FEES.**

Annual Subscription fees are currently due. Given the uncertain future we faced in recent times and the lack of regular meetings, we have not been prompting Members for fees and understand many Members may have been concerned whether the Society would continue or were aware they are un-financial.

A membership renewal form is attached at the end of this Newsletter and a reminder notice is included below. Note that fees can be paid by direct transfer to the MinSoc account, but please send an email to our Treasurer (address is on the renewal form) and include your name in the ‘comments’ section when making the transfer - so that he knows who has paid!

#### **2) AGM AND COMMITTEE.**

The Annual General Meeting is scheduled for Wednesday 11 July at the Royal Society Rooms. Again we have some long-serving Committee members who will stand down this year. Notably, after some 38 years of near-continuous service to the Society on the Committee, John Bosworth is retiring. This means we must have a volunteer to take up the role of Treasurer and we encourage any Members, ideally with a solid financial knowledge, to step forward. **With a formal Treasurer we cannot continue to operate.**

Formal Notice of AGM and Nomination form will appear in the (soon to be issued) May Newsletter. Without people putting their hand up to come on board and help, we will **again** be facing a Special General Meeting and proposal to ‘wind up’ the Society.

#### **3) ANNUAL SEMINAR 2018.**

At the 2017 AGM we discussed the capacity of the Society to run the Annual Seminar in 2018. It was felt that with many previous organisers being unavailable and the IMA Meeting likely to eat up the available time of the professional mineralogy community, it would be difficult for us to present a Seminar.

However, following the 2017 Seminar in South Australia it was made clear to the Committee that the Seminar could and should go ahead and that a small sub-committee from Victoria with support from interstate Societies would be prepared to make this happen.

Following a considerable amount of work by the organisers, driven tirelessly by the efforts of the convenor Fred Kapteina, the 41<sup>st</sup> Joint Societies Seminar will be held in Ballarat in June. An interesting program of speakers, mineral auction, swap+sell, micro session and field trips are scheduled.

Note that because of the change in venue, we need to confirm numbers attending and payment of fees as early as possible and there will be little opportunity for ‘last minute’ registrations. A registration form is included at the end of this Newsletter and we encourage all Victoria Members and those interested in mineralogy to come along.

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## **NEWSLETTERS**

The standard delivery for Newsletters is email. Postal (black and white) copy will only be sent to those who do not have email or who specifically need to be supplied with printed copies (such as some Libraries). We highly recommend the email/electronic version - minerals were meant to be appreciated in glorious colour!

If you are NOT receiving the electronic/email version and you wish to, please send an email to either:  
[minsocvic@gmail.com](mailto:minsocvic@gmail.com) or [ablount@golder.com.au](mailto:ablount@golder.com.au)

### **2017/18 MEMBERSHIP FEES**

Members are reminded that membership fees for the 2018/2019 year are now due. Un-financial members would not be eligible to cast a valid vote at the Annual General Meeting and would not be covered by the member's insurance policy if attending Society-organised field trips.

A list of the current fees is shown on the inside front cover of the Newsletter.

A Membership Renewal Form is included as the last page of this Newsletter. The form includes provision for an email address and members are encouraged to supply this information if they have internet facilities.

Please note that if fees are paid by direct deposit email advice advising of the payment has been made (and a note included in the comments section of the transfer) should be provided as per the renewal form.

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## **EXCURSIONS**

As discussed at previous Meetings, excursions will be planned when and if suitable localities to visit are identified. As most members will be aware, this is a situation that has been around for a number of years and we are keeping an eye out for new places to visit or old places to re-visit.

For the upcoming Seminar, several potential locations are planned for collecting trips. A number of Victorian geological excursions and interstate mineralogical/collecting excursions are proposed for the IMA 2018 Meeting although these are only available to registered attendees of the IMA Meeting.

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## **MINERAL COLLECTION OF VAL HANNAH**

As most would know, we lost one of our dear members, Val Hannah last in 2016. Val's family are now looking to dispose of her mineral collection. We are considering organising a visit to the family's home during the Seminar in June if Members and Seminar attendees are interested. We will provide more information closer to the Seminar once details and arrangements have been confirmed.

## VALE – EDITH OAKES

With sadness we learnt of the passing of Edith Oakes. Edith died after a short illness on the 18<sup>th</sup> February, aged 92. Edith was a long-time member of the society who lived in Bendigo. A keen collector of fine minerals, she was especially known for her antics at the Society's Christmas gatherings at Glad Rangott's home in Maldon during the 1980s & 1990s. Her famous Christmas pudding was always looked forward to on these occasions. She was also an active member of the Bendigo Lapidary club.



*Left: Edith (left) with other Bendigo members at Glad Rangott's.*

*Below: One of the famous Christmas puddings..*



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## AUSTRALIAN JOURNAL OF MINERALOGY (AJM)

The new AJM team released the second issue (Vol 18, No. 2) in December 2017 (Vol 18, No. 1 was issued in June 2017). An impressive publication that continues the high quality of previous issues, all Members should consider subscribing (if not already doing so!) and support your national mineralogical journal.

Subscription details and news about the Journal can be found on their web-page and facebook-page:

<http://www.mineral.org.au/pubs/ajm.html>

<https://www.facebook.com/AJMPublications/>

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## **SPECIAL INTEREST GROUPS**

### **Micro Group Report**

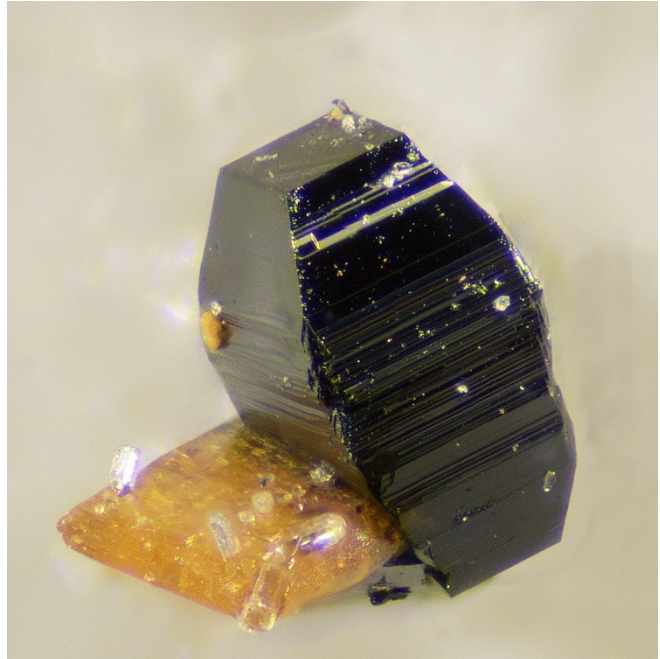
By Jo Price, Photographs: John Haupt©

The topic of our June meeting was minerals from Italy, Portugal, Spain and Switzerland. The Italian minerals included celestine with sulphur from Sicily; plancheite, Isle of Elba; hemimorphite, Sardinia; tiny black crystals of tungstenite, and sillimanite, Piedmont. Some others were clear crystals of the zeolites analcime, britholite-(Ce) and montesommaite from Monte Somma, Vesuvius; diaboileite, Livorno; cinnabar and klebelsbergite, Tuscany; and peretaite (T.L.) Pereta Mine, Grosseto.

Portuguese minerals included scorodite with mawbyite, and mimetite with mawbyite, from Gestoso; carminite, Sao Pedro do Sol; phosphosiderite, Mangualde; cacoxenite, Folgoso; and libethinite, Entremoz; The islands of the Azores are part of Portugal, and were represented by 16 minerals, including ferrokatophorite, palyite, aenigmatite, pyrochlore, parsite-(Ce), narsarsukite, lavenite, titanite and ferrokentbrooksit.

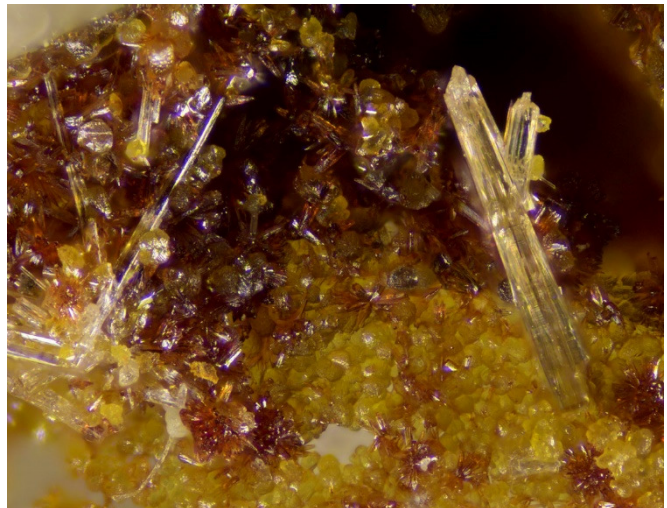
From Spain there were cornwallite, Murcia; erythrite, Malvizo; dull green anapaite, Aragon; linarite with cerussite, also cronstedtite, La Union; lavendulan, also olivenite with conichalcite, Ramonote; mercury with cinnabar, Ciudad Real; and uranospatite, La Haba; as well as calderonite (T.L), Badajoz.

Amongst the Swiss minerals we saw dufrenoyite (T.L), lengenbachite (T.L), and realgar, Lengenbach, Binntal; scheelite, Wallis; titanite with anatase, Furka Tunnel West; monazite, Ticino; xenotime, Uri; strontianite, Solothurn; Laumontite on prehnite, Graubunden, and a quartz gwindel from the Swiss Alps.



*Above: A tabular orange crystal of aeschinite-(Y) on anatase from the Triolet Glacier, Aosta, Italy. 1mm FOV.*

*Below: Slender mimetite crystals with mawbyite & segnitite from Gestoso, Portugal. 1mm FOV.*



Members were amazed at the many different and unusual minerals that were brought to the meeting.

*Left: Red crystals of anatase on quartz, from Val Bedretto, Switzerland. 10mm FOV.*

*Right: A 1mm crystal of Britholite-(Ca) from Mount Somma, Naples, Italy.*



The topic of our July meeting was arsenate minerals from Australia.

There were a good range of mimetites. Attractive yellow crystals from Mt. Bonnie, N.T.; green and yellow from the Eleura mine; yellow and orange from Broken Hill; some intergrown crystals from the Cobar mine; small yellow crystals on a black matrix from Teutonic Bore, W.A.; and of various colours from the Magnet mine, Tas.

Carminites included nice crystal sprays from Broken Hill, and some from Mt. Malvern, S.A.

There was conichalcite from the Lorena mine, Cloncurry, Qld and Mt. Howden, S.A. Several minerals were from Dome Rock – conichalcite possible pseudomorphs after olivine, vivid blue lavendulan, scorodite, agardite-(Y), good examples of clinoclase, and very small greyish blue crystals of domerockite.

There was pharmacosiderite from Mt. Malvern and the Preamimma mine, S.A.; from Pittong, Vic; and the rare tetrahedral habit from Broken Hill.

Others were cobaltite from Mt. Cobalt, Cloncurry; vauquelinite, Kintore opencut, Broken Hill; symplectite, Spring Creek; scorodite, Wolfram Camp, Qld; and scorodite and tooeleite from Kingsgate.

There were nice bayldonites and arseniosiderites from Broken Hill, hedyphane and adamite from the Beltana mine, and mansfieldite from both Mt. Cobalt and Roxby Downs.

It was a meeting where we saw many attractively coloured specimens.

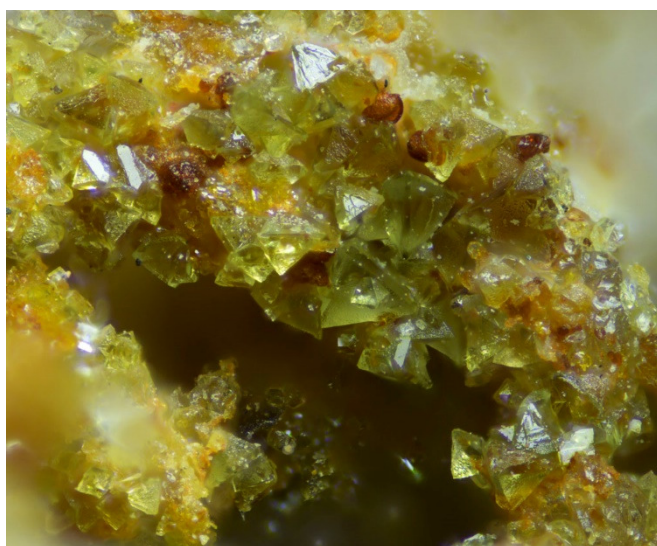
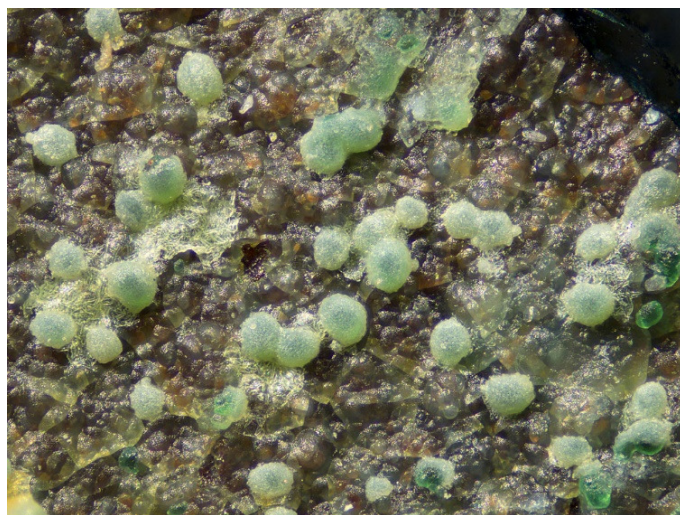
*Below right: Rare tetrahedral pharmacosiderite crystals from Broken Hill. 2mm FoV.*

*Below: Bayldonite from the New Cobar Mine, NSW. 6mm FoV.*



*Above: Bright orange mimetite crystals to 1.5mm from the Kintore dump, Broken Hill.*

*Below: Domerockite from Dome Rock, S.A. Imm FoV.*





The topic for our August meeting was minerals containing elements in group 8-11 of the Periodic Table. The most common contained either Fe, Co, or Ni.

Fe minerals from many localities were tabled, such as anapaite, Italy; dufrenite, Iron Monarch Mine, S.A.; vivianite, Florida, U.S.A., arseniosiderite, Broken Hill, N.S.W.; astrophyllite as brown blades, Mt. St. Hilaire; tualite, Mayor Is., New Zealand (T.L.); pumpellyite, Roopena Station, S.A.; osumilite, Oregon, U.S.A; and naujakasite with arfvedsonite, Greenland. Others were hydrokenoelsmoreite, Pittong, Vic; ferrimolybdite, Old 25 mine, Kingsgate, N.S.W.; rockbridgeite, Lake Boga quarry, Vic.; ferristrunzite, Blaton, Belgium (T.L); leucophospite, Tom's quarry, SA.; and a nice specimen of hematite pseudomorphing magnetite, from Argentina.

Cobalt minerals were represented by cobalt, erythrite and mansfieldite Mt. Cobalt, Queensland; cobaltaustinite Dome Rock mine, S.A.(T.L) and Bou Azzer, Morocco; also roselite,  $\beta$ -roselite and cobaltlotharmeyerite, Bou Azzer; and skutterudite, Aghbar mine, Morocco. As well we saw safflorite, Broken Hill; bieberite, Dome Rock, S.A.; and wupatkiite, Lorena Gold mine, Cloncurry, Qld.

Some Australian nickel minerals were heazlewoodite, hellyerite and zaraitite from the Lord Brassey mine, (T.L.). There were several species from the nickel deposits in Western Australia:- otwayite & kambaldaite, Kambalda; carrboydite, Carr Boyd Rocks nickel deposit (T.L.) and from the 132 North mine, Widgiemooltha, gaspeite, gillardite, glaukospherite, hydrohonessite, nullaginite, and nepouite. There were specimens of the nickel sulphide, millerite, from Kambalda, W.A.; the Agnew mine, W.A.; and the North mine, Broken Hill, N.S.W. and a particularly nice specimen from Halls Gap, Kentucky, USA; and a man-made smelted specimen of nickel.

In the same group, we saw a crystal of platinum from Alaska, also hedyphane and adamite from the Beltana mine, S.A.



*Above: Ferrimolybdite from Kingsgate, NSW. 6mm FoV.*

*Below: Mansfieldite from Mt Cobalt, Qld. 4mm FoV*



*Below left: Gillardite from the 132 North mine, Widgiemooltha. 2mm FoV.*

*Below right: Brass coloured millerite from the North mine, Broken Hill. 4mm FoV.*



## Mineral Appreciation Group Report

By Alex Blount

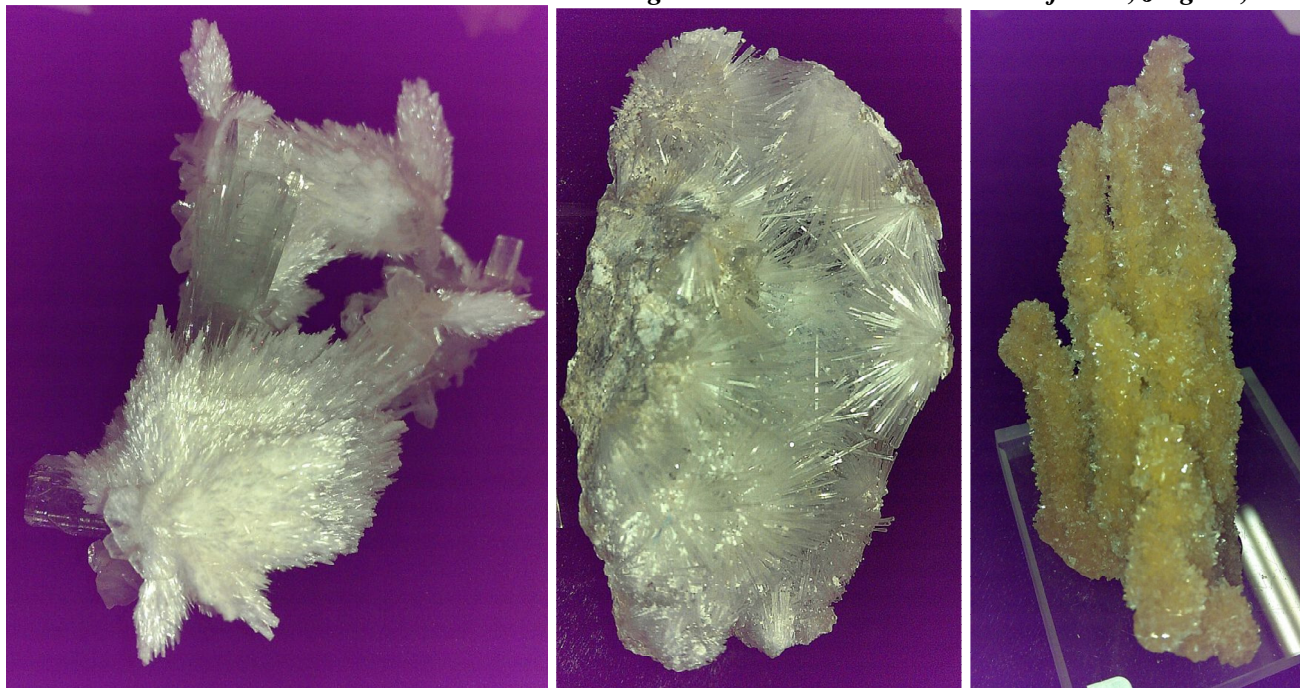
After noticing back in early 2017 that the quality of mineral photographs with my mobile phone camera were becoming increasingly worse, some more research on the matter finally identified the culprit. The photographic sensors used in mobile phones are, necessarily, smaller and more enclosed than those in a regular full-size SLR camera or even a compact 'point and shoot' digital camera. For some models and designs of sensors, this can apparently mean that the constant exposure to heat, from the phone electronics, and the lack of ventilation because of the crowded case can affect the sensor permanently. The result being a camera that performs poorly in low-light and that tends to produce black with a red or blue tint. So, that minor mystery solved we can hopefully start to see better mineral pictures in future and give the micro-group a run for their money!

August 2017 and the meeting topic was the last remaining of the silicates groups, the tectosilicates. Whilst we had covered the ring and chain and plate silicates, now we were looking at the framework structures where each oxygen in the silica tetrahedron is shared with another tetrahedron. This builds an interlocking structure with (strong) covalent bonds between the oxygen and silicon atoms, allowing the minerals to be relatively hard. One attendee described this as a 'good, solid, sensible structure' and accounts for most of the common rock-forming minerals such as quartz and feldspars as well as feldspathoids and zeolites. We also briefly discussed whether quartz was an oxide (of silicon) or a silicate. Some references note that it is chemically an oxide but crystallographically is a tectosilicate, so it fits out topic.

*Below left: mordenite and fluorapophyllite-(K), Rahuri, Maharashtra, India.*

*Below middle: natrolite, West Ridgley Quarry, Burnie district, Tasmania.*

*Below right: heulandite stalactite. Near Ajantha, Jalgaon, India.*



In addition to a wide variety of quartz specimens, there were varieties such as amethysts from Mexico, Brazil and Alice Springs; citrine from Broken Hill and from Beechworth; smoky quartz from Mooralla and 'Herkimer Diamonds' from New York, USA; various zeolites from India, Scotland, Victoria, NSW and a nice natrolite from Ridgley Quarry in Tasmania. Large, clear danburite from Mexico and vivid green 'amazonite' microcline from Colorado, USA.



*Left: quartz (var. citrine), Broken Hill, NSW*

*Below right: quartz, Biggenden Mine, Queensland.*

With a number of people being away at different times, our next meeting was in January 2018, where we looked at the topic is minerals with lead as the primary element. As lead is a relatively heavy element, there were quite a few well-known minerals where lead is dominant by mass.

Whilst in the past we had set topics such as 'minerals containing copper', more recently we had narrowed things down to those minerals where the key element was the dominant one by weight. For many minerals this means that things like oxygen or sulphur dominate because they there are simply more of them in the structure than even heavier elements one such as lead.

For example, coronadite with lead, manganese and oxygen  $[\text{Pb}(\text{Mn}^{4+}_6\text{Mn}^{3+}_2)\text{O}_{16}]$  has 8 manganese and 16 oxygens for every lead atom. So even though lead (molecular weight 207.2) is significantly heavier than other manganese (54.9) or oxygen (16), lead only represents around 24% by weight of the mineral which is less than the other two elements.

But is certainly wasn't all surprises. The usual lead suspects included anglesite; cerussite; galena; hedyphane; linarite; mottramite; minium; mimetite; pyromorphite; tsumebite; crocoite; wulfenite; descloizite; and boulangierite.



*Right: Wulfenite, Toussit Mine, Jerada Province, Morocco.*





*Above left: Cerussite on siderite, Milbladen Mining District, Morocco.*

*Above right: Wulfenite with baryte on mimetite, San Francisco Miner, Sonora, Mexico.*

*Below left: Cerussite, Tsumeb Mine, Tsumeb, Namibia.*

*Below right: Mimetite, Tsumeb Mine, Tsumeb, Namibia.*



Things became more complicated when lead is less than 50% of the weight as we then needed to check what else was present. Some of the species where lead is <50% of the weight but still dominant included boleite; respite; stolzite; duftite; bournonite; mawbyite; carminite and bayldonite.

There was a good array of colourful minerals present in contrast to the usual white and metallic grey and black species that a 'lead' subject suggests. Including a very nice minium on large galena 'cube' from the Tri-State District in the US; and some bright pyromorphites from China and France.

*Right: Minium on galena, Adelaide Mine, Joplin Field, Missouri, USA.*

In February we looked at one of the 'old school' mineral properties in 'streak'. As this is the colour of a scratch of the mineral on a white porcelain tile (un-glazed!), this is not



something you are going to try with a prized crystal of diopside. Nor would it be very successful with many of the silicate minerals, as the streak plate is roughly around hardness 6.5 and harder minerals won't provide much of a mark to view. The colour is intended to provide an indication of a mineral's colour without interference from surface structures or reflections and our colour of choice for the month was 'black'.

As might be expected there were a lot of dark and silvery-metallic minerals present, although the difference reference sources consulted often provided a range of possible streak colours from black to grey to dark brown-black.

Other than those pictured, examples included magnetite from Bolivia and from Biggenden; graphite from Sri Lanka and from Finland; carrollite from Zaire; bixbyite from Utah, USA; ilvaite from Dalnegorsk, Russia; marcasite from Miesburg, Germany; bournonite from Peru;



*Above left: millerite, Mount Davies, WA, Australia.*

*Above right: hubnerite on quartz, Mundo Nuevo Mine, Peru*

*Below left: galena and chalcopyrite, Pachapaqui District, Peru.*

*Below right: enargite with pyrite, Quiruvilca Mine, Santiago de Chuco, Peru.*



# Recollections of the Society's early days

## The 1982 field trip to South Australia

By John Haupt

With the Society's future uncertain, it is appropriate that we revisit some of the significant activities that members have undertaken. This article revisits a field trip to the Burra mine in South Australia over the Melbourne Cup weekend in November 1982. The trip was in a Toyota Coaster minibus driven by field trip officer George Mc Donald. We left after work on the Friday night, being driven overnight to South Australia. Fortunately, we made the trip without incident thanks to Glad Rangott keeping the driver awake by prodding him in the back from the seat behind. The Burra mine was again worked between 1970 & 1981 by an opencut with the ore being processed at the mine site (1970s workings). When we visited, the opencut had refilled with water, but a large ore dump was available for specimen collecting. Side trips were made to Spalding (for anatase) and Tom's Quarry at Kapunda.

Ruth Coulsell, a Life Member of the Society and the mainstay of the Newsletter for many years, wrote an article on the Burra mine for the Newsletter at that time. This and the field trip report is reprinted below. Photographs ©John Haupt taken on the trip are shown below, which are supplemented with photographs of Burra minerals from the 1970s workings and specimens that were collected on the field trip at the Bundaleer area, Spalding.

### THE MINES WHICH SAVED A COLONY

#### PART III - The Monster Mine

by Ruth Coulsell

Published in Newsletter No 38, October 1982

*“Oh have you not heard of the Monster Mine  
There's never a man to be got to dine  
There's never a clerk who will pen a lint  
At my behest or thine.  
They are all gone forth to the homeless North  
To gaze on the Monster Mine.  
Have you not seen the solemn Nobs?  
Have you not marked the eager Snobs?  
Have you not heard of the wiles and jobs  
of the men who can't combine?  
With a snobbery, nobbery, jobbery, hobbery,  
All for the Monster Mine.”*

Written by J.W. McDonald, Acting Colonial Treasurer of South Australia during the epidemic of copper mania which gripped everyone after the discovery of the Burra copper deposit, 1845.

The effect of the Kapunda copper find was to arouse an enormous amount of interest in the possible mineral wealth of the South Australian Colony. Many people could recognise a copper ore specimen on sight, and to quote from “The Rush That Never Ended”, carters were alert for copper in the hills, and shepherds walked with eyes on the ground, (p.108 Blainey).

Copper is an obliging metal in that its presence is often indicated by green or blue staining on surface rocks, so that it is the more easily noticed because of this tendency.

Several small copper finds were made during 1844 and the early part of 1845. Of these the most promising by far was an outcrop which became known as “The Princess Royal”. This lode had been found about eighty miles or so to the north of Adelaide by a shepherd who when in Adelaide, offered to sell the details of the lode's whereabouts for six pounds! He failed at the first attempt, but specimens displayed by a jeweller in Rundle Street caused such interest that he received eight pounds for his information. A small syndicate of Adelaide traders sent Surveyor Finke to look at the lode. Finke was impressed and the syndicate decided to visit the area and see the extent of the deposit for themselves. Several men made the journey including Bagot of Kapunda fame. Whilst there, they heard from another shepherd named Pickett, of an even greater deposit further north. Continuing on another eight or so miles in accordance with Pickett's directions, the party saw the great outcrop

described later as a “gigantic bubble of copper” of what was to be the “Monster Mine” at Burra Burra.

With this discovery came the very real problem as to how to obtain the site on which the deposit was situated. The difficulty lay in the Land Regulations which controlled all land purchased in the Colony at that time. South Australia was unique amongst the Australian Colonies in that no free land grants were ever made, and all land had to be purchased at the set price of one pound per acre.

Unlike the earlier copper find at Kapunda which lay within the limits of the “bounds of survey” extending around Adelaide, so that Dutton and Bagot faced no problems in buying just the amount of land they wished to purchase for their mines “beyond the bounds of survey”, where the Burra lode was situated was another matter altogether.

Beyond the survey limit, land in the Colony could only be sold as grazing land, in holdings set at a minimum of 20,000 acres, at the normal one pound per acre, the amount payable in gold coin. In this last was the rub. Twenty thousand pounds was a large sum, even for a syndicate of buyers, and twenty thousand pounds in gold coin was probably more than could be found in all Adelaide banks at that time.

Two rival groups struggled to gain control of the find. One group of Adelaide merchants, traders, professional men, clerks, agents and so on, eighty-six in number, became known by the nickname of the “Snobs”; the other group consisting of landed men including both Dutton and Bagot of Kapunda in its membership, were locally called the “Nobs”. Neither group could raise the necessary money in coin as required.

Ultimately, Sir George Grey the Governor, who was never known to stand any nonsense, ordered that the two groups should combine their resources, buy the 20,000 acres as required by law, then divide it in half by a line running east-west through the holding, and finally to draw lots for ownership of the copper lode. This was done. The delighted “Nobs” drew what appeared to be the richer lode, namely the Princess Royal to the South; it petered out in a matter of months, and to the city “snobs” went the prize of the Monster Mine.

The wealth of the Burra Burra lode caused a sensation in Adelaide and men left the town in droves to go north to Burra, just as the gold diggers were to do in the heady days of the great gold rushes in the fifties, still ahead.

The surface deposit of the Monster was so extensive and so solid, that the first work was actually done by quarrying. These early workings later were to develop into a huge open cut with miles of drives following veins into the surrounding hills. Time was to show though, as was to be the case in so many South Australian copper deposits, that there was little good primary ore at depth, even in the great Burra lode, so that output declined rapidly when finally the rich oxidized zone became exhausted. Even this took over two decades, such was the extent of the deposit at Burra, and normally the mine employed over a thousand people for most of its working life. In fact, the Burra deposit gave South Australia its first taste of real prosperity, to be interrupted only during the initial years of the Victorian gold discoveries, when Labour vanished overnight.

The bulk of the Monster Mine's ore was magnificent malachite, much of it beautifully banded and of gem quality, so that it rivalled the splendid malachite of the Ural Mountains in Russia, to that date regarded as the world's finest. The malachite was accompanied by much native copper, superb azurite and beautiful cuprite; these four minerals forming the major assemblage. When hauled to the surface, the ore was sorted by hundreds of boys, bagged, and despatched by bullock wagons on the long, hard track to the coast. For years, fine specimens of malachite were recovered by collectors along that track where, especially in winter, ore had been tossed off to lighten the load for the straining haulage animals.

The journey of eighty miles to the coast at Port Henry (today, Port Wakefield) was a nightmare. Transport costs were enormous, although off-set to a degree by back-loading of stores to the mine but the ore was rich enough to support the cost for many years, and this in spite of the fact that the Company working the lode, repaired the track itself so that the hundreds of wagons could be kept on the move with the least possible interruption.

Smelters were soon built at Burra but methods were not always successful so that much of the ore was shipped to Wales where the craft was traditional.

By 1851 at least 5000 people were estimated to live in Burra. There were more than eight miles of underground workings, and shifts of five hundred miners each, worked the lode for 24 hours a day, for six days a week. Many

of the miners were Cornishmen working for preference as tributors, and they could earn from four pounds to twelve pounds a week, very good. wages by Cornish standards. Small "suburbs" surrounded Burra, the centre of which was the Company town of Kooringa. These were Redruth, Aberdeen and Hampton. Many miners were cave dwellers in the high banks of Burra Creek, but they were ultimately forced out from there by a series of floods in 1857.

The Victorian gold discoveries almost closed Burra. By 1852 the work force of over 1,000 was down to 20 men underground and a few dozen surface workers. Pumping ceased, and water was allowed to flood the lower Levels, but work resumed again in 1855 by which time labour for the copper mines was once more ample, many of the miners coming into the country from Cornwall itself.

When the railway line from Gawler reached Kapunda in 1860, Burra's transport problems were eased as the ore was hauled only to Kapunda before being loaded onto trains for the coast. The line reached Burra itself in 1870, but by that time the Monster Mine had entered upon its decline, for the copper content of the ore decreased sharply with depth, and water became a steadily increasing problem. The great mine closed in September 1877. In its working life from 1845-1877 Burra produced 700,000 tons of ore yielding 51,622 tons of, copper, valued at nearly five million pounds, and it paid 800,000 pounds in dividends on an original capital of 12,320 pounds, which was the actual amount of capital put up by the Snobs who won the great prize in the original draw for the "Monster Mine" of Burra.

### **October 30<sup>th</sup>-November 2<sup>nd</sup>: The Burra field trip Report from Newsletter No 39, December 1982.**

The trip over was uneventful, the only complaint being from our driver, George McDonald, who lost the entire crew whenever he stopped at a garage for petrol. Most people left the bus for the usual reason or to stretch their legs a bit, but there were four or five who seemed to consume five or six suppers (or early breakfasts). One of them, a tall thin, young chap, already had a seemingly never-ending reserve of containers of home-made cakes, but I guess they were kept as emergency rations in case we ended up at some place where there were no shops. On one occasion, where there were loaves of bread on the counter, a gentleman's hand picked one up, "felt" it through the wrapper, returned it to the counter and remarked "it's not as good as Home Pride".

After arriving at Burra about 10 a.m. on Saturday, shopping for the weekend was accomplished and the afternoon was spent searching for anatase crystals at Spalding. After a barbecue tea, a get-together of some of the Victorian and South Australian Society members was somehow achieved in one of the caravans. Admittedly, it was an 8-berth van, but it seems they may have been trying to get into the Guinness Book of Records, as the attendance was quoted as 22 (or 23)! A splendid day was had on the Sunday at the Burra mine, with everyone finding some worth-while specimens of malachite and azurite. After farewelling the South Aussies and another barbecue tea, the company descended on one of the miners' cottages which we occupied and another get-together ensued around a nice log fire. One gentleman was suffering from a sore eye, not that the swirling dust and dirt had got into it, but he had 'kapowed' himself whilst putting on his safety glasses!

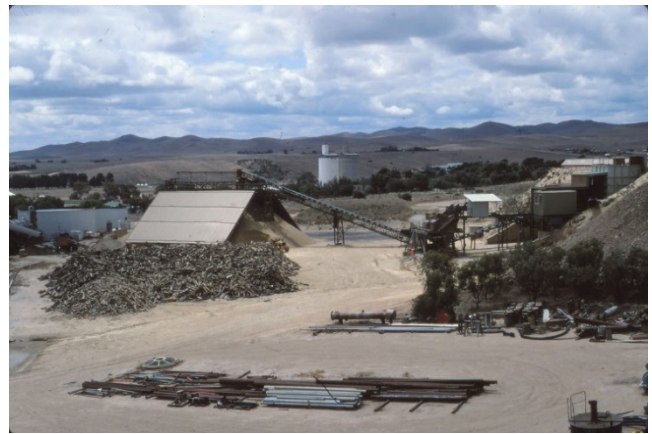
George McDonald had made some arrangements for Monday but kept them a deep dark secret, so we set off we knew not where, on Monday morning. The destination guessing competition which had been instituted on the Sunday evening proved several people correct and we wound up at Tom's Quarry where, again, everyone had successful fossicking. Travelling to Adelaide, our second secret destination proved to be the home of Vince and Dot Peisley, who had most generously provided a barbecue tea for the whole gang.

An early morning start for home on Tuesday caused some problems for a couple of people. One admitted he had to stand on his suitcase to close it (and he's a big man!), but another said he had no trouble at all until he picked up his case, and the bottom fell out! There was a Lunch stop at Nhill, where one lady was heard to say "Oh, we're back at Burra there's the Tanunda" (although we believe she meant rotunda), and then it was smooth sailing for home.





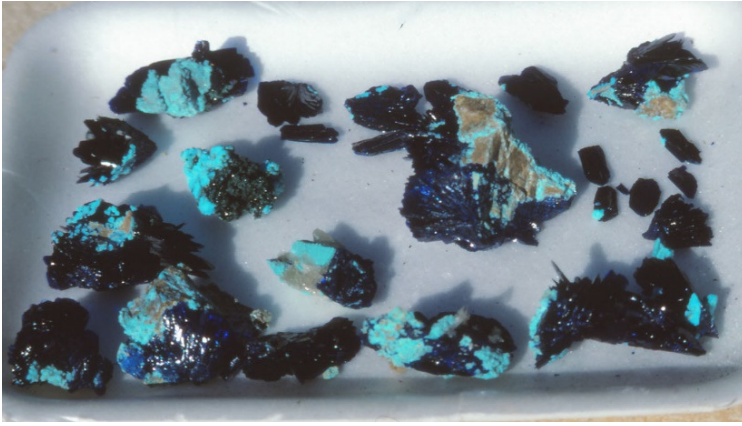
*Above & below: Photographs of the Burra mine and the ore processing works.*



*Above: Collecting on the ore dumps.  
Below left: The minibus at Burra.*

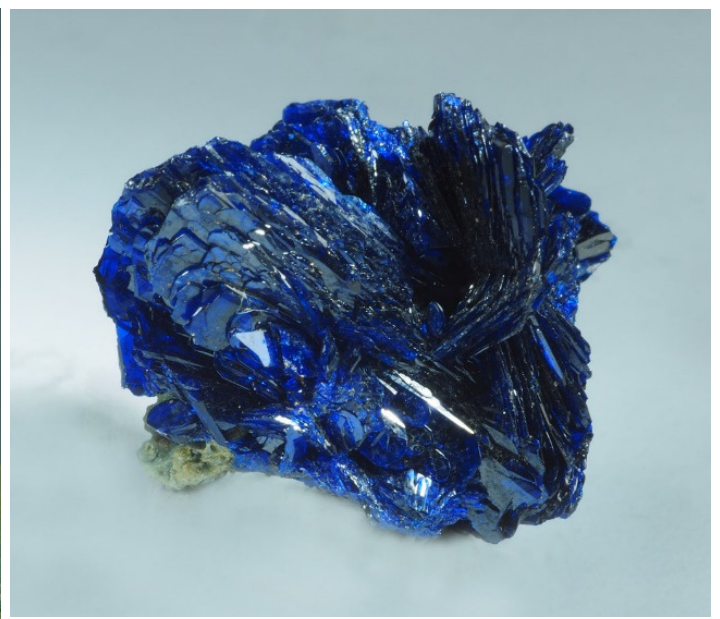
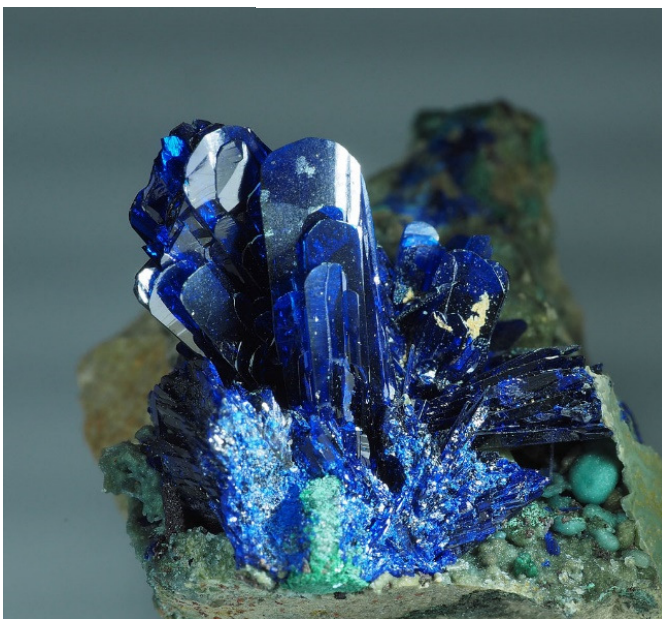
*Below right: Studying specimens with SA Min Soc members.*





*Above: Burra specimens collected by a local miner from the 1970s workings.*

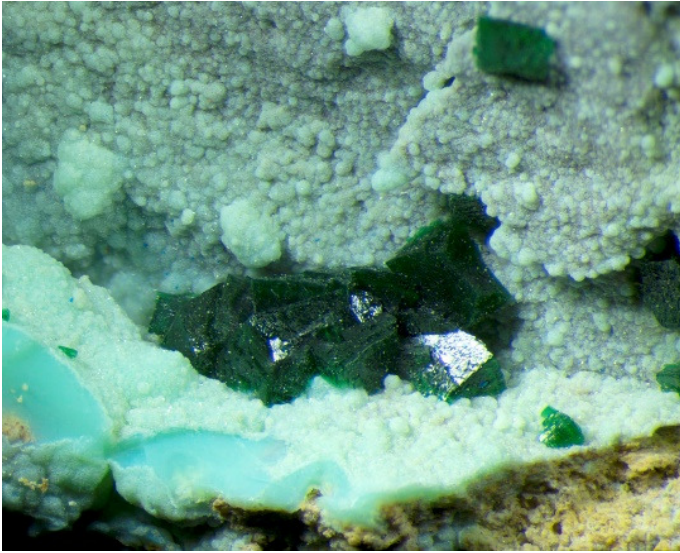
*Below left & right: Clusters of slender azurite crystals, 20mm tall.*



*Below left: Malachite vein lined with crystals. 10 cm FOV.*

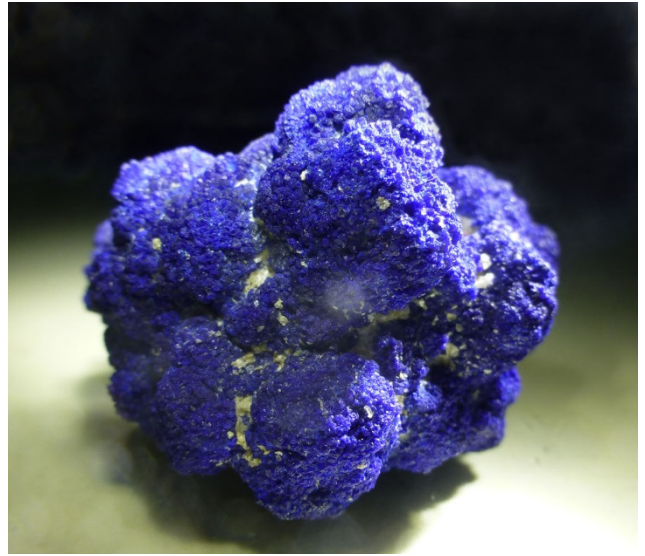
*Below right: Azurite crystals partly changing to malachite. 10cm FOV.*





*Above left: Malachite, 1mm crystals on chrysocolla.*

*Below left: Libethenite crystals. 2mm FOV.*



*Above: Azurite nodule 30mm across.*

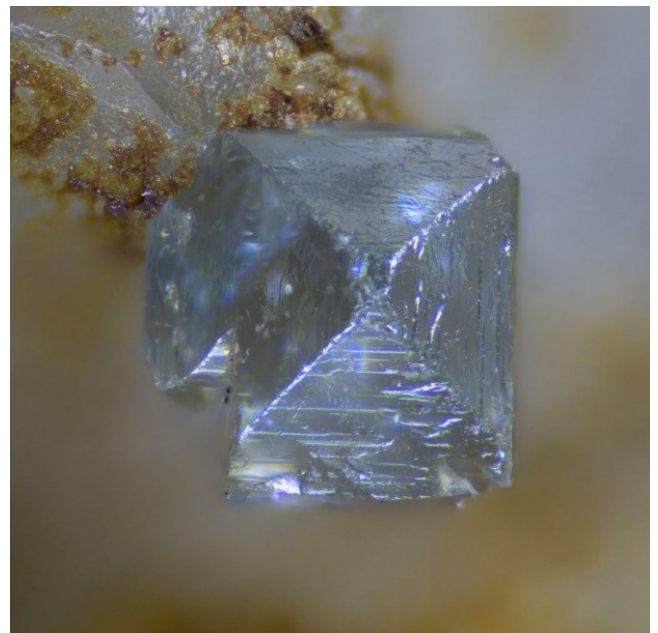
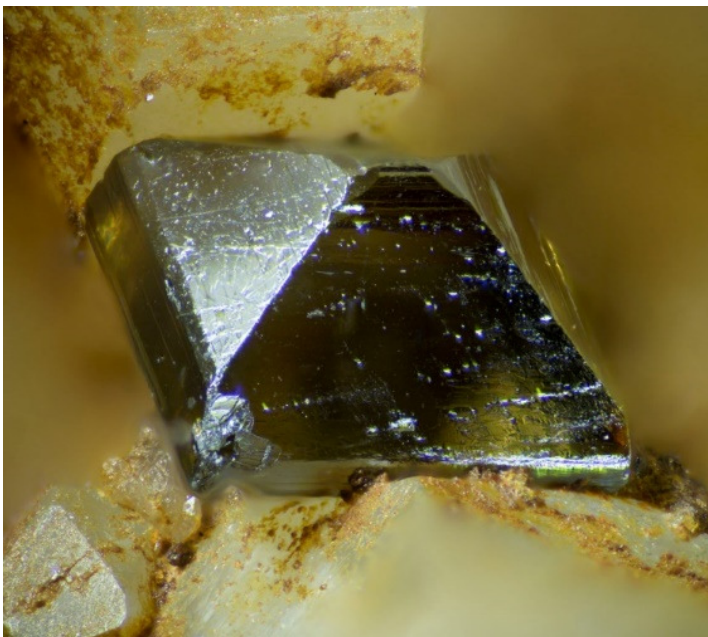
*Below: Tabular barite crystals to 6mm on chrysocolla.*



*Below: A 2mm anatase crystal from Spalding.*



*Below right: A pale blue 1mm anatase crystal from Spalding*



Joint Mineralogical Societies of Australasia

41<sup>st</sup> Annual Seminar

## **A Golden Age of Mineral Deposits and Mineralogy**

Proudly hosted by



**Dates: 9<sup>th</sup> – 12<sup>th</sup> June 2018**

*(8:30 am seminar check-in for a 9.30 am start on Saturday, the 9th)*

**Venue: Mercure Ballarat Hotel and Convention Centre**  
*613 Main Road Ballarat Victoria*

The seminar theme will be presented by speakers in diverse approaches to capture the interest of all delegates.

The speakers will include:

Ralph Bottrill  
Joel Brugger  
Steve Dobos  
Tony Forsyth

John Haupt  
Dermot Henry  
Alan Longbottom  
Rod Martin

Ross Pogson  
Steve Sorrell  
Malcolm Southwood

Websites: [www.minsoevic.org.au](http://www.minsoevic.org.au) & [www.mineral.org.au](http://www.mineral.org.au)

# Seminar Registration Form

Surname \_\_\_\_\_ Given Name \_\_\_\_\_

Society/Club \_\_\_\_\_

Contact Details: \_\_\_\_\_

Address \_\_\_\_\_

Phone/Mobile \_\_\_\_\_

Email \_\_\_\_\_

Item	No of persons	Yes or No	Cost* (each)	Total*
Registration	1		\$150	\$150
Seminar dinner (Saturday, the 9 <sup>th</sup> )			\$ 50	
Monday field trip to Mt Shadwell				
• Transport required				
Tuesday field trip to Dookie				
• Transport required				
Table required for swap and sell (Sunday p.m.)				
Space required for microscope (Sunday p.m.)				
Total payment required*				

*\*GST not applicable*

Registration and payment due by 10<sup>th</sup> May 2018

**Return registration form to:**

Fred Kapteina  
 Secretary, Mineralogical Society of  
 Victoria  
 PO Box 153, Lara, Vic, Australia 3212

**Bank transfer to:**

BSB 063866  
 Account No. 10211803  
 Customer ref: Your Surname and Initial

*For further details: Fred Kapteina (Seminar Registrar) on [fkaptein@bigpond.net.au](mailto:fkaptein@bigpond.net.au)*

# Field Trips

*Standard convoy and collecting site rules apply.*

**Essentials for all field trips:** Sturdy footwear, safety vest, safety glasses, hard hat & collecting equipment. Drinking water and food. Bring a first aid kit if possible.

**Hard hat required?** Yes/No No. required: \_\_\_\_\_

## **Monday 11<sup>th</sup> June to Mt Shadwell**

This is a working quarry and an induction will need to be undertaken and an indemnity form filled in and signed.

*Name of person/s accompanying seminar delegate*

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### Minerals found at Mt Shadwell:

Aegirine-augite	'Anorthoclase'	Aragonite	Calcite
Cristobalite	Diopside	Forsterite	Hematite
Ilmenite	Lechatelierite	Magnetite	Nepheline
'Olivine'	Pseudobrookite	Quartz	Spinel
Tridymite			

## **Tuesday 12th June to the Dookie Mineralogical Reserve (Subject to confirmation)**

*Name of person/s accompanying seminar delegate*

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### Minerals found at Dookie:

Actinolite	Albite	Andradite	Axinite - (Fe)
Baryte	Cacoxenite	Calcite	Clinozoisite
Cyrllovite	Danburite	Datolite	Dravite
Epidote	Ferro-tschermakite	Fluorite	Grossular
Laumontite	Mesolite	Natrodufrénite	Natrojarosite
Pharmacosiderite	Prehnite	Pyrite	Quartz
Rockbridgeite	Schorl	Stellerite	Tremolite
'Uvite Series'	Vesuvianite		

## **Ballarat accommodation within 2 km of seminar venue**

### **Caravan Park:**

Eureka Stockade Holiday Park. 104 Stawell Street South, Ballarat  
03 5331 2281

### **General accommodation:**

Mercure Ballarat Hotel and Convention Centre, 613 Main Road,  
Ballarat, VIC 3350 (This is our Seminar Venue)  
03 5327 1200

Eureka Lodge Motel. 119 Stawell Street South, Ballarat  
03 5331 1900

Bakery Hill Motel. 1 Humffray Street South, Ballarat  
03 5333 1363

Sovereign View Apartments. 5 Lal Lal Street, Ballarat  
03 5338 8517

Quality Inn Suites – The Menzies. 5-7 Humffray Street North, Ballarat  
03 5331 3277

Oscar's Motel & Café Bar. 18 Doveton Street South, Ballarat  
03 5331 1451

Ballarat Mid City Hotel. 19 Doveton Street North, Ballarat  
03 5327 7588

The City Oval Hotel. 1321 Mair Street, Ballarat  
03 5332 1155

The Ambassador Motor Inn. 1749 Sturt Street, Ballarat 03  
5334 1505

# THE MINERALOGICAL SOCIETY OF VICTORIA INC.

A0001471E

c/o The Treasurer: 11 Myalla Court

Wantirna South Vic 3152

## MEMBERSHIP RENEWAL FORM

Membership fees for the year ending 31 March 2019  
are due and payable on 1 April 2018

<b>Surname:</b>	_____	<b>First Name:</b>	_____
<b>Family Members:</b>	1: _____	2: _____	
	3: _____	4: _____	
<b>Address:</b>	_____		
<b>Suburb:</b>	_____	<b>Post Code:</b>	_____
<b>Telephone: Home</b>	_____	<b>Business:</b>	_____
<b>Email:</b>	_____	<b>Mobile:</b>	_____
<b>Signed:</b>	_____	<b>Date:</b>	_____

### ANNUAL MEMBERSHIP FEES

#### Melbourne Metropolitan

Adult	\$25.00	_____
Family ( 2 adults, children 12 - 17 years)	\$35.00	_____
Student	\$15.00	_____

#### Country/Interstate Membership

Adult	\$20.00	_____
Family	\$30.00	_____

#### Museum Victoria - Mineral Purchase Fund (Optional Donation)

Total Enclosed \$ \_\_\_\_\_

Fees can be paid by cheque mailed to the above address or by direct bank deposit:

Bank: ANZ

BSB: 013 040

Account No: 2948 30455

Account Name: The Mineralogical Society of Victoria Incorporated

Please email advice of payment to [pardalote9@iprimus.com.au](mailto:pardalote9@iprimus.com.au)