

# Mineralogical Society of Western Australia Inc.

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.

## Newsletter - March 2021

## CONTENTS

Editorial	2
Past Events	3
School of Rock	8
Interesting Articles & Other News	9
MinSocWA Simpson WA Update Project	10
Library	10
Treasurer's Report	11
Upcoming Events - Meetings, Workshops, Activity Days & Social Events	12
New Members, Membership & Meetings	14
Contacts - Committee Members	14
MinSocWA Links	14
Advertising & Advertisers	15

#### 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

## EDITORIAL

Welcome to the March 2021 newsletter.

See the exciting news in the Upcoming Events section about the Perth Gem and Mineral Show. The sub-committee, headed by Peter Willems, is very busy working to create the inaugural show. There are plans for an April Activity and members will be informed via email when the details are confirmed.

One of our members, Mike Freeman, will be giving a talk after the upcoming meeting on Wednesday 10th March titled **Ellendale: The 'Fancy Yellow' diamond story.** Note the date in your calendar and we look forward to seeing old and new members there.

School of Rock - By Dr Robert Madden is back in this edition with a very interesting article as usual. Robert decided that it would be a disservice to the amazing accomplishments happening on the surface of Mars at the moment not to write about that.

#### **@Zacksploitation**



#### The Martian Chronicles with Percy and Ginny...

(Perseverance rover and Ingenuity drone)

Published here with written permission from the artist and writer, Zack Morrissette.

You can find Zack at @zacksploitation on Instagram and Twitter!

A reminder that Curtin University is still seeking about 150 Western Australian rock and mineral specimens for a vertical display for the new building. The display will be designed to be eye catching and accessible to the general public and students. Specimens are sought with the following characteristics:

- Typically 20 to 30 cm (fist to football) in size
- Natural specimens rather than cut and polished slabs
- Aesthetically pleasing
- From WA but not necessarily from an exact documented location
- All different

If you have specimens to donate please contact Pete Kinny (Director, The Institute for Geoscience Research) at <u>P.Kinny@curtin.edu.au</u>.

It has been brought to our attention that many of our members are receiving .....@minsocwa.org.au emails as spam. Angela Riganti has checked with our provider and there is nothing that can be done

at the source. Please refer to <u>How to prevent email from going to junk?</u> or similar websites for tips on how to add these emails to the SAFE SENDERS list, either individually or in block. It is always a good practise to periodically check your Junk box anyway. We apologise for the inconvenience and hope that by taking the step of identifying minsocwa email addresses as safe there won't be further issue in future.

If you haven't visited the new Western Australian Museum Boola Bardip yet, this is a reminder to visit as it has many inspiring displays, exhibitions and programs. The Museum is open daily from 9am to 5pm and entry is free. Some special exhibitions and programs may charge a fee. You can just turn up or you can make a booking to avoid waiting in line or if you wish to visit on a particular day. For a birds-eye preview of the outside and inside of the museum see this wonderful drone video: <a href="https://youtu.be/ZszMB1EIG6g">https://youtu.be/ZszMB1EIG6g</a>. See the museum web page for further information at <a href="https://yisit.museum.wa.gov.au/boolabardip">https://yisit.museum.wa.gov.au/boolabardip</a>.

For those who may have missed it, you can watch the Doug Kirwin presentation on the *Myanmar jade trade* at <u>Past Presentations | GeoHUG</u>. There is no need to subscribe to be able to view the presentation.

The Mineralogical Society of WA and its members are saddened by the passing of Dr Alex Bevan. As Head of Earth and Planetary Sciences at the Western Australian Museum from 1985 to 2018, he contributed greatly to the fields of meteoritics, mineralogy and metallurgy. Our condolences go to his wife Jenny and his family.

Members are invited to make submissions to this newsletter of articles they have written and would like to share with our members and readers. The articles can be a couple of paragraphs to a couple of pages. If you find it interesting, I'm sure there will be other members who also do, so please share. Send submissions to the <u>Newsletter Editor</u>.

## PAST EVENTS

#### **GENERAL MEETING - Wed 20 Jan 2021**

The January General Meeting was held at 7.30pm at the WA Lapidary & Rockhunting Club rooms. See the Minutes of this meeting for details.

The door prizes of cuprite pseudomorphed by azurite and malachite (DeGrussa) were very kindly donated by Rod Berrell and won by Stewart Cole and Barbara Donati.

Following the meeting there was a talk by Dr Milo Barham.

#### TALK - Wed 20 Jan 2021 Dr Milo Barham - Detrital mineralogy and the Australia-Antarctica connection

Following is summary of Milo's talk written by Bruce Groenewald.

#### **Detrital Mineralogy and the Australia–Antarctica Connection:** Exploring distant times and lands through beach sand minerals

Dr Milo Barnham from Curtin University presented an excellent talk at the 20 January meeting about the mystery of 500 million year old Antarctica zircons in Western Australian beachside heavy mineral sands. He explained that the heavy mineral deposits are so much more than economic resources because the minerals retain so many records of where they originated. In particular, zircons are the

most amazing minerals! Even though a small fraction of the heavy mineral concentrate, the mineral is worth a lot of research—individual zircons retain isotopic characteristics that record their ages of origin and modification, as well as the situation in which they formed, and this can allow identification of their source and provenance quite accurately.

The research Milo spoke about was done on heavy mineral sands collected in the William Bay National Park at Hillier Bay, on a beach with high concentration of heavy minerals. Obviously, we would expect the heavy minerals to have come from the hinterland in the eroded sands brought down drainage systems such as the Frankland River. Milo and his colleagues, Chris Kirkland and Martin Danisik, studied the zircons from this locality using extremely accurate measurements of isotopes of U–Pb, U–Th–He, and Lu–Hf. These isotope systems, respectively, allow measurement of the age of formation of the zircons, the thermal history and date of arriving near the surface, and the nature of primordial source of material in original rocks where the zircons crystallized.

The beach sands on WA's south coast were expected to provide the spectrum of ages corresponding to the rock-forming events in the catchment area in southwest Western Australia. The major zircon -forming events occurred in the Archean Yilgarn Craton (older than 2500 Ma), and in the Albany-Fraser orogenic belt, where high-grade metamorphism and magmatism took place around 1000 million years. Milo showed us how the relative frequency graphs of age in the zircon population match this provenance, but there are also a lot of zircons that are ~500 million year old. Where did these come from? The Gondwana reconstruction places WA adjacent to Antarctica, and major orogeny and granite emplacement occurred there about 500 million years ago. But Antarctica and Australia separated more than 50 million years ago — so how do these zircons arrive in our recent beach sands? There must be a cache in which the Antarctica zircons have been stored for more than 50 million years, that is now being tapped by uplift and erosion to recycle the zircon population.



This figure, reproduced from Milo's talk and extracted from <u>this article</u>, shows the location of the heavy mineral deposit (red star) relative to the Gondwana reconstruction. It is likely that the 500 Ma zircons have been in residence for more than 50 million years, in sedimentary rocks that are once again subject to erosion to supply sand to the current beaches.

## **WORKSHOP** - Edward de Courcy Clarke Museum at UWA - Tour and petrological microscope session - Sat 20 Feb 2020

#### Summary and photos by Angela Riganti

On Saturday 20 February, some MinSocWA members were treated to a guided visit of the <u>Edward</u> <u>de Courcy Clarke Museum</u> at UWA. Dr Kailah Thorn, the curator, took us through the history of the founding of the University, the Geology Department and Museum and of the latter's extensive collections of more than 180,000 specimens. In addition to teaching collections of rocks and minerals, the museum houses fossils (including type specimens), palynology samples, thin sections, research collections from student Honours, Master and PhD projects, as well as maps and aerial photographs – indexing and digital capture are endless tasks of museum curation. The showroom of the museum offers many displays and interactive activities and is open to visitors 3 days a week, and on Saturday depending on volunteers' availability.



After the Museum tour, the first year lab was used for a microscopy demonstration. With the help of Jason Bennett, Susan StockImayer displayed a series of mineral sands and some thin sections on the big screen. The images below show some examples of what was shown.



a+b) Plane and cross polarised image of spodumene and quartz (specimen not from WA)

- c) Cross polarised image of a staurolite specimen (yellow) with inclusions of biotite (green) containing zircons grains recognisable from haloes due to radioactive decay, and quartz (grey). Susan used this example to indicate that large grains of a single mineral (staurolite here) can be compositionally very varied, an issue in older days when trying to characterise the chemical composition of a mineral species.
- d) Sand from Rottnest Island, illustrating the large organic component of this sand.



Images of mineral sand concentrates and Donnybrook sand (grain fraction mostly <1mm; all images in oil immersion).

- a) Rounded garnet grain, with rounded inclusions of zircon and unidentified needles
- b) Donnybrook sand, collected in August 2020 (MinSocWA field trip). In contrast to the rounded grains in image a), Donnybrook material has more angular grains (largely quartz and surface stained by iron oxide /opaques)
- c) Susan pointing to crystallographically oriented rutile inclusions within ?monazite (no firm ID at this stage)
- d) The same grain at c) under cross polar, showing the high birefringence
- e) Relatively well-formed zircon grain showing fractures and high content of varied mineral inclusions
- f) Monazite grains under cross polars showing high order interference colours of these well rounded grains



## 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.

#### Mars Rover – 'Perseverance'

On the surface of Mars right now an amazing feat of science and engineering is allowing us to explore the red planet like never before. A rover is currently conducting, amongst other things, a sampling mission. A geological sampling mission. The Perseverance rover will collect samples of Martian rocks and soil and store them in specialised tubes on the planet's surface for collection and return in a later mission. We are going to have fresh, geolocated samples from Mars in our lifetimes (~2031), this is a breathtaking accomplishment. Perseverance will be drilling for samples that demonstrate various features in the geology of the Jezero Crater, a 49 km wide crater containing a clay rich delta fan deposit, proof of former water-based processes that operated there. It is hoped that these samples will contain biochemical signatures that indicate life.

The Perseverance sampling strategy is particularly exciting as the only Martian samples we have on Earth are in the form of meteorites and are exclusively igneous in nature making them almost certainly devoid of life signatures. That is not to say that Martian meteorites are not interesting...

Mars, the fourth planet from the Sun and the second-smallest planet in the Solar System is probably better known by its other name the 'Red Planet'. The red colour of Mars is due to the presence of iron oxide (rust) in the surface sediments. The iron oxide layer of Mars is only around 30 cm deep and is a poor representative of the real Martian geology. Mars is a rocky planet, like ours, and its surface is largely tholeiitic basalt (think lava flows in Hawaii) with some areas of silica-rich rocks similar to andesite.

Of around 61,000 known meteorites on Earth only 224 have come from Mars. Martian meteorites arrive on Earth after being ejected from the Martian surface by another meteorite impact. These meteorites are classed as Shergottites, Nakhlites and Chassignites (SNC Meteorites). SNCs have been known to be significantly different from other meteorite types since the 1980s. Differences include: younger formation ages, different oxygen isotope compositions, aqueous weathering products, and importantly similarity in chemical composition to analyses of Martian surface rocks taken by the Viking landers.

~75% of Martian meteorites are shergottites. All are ultramafic or mafic igneous rocks with crystallisation ages of ~180 Ma. This age is incredibly young given the overall highly ancient age of the Martian surface. This "Shergottite Age Paradox" is a currently unanswered and researched area of planetary geology. If the ages of around 180 Ma are correct then this would suggest volcanic/magmatic activity on Mars much younger than we currently understand for the planet. Most of the different groups of Martian meteorites have very closely comparable ages and based on exposure to cosmic rays and the effect this has on the samples ages, their transit times to Earth can be calculated. Nearly all the Martian meteorites are clustered together in a handful of separate Martian impact events between around 100 ka and 19 Ma.



Photographed here in my hands is a piece of Martian meteorite NWA11431, a doleritic Shergottite.

This medium-grained mafic rock is composed predominantly of zoned clinopyroxene and maskelynite (a glassy material with a plagioclase composition).

Dr Madden only writes about specimens he has personally seen and he takes all his own specimen photos.



**Dr Robert H.C. Madden** has been looking at rocks and minerals for the last 17 years. Robert's specialities lie in carbonate sedimentology and petrology as well as exploration geology, particularly porphyry-epithermal and MVT systems.

He is also a Fellow of the Geological Society of London and a Member of the Australian Institute of Geoscientists with a rich, global portfolio of geological experience.

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

Follow Robert for more geoscience content on Instagram @drrhcmadden.

Dr Robert Madden Sedimentology research in Namibia

## **INTERESTING ARTICLES & OTHER NEWS**

Title: Cairns man faces losing car over hefty fine for rock he took from Queensland creek

Reference: 7 News (submitted to newsletter by Mike Freeman)

Link: <u>https://7news.com.au/news/qld/cairns-man-facing-hefty-fine-over-crystal-he-allegedly-took-from-national-park-c-2126573</u>

A good reminder to always know where you are fossicking/prospecting and have the legal permits.

#### Mineral talks on YouTube:

https://www.youtube.com/channel/UCSIGYON34E\_XN97bJAPqYuA

If any members have interesting articles, reports or links they would like to share with other members through the newsletter please email your suggestion to the Newsletter Editor.

## MinSocWA SIMPSON WA UPDATE PROJECT

Thank you to all members who have already shown keen interest in the proposed collaborative MinSocWA Simpson WA Update Project. This section has been added to the newsletter to keep you up to date with progress along the way.

For information on what minerals are still available for members to participate in writing descriptions please contact Susan StockImayer at <a href="mailto:simpsonwa@minsocwa.org.au">simpsonwa@minsocwa.org.au</a>.

#### Simpson WA Project report - by Susan StockImayer (as at Feb 2021)

A quote from newsletter Volume 1, Number 1, September 2000.

# "In common with the other State Mineralogical Societies, Western Australia has adopted a set of Objectives that includes "to establish and maintain a register of mineral species and their occurrences".

This statement underlies the project we began a few months ago in mid-2020; it has taken the Society time to begin the process but as it is launched as a collaborative work, we have been working to attract members from all Mineralogical Societies of Australia and New Zealand as well as extended the invitation to all interested geoscientists to participate and work with us from wherever.



Last month a list of 18 preliminary mineral write ups was included, and since then we can add the following minerals; zinkenite, segelerite, wardite, mawbyite, kaersutite, melonite-Co, and several varieties of agardite. Contributors in this new group are Steve Turner, Lee Hassan and Vernon StockImayer. The total number of reserved minerals is 76.

We are pleased to be able to use images supplied by John Haupt for two of the write ups. Photography of minerals that are often of mm sizes is a challenge and we are pleased to have the co-operation of Steve Sorrell, John Haupt and Dermot Henry. Another facility to which we can research is UWA and with the help of Kailah Thorn, Curator at the E.de C. Clarke Museum, both the theses library and original samples and microscope thin sections can be accessed with prior permission. It is also a possibility that images of mineral samples housed at the UWA can be arranged to be taken on your behalf, by contacting either Kailah or Jason Bennett. If any

readers of our newsletter have images pertinent to this project, we would like to hear from them. In some back copies of our newsletter some good images have already been taken using our stereomicroscope, can these please be shared by whosoever took the images?

Please keep writing and for any questions in regard to the Simpson project contact your Committee members or Susan at the project email address given in this newsletter.



The Mineralogical Society of WA library currently owns over 150 publications housed in a lockable cupboard in the WA Lapidary & Rockhunters Club premises comprising numerous books, reports and journals that have been donated by members. To access the books please see the Librarian,

John Mill. Members are encouraged to borrow books from our library to keep it viable to continue maintaining.

Donations of books and other relevant publications are also appreciated. Please see John Mill if you have any publications you would like to donate to the library or email John at <u>millrock@iinet.net.au</u>.

The Mineralogical Society of WA receives complimentary copies of the Australian Journal of Mineralogy (AJM) which are available for members to borrow. These journals cover a wide spectrum of articles on mineralogy, ranging from descriptions of new minerals to book reviews, museum news and items of general interest to mineral collectors. MinSocWA members are regular contributors to the AJM.

#### Librarian's Report - by John Mill

The MinsocWA library has been facing a number of setbacks lately. These include, but are not restricted to the following:-

- 1. Lack of space. The library is currently housed in a cupboard at the WA Lapidary Club. The cupboard space is entirely depleted. This lack of space makes books difficult to access because they cannot be stored in an ordered fashion.
- 2. Inappropriate material. Many of the items currently in the library are inappropriate to the activities of MinSocWA and its members. While much of it is geological in nature, very little is specifically of interest to MinSocWA Members. Amongst the material we have in the library are Bulletins from various State Geological Surveys, including many from the Geological Survey of Tasmania and editions of the Journal of Meteorites and Planetary Science.
- 3. Inaccessibility to Members. For many MinSocWA members the library is difficult to access because of its location in a locked cupboard at the WA Lapidary Club, which is not accessible all the time.
- 4. This situation has led to an almost total lack of interest by MinSocWA members in the library as evidenced by the library's lending records.
- 5. Much of the material is currently available on-line.

Your committee has identified all items of non-mineralogical nature and decided to dispose some of this material at silent auctions to be conducted at the March General Meeting on 10<sup>th</sup> March 2021 and at the Perth Gem and Mineral Show in September 2021. In addition, back issues of The Mineralogical Record, Rocks and Minerals and other material, generously donated by Ken Ireland and possibly some mineral specimen boxes will also be subject to silent auction at the March general meeting. These books are beautifully presented in full colour and would enhance any literary collection.

## **TREASURER'S REPORT**

#### By John Mill (Treasurer)

At 23<sup>rd</sup> of February, 2021, MinSocWA had \$40,404.97 in the General Account. During the month, a deposit of \$825.00 was made by Westernex as sponsorship for the upcoming Perth Gem and Mineral Show. The January meeting grossed AUD\$132.00 and €0.10. After catering expenses of \$37.20, AUD\$94.80 was banked.

## **UPCOMING EVENTS - MEETINGS & ACTIVITIES**

#### **GENERAL MEETING – Wed 10 Mar 2021**

This General Meeting will be held at 7.30pm at the WA Lapidary & Rockhunting Club rooms located at 31 Gladstone Road, Rivervale (corner of Newey Street). The venue will be open from 7pm for refreshments and socialising.

**Come early for the Silent Auction being held before the meeting.** See Librarian's Report for details. There will be a door prize of a specimen of Hematite from Koolyanobbing iron ore mine kindly donated by Peter Willems. Following the meeting there will be a talk by Mike Freeman.

#### TALK - Wed 10 Mar 2021 Mike Freeman - Ellendale: The 'Fancy Yellow' diamond story

#### **About Michael Freeman**

Mike graduated at Adelaide University in 1969. Starting in the SA Mines Department in the engineering geology then hydrogeology sections, he moved into mineral exploration in NSW spending two years exploring for another Broken Hill, that was not there. Then into phosphate rock evaluation, mine planning, feasibility and initiation of mining in NW Queensland. Moving to Alice Springs he managed a field-team and then generated the first 1:250 000 geological map for the NTGS. Moving to Perth he joined a small company as manager for exploration at Kundana and after four months drilled out a 1 million tonne deposit (3.7 g/t of gold) just outside of Kalgoorlie. Moving to Collie, he worked on the coal seam modelling for the Ewington-Premier mine, coal from which is now used for generating some of Perth's electric energy. Then to the GSWA, where his first job was with the WA Police as a mineral specialist investigating a major gold fraud at Karpa Spring that included three weeks in the field with six armed police giving a 24-hour bodyguard! After that, he moved into land-use planning where he compiled maps showing competing mineral sand company deposits, possibly a world first. The mapping was fed into the WA Planning Commission's data systems to protect the deposits from conflicting land uses. Latest projects have entailed the release of land for mining of deposits of sand and limestone to augment Perth's slowly dwindling access to these commodities. He also managed the re-leasing of the Ellendale Diamond Mine. Mike married in 1972, has three adult offspring and is now married to Luz. He plans retirement this year and he and Luz will move to Bunbury late in 2021.



Mike Freeman

#### THE PERTH GEM AND MINERAL SHOW (PGMS) - 18 & 19 Sep 2021



Proudly presented by the Mineralogical Society of Western Australia

The Perth Gem and Mineral Show (PGMS) sub-committee is pleased to report that planning of the inaugural show is going ahead smoothly. The event will showcase many of the wonders that the mineral, gem, fossil and geoscience communities have to offer, with a special focus on Western Australia's mineral heritage.

We envisage a large component of the show to be traditional, Gemboree-esque mineral show setting where dealers and tail-gaters offer gems, minerals specimens and mineral-related products for sale. The other component is envisaged as corporate/conference style booths, managed by relevant industry and academia parties who wish to exhibit their contributions to the fields of mineralogy and mineral heritage.

The vision is to involve several sectors, which are generally discrete from each other, take a common theme, mineralogy, and create a memorable, mutually beneficial event to grow relationships and build a more cohesive future for mineral heritage in WA.

By creating an event that companies will be proud to associate their organisation with, we hope to generate event sponsorship and ultimately leave MinSocWA not out of pocket at the closure of the event. If in the case where sponsorship and door/space sales exceed total cost for the event, surplus will go toward making the subsequent years' event even greater. The sub-committee is pleased to report that we have secured several generous financial sponsors for the show which has substantially de-risked the event for MinSocWA.

Due to several requests and considerations, the committee has decided to schedule the event for the weekend of the 18<sup>th</sup> of September 2021 (instead of originally proposed weekend of 15<sup>th</sup> May). This date has been approved by our venue, Curtin Stadium, and will allow us to work more efficiently with our sponsors and vendors to make this a very special event.

Over the next few weeks, we will be sending out copies of a Vendor Prospectus for the show. The Vendor Prospectus outlines opportunities for holding a trade stall or corporate booth as well as opportunities for giving a talk at the event, with application forms enclosed. If you or someone you know may be interested in being a part of the show in one of these facets, or as a volunteer, please get in touch with Kylie Matonia, PGMS Secretary, at pgms@minsocwa.org.au for more details.

## **NEW MEMBERS, MEMBERSHIP & MEETINGS**

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

- Jason Bennett (*Welcome back*)
- Sophie Sperring

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.

#### 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 & Rockhunting 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.

## **COMMITTEE MEMBERS FOR 2020/2021**

President	Sue Koepke	0417 990 688	president@minsocwa.org.au
Vice President	Susan StockImayer	9291 9043	baobab46@dodo.com.au
Secretary	Angela Riganti	9243 7472	secretary@minsocwa.org.au
Treasurer	John Mill	0411 420 921	treasurer@minsocwa.org.au
Field Trip Leader	Peter Willems	0467 040 409	fieldtrips@minsocwa.org.au
Newsletter Editor	Lesley Daniels	0432 322 659	newsletter@minsocwa.org.au
Committee Member	Niels Dahl		stormpfan@gmail.com
Committee Member	James Sherborne		jamessherborne@hotmail.com

#### Patron - Mark Creasy

### **MinSocWA 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

## **ADVERTISING**

Members may submit adverts free of charge. Commercial adverts will be accepted for a nominal charge. If you are interested in submitting an advert to the newsletter contact the Newsletter Editor.

## Treasure Island: A Fossicker's Guide to Australia, is a new book by Rodney Berrell and Nicole Kelly



The book is a treasure trove for anyone keen to learn more about geology, minerals, gems and fossils. Through inspirational commentary, marvellously illustrated maps and photography, it explores over eight different areas across Australia including over 50 gemstone, mineral or fossil locations. Whether you are a professional or just starting out, this book will set you on an incredible journey – the history and formation of Australia and its geology.

#### Contact Rod Berrell at <u>rodneyberrell@yahoo.com</u> to order your copy.

## The Australian Journal of Mineralogy

#### https://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 Volume 21, Number 2, 2020