



# Mineralogical Society of Western Australia Inc.



**NEWSLETTER**  
**December 2021**

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*Cover page:* A photograph from the Mineralogical Society of WA's Donnybrook field trip, November 2021.



## EDITORIAL

### **Mineralogical Society of WA Inc.**

Meetings held at the WA Lapidary & Rockhunting Club rooms  
31 Gladstone Road, Rivervale (corner of Newey Street)  
Registered Society No. A1009304P

*To encourage mineralogical study by amateur and professional alike and, in so doing, discover, document and preserve the Earth's and in particular Western Australia's natural history.*

So, I was convinced by Angela to compile one more newsletter for 2021. So here it is. Next year we will see adherence to a more quarterly newsletter, jam packed with the usual events and talks.

As the year fastly approaches its termination, it's a timely reminder for us to show gratitude. I, like many members, am thankful for those of you who continually donate your time to the Mineralogical Society of WA and give thanks to you. As members, we all know that the various talks, field trips, mineral markets and society days, takes a lot of effort to organise.

Thank you all, and Merry Christmas

Happy collecting  
Rodney

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## SCHOOL OF ROCK - DR ROBERT MADDEN

*Dr Robert Madden is an avid science communicator writing small geology vignettes, geology stories and educational resources on his social media account "School of Rock".*

*This segment of our newsletter shares some of Dr Madden's incredibly interesting articles and photos.*

*You can follow Robert's 'School of Rock' for more geoscience content on Instagram @drrhcmadden.*

Robert typically only writes about specimens he has in his collection, and takes all his own specimen photos

### Colours of Christmas

As it's that time of year I thought I would give you a flavour of the quintessential Christmas rocks, eclogites.

The most common rock of the Earth's crust is basalt, accounting for around 70% of the crust and being greatly important to driving subduction through its density. When basalts are subducted to 45 km or deeper and temperatures of ~500 °C are experienced, they undergo mineral reactions that result in a new vibrant green and red rock with higher density; an eclogite. These eclogites look so different to their basaltic parents you might think the Earth was playing at alchemy.

Eclogites are metamorphic rocks formed from mafic (basaltic) rocks at pressures greater than those typically experienced in the Earth's crust. Defined as high pressure (HP) and sometimes Ultra-High Pressure (UHP) metamorphic rocks, eclogites can record pressures in excess of 1.2 GPa (~50 km depth) and temperatures up to around 650 °C.



Almenning,  
Norway

Eclogitic rocks are commonly recognized for their bright red garnets and green omphacite (a pyroxene). The eclogite facies of metamorphism is defined by the absence of plagioclase feldspar (not stable at high pressure), a major component of the mafic protoliths that metamorphose to create these striking 'Christmas tree rocks'.

The first eclogite photo is from Almenning in Norway. Formed during the Caledonian Orogeny this eclogite is a vestige of a mountain building episode that occurred when the continent of Baltica was underthrust below the continent Laurentia 450 million years ago. Basaltic rocks that were dragged to depths

greater than 45 km metamorphosed to the classic green omphacite and red pyrope (garnet) mineral assemblage, with additional blue kyanite, silvery graphite (not seen in this photo and waxy quartz.

The second eclogite photo is from Holsnøy, Norway, but is different to many eclogites. The parent rock to this eclogite was likely a high-temperature, feldspar-rich rock called a granulitic anorthosite. This particular metamorphic change from a deep-crustal, buoyant-granulite to a dense eclogite has been hypothesised as a highly important mechanism for disturbing the deep roots and stability of mountain ranges.



Holsnøy,  
Norway

The last eclogite here is a one-billion-year-old example of the Glenelg Eclogite of Scotland, one of the very few global examples of Precambrian ultrahigh-pressure metamorphism. Eclogites are recognized as records of transient or long-term residency at great depths. Whilst well understood for oceanic (basaltic) subduction, many eclogite terrains, including Glenelg, are associated with felsic (granitic) continental crust that lack evidence of shared high-pressure metamorphism. The paradox of high-pressure rocks in non-high-pressure terrains has been explained through differential preservation. However, this presents new geodynamic



Glenelg,  
Scotland

problems as the implication is that subduction of low-density buoyant continental crust into the dense mantle has taken place. It is most likely that high pressure metamorphism of felsic crust to eclogite facies can create high enough densities to drive subduction into the mantle. But with so few Precambrian eclogites, the question would seem to be not 'how do these rocks dive so deep' but rather 'how do these rocks get back up?'

As it's Christmas time perhaps we should ask Father Christmas to deliver us some more of these colourful oddities from the depths!

## CLUB ACTIVITIES

### TALKS

#### Opening Pandora's box: the dos and don'ts of mineral collecting

Dr Kailah Thorn hosted our November talk at the Edward de Courcy Clarke Earth Science Museum at the University of Western Australia (UWA), where she is curating a massive collection of rocks, minerals, thin section and more (see [March 2021 MinSocWA Newsletter](#)).

Kailah took us through some of the most common mistakes and pitfalls that can befall even the most experienced collector and provided us with many tips on the best way to archive, catalogue and store our prized specimens, and even got us to practise some labelling on rock specimens.

Below are the notes and list of useful resources that she provided at the talk.

#### WORKSHOP NOTES

##### The Dos

- Keep good data. The value of a specimen is tied to its provenance as well as its beauty. Provenance data should be as detailed as possible, and kept safe from deterioration and loss in multiple formats
- Keep it clean. Preventing dust, oils from skin, and pest damage, is easier than repairs and cleaning.
- Regularly monitor for change. Photograph or note the condition of your specimens on a regular basis (i.e. once a year).
- Control what you can. Temperature, humidity, light, and movement.
- Insure your collection. Keep it up to date, with accurate value coverage as your collection expands. Fire and theft are basic, but damage can occur through accident (i.e. knocking a shelf, or in transportation).
- Educate yourself on the health and safety concerns of minerals in your collection. Not just the obvious ones (radiation, asbestos), but things like handling orpiment or cinnabar with gloves.
- Go acid-free. Acid-free paper for your labels, and acid-free, stitch-bound (as opposed to glue only) books with hard covers for your catalogue.

##### The Don'ts

- Display without any labelling/data. Minimally display with an archival specimen number or tag. Store your specimen information in one place (digital or analogue). Always have a backup of anything digital, and a digital record of anything analogue.
- Permanently mount or glue anything. Everything should be reversible.
- Use non-archival products. Rubber bands, plastic bags, regular pens, shellack, or cheap paper.

##### Resources

Start with this fantastic list from the **Geological Curator's group**: [www.geocurator.org/resources](http://www.geocurator.org/resources)

Howie, Frank (Ed.). 1992. The Care and Conservation of Geological Material: Minerals, Rocks, Meteorites and Lunar Finds. Butterworth-Heinemann, Oxford UK. 138pp.



**Collection/small museum procedures and templates:**  
<https://mgnsww.org.au/sector/resources/online-resources/>

**Purchasing**

Conservation supplies: <https://archivalsurvival.com.au/>

Custom boxes (Perth): <https://theboxman.com.au/custom-boxes/>

And the winner of the DOOR PRIZE for the November talk — a baryte specimen from the Aurungabad region (India) donated by Craig Bosel — was Wendy Hampton.

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## FIELD TRIP

### Donnybrook Field Trip – Part 1, Sunday November 7<sup>th</sup>

*By Michael Belperio*

Twelve eager MinSoc members met up on a bright Sunday morning in November alongside the newly re-opened Donnybrook apple park. Coffees and treats from the local bakery were consumed while the group milled about, discussing the beautiful morning and predictions of the ‘finds’ that were bound to ensue throughout the day.

After a thorough and informative briefing by our guides for the day — Alan & Clive — the group set off for the short trip to the edge of the Boyanup State Forest, where a number of historic workings from the early 1900s lie amongst the trees.

Navigating to the site proved to be considerably easier than the previous years’ attempt, with no overshooting of the turnoff, and thankfully no backtracking or turning around on the narrow tracks required! Navigating through the short patches of soft sand and narrow track between the trees was more than a little hair raising for the driver – but thankfully, the screech of eucalypt on paint was not heard.

After arriving at the site, Alan proceeded to give a bit more of a detailed overview of the area, including various attempts to precisely locate and ascribe names to the individual workings that have been found over the years. And of course, the all-important group safety discussion about conducting oneself in amongst old workings.



*The main shaft collar being worked for the day.*

With team members breaking off into various groups, individual patches were ‘staked’ around what had been described as the most productive of the shaft collars in the area. What followed was then several hours in delightful late-spring sunshine of scraping, digging, sieving and panning (and chatting). The majority of groups, upon recommendation from Alan and Clive, separated prospective dirt into +4mm and -4mm fractions. And though the group would only get a small amount of dirt through the pan on the day, it was collectively agreed to process a far greater volume of material to process through Clive’s sluice at a later date.

Under Clive’s enthusiastic tutelage and Barbara’s continuous witty commentary, the group’s panning efforts proceeded with gusto. Panning proved fruitful, with periodic exclamations marking success in the bottom of the pan. Though nothing larger than a couple of millimetres was found, inspection under the loupe revealed some magnificent examples of both crystalline growth of gold, and also gold still attached to its milky white quartz host.



*Various samples of crystalline and amorphous gold, with and without host quartz, collected on the day. All shot under 24x magnification; all samples <3mm length.*

### **Donnybrook Field Trip – Part 2 Sunday November 14<sup>th</sup>**

The following weekend, those who caught gold fever the previous week met up at Clive’s house in Roleystone, after Clive’s generous offer of the use of his sluice to process the material collected the previous week.



Under astute guidance once again from Alan and Clive, many kilograms of material were reduced down to several pans' worth of concentrate. Much easier than panning down by hand!

It was another glorious Sunday morning, and all involved would agree it was time well spent panning and plucking and generally being merry in the dappled light beneath Clive's gum trees. Many more interesting crystalline gold specimens were recovered – but again, none that could be appreciated without the aid of the 20x loupe.

It was interesting to note the distinct lack of heavy minerals in all of the samples. No doubt owing to the fact that the (presumably auriferous) quartz veins are hosted in the rather clean Donnybrook Sandstone.



*Clive and Emma cleaning up.*

*Alan cleaning up his samples destined for the Boola Bardip (WA Museum) collection.*





## Geotrail in John Forrest National Park

On Sunday 31<sup>st</sup> October, a morning walk organized by the Geological Society with an open invitation to interested persons was enjoyed by a gathering that included seven members of MinSocWA. The 3-kilometre walk followed a geotrail through the western section of John Forrest National Park Reserve along the disused railway line. Starting from the old Swan Road railway station, the trail followed a wide track along the old railway cuttings constructed through hard rock exposures that largely consist of granite. On the return leg, the geotrail passes through the 1895 railway tunnel. The walk coincided with the launch of a Geological Survey Western Australia guide written by our own member, Mike Freeman, and titled [\*John Forrest National Park, Railway Reserve Heritage Geotrail, geology explorer\*](#) — the guide is available online as a free PDF from the Department website.

Two rock types, granite and dolerite, are well exposed along the geotrail, and at several stops along the way Mike showed various contact zones between the granite (dated at 2.6 billion years) and several of the dolerite dykes that had intruded the granites. Red iron staining on the broad flattish and well jointed exposures along the cuttings make the distinction between granite and dolerite less apparent. Contacts between granite and dolerite generally were apparent by the less competent dolerite sheared along chilled margins with the granite.



*Leader, Mike Freeman, at Stop 1 showing the red iron-stained granite exposures to the group.*

The granite is part of the western edge of the Yilgarn Craton and is the major rock type along the geotrail. As seen on the surrounding countryside, on fresh exposures the granite has a pale grey to cream colour due to the dominant constituent minerals quartz and feldspar. The dark mineral component of the granite is biotite mica. Coarse (phenocrysts) feldspar crystals are up to 10 mm in length and stand out on weathered exposures (Stop1). Features of the granite that were observed and described by Mike included jointing patterns that form vertical sheets in some areas, iron staining, and the intrusion of narrow quartz veins and pegmatites. Where offset, the veins provide evidence of the general faulting and movements of the granite through its history. Movement of the granite is shown also by finely waved slickenside faces (Stop 3).





*Leader, Mike Freeman, at a sheared dolerite and granite contact zone along the geotrail.*

Dolerite, a dark grey to greenish rock, is very fine grained compared to the granite; some scattered, larger crystals of feldspar were noted, and the dark colour of the rock is due to minerals pyroxene and hornblende (amphibole). At two different stops, crystals of pyrite and a small show of blue-green copper mineralization were pointed out to the group.

*Fragments of dolerite with green-blue copper mineralization. Scale in mm.*



Like the granite, most of the dolerite surfaces also have a red/brown coating of iron oxides. Dolerite is more resistant to weathering than the granite and, where affected by faulting, it is more conspicuously sheared than the granite along the contacts. A few trees also have established themselves within the narrow-sheared dolerite contact zones where water seepage provides life support. The dolerite occurs in relatively narrow, vertical to sub-vertical dykes that are up to 100 m wide and mostly run north–south through the granites.

The characteristic granite landscapes with many trees formed the backdrop to the geotrail with monumental rocky outcrops of rounded boulders (tors). This is a geotrail that would be enjoyed especially during the wildflower season with broad landscapes of tors, boulders and valleys giving aspects towards the city and the valley of Jane Brook.

*Compiled by Susan Stocklmayer*



## MINERAL MARKET

It was a quiet event compared to the PGMS, but bargains could still be had at the MinSocWA December Mineral Market! Some images courtesy of Allan Hart below.



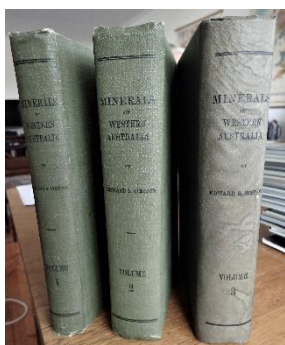
*Setting up*







## SIMPSON PROJECT UPDATE



Listed are the end of year first draft WA mineral write-ups received for the Simpson project.

These drafts have been completed by 8 MinSoc. members: -

Acanthite, aeschynite, agardite, aheylite, arsentsumebite, ashburtonite, bavenite, bayldonite, bertrandite, bityite, ceruleite, chenevixite, churchite-Y, cobaltian melonite, collinsite, cookeite, cornubite, crandallite, diabolite, ernienickelite, euclase, eucryptite, ferro-holmquistite, foggite, frohbergite, gaspéite, gillardite, goldmanite, haggertyite, holmquistite, holtite, hydrohematite, jeppeite, kaersutite, kimrobinsonite, koechlinite, linarite, lollingite, lucasite-Ce, mattagamite, mawbyite, mckinstryite, moganite, moissanite, moraesite, murdochite, mushistonite, natanite, natrowalentaite, nullaginite, oosterboschite, otwayite, plattnerite, pollucite, potarite, priderite, pseudorutile, putnisite, rucklidgeite, russellite, saddlebackite, seglerite, spionkopite, stilbite, tranquillityite, urea, uvarovite, wardite, widgiemoolthaite, woodallite, zinkenite (Total 71).

The rate of write ups has slowed and there is no possibility of the project being completed in its current form within the original proposed time frames. This needs to be reassessed and alternative planning implemented. A follow up meeting is planned for early 2022 to discuss progress.

*Susan Stocklmayer*

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## PERTH GEM AND MINERAL SHOW

The books are closed, and we can confirm that the PGMS was a great success financially with nearly \$20,000 in profit.

Once again thanks to all the volunteers that contributed in small and big ways, to our patron for his support, and to all the sponsors that contributed financially and in-kind to make the first PGMS a memorable show.

Plans are already afoot for a repeat next year, where hopefully we'll be able to make the event bigger and better with contributors from outside WA.

We are already taking expressions of interest for both sponsorship and bookings, please contact us at [PGMS@minsocwa.org.au](mailto:PGMS@minsocwa.org.au).

And with WA now finally opening its borders, we look forward to welcome interstate sponsors, vendors and collectors.

Be the first to be seen at the 2022 PGMS!

*PGMS Organising Committee*



And once again, a big thank you to our sponsors for 2021!



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## LIBRARY

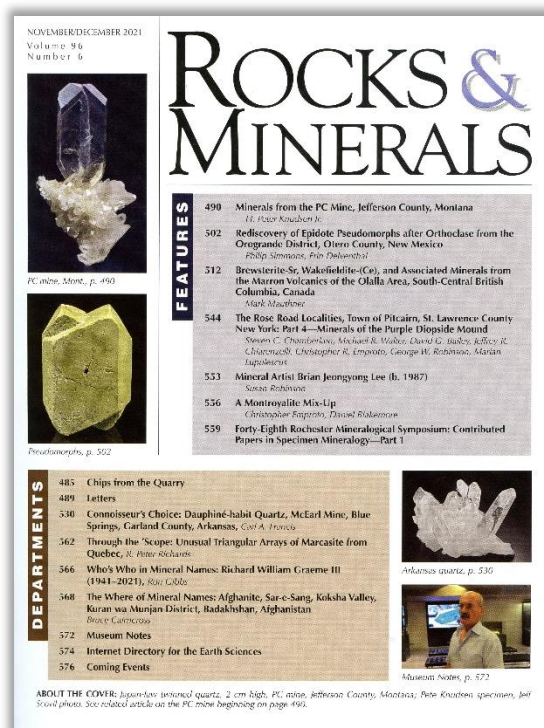
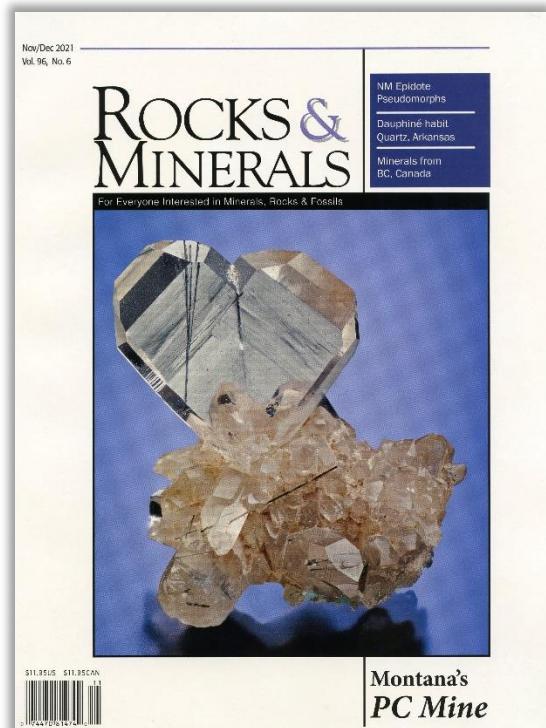
The library has recently received the following Journals:

- Rocks and Minerals Vol. 96, Nos. 5 and 6, covering September to December 2021.
- The Mineral Record July - August 2021, Vol. 52, Number 4. The Ìliva Mines.
- Australian Journal of Mineralogy, December 2021, vol. 22(2).

These Journals are available on loan. Contact John Mill on 0411420921 to arrange pick-up or drop-off.

A silent auction of library books is planned for the January meeting, in order to make space for books and publications considered more relevant to our Society.

*John Mill*



## ONLINE RESOURCES

### Minerals Day Career Videos

MSA recorded a series of videos on careers in the geosciences on Minerals Day 2021 (Oct. 11) and throughout Earth Science Week. These are now available on the [MSA YouTube Channel](#). The careers include forensic geoscience (FBI Labs), gemmology, mining and aggregate, environmental consulting, gem and mineral museum curation, glass and ceramics research and development, mineral collecting, working as a scientist for NASA and being a rotator at the National Science Foundation.

*Thanks to Ken Ireland for the notice above.*

## UPCOMING EVENTS

### SOCIAL EVENT

**Pizza @ Craig's place** Saturday 8 January 2022 3pm until Craig's bedtime (latish...)  
RSVP essential by 1/1/2022. Please respond to Craig at [craig.bosel@westnet.com.au](mailto:craig.bosel@westnet.com.au)

## TALKS

- 12 January 2022 DMIRS Abandoned Mines Project, by Tara Read (Project Coordinator)
- 9 March 2022 Orange fluorescent minerals from Mogok, Myanmar: from the scapolite – feldspathoid bearing marbles to hackmanite, by Nicolas Hébert
- 

## MINERALOGY 2022

Activities for **Mineralogy 2022**, which will begin mid-2022 and extend until mid-2023, have been unveiled by the International Mineralogical Association (IMA).

The [International Mineralogical Association](#) will celebrate mineralogy throughout the world in 2022. These celebrations will be within the [International Year of Basic Sciences for Sustainable Development](#).

2022 will be the bicentennial of the death of René Just Haüy (born 1743) who is a father of modern mineralogy and crystallography. 1822 is also when Haüy's *Traité de minéralogie* and *Traité de cristallographie* were published.

### Overviews and significance

Min2022 is intended to be a worldwide celebration of this discipline to highlight its importance in our everyday lives. Mineralogy is one of the oldest branches of science, it has played a key role in the deciphering of the structure of matter and in the development of science and technology.

### Goals

The major objectives of *Mineralogy 2022* are:

- to generate public interest for the science of matter and how it underpins most innovations and developments in our modern society;
- through the fascination of natural crystals to attract young people to science;
- to illustrate the universality of science;
- to intensify the emergence of mineralogical societies in developing countries where resources are exploited;
- to foster international collaboration between scientists worldwide, especially by building North–South networks and South-South collaborations;
- to promote education and research in mineralogy, crystallography and their links to other sciences;
- to increase public awareness of the importance of natural resources.

### Milestones

- The idea of a year of Mineralogy emerged at the 22<sup>nd</sup> International Mineralogical Association General Meeting in Melbourne
- The support was granted by UNESCO during the 12<sup>th</sup> meeting of International Basic Sciences Programme + Experts Forum held in Paris in November 2019
- At this meeting it was decided that the celebrations of Mineralogy 2022 will be within the International Year of Basic Sciences for Sustainable Development (IYBSSD 2022) which was approved by the resolution 40 C/76
- The International Mineralogical Association, represented by Patrick Cordier, is a member of the Steering Committee of IYBSS 2022
- Mineralogy 2022 will be officially launched during the 23<sup>rd</sup> International Mineralogical Association General Meeting which will be held in Lyon, France
- As IYBSSD, Mineralogy 2022 will begin mid-2022 and extend until mid-2023

This notice was first published by [Université de Lille](#).

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The New Zealand Micro-mineral Group will be running the 44th Annual Seminar of the Joint Mineralogical Societies of Australasia in Dargaville, Northland.

We will follow our normal format with the Micro-mineral Symposium being held from the 21st to the 25th of October 2022, at the Tangihua Lodge. There will be basic accommodation at the Lodge, but accommodation will also be available in Dargaville and Whangarei for those that prefer.

Field trips are yet to be finalised but will probably be as follows:

25 October — A Waipoua basalt locality

26 October — Pantellerite or epi-thermal deposit

27 October — Carbonate skarn

The Seminar will be run at a Dargaville venue with the topic of "Zeolites" but there will be time allocated for other topics as well. Talks will be scheduled for Friday and Saturday mornings (28 & 29 October) with a buy, swap and sell session on the Saturday afternoon. The Seminar dinner will be held on the Friday night.

Presentations are invited and more information can be requested by emailing Rod Martin at [nzsailor@xtra.co.nz](mailto:nzsailor@xtra.co.nz).

## NEW MEMBERS, MEMBERSHIPS AND MEETINGS

The Mineralogical Society of WA would like to welcome the following new members:

- Yalimay Jimenez de Duarte
- Regis Neroni
- Mignonne Clark

All members are asked to ensure that all your contact details are up to date with the Secretary. If you change your email address or phone number, please let us know so that you continue to receive all MinSocWA communications. Membership forms can be downloaded from the MinSocWA web page here:

[www.minsocwa.org.au/membership](http://www.minsocwa.org.au/membership).

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### Meetings

Meetings of the Mineralogical Society of Western Australia Incorporated are usually held at **7.30pm on the second Wednesday of every odd month** at the WA Lapidary & Rock hunting Club rooms at 31 Gladstone Road, Rivervale (corner of Newey Street). The venue will be open from 7pm for refreshments and socialising.

At all meetings the Society's microscopes, UV lamp and refractometer are available for use by members.

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## COMMITTEE MEMBERS FOR 2021/2022

At the AGM on 9 September, a new MinSocWA committee was elected, with some new and old faces. Welcome to all and thanks for stepping up to help run the Society for 2021–22.

A big thank you to Sue Koepke (past President) and to Susan Stockmayer (vice President) for their contribution and time on the committee. Sue's report and I&E summary for the past financial year are presented below.

<b>President</b>	Peter Willems	<a href="mailto:president@minsocwa.org.au">president@minsocwa.org.au</a>
<b>Vice President</b>	Craig Bosel	
<b>Secretary</b>	Angela Riganti	<a href="mailto:secretary@minsocwa.org.au">secretary@minsocwa.org.au</a>
<b>Treasurer</b>	John Mill	<a href="mailto:treasurer@minsocwa.org.au">treasurer@minsocwa.org.au</a>
<b>Field Trip Leader</b>	Vacant	<a href="mailto:fieldtrips@minsocwa.org.au">fieldtrips@minsocwa.org.au</a>
<b>Newsletter Editor</b>	Rodney Berrell	<a href="mailto:newsletter@minsocwa.org.au">newsletter@minsocwa.org.au</a>
<b>Committee Member</b>	Kylie Matonia	
<b>Committee Member</b>	Niels Dahl	<a href="mailto:stormpfan@gmail.com">stormpfan@gmail.com</a>
<b>Committee Member</b>	James Sherborne	<a href="mailto:jamesherborne@hotmail.com">jamesherborne@hotmail.com</a>

**Patron - Mark Creasy**

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## MinSoc WA LINKS

- Web:** <http://www.minsocwa.org.au>
- Facebook Group:** <https://www.facebook.com/groups/minsocwa>
- Facebook Page:** <https://www.facebook.com/MINSOCWA>
- Instagram:** <https://www.instagram.com/MINSOCWA>
- YouTube Channel:** <https://www.youtube.com/channel/UC0S2TFVFIBLU-2zIEzE5VNA>
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## ADVERTISING

### The Australian Journal of Mineralogy

[www.ajmin.org.au](http://www.ajmin.org.au)

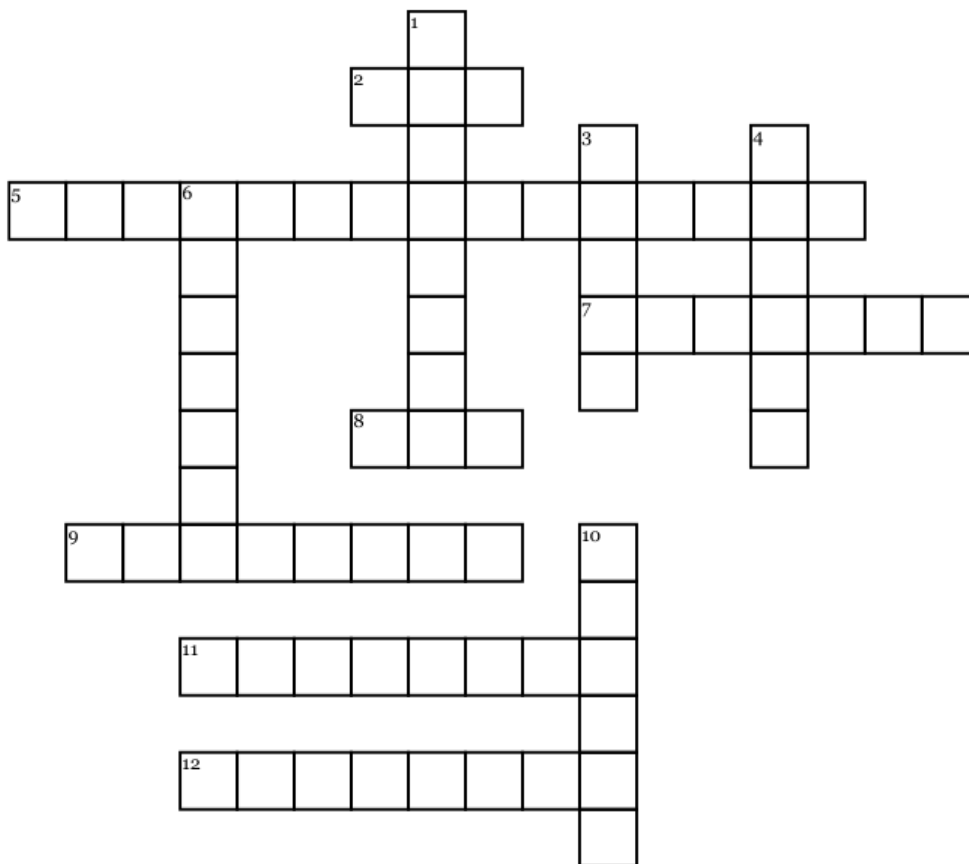
The Australian Journal of Mineralogy now has its own website. It lists all the issues of the journal, and visitors can use the site to pay for subscriptions or purchase past issues. There is a free index, and a PDF of the now out-of-print V1.1, also free of charge. It has photo galleries, a mineral events calendar, handy links, and more.



Cover and contents of AJM Volume 22, Number 2, December 2021



# MINERALS CROSSWORD PUZZLE



**Across**

- 2.** deposit in which a mineral exists in large enough amounts to be mined at a profit
- 5.** ratio of a mineral's weight compared with the weight of an equal volume of water.
- 7.** naturally occurring inorganic solid that has a definite chemical composition and an orderly internal atomic structure.
- 8.** beautiful, rare, highly, prized mineral that can be worn in jewelry

- 9.** describes a mineral that contains silicon and oxygen and usually one or more other elements.
  - 11.** measure of how easily a mineral can be scratched.
  - 12.** Physical property of some minerals that causes them to break along smooth, flat surfaces.
- Down**
- 1.** physical property of some minerals that causes them to break with uneven, rough, or jagged surfaces.

- 3.** hot, melted rock material beneath Earth's surface.
- 4.** color of a mineral when it is in powdered form.
- 6.** solid in which the atoms are arranged in an orderly, repeating pattern.
- 10.** describes the way a mineral reflects light from its surface; can be metallic or nonmetallic.