

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 2020

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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

January saw another great talk, a wonderful 'Welcome to 2020' evening and another educational workshop. More details about these events are in the Recent Activities section. This month we look forward to an interesting talk from Craig Bosel and our regular Mineral Market is on again. Details in the Upcoming Events section.

There is a plan to hold a major Perth Gem and Mineral Show to tie in with our 20th Anniversary if possible. It was discussed at a recent committee meeting that given interest from local and interstate collectors and dealers, MinSoc WA would like to host a 'Gemboree style' gem and mineral show in Perth. Ideally this will take place either later this year or early next year, pending venue availability, east coast show schedule etc. We voted to open a sub-committee to allow general members to be involved in the organising of the event. Peter Willems was nominated to chair the sub-committee. If you are interested in being involved in the organising team for a Perth Gem and Mineral Show, please send expressions of interest to Peter (pjwillems90@gmail.com) and we will aim to get the first sub-committee meeting together during March or April.

A large number of specimen boxes, a glass-topped display case and a quantity of interesting books have been donated to MinSoc WA. It has been decided by the committee to sell the specimen boxes and display box at the Mineral Sale Day on 15 March. The books will be sold at a later date. Examples of the display boxes will be shown at the General Meeting. Thank you very much to Ben van der Klip for his very generous donation. These items belonged to Ben's father who was a geologist.

The Gemmological Association of Australia (WA Branch) is hosting the 74th GAA Conference here in WA at the Rendezvous Hotel in Scarborough from 21-24 May 2020. Guest speakers include: Dr Karl Schmetzer, author of 'Russian Alexandrites', Gemmological Researcher and Consultant from Germany and Robin Hansen, Curator of Minerals and Gemstones, Natural History Museum, London. Please see the Advertising section of this newsletter for registration details.

The Coordinating Team of the Supplement on Mineral Collections in Australia for the Mineralogical Record are calling on final submissions for the publication and are nearing completion. There is still time left for people who would like to contribute to this supplement, but time is running out! All submissions including payment must be submitted in full by the 31 May 2020. See details in the Advertising section of this newsletter.

If any members have any requests or suggestions on what they would like to see in the newsletters please contact the Newsletter Editor. Contact details are included in this newsletter.

Meetings

The General and Annual General 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 located at 31 Gladstone Road, Rivervale (corner of Newey Street).

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

RECENT ACTIVITIES

MEETING - General Meeting - Wed 8 Jan 2020

For full details of the meeting please refer to the Meeting Minutes.

An Ordinary Meeting was held on Wednesday 8 January and was chaired by President, Sue Koepke.

No door prize raffle was held in January due to the last minute meeting venue change.

We are always grateful to receive donated items for the door prizes. Please contact any of your committee members if you have suitable items you would like to donate.

Following the meeting Nicolas Hebert gave a talk titled 'Mineralogy of the gem-bearing marbles of SE Asia: a journey from Luc Yen to Mogok'.

TALK - Nicolas Hebert - Wed 8 Jan 2020

'Mineralogy of the gem-bearing marbles of SE Asia: a journey from Luc Yen to Mogok' (Summary by Nicolas Hebert)

Nicolas HEBERT gave a talk entitled "Mineralogy of the gem-bearing marbles of SE Asia: a journey from Luc Yen to Mogok". He started the presentation with some elements of his personal background as a graduate mine geologist at Dalgaranga gold mine. His interest in rocks deepened when he exited the sedimentary basin in which he was born towards the Vosges crystalline massif in Eastern France for his degrees. Poor weather and inability to undertake as many fieldtrips as wanted led him to binge watch field gemology channels on YouTube. Extensive multimedia research helped him prepare his 7.5 months journey in the gem-producing areas of SE Asia.

The talk covered the legal and logistic issues associated with leading such an expedition (visa, length of stay, means of locomotion, border crossings, export laws and customs, smuggling routes, legal and black market, special permits, coping with electricity shortages, tax rates, bribery, state vs privately own enterprises, regulation, state auctions and miners pay rate).



Reasons behind similar mineralogy: Marble hosted ruby deposits in Mogok (Myanmar/ Burma) and Luc Yen (Vietnam) share many common structural, mineralogical features and ages. They occur in metamorphic blocks affected by the Cenozoic Indo Asian collision. Marble paragenesis consist of calcite, dolomite, spinel, scapolite, phlogopite, margarite, amphibole, chlorite, forsterite, graphite and pyrite. Ruby, dated through syngenetic mica inclusions, are Miocene (18.7 to 17.1 Ma) in Mogok and Eocene in Luc Yen (38.1 +- 0.5 Ma). Mineralization occurred while ductile deformation was active in peak metamorphism conditions in the Red River shear zone. Diachronous cooling, with rapid thermal decrease prevented reverse reactions destabilizing rubies. Fluid inclusion studies give conditions of 620-670C and 2.6-3.3 kBar. Whole rock analysis of non-ruby bearing marbles indicate that they contain enough aluminum and chromophores to produce the crystals. C-O isotopic analyses of carbonates show that marbles acted as a closed fluid system, not infiltrated with externally derived fluid. Graphite has an isotopic composition of organic origin. Yet it exchanged isotopes with the carbonates during metamorphism. The metamorphic fluid was rich in CO₂ released from the devolatilization of carbonates. F⁻, Cl⁻ and boron were released by molten salts. Evaporites are key to explaining the formation of these deposits. Thermal reduction of evaporites by organic matter provide sulfides that trap some of the iron. Impure platform carbonates are naturally enriched in AI and Cr bearing detrital minerals such as clays. Molten salts mobilized in situ aluminum and the metals contains in marble leading to the crystallization of ruby. Details about the trace elements provides new lights in the role of iron and cobalt in the pastel to saturated blues. Numerous petrographic associations were illustrated with examples of his personal collection, with a strong focus on "combo" specimens. They typically showed some of the reactions taking place in the marbles as spinel + calcite + $CO_2 =>$ corundum + dolomite, but also numerous others were mica intervenes. This dense just-under-an-hour talk was followed by an invitation to discover a small assortment of specimens.



WELCOME TO 2020 - Sat 18 Jan 2020

Susan and Vernon StockImayer very kindly hosted a 'Welcome To 2020' evening at their home in Lesmurdie. The evening was well attended by members who enjoyed a BBQ and lots of conversation. There was even a little time spent identifying some mineral specimens with Susan's help. The StockImayer's little bandicoot friends made a brief appearance. Thank you very much to Susan and Vernon for hosting this fun evening.



No, I'm not a rat! I have a longer nose and a shorter tail and people say I'm cuter.

I'm a Southern Brown Bandicoot, also known by our Aboriginal Noongar name of Quenda. I'm a native Australian marsupial in the Peramelid family, my genus and species making me an Isoodon fusciventer being a different species to Southern Brown Bandicoots in other areas.

I like living in the hills and especially at the StockImayer's home as they give me peanuts and I get to eat the cat's leftovers.

If you ever come and visit me please bring peanuts in the shell for me.

WORKSHOP - Refractometer & Specific Gravity - Wed 12 Feb 2020

Susan Stocklmayer conducted a workshop on the processes involved in using a refractometer and how to measure specific gravity. Both methods help to determine the identification of a specimen. Members were supplied with specimens to test and some tested their own specimens. The WA branch now owns a refractometer recently obtained by Susan Stocklmayer with Society funds. It is available for members to use at meetings.





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.

Editor's note: As one of Dr Madden's specialist areas is Carbonate Petrology I asked if he would write something with a petrological slant for this issue as we will be acquiring a petrological microscope in the near future. He hopes this article whets the appetite of club members for petrography in general. He says it is an interesting take on petrology of a technique that you don't see used too commonly anymore. Dr Madden only writes about specimens he has personally seen and he takes all his own specimen photos.

Cold Cathodoluminescence

All the pictures here are cold cathodoluminescence (CL) photomicrographs of limestone from Kalimantan, Indonesia and their counterpart standard plane light (PPL) microscope images of exactly the same areas. All the images have a field of view of 10 mm and were imaged with 10 x magnification.

CL is a method of combining electron and standard microscope techniques to study the luminescence characteristics of polished thin-sections irradiated by an electron beam. It is a complex technique whereby mineral structure, geochemical variations, impurities and mineral growth rates, fluid redox conditions and other variables act to change the luminescence seen in a sample.

The first set of images show the very variable nature of what initially (compared to PL image) appears to be a simple blocky calcite cement from a limestone. Alternating bright and dull luminescence indicates that the calcite cement grew in stages with brighter areas resulting from fluid conditions becoming reducing as oxygen availability decreased. New fluid throughput progressed the calcite crystallisation from more oxidising conditions.



Using CL is a useful technique that can highlight different conditions of mineralisation and relative timings of events that have affected a rock. In rocks that have limited or no mineralogical variability like limestones (they are essentially all calcite) it can be very difficult to determine the rocks diagenetic history. If you wanted to understand the different phases of cement formation, fracturing or calcite replacement in a limestone you may struggle with standard microscope techniques as the calcite expresses with the same optical properties.

In the second set of images the PPL shows a mostly uniform blocky calcite cement phase with a few areas of darker micritic (muddy lime) matrix. The CL image shows multiple fractures criss-crossing the cements, areas of non-luminescent cement and matrix and banded or zoned areas of calcite growth. These CL features tell us that the diagenetic history of this limestone has featured pulses of mineralising fluids (changing from oxidising to reducing fluids), and ongoing compaction evidenced from the fractures that cross cut the growth stages of the calcite cements.



The nice thing about carbonate rocks is that they are more often than not, full of fossils and bioclastic components. Because calcium carbonate secreting organisms produce their skeletons out of aragonite, high-magnesium calcite and low-magnesium calcite their skeletal remains commonly have varied cathodoluminescence (CL) properties. Additionally, due to the different metabolic pathways that organisms possess to secrete their skeletons, and the environmental availability of different elements/impurities (that act as luminescence activators or quenchers) the CL properties of bioclasts are hard to predict.

In the third set of images the PPL image shows a dominantly coarse-blocky calcite cement phase with a few areas of finer mosaic cement. There are also several dark (micritised) bioclasts. The CL image shows zoned areas of calcite growth, and uniform growth of cement (top left). The CL also reveals bioclasts that were virtually invisible in PPL!









Dr Robert Madden Sedimentology research in Namibia.

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".

You can follow Robert for more geoscience content on Instagram @drrhcmadden.

YOUNG ROCK COLLECTORS & SCIENTISTS



This section is designed for our younger rock and mineral enthusiasts to be educational, fun and spark an interest in Earth Sciences in young minds.

Welcome to 2020 competition results: It was disappointing that we had no entries in the competition. The book prize will be held for the Children's Workshop.

Chemical Elements Quiz (answers on last page of newsletter)

Name the correct symbol for as many of the first 110 chemical elements in the periodic table as you can. All chemical matter found on earth comes from these elements. Each has a distinct atom featuring an atomic number (the number of protons in its nucleus) and electrons. The most common elements found in our universe are hydrogen, helium, oxygen and carbon while elements with an atomic mass of 83 or over are unstable and experience radioactive decay. The following elements are listed according to atomic number. How many of the chemical symbols do you know? Some are easy while others are very difficult. Test yourself and check your answers on the last page of the newsletter.

1. Hydrogen	2. Helium	3. Lithium	4. Beryllium	5. Boron
6. Carbon	7. Nitrogen	8. Oxygen	9. Fluorine	10. Neon
11. Sodium	12. Magnesium	13. Aluminium	14. Silicon	15. Phosphorus
16. Sulfur	17. Chlorine	18. Argon	19. Potassium	20. Calcium
21. Scandium	22. Titanium	23. Vanadium	24. Chromium	25. Manganese
26. Iron	27. Cobalt	28. Nickel	29. Copper	30. Zinc
31. Gallium	32. Germanium	33. Arsenic	34. Selenium	35. Bromine
36. Krypton	37. Rubidium	38. Strontium	39. Yttrium	40. Zirconium
41. Niobium	42. Molybdenum	43. Technetium	44. Ruthenium	45. Rhodium
46. Palladium	47. Silver	48. Cadmium	49. Indium	50. Tin
51. Antimony	52. Tellurium	53. lodine	54. Xenon	55. Cesium
56. Barium	57. Lanthanum	58. Cerium	59. Praseodymium	60. Neodymium
61. Promethium	62. Samarium	63. Europium	64. Gadolinium	65. Terbium
66. Dysprosium	67. Holmium	68. Erbium	69. Thulium	70. Ytterbium
71. Lutetium	72. Hafnium	73. Tantalum	74. Tungsten	75. Rhenium
76. Osmium	77. Iridium	78. Platinum	79. Gold	80. Mercury
81. Thallium	82. Lead	83. Bismuth	84. Polonium	85. Astatine
86. Radon	87. Francium	88. Radium	89. Actinium	90. Thorium
91. Protactinium	92. Uranium	93. Neptunium	94. Plutonium	95. Americium
96. Curium	97. Berkelium	98. Californium	99. Einsteinium	100. Fermium
101. Mendelevium	102. Nobelium	103. Lawrencium	104. Rutherfordium	105. Dubnium
106. Seaborgium	107. Bohrium	108. Hassium	109. Meitnerium	110. Darmstadtium

(Reference: Science Kids – www.sciencekids.co.nz)

INTERESTING ARTICLES

No articles were submitted by members for this edition of the newsletter so I have selected an article I read recently that other members may find of interest. This link was posted in the last newsletter with an error so it has been re-posted.

Title: An impact melt origin for Earth's oldest known evolved rocks (Idiwhaa Tonalitic Gneiss impact melt)

Link:

http://www.crystal-world.com/wp-content/uploads/2018/11/ldiwhaa-Tonalitic-Gneiss-impact-melt-2018.pdf

This Nature Geoscience article was shared by Thomas Kapitany to a Facebook page that he manages.

If any members have any interesting articles they would like to share with other members through the newsletter please email your submission to Lesley Daniels (Newsletter Editor) at lesleydaniels777@gmail.com.

MINERALOGICAL SOCIETY OF WA LIBRARY

The Mineralogical Society of WA library comprises numerous books, reports and journals that have been donated by members. Currently there are over 150 publications housed in a lockable cupboard in the WA Lapidary & Rockhunters Club premises. To access the books please see the Librarian, John Mill. Members are encouraged to borrow books from our library. Donations are also appreciated. Please see John Mill is you have any publications you would like to donate to the library.

The Mineralogical Society of WA receives a complimentary copy of the Australian Journal of Mineralogy (AJM). 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.

The MinSocWA Committee is interested in adding the following books to the library:

• A Guidebook to the Pegmatites of Western Australia - Mark Ivan Jacobson

If anyone has a copy that they would like to donate or sell to the library please email Librarian, John Mill at <u>millrock@iinet.net.au</u>.

FEATURED LIBRARY BOOK:

Gemmological Instruments

This is a great book to read as a follow up to the workshop that Susan StockImayer recently conducted on Refractive Index and Specific Gravity.

Author: Peter G. Read

Date Published: 1983

Publisher: Butterworth-Heinemann

Description:

Gemmological Instruments deals with the developments in diamond grading equipment and gem testing instruments since the publication of the first edition in 1978. These developments include improvements in the versatility and styling of existing instruments such as the reflectivity meter, the composite spectroscope, and the refractometer. It also addresses the criticisms in the first edition and provides a discussion of the advantages and disadvantages of different gem testing equipment. This book is organized into 16 chapters that describe groundbreaking instruments like the thermal conductivity diamond testers and home-constructed items that while innovative have not yet been commercialized. There are also chapters dealing with microphotography and identification of synthetics and simulants. This book also provides a listing of gemstone constants and characteristic inclusions in natural and synthetic gemstones. This book will be of interest to people interested in equipment for gem testing and diamond grading. (*Summary from www.sciencedirect.com*)

If you like this month's 'Featured Book' please borrow it from our library and enjoy it!

Missing Library Publications:

The following publications are still missing from the Society's library.

Could all members who have borrowed books please check to see if you have any unreturned books you may have forgotten to bring back.

Copper Mines and Minerals. Joint Mineralogical Societies of Australasia, 31st Annual Seminar, 3rd - 7th November 2008, Zeehan Tasmania. Pope M, Bottril R. 2008. State Mineralogical Society of Tasmania.

Russian Alexandrites. Schmetzer K. 2010. Schweizerbart Science Publishers: Stuttgart.

The Australian Geologist: Newsletter No **93**, December 20, 1994. Geological Society of Australia Inc.

The Australian Gemmologist Vol. 24 No. 6 April-June 2011. The Gemmological Association of Australia.

UPCOMING EVENTS - MEETINGS & ACTIVITIES

MEETING - General Meeting - Wed 11 Mar 2020

The next 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 door prize will be a Specular Hematite specimen from Koolyanobbing kindly donated by Des Lascelles.

Following the meeting there will be a talk by Craig Bosel.

The Society's microscope, UV lamp and refractometer will be available for use by members.

TALK - Craig Bosel - 'Munich Gem Show' - Wed 11 Mar 2020

MinSocWA member, Craig Bosel, will talk about his visit to the Munich Gem Show.

This talk will be held at the WA Lapidary & Rockhunting Club rooms located at 31 Gladstone Road, Rivervale (corner of Newey Street) following the General Meeting.

Members of the public are very welcome to attend. Door charge is \$3 for MinSoc members and \$5 for visitors and includes tea/coffee and light supper.

"A First-Timer Attending the Munich Show"

Short description of the talk: Craig attended the massive 3-day Munich Show for the first time last year, having previously attended Tucson in 2011 and St Marie aux Mines in 2018. He trudged many kilometres up and down huge aircraft-hanger-sized buildings full of minerals and gems, took a swag of photos and will bring you his thoughts and observations of this megamineral event.

About the speaker: Craig started collecting minerals in 1968 as a boy living on a cattle station in north Queensland, where you could pick up sapphires on the flanks of eroded volcanic cones. He graduated as a geologist from Otago University in 1981 and came straight back to Australia where all the work was. He started out in Laverton with WMC at the Lancefield gold mine then spent most of the next 21 years at various other gold mines in WA, NT and NZ, as well as short periods exploring for gold in places like Fiji and Taupo.

A couple of years were also spent as a mineralogist looking down a binocular microscope in Belmont as part of CRA's diamond exploration program. After a year off in 2003 driving a freezer truck around Perth delivering cakes and pastries, he re-entered the industry but wanted a change from gold, so got a taste of underground nickel, laterite nickel, manganese, lead, and several iron ore mines before returning to gold taking the role of Geology Manager at Evolution Mining's Mt Rawdon Mine in Queensland. Since returning to Perth in 2015 he has worked at a couple of small gold open cuts near Kalgoorlie and is currently at the Karara Magnetite Mine in the Mid-West.

MINERAL MARKET DAY - Sun 15 Mar 2020 (9am-2pm)

SUNDAY MARCH 15th, 2020 MINERAL MARKET!

A TIME TO BUY AND SELL ANYTHING RELATED TO MINERALS, MINERALOGY, GEOLOGY or MINING

VENUE: WA LAPIDARY CLUBROOMS, 31 GLADSTONE RD., RIVERVALE, PERTH





The next Mineral Market Day will be held in our usual venue of the WA Lapidary & Rockhunting Club rooms on Sunday 15 March 2020 from 10:00am to 3:00pm.

Please spread the word to friends who may be interested in coming along.

MEETING - General Meeting - Wed 13 May 2020

A 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). Following the meeting there will be a talk by Kari Pitts.

The Society's microscope, UV lamp and refractometer will be available for use by members.

TALK - Kari Pitts - 'The Use of Mineralogy in Forensics' - Wed 13 May 2020

Kari Pitts will present her talk after the General Meeting.

Members of the public are very welcome to attend. Door charge is \$3 for MinSoc members and \$5 for visitors and includes tea/coffee and light supper.

WORKSHOP - Basic Mineral Identification for Children (Date TBC)

If there are any young enthusiasts who would be interested in a fun and educational children's workshop on '**Basic Mineral Identification**' please register your interest with the Secretary, Lee Hassan at lee_notebook@msn.com and we will endeavour to schedule this fun and educational workshop into our upcoming events calendar.

NEW MEMBERS

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

- Nicolas Hebert
- Wendy Hampton
- Luke Maxwell
- Jessica Booth

Current membership to date now stands at 66 members.

COMMITTEE MEMBERS FOR 2019/2020

President	Sue Koepke	0417 990 688	minsocwa@hotmail.com	
Vice President Angela Riganti		9243 7472	tormalina@bigpond.com	
Secretary/Treasurer	Lee Hassan		lee_notebook@msn.com	
Field Trip Leader	Peter Willems	0467 040 409	pjwillems90@gmail.com	
Newsletter Editor	Lesley Daniels	0432 322 659	lesleydaniels777@gmail.com	
Committee Member	Vernon Stocklmayer	9291 9043	baobab46@dodo.com.au	
Committee Member	Susan Stocklmayer	9291 9043	baobab46@dodo.com.au	

Patron - Mark Creasy

LINKS

MinSocWA Web:	http://www.minsocwa.org.au
MinSocWA Facebook Group:	https://www.facebook.com/groups/minsocwa
MinSocWA Facebook:	https://www.facebook.com/MINSOCWA
MinSocWA Instagram:	https://www.instagram.com/MINSOCWA

ADVERTISING

Members may submit short advertisements free of charge. Additionally, commercial advertisements will be accepted for a nominal charge. If you are interested in submitting an advert to the newsletter please contact the Newsletter Editor, Lesley Daniels.

ADVERTISERS

The Australian Journal of Mineralogy

The Australian Journal of Mineralogy now has its own website. It can be found at <u>https://www.ajmin.org.au</u>. 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 for free. It has photo galleries, a mineral events calendar, handy links, and more.



Supplement on Mineral Collections in Australia for the Mineralogical Record

Preparations for the Supplement on Mineral Collections in Australia for the Mineralogical Record are nearing completion and we are now calling for final submissions. There is still time left for people who have not contributed to this supplement, but time is running out!

All submissions including payment must be submitted in full by the 31st May, 2020. Below is a summary checklist of what is required; please look at the attached guideline for full details and browse recent Supplements to the Mineralogical Record for examples:

- A recent photograph of the collection owner(s).

- A brief profile of the collector(s). Recommended 200 to 250 words covering topics such as when and why you started collecting minerals, early mentors, what you collect and why, and any other information which may be relevant or interesting.

- Photos of minerals in your collection. The supplement is on Mineral Collections in Australia and is not restricted to Australian mineral localities. All photos must be of high quality, suitable

to publish in a world-renowned magazine. Poor quality submissions will be removed at the discretion of the editor. Digital photos must be at least 400dpi resolution.

- Captions for mineral specimen photographs should include: (1) Species (obsolete varietal names are discouraged). (2) Specimen size or crystal size (not magnification factor). (3) Locality. (4) Photographer. (5) Any other pertinent information.

- Payment. The cost is US\$900 per two (2) pages (single pages are not permitted) and contributors can have any multiple of double pages (e.g. 2, 4, 6) up to a maximum of 12 pages. Payments are to be made directly to Mineralogical Record. Tom Gressman (tom.gressman@minrec.com) will handle the finances; contact Tom directly when paying or if you have any questions regarding payment – include your name and that the payment relates to x pages in the Supplement on Mineral Collections in Australia. Payment can be made using PayPal (tom.gressman@minrec.com), by emailing your credit card details to Tom (details can be spread over several emails to increase security if you prefer) or phoning details to +1- 520 529 7281.

- Each single page can show from one to four photos, with half a page for your photograph and profile. See other Mineralogical Record Collector's Editions for examples of possible layouts and biographies as well as https://mineralogicalrecord.com/editing.asp for advice on editing conventions and https://mineralogicalrecord.com/editing.asp for advice on editing conventions and https://mineralogicalrecord.com/editing.asp for general contribution information.

- Submissions (excluding payment) can be made to either <u>ausminrec@gmail.com</u> or directly to <u>minrecord@comcast.net</u>. Any incomplete or late submissions will only be accepted at the discretion of the editor so get in early to make sure you are part of this amazing opportunity and be part of Australian Mineral collecting history. The supplement is expected to be published late this year.

If you have any questions, please contact <u>ausminrec@gmail.com</u>.

Regards from the coordination team:

Paul Carr

Rob Sielecki

Mike Stott

Gemmological Association of Australia 74th Federal Conference and AGM 21 – 24 May 2020 at Rendezvous Hotel, Scarborough Beach, Perth WA



Hosted by GAA WA Division Inc.

All members and guests are invited to attend the Annual Federal Conference and the Annual General Meeting. The program includes:

21–22 May Committee meetings and Federal Council Meeting23 May AGM and Gemmology Seminar, Conference Dinner & Awards24 May Social program

The exciting scientific program for the Gemmology Seminar features two International speakers and other Australian experts in the field.

Dr Karl Schmetzer (Gemmological Researcher and Consultant, Petershausen, Germany) will present the Margaret Braine Memorial Lecture, entitled "The Late 14th-Century Royal Crown of Blanche of Lancaster – History and Gemstone Decoration."

Robin Hansen (Curator, Minerals and Gemstones, Natural History Museum, London) will present "Gemmological Highlights of the Mathews Collection, Natural History Museum, London".





For registration details please see www.gem.org.au

Chemical Elements Quiz Answers

1. Hydrogen - H	2. Helium - He	3. Lithium - Li	4. Beryllium - Be	5. Boron - B
6. Carbon - C	7. Nitrogen - N	8. Oxygen - O	9. Fluorine - F	10. Neon - Ne
11. Sodium - Na	12. Magnesium - Mg	13. Aluminium - Al	14. Silicon - Si	15. Phosphorus - P
16. Sulfur - S	17. Chlorine - Cl	18. Argon - Ar	19. Potassium - K	20. Calcium - Ca
21. Scandium - Sc	22. Titanium - Ti	23. Vanadium - V	24. Chromium - Cr	25. Manganese - Mn
26. Iron - Fe	27. Cobalt - Co	28. Nickel - Ni	29. Copper - Cu	30. Zinc - Zn
31. Gallium - Ga	32. Germanium - Ge	33. Arsenic - As	34. Selenium - Se	35. Bromine - Br
36. Krypton - Kr	37. Rubidium - Rb	38. Strontium - Sr	39. Yttrium - Y	40. Zirconium - Zr
41. Niobium - Nb	42. Molybdenum - Mo	43. Technetium - Tc	44. Ruthenium - Ru	45. Rhodium - Rh
46. Palladium - Pd	47. Silver - Ag	48. Cadmium - Cd	49. Indium - In	50. Tin - Sn
51. Antimony - Sb	52. Tellurium - Te	53. lodine - I	54. Xenon - Xe	55. Cesium - Cs
56. Barium - Ba	57. Lanthanum - La	58. Cerium - Ce	59. Praseodymium - Pr	60. Neodymium - Nd
61. Promethium - Pm	62. Samarium - Sm	63. Europium - Eu	64. Gadolinium - Gd	65. Terbium - Tb
66. Dysprosium - Dy	67. Holmium - Ho	68. Erbium - Er	69. Thulium - Tm	70. Ytterbium - Yb
71. Lutetium - Lu	72. Hafnium - Hf	73. Tantalum - Ta	74. Tungsten - W	75. Rhenium - Re
76. Osmium - Os	77. lridium - lr	78. Platinum - Pt	79. Gold - Au	80. Mercury - Hg
81. Thallium - Tl	82. Lead - Pb	83. Bismuth - Bi	84. Polonium - Po	85. Astatine - At
86. Radon - Rn	87. Francium - Fr	88. Radium - Ra	89. Actinium - Ac	90. Thorium - Th
91. Protactinium - Pa	92. Uranium - U	93. Neptunium - Np	94. Plutonium - Pu	95. Americium - Am
96. Curium - Cm	97. Berkelium - Bk	98. Californium - Cf	99. Einsteinium - Es	100. Fermium - Fm
101. Mendelevium - Md	102. Nobelium - No	103. Lawrencium - Lr	104. Rutherfordium - Rf	105. Dubnium - Db
106. Seaborgium - Sg	107. Bohrium - Bh	108. Hassium - Hs	109. Meitnerium - Mt	110. Darmstadtium - Ds