



# Mineralogical Society of Western Australia Inc.

## Newsletter - September 2019

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

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

## EDITORIAL

I would like to thank Vernon Stocklmayer for his past work and time getting the newsletter together for us all to read and for his assistance in the handover process to me as the new Newsletter Editor. In this issue you will notice a few new sections including Dr Robert Madden's 'School or Rock', a library section to keep you informed of publications available to you to borrow including a 'Featured Book' section. There is also a new 'Interesting Articles' section and a new section for the youngest rock enthusiasts out there who may become our Mineralogists, Geologists and other Earth scientists of the future. If any members have any requests or suggestions they would like to see in the newsletters please contact me.

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

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 (but the September meeting will be held on the 3<sup>rd</sup> Wednesday - 18<sup>th</sup> September) at the WA Lapidary & Rock Hunters Club rooms located at 31 Gladstone Road, Rivervale (corner of Newey Street).

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## RECENT ACTIVITIES

### MEETINGS - Annual General and General Meeting - Wednesday 10 July 2019

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

The Annual General Meeting and Ordinary Meeting were both held on 10 July. The Annual General Meeting was brought forward from September to July to allow a new president to be elected prior to the 42nd Joint Mineralogical Societies of Australasia Seminar. Both meetings were opened and chaired by newly elected President, Sue Koepke.

At the AGM all Committee positions were declared vacant and a new committee for the 2019/2020 financial year was elected. Sue Koepke was elected President, Angela Riganti as Vice President, Lee Hassan as Secretary/Treasurer, Peter Willems as Field Trip Leader, Lesley Daniels as Newsletter Editor and Vernon Stocklmayer as Committee Member. Susan Stocklmayer accepted an invitation to join the committee since the AGM as a Committee Member. Mark Creasy was re-elected as Patron.

There were two door prizes for July. A specimen of opalised plant fossils from the Australian Opal Centre of Lightning Ridge was donated by Rod Berrell and won by Alan Longbottom. A book on South Australian Opals was donated by Susan Stocklmayer and won by Nay Zin Tun.

Thank you very much to Rod Berrell and Susan Stocklmayer for donating the July door prizes. 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.

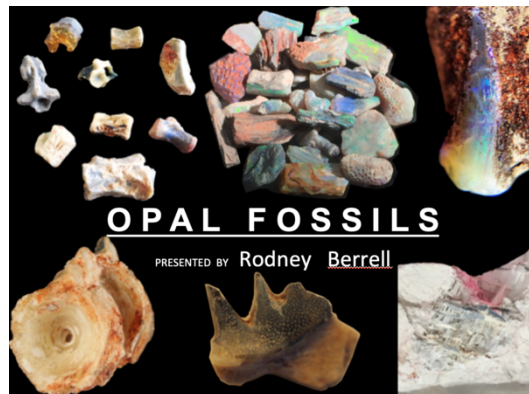
The evening included a presentation from Rod Berrell entitled "Opal Fossils".

### SEMINAR - 42nd Joint Mineralogical Societies of Australasia Seminar

Summaries and photos of all events during the seminar, including the field trip, will appear in the next edition of the newsletter.

## TALK - Opal Fossils - Wednesday 10 July 2019

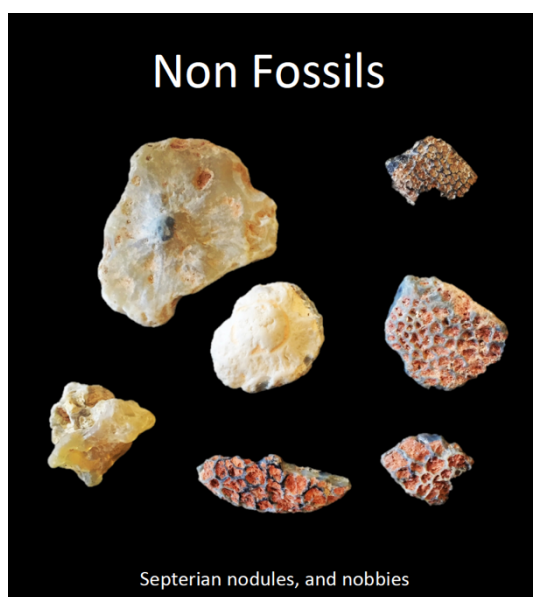
Rodney Berrell is currently an exploration geologist working at Tropicana Gold Mine for AngloGold Ashanti Australia. In his 'spare' time he is currently completing a PhD in Applied Geology at Curtin University focusing on the fish that swam with the dinosaurs. Rodney's first encounter with opal was when he was 6 years old on a family trip to the Grawan Field of Lightning Ridge. With an intense interest in dinosaurs and fossils at an early age, Rodney soon discovered something better than opal - opal fossils.



Rod Berrell gave a brief introduction to the geology and process of opal formation. This Australian centric talk looked at the various plants and animals that lived, died and became replaced in precious opal.

*Key points presented:*

1. Label your collection
2. How fossils form
3. Where opal is found
4. The various animals that lived in the Cretaceous of Coober Pedy and Lightning Ridge with photos representing the various animals
5. Non fossils and what makes a fossil a fossil
6. Formation of opal and fossils



## WORKSHOP - Mineral Cleaning Workshop - Sunday 30 June 2019

*(Hosted by Des Lascelles. Summary by Lesley Daniels)*

**Held at the clubrooms of the WA Lapidary and Rock Hunting Club on Sunday 30 June 2-5pm.**

**Attended by:** Des Lascelles, Lee Hassan, Geert Buters, Alan Hart, Manfred Mertinat, John Mill, Max Taylor and Lesley Daniels.

MINSOC member, Des Lascelles, very kindly hosted this workshop to demonstrate to members the various techniques that can be used to clean your mineral specimens. Some of these techniques are simple methods that can easily be done at home.

The workshop covered health and safety, physical cleaning methods and chemical cleaning methods.

### Health and Safety

When dealing with acids and other chemical cleaning products be sure to protect yourself and others from possibly dangerous fumes if breathed and chemical splashes that may come in contact with skin or eyes. Chemicals can burn skin and eyes and fumes can be dangerous to the surface of the eyeball. Keep the dangers away from other family members and pets.

To protect eyes from fumes and splashes wear protective eyewear, preferably with sides on the lenses to stop the possibility of anything making contact with the eyes and possibly burning them and causing temporary or permanent damage. Safety glasses are cheap and readily available from safety wear supply shops and hardware stores.

Have plenty of water easily accessible for washing skin if necessary including a bottle of clean water to wash eyes in the case of accidental splash.

### Physical Cleaning Methods

There are three physical cleaning methods that are effective and easy.

1. Washing and brushing - all you need for this is water, a soft brush and a stiffer brush such as a wire brush. Start gently so as not to damage the specimen.
2. Ultrasonic cleaner - excellent for removing loose particles and clay. Sometimes a drop or two of detergent added to the water helps to lower surface tension thereby increasing cavitation making the dirt wetter and softer and easier for the particles to disburse.
3. Probing - using a fine screwdriver or dentist tool or similar can help get particles out of holes or assist in removing difficult to move dirt.

### Chemical Cleaning Methods

Always treat acids with great respect as they can do a lot of harm to humans and pets as well as your specimens. Beware of hydrofluoric acid (HF) and hot caustic soda as they are particularly nasty and dangerous.

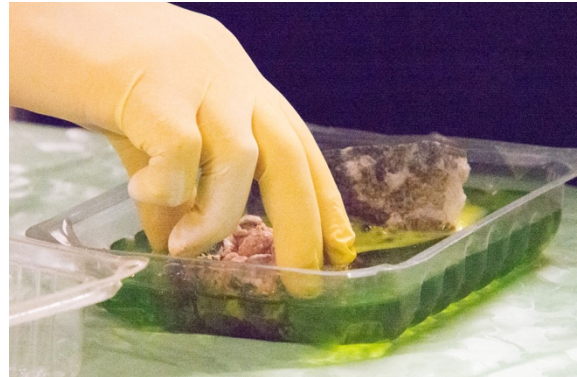
1. Hydrochloric acid (HCl) - affects carbonates, goethite, oxides and other minerals that are soluble in HCl. After soaking in acid, wash in hot water then spray with methylated spirits which disburses the water. Then use a hair dryer to dry the specimen. Drying quickly avoids oxidation and tarnishing of specimens like copper.
2. Vinegar - is acid enough to clean some specimens. It will dissolve azurite and malachite. Test on a small sample or patch test first.
3. Oxalic acid - can be purchased from hardware store. Toxic.



4. Citric acid - is a weak acid and can be used on malachite with care. Caution needed to ensure no damage to specimen.
5. CLR - a corrosive product that can be purchased from hardware store. Contains a combination of acids designed to eliminate the rust, calcium, and lime that build up on surfaces including sulfamic acid ( $\text{H}_3\text{NSO}_3$ ).
6. Rust Buster - contains corrosive phosphoric acid. Cleans goethite from minerals.
7. Bicarbonate of soda - available at supermarkets. Can be used after acid and water wash to neutralise the acid.



*Examples of some cleaning tools  
(Photo credit: Lesley Daniels)*



*Removing specimen from acid  
(Photo credit: Allan Hart)*



*Specimens removed from acid  
(Photo credit: Allan Hart)*



*Cleaned specimen  
(Photo credit: Allan Hart)*



*Cleaning specimen with brush and water  
(Photo credit: Allan Hart)*



*Des Lascelles  
(Photo credit: Allan Hart)*



## SCHOOL OF ROCK - DR ROBERT MADDEN

*This is a new segment of our newsletter. Every newsletter will feature a different mineral or rock and may sometimes be associated with recent talks or workshops or it may be something random which we thought might be of interest to members. I hope you enjoy this new newsletter section.*

### Fake peacocks

Bornite is a copper (63% by mass) bearing iron-sulphide mineral and together with chalcocite and chalcopyrite is an economically important ore of copper. Bornite is rarely found in untarnished examples, but when fresh has a metallic rose-copper coloured appearance. When bornite tarnishes it initially starts to develop an iridescent blue-purple and red-green discolouration that leads to its colloquial name of 'peacock ore'. Given time to develop, the tarnish will eventually form an almost entirely deep blue-purple hue. Although bornite is called peacock ore, the beautiful colouration that gives rise to this name is in fact a mineral in its own right; covellite (CuS). Additionally, weathering of bornite can also lead to the formation of chalcocite (a copper sulphide mineral). So really the identification of peacock ore as bornite is, technically, false! Many metal sulphides can actually weather to give a peacock tarnish (covellite). Notably chalcopyrite, a yellowish copper-iron sulphide mineral. In the case of chalcopyrite, which is a very common mineral (typically more so than bornite), the peacock weathering can be artificially created or enhanced with an acid bath (even vinegar will work for this). As a result, a large majority of specimens sold as bornite or peacock ore are in fact chalcopyrite: a fake peacock, and on close inspection you will commonly see the original yellow-brass colour of chalcopyrite, not bornite.

\*Note that along with Covellite other hydroxides and sulphide complexes may also be present, but the covellite has the largest impact on overall surface colour in tarnished copper sulphides.



*Acid enhanced covellite alteration of chalcopyrite, Norway.*



*Covellite alteration of Bornite,  
Democratic Republic of the Congo.*



*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 @drhcmadden.

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## INTERESTING ARTICLES

Vernon Stocklmayer was recently sent this ABC Science News article and thought members may find it of interest.

***'Diamonds point to existence of ancient rocks from the birth of the Earth'***

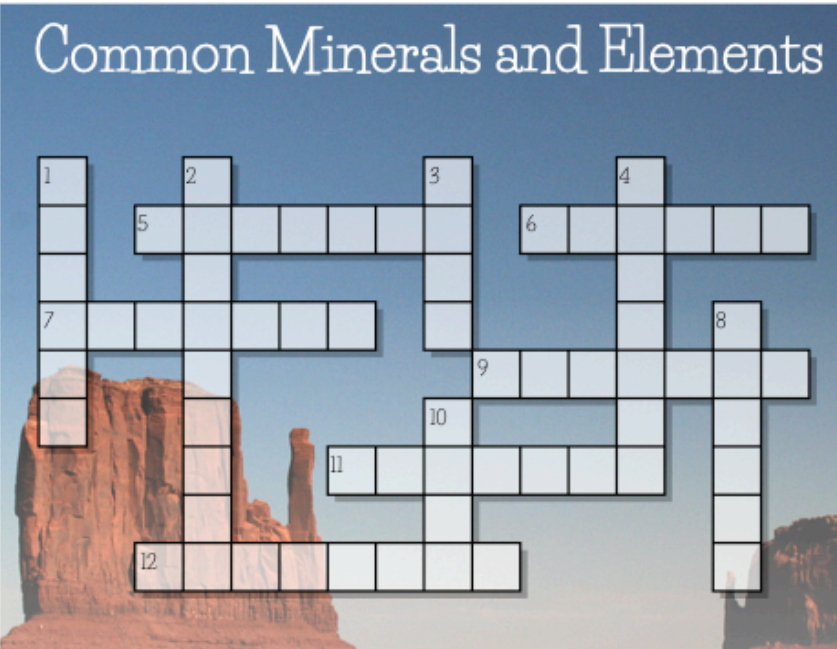
Link: <http://a.msn.com/01/en-au/AAFRFLa?ocid=se>

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](mailto:lesleydaniels777@gmail.com).

## YOUNG ROCK COLLECTORS & SCIENTISTS

This is a new section of the newsletter for our younger rock and mineral enthusiasts. You may have children or grand-children who might be interested in this. It is designed to be fun and educational and spark an interest in Earth Sciences. Don't forget that if you know any 'Young rock collectors and scientists' they may be interested in the MINSOC workshop being held on Sunday 20 October. Details in the Upcoming Events section on Page 10 of this newsletter.

This crossword puzzle contains some of the more common minerals and elements. Can you work out what all the minerals and elements in this puzzle are? Do you have any of them in your collection? Answers on page 12.



### Common Minerals and Elements

**ACROSS**

5 Mined to make aluminium products.

6 Amethyst is part of this family of minerals.

7 Used as the principle source of iron.

9 More than 90% of the Earth's crust is composed of minerals containing this element.

11 Green to black in colour and often found in volcanic rocks.

12 The most common/abundant group of minerals in the Earth's crust.

**DOWN**

1 Can look a bit like gold and some people get fooled into thinking it is gold.

2 A naturally occurring, black or brownish-black, magnetic mineral.

3 Soft, grey, metallic element. Used to make car batteries, wheel weights, solder and bearings.

4 A common carbonate mineral often found in fossils.

8 A highly conductive element.

10 A shiny, flaky group of minerals often appearing as flat sheets.



## 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 Lapidary 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 if 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 newsletter will now include a 'Featured Book' from our library and if you think it sounds interesting please borrow it and enjoy it.

### FEATURED LIBRARY BOOK - Volcanic Eruptions and Great Earthquakes

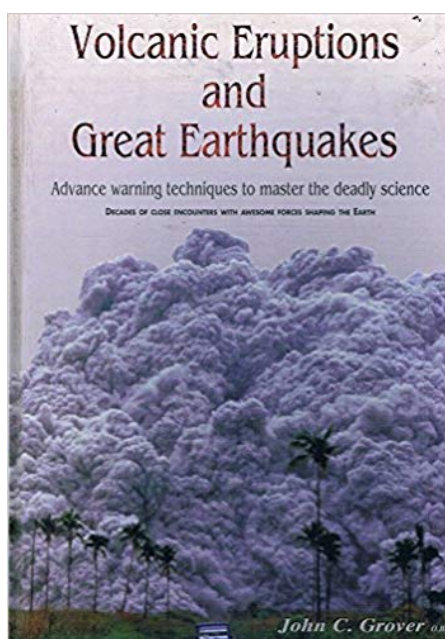
Author: J C Grover

Published: 1998 (Copyright Publishing Company: Brisbane)

John Charles Grover OBE is a Master of Science in Geology and Geophysics (Syd), and a Bachelor of Engineering in Mining and Metallurgy (Syd).

This pioneering volume is written by eminent earth scientist John Grover. It deals with predictive seismo-volcanology.

Describes how forecasting eruptions became scientifically feasible because related tectonic shocks do not occur chaotically, but in an orderly way. Details eyewitness accounts, seismic precursors and analyses of eruptions and earthquakes during the past four decades. Contains numerous maps, photographs, diagrams, tables, formulae to illustrate the techniques. Includes correlation of deep tectonic earthquakes with shallow quakes and volcanic eruptions in Japan, USSR, NZ, the Pacific, Philippines, Sicily, Aegean, Hawaii, and other island-arc regions.

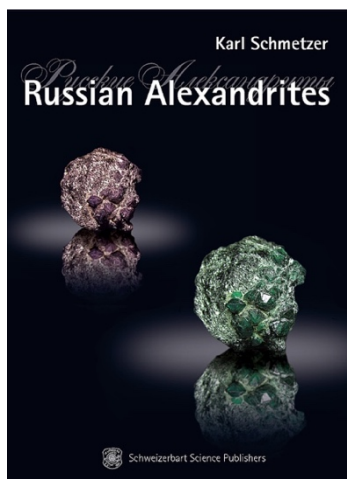


### **Missing Library Publications:**

The library recently underwent an audit and it was noted that four publications were missing. **Could all members who have borrowed books please check to see if you have any unreturned books you may have forgotten to bring back.** The missing publications are as follows.

**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.

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

### **MEETING - General Meeting - Wednesday 18 September 2019**

Please note that the September meeting has been moved to the third Wednesday of the month (18 September) for this month only to avoid a clash with the Seminar field trip.

### **TALK - Fantastic Feldspars - Wednesday 18 September 2019**

Francine Payette will give a talk on feldspars after the General Meeting. This talk will cover the well known feldspars, their conditions of formation and the different geological environment in which they are found. We will look at their properties and special features and have a closer look at the gem varieties. It will be illustrated with some specimens from Francine's teaching collection.

**Bio:** Francine has a Master in Geology (University of Montreal, Canada, 1976) and was a part time lecturer in geology before getting her Diploma in Gemmology (1985) complemented by a Diploma in Diamond Technology (2003). She has been teaching gemmology since 1986, and was a guest speaker at many national and international events in gemmology. Francine is also a member of the Review Committee of both *The Australian Gemmologist* and the *Australian Journal of Mineralogy*.

## **WORKSHOP - Refractometer & Specific Gravity - Sunday 20 October 2019 (morning)**

Susan Stocklmayer has offered to run a workshop on how to use a refractometer and measure specific gravity. Contact Lee Hassan ([lee\\_notebook@msn.com](mailto:lee_notebook@msn.com)) to register.

## **WORKSHOP - Children's Workshop - Sunday 20 October 2019 (afternoon)**

Tom Bateman has offered to run a basic mineral identification workshop for children. Children must be accompanied by a responsible adult. Open to children of members and non-members. Contact Lee Hassan ([lee\\_notebook@msn.com](mailto:lee_notebook@msn.com)) to register.

## **MEETING - General Meeting - Wednesday 13 November 2019**

### **TALK - Wednesday 13 November 2019**

Craig Bosel will talk about the Munich Show and John Mill will talk about the Tucson Gem & Mineral Show after the General Meeting.

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## **NEW MEMBERS**

The Mineralogical Society of WA would like to welcome four new members. Welcome to Manfred Mertinat, Mike Wort, Martin Rosser and Ben Nicolson.

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## **COMMITTEE MEMBERS FOR 2019/2020**

<b>President</b>	Sue Koepke	0417 990 688	<a href="mailto:minsocwa@hotmail.com">minsocwa@hotmail.com</a>
<b>Vice President</b>	Angela Riganti	9243 7472	<a href="mailto:angela.riganti@dmirs.wa.gov.au">angela.riganti@dmirs.wa.gov.au</a>
<b>Secretary/Treasurer</b>	Lee Hassan		<a href="mailto:lee_notebook@msn.com">lee_notebook@msn.com</a>
<b>Field Trip Leader</b>	Peter Willems	0467 040 409	<a href="mailto:pjwillems90@gmail.com">pjwillems90@gmail.com</a>
<b>Newsletter Editor</b>	Lesley Daniels	0432 322 659	<a href="mailto:lesleydaniels777@gmail.com">lesleydaniels777@gmail.com</a>
<b>Committee Member</b>	Vernon	9291 9043	<a href="mailto:baobab46@dodo.com.au">baobab46@dodo.com.au</a>
<b>Committee Member</b>	Susan	9291 9043	<a href="mailto:baobab46@dodo.com.au">baobab46@dodo.com.au</a>

**Patron - Mark Creasy**

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## **LINKS**

MINSOCWA Web Page: <http://www.minsocwa.org.au>

MINSOCWA Facebook Group Page: <https://www.facebook.com/groups/minsocwa>

MINSOCWA Facebook Page: <https://www.facebook.com/MINSOCWA>

MINSOCWA Instagram Page: <https://www.instagram.com/MINSOCWA>

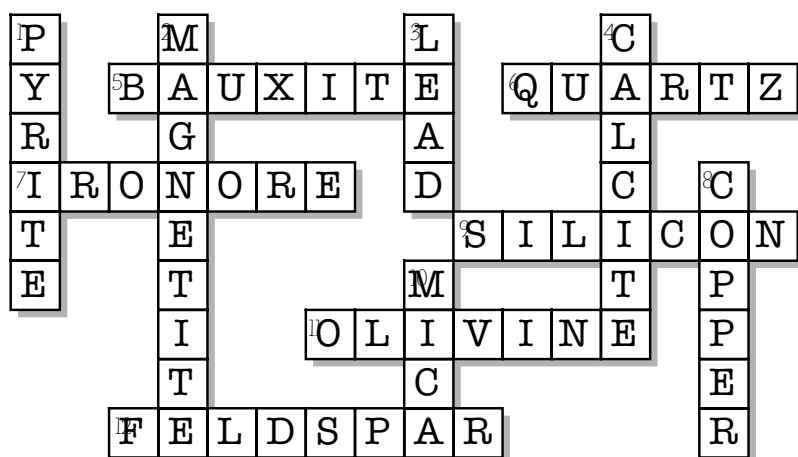
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## **ADVERTISING**

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.

## Answers to crossword puzzle.

### Common Minerals and Elements



#### ACROSS

- 5 Mined to make aluminium products.
- 6 Amethyst is part of this family of minerals.
- 7 Used as the principle source of iron.
- 9 More than 90% of the Earth's crust is composed of minerals containing this element.
- 11 Green to black in colour and often found in volcanic rocks.
- 12 The most common/abundant group of minerals in the Earth's crust.

#### DOWN

- 1 Can look a bit like gold and some people get fooled into thinking it is gold.
- 2 A naturally occurring, black or brownish-black, magnetic mineral.
- 3 Soft, grey, metallic element. Used to make car batteries, wheel weights, solder and bearings.
- 4 A common carbonate mineral often found in fossils.
- 8 A highly conductive element.
- 10 A shiny, flaky group of minerals often appearing as flat sheets.

Crossword designed by Lesley Daniels (MINSOCWA Newsletter Editor)  
using Crossword Puzzle Maker app by Hardy Leung.