



Mineralogical Society of Western Australia Inc.

January 2015 Newsletter.

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Editorial.

The door prize at the General Meeting held on 19th November 2014 was won by Sue Koepke.

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

Recent Activities.

Note: 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 second month at the WA Lapidary Club rooms located at 31, Gladstone Road, Rivervale (corner of Newey Street).

General Meeting on 19th November, 2014.

After the General Meeting Kirsten Rempel from the Department of Applied Geology, Curtin University, discussed "Gold Transport in Hydrothermal Fluids".

Kirsten completed a PhD on the geochemistry of porphyry Mo ore deposits at McGill University, Montreal, in 2008. She then moved to the GFZ German Research Centre for Geosciences in Potsdam for three years of postdoctoral research, which involved geochemical experiments on the remobilization of metals during the geological storage of

carbon dioxide in saline reservoirs, as well as the fluid-fluid fractionation of metals in ore-forming systems with applications to porphyry Cu deposits. In 2012, she joined Curtin as a lecturer in ore deposits.

After briefly talking about the different types of hydrothermal gold deposits, such as epithermal veins, Carlin type and skarn, Kirsten went on to describe the components of an ore system that can be summarized as containing the following components:

source → transport → trap → dispersal.

The gold speciation in hydrothermal solutions largely depends on ligand availability and compatibility (ionic radius and charge). The results of experiments using chloride, bromide and hydrosulphide ligands were discussed and data shown from real-time experiments utilizing the European Synchrotron Radiation Facility (ESRF) at Grenoble. These experiments indicated that hydrosulphide was the most important ligand for gold transport in hydrothermal solutions under their experimental conditions.

Gold solubility is complicated and depends on the composition, polarity and density of the solvent. When pressure and temperature are right hydrothermal fluid boils and separates into two components, brine and vapour. Metals and other ore components partition between these two phases and measurements of natural inclusions indicate that vapour carries more gold than brine. However, experimental measurements suggest the opposite.

Finally, Kirsten looked at the evidence for a petroleum-based ore fluid. In some types of gold deposits such as Carlin, the ore is associated with abundant organic material. Other deposits have no evidence for a water-based fluid and this led to the controversial idea that petroleum may also dissolve and transport metals. Experimental work suggests that oil may be able to dissolve and carry gold, especially in those oils that contain a higher proportion of larger organic molecules.



Interlayered bitumen-quartz vein with sulphides. *Photo: K. Rempel*

Future Activities.

General Meeting on 14th January, 2015.

After the meeting, Stewart Cole, President of Mineral Society of Western Australia will talk about lost diamond mines of the Kimberley region of South Africa.

Welcome to 2015 “get together” on 17th January, 2015.

Details as follows:

Date: Saturday 17th January

Place: 13, Cameron Close, Lesmurdie

Time: 7pm onwards to allow it to cool down. There is a swimming pool.

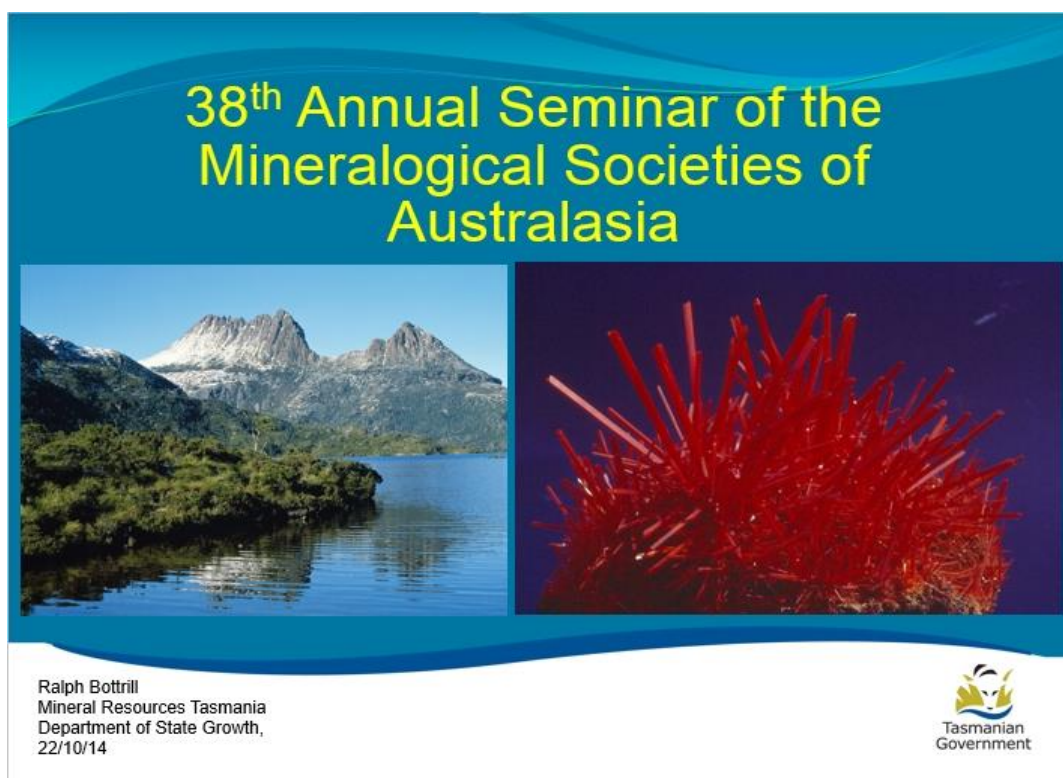
Contact: Phone 92919043 or e-mail to nyanga@icenet.com.au.

There will be 2 BBQs available, bring your own meat, drinks and, if possible, a salad for sharing. We will provide a trifle for those with a sweet tooth.

There is also a gemmological microscope available for admiring specimens.

38th Annual Seminar of the Mineralogical Societies of Australasia.

Allan Hart supplied the following information on the next Annual Seminar in Tasmania.



**38th Annual Seminar of the
Mineralogical Societies of
Australasia**

Ralph Bottrill
Mineral Resources Tasmania
Department of State Growth,
22/10/14

Tasmanian
Government



Tasmania
November 2015
 Venue: Grindlewald Conference centre,
 Launceston, northern Tasmania
 Dates: 1/11/2015-12/11/2015

Tasmanian
Government

Committee Meetings

The next Committee Meeting is scheduled for January 17th, 2015. Meetings are usually held at 15, Colin Grove, West Perth.

Field Trips

Western Australia Lapidary and Rockhunting Club Inc.

By arrangement, members of the Mineralogical Society are able to go on field trips organized by the Western Australia Lapidary and Rockhunting Club Inc. If you are interested in attending these field trips please put your name on the notice board at the Lapidary and Rockhunting Club for the relevant field trip.

Please register with minsocwa Field Trip organizers prior to attending any of the field trips to confirm event details.

Committee Members.

The following are the minsocwa committee members for the forthcoming year.

President	Stewart Cole	0414904169
Vice President	Ida Newton	
Secretary	Sue Koepke	0417990688
Treasurer	John Mill	0411420921 or 92934664
Field Trip Leader	Juan Fernandez Buelga	0416316321
Newsletter Editor	Vernon Stocklmayer	92919043
Member	TBA	

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