



Mineralogical Society of Western Australia Inc.

May 2018 Newsletter

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Editorial

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

We finally have our own lockable cupboard located in the Lapidary Club premises. The library is currently housed there together with some equipment. To access the books please see the Librarian, John Mill.

The policy that members may submit short advertisements free of charge will remain. Additionally, commercial advertisements will be accepted for a nominal charge.

There have been some comments regarding content in the last two newsletters. The editor would like to remind all members that this is **your** newsletter and that most of the items are submitted by **you** and reproduced with minor editing. Whilst all efforts are made to assure accuracy, the editor is not responsible for comments made in submitted contributions.

As a follow-up to the advertisement in the previous newsletter, the Committee of the AJM is pleased to announce that alternative storage has been found for our considerable stockpile of back copies.

Recent Activities

The General and Annual General Meetings of the Mineralogical Society of Western Australia Incorporated are now held at 7.30pm on the **second** Wednesday of every odd month at the WA Lapidary Club rooms located at 31, Gladstone Road, Rivervale (corner of Newey Street).

Ordinary Meeting, Wednesday March 14, 2018.

This was a member's night comprising two short talks.

The first was by Mike Freeman of the Department of Mines, Industrial Relations and Safety on "The Riddock Amphibolite ruby corundum".

The ruby corundum occurrence is located in rough terrain in the Harts Range some 330km from Alice Springs by road. It lies within the Riddock Amphibolite, part of the Irindina Gneiss unit, in the west limb of the Entia Domal Structure. The amphibolite unit comprises feldspar+amphibole+phlogopite+pyroxene with layers of garnetiferous quartz+feldspar gneiss and sillimanite-bearing gneiss. The key layer at the base is a 50 metre-thick anorthosite-rich zone with hornblende+phlogopite+clinopyroxene and rare corundum-bearing layers. The layering in the amphibolite and anorthosite, on scales ranging from cm to tens of metres, is generally concordant with the enclosing Irindina Gneiss.

The ruby corundum occurs as hexagonal sheets up to 3 cm across and a bit less than 1 cm thick and has an erratic distribution. They usually have a micrometre-thick veneer of margarite, a white, Ca-bearing mica, presumably the product of retrograde metamorphism. The ruby colour ranges from almost colourless to deep ruby-red.

The deposit was mined by Mistral in 1977-78 and all mining ceased by 1980.



Ruby corundum crystals showing red colour, relative dimensions and the thin veneer of white margarite.

Photograph by Mike Freeman

The second talk was by Susan Stocklmayer, a long-time MinSoc WA member and co-author of Gemstones of Western Australia, on “A recent staurolite identification”.

Staurolite is an iron aluminium silicate with some isomorphous substitution giving Zn, Mn, Co, Cr and Mg varieties. It is a keynote mineral in medium T and P grade metamorphic facies rocks. It is also occurs in kyanite and diamonds as a mineral inclusion.

Susan, as curator of the gemstone collection at the Gemmological Association had been given a few crystals of staurolite for students as part of crystallography studies on crystal habit and twinning patterns. However, testing the SG of several crystals gave readings, significantly less than the stated range of staurolite; 3.29 to 3.36 as compared to 3.65-3.77. After confirming that the balance was reading correctly, the problem was discussed with fellow member of GAA (Queensland Division) Steve Dobos. He recognised that the problem was probably caused by the crystals developing as poikiloblasts and enclosing other host rock minerals. A petrographic section was made from one staurolite crystal and other tests done using mineral crushes and RI methods. These confirmed that the crystals had a spongy texture incorporating a significant proportion of quartz grains within the host staurolite.

Staurolite is rarely used ornamentally; as a mineral that is commonly intense brown in colour, and insufficiently transparent for use as gemstones. However crystal specimens with cruciform interpenetrant habits have long been used as religious symbols (*Pierres de croix*).

Staurolite has also presented an interesting puzzle in its classification and it was not until the 1950s that it was designated monoclinic; nowadays many references refer to staurolite as pseudo orthorhombic.

This short talk provided an example of the importance of checking as many mineral properties as feasible before reaching a conclusion!



Staurolite crystals showing their cruciform interpenetrant habits.
(*Pierres de croix*)

Photograph by Susan Stocklmayer

Field trip, Easter weekend, 30 March to 2 April, 2018.

Rodney Berrell, Field Trip Leader, provided the following report on a successful outing.



Field Trip participants at Mount Thirsty, Norseman.

From left: Michael Macpherson, Lee Hassan, Vera Riapolova, Stewart Cole, Pete Willems, Clive Daw, Nimal Perera, Vernon Stocklmayer, Rodney Berrell, Sue Koepke, Geert Buters, Susan Stocklmayer, Daniel McQuiggin and Ida Newton. (Photo courtesy of Daniel McQuiggin).

Fourteen Mineralogical Society members met outside the Norseman tourist information centre on Saturday at 9am where, after a quick chat and catch up on everyone's journey, seven cars proceeded ~ 17 kilometres north of Norseman to Mount Thirsty. A small rutted dirt track provided access to the old workings and costeens.

After a quick prestart meeting and group photo members began to spread out looking for mineral specimens. As the day proceeded most members had found their own special specimens: Sue found what was thought to be a nice pink beryl, Peter found a nice tourmaline specimen and Daniel found some nice watermelon tourmaline. All in all, the minerals found include: feldspar, quartz, muscovite, lepidolite, biotite, beryl, tourmaline (watermelon, pink, black and blue) and zinnwaldite.



Members having a look for minerals at the Mount Thirsty Pegmatite field. Photo by Rod Berrell

We are grateful to Mark Creasy and Galileo Mining for allowing access to the Mt Thirsty tenements for fossicking.

Some other photographs from members are shown below.



Cleavelandite from Mt.Thirsty
Photograph by Susan Stockmayer



Coloured tourmaline fragments from Mt.Thirsty
Photograph by Ida Newton

Workshop – micro-mounting and sample preparation Sunday April 29, 2018

Ted Fowler showed those of us who had not attended a previous micromounting course how he mounted small specimens so that they appeared to float in their little container. For tiny diamonds he used a thorn from an acacia as a pedestal and for larger specimens he used a wooden pedestal. To pick up very fragile specimens, he had made a pair of tongs by adding plastic reinforced pieces of rubber band to a peg. Those already familiar with mounting techniques spent their time examining specimens under the microscope.

David Vaughan surprised everyone by arriving early. He gave an interactive talk on specimen preparation. Topics discussed with members included cleaning, preservation, extraction, stabilization, identification, proportion, aesthetics and methods used.



Members discussing sample preparation techniques with David Vaughan
Photographs by Vernon Stockmayer

Upcoming Meetings and Activity Days

Ordinary Meeting, Wednesday, May 9, 2018.

Sidy Morin-Ka will talk on 'The not so Rare earth minerals'

Sidy Morin-Ka came first to Australia in 2007, when he travelled the length and breadth of the land, and worked in the Pilbara as a field assistant for the Exploration division of an iron ore miner. He subsequently completed a Bachelor Degree in Earth, Environmental and Planetary Sciences at the Université François Rabelais de Tours, France, in 2010. That same year Sidy partook in an internship at the Université du Québec à Chicoutimi, Canada, where he examined the distribution of Nb and Ta in an alkaline intrusion.

Sidy returned to Australia in 2011 to complete a Postgraduate Diploma in Applied Geology at Curtin University, majoring in Mineral Exploration and Mining Geology. In conjunction with his studies, Sidy worked on characterising iron and lateritic nickel ores at CSIRO's Earth Science and Resource Engineering division. Sidy joined the Minerals Geoscience Branch of the Geological Survey of Western Australia (GSWA) in 2012 where he undertook research on the hyperspectral characteristics of rare earth elements focusing on mineralization in Western Australia.

In conjunction with his research project Sidy completed the Mineral Geosciences Master's that sent him to the University of Western Australia, the University of Tasmania and James Cook University in Queensland. Following his Master's degree, Sidy's emphasis at GSWA has been to characterise rare earth elements mineralization. Currently, Sidy is involved in the development of a platform that delivers information about ore minerals.

Miscellaneous

Phosphorescent rocks.

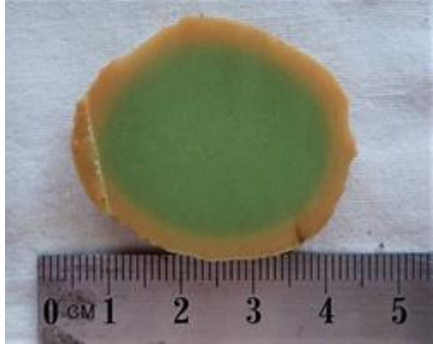
A member produced a rounded potato-like phosphorescent pebble that he had purchased in South-east Asia as jade. The surface overall has a light brown colour, specimen has a rounded form and shows moulded features, pits and gashes with dark colouration that supposedly imitates a natural appearance. The texture is unnatural. When the sample is placed away from a light source it fluoresces bright lime green and this sample also responds to the light from a fibre optic source by producing round green fluorescent spots after exposure.

A slice was taken from the specimen. The internal view is of a light green coloured very fine material, no special features observed by x10 lens. The brown outer zone encloses the green core. A mineral crush shows a very fine mass of aggregated well-formed grains of an anisotropic mineral matter, many have a square and lath form with rounded edges.

Similar pebbles from elsewhere have been identified as synthetic aggregates. Interested readers are referred to the following

<https://www.youtube.com/watch?v=fNK-iGbZAM4>

<http://gemresearch.ch/phosphorescent-synthetic-aggregate/>



Sample in daylight



View after a fibre optic light is shone onto the surface
Photographs by Susan Stocklmayer

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Contacts

The Committee for 2017/2018 is shown below. Please note that the positions of Secretary and Treasurer have again been joined into a single position.

President	Stewart Cole	0414904168
Vice President	Sue Koepke	0417990688
Secretary/Treasurer	Lee Hassan	93975197
Field Trip Leader	Rodney Berrell	0407081025
Newsletter Editor	Vernon Stocklmayer	92919043
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