Mineralogical Society of Western Australia (inc.)

February 2004 Volume 4, Issue 1

Forward Diary 2004

Presidents Report

The December meeting was an extremely pleasant social event, thanks to the generosity and hospitality of Susan and John Reeve.

The programme for 2004 is being finalized and will include both interesting mineralogical topics and field trips. Further details will be announced shortly.

The committee for the 2005 Seminar is working hard and is making excellent progress with their efforts to ensure that the event is successful.

The venue has been changed from Kalgoorlie to Perth and has already been booked to be held at the premises of the W.A. Lapidary Club.

I am sure that every member of our Society will be willing to assist when called upon to ensure that the Seminar is a success and to uphold the honour of W.A.

Jeff, our newsletter editor, requests your help in providing material for publication and is willing to accept any item that is not liable for legal action!

Finally, I would like to thank all the officers and members for their work and efforts in maintaining and promoting our Society.

Field Trip Report.

Our first trip for the year will be to the

Ferndale pegmatite which is near Balingup.

Full details will be made available as soon as

they become available.

February **4th**
Club Meeting

April **7nd**
Club Meeting

June **2nd**
Club Meeting

August **4th**
Club Meeting

October 6th
Club Meeting

December 1st
Club Meeting

Newsletter Contents.

MINERAL NEWS AND CORRESPONDENCE by John Reeve.

Woodallite – a New Western Australian Type Mineral

Somewhat belatedly, and apologies to Ben Grguric and his fellow authors, we note the publication of a paper by Ben Grguric, I.C. Madsen and Alan Pring in the June, 2001 (Vol.65 (3)) issue of the Mineralogical Magazine. Entitled "Woodallite, a new chromium analogue of iowaite from the Mount Keith nickel deposit, Western Australia", the paper describes woodallite which is a chromium-rich member of the hydrotalcite group. The woodallite ideal chemical formula is $Mg_6Cr_2(OH)_{16}Cl_2.4H_2O$. The mineral is deep magenta to purple in colour occurring as whorls and clusters of minute platelets up to 6mm across in a lizardite and brucite-altered dunite.

Unusual minerals at Copper Hill

In volume 40, Part 2 (2002) of the Canadian Mineralogist, Ernie Nickel describes the occurrence of an assemblage of palladium, platinum, gold, silver, selenium and mercury minerals at Copper Hill in the East Pilbara Region. The paper lists a number of selenides including oosterboschite, naumannite, christanleyite, berzelianite, umangite, luberoite(?) and tiemannite as well as native gold, native silver, potarite, bromian chlorargyrite and malachite. The source of the mineralisation is believed to have been acid, saline hydrothermal solutions charged with the precious metals, mercury, selenium and copper. The interaction of these solutions with dolomitic carbonate probably caused the precipitation of the minerals.

Dowerin chrysoberyl and associated mineralisation

The December, 2002 (Vol. 66 (6)) issue of the Mineralogical Magazine carries a paper by Peter Downes and Alex Bevan on chrysoberyl, beryl and zincian spinel mineralisation in granulite-facies Archaean rocks at Dowerin. The paper is of particular interest to pegmatite mineralogists as it furthers knowledge of this important Western Australia locality. The site is not accessible to collectors.

Mineralogica Tasmanica – August, 2003

The Journal/Newsletter of the Mineralogical Society of Tasmania contains several articles of interest to mineral collectors:

Some mines and minerals of the Heazlewood District.
How do agates form?
Rare earths, uranium and thorium minerals in Tasmania.

Mineralogical Society of N.S.W. Newsletter – September, 2003

The Newsletter contains a synopsis of the address by Professor Peter Williams at the Society's A.G.M. on Mineral Science: The last 3000 years and an article on hedenbergite.

The Mineralogical Record, May – June, 2003

Articles: The Bishop copper prospect near Lynch Station, Campbell County, Virginia
by H. Barwood.
"The Father of Bolivian Geology" – Friedrich (Federico) Ahlfeld (1892 – 1982)
by J.D. Redwood
Goldquarryite [Cu, $Cd_2Al_3(PO_4)_4F_2(H_2O)_{10}(H_2O)_2$], a new Cd-bearing
Phosphate mineral from the Gold Quarry Mine, Eureka County, Nevada
by A.C. Roberts, M.A. Cooper, F.C. Hawthorne, R.A. Gault, M.C. Jensen and E.E. Foord.
Peruvian minerals: An update by J. Hyrsl and Z. Rosales

Columns: Editorial – Record keeping for mineral collectors
Abstracts of new mineral descriptions
What's new in minerals.

First occurrence of pollucite in Western Australia: Lepidolite Hill Pegmatite, Coolgardie

During the mid-1960s, Western Mining Corporation Ltd. evaluated the lithium potential of numerous pegmatites in Western Australia including the Lepidolite Hill Pegmatite, just north of the Londonderry Feldspar pegmatite, Coolgardie. The Lepidolite Hill pegmatite was core and rock chip drilled to evaluate its petalite resource prior to its mining. Pollucite was identified by Western Mining Company in a specimen from the 80 foot depth in sample number 3464/67. Since the recognition of pollucite was unusual, D. Haynes from Western Mining (and an Honours thesis student at the University of Western Australia) donated the specimen, now MDC 4096 at the Western Australian Museum, to the Government Chemical Laboratories in March 1967. Visual analysis of thin section TS-1321, also in the Western Australian Museum collection, from the core shows a glassy, coarsely crystalline, isotropic pollucite with thin fine-grained micaceous veinlets. EDS (energy dispersive spectroscopy) analysis by Excalibur Mineral Corporation in 2003 detected only silica (62%), aluminum (22%), cesium (15%), and sodium (1%) oxides. Although the calculated percentage of cesium dioxide was about half the normal weight percent in pollucite, the use of EDS is not intended to provide compositional formulas, only identification. Normal pegmatite pollucites contain 46-48% SiO_2, 15-17% Al_2O_3, Na_2O 1.3-2%, Cs_2O 30-33% and trace amounts of CaO, MgO, Li_2O and Rb_2O. Drs. Peter Downes and Alexander Bevan at the museum, are thanked for loaning a sample for analysis.

Mark Jacobson

History of the Ferndale Pegmatite

The Ferndale Estate Pegmatites appear to have been discovered soon after the area was settled. Alluvial tin ore, as the mineral cassiterite (tin oxide), that had eroded from pegmatites was discovered by D. S. Stinton at Greenbushes upon the advice of a state geologist, E. T. Hardman, in 1888 (Blockley 1980, p. 2). The greatest level of tin mining from eroded pegmatites at Greenbushes occurred in 1906. Certainly, the two pegmatites on the Ferndale Estate were recognized by that time, but the complete absence of cassiterite from the pegmatites resulted in their being ignored.

Edward S. Simpson, Government Mineralogist for the Western Australia Geological Survey since 1897, noted that beryl was first found from the easternmost pegmatite vein on the Ferndale Estate in 1918. It was a hexagonal crystal, 11.4 centimetre by 3 centimetre in size (Simpson 1948, V1). Wilson (1926) in a visit to the pegmatite in August 1925 noted that only two 'potholes' had been dug on the northern pegmatite. From these holes, the owner, Mr. Grasby mined a parcel consisting ..."of 8 large specimens of beryl weighing 1-1/2 to 5-1/4 pounds a piece with an average of 3 pounds (Wilson 1926, p. 83)." Opaque, non-gem, beryl was of little value until World War II when industrial uses for beryllium metal were expanded. Since that time, beryllium metal has been extensively used for metal alloys, nuclear reactors, and non-sparking electrical parts. Beryl was the primary ore for beryllium until production started, circa 1965, of bertrandite from the giant volcanic ash deposits in Utah, USA. Since that time, pegmatitc beryl has been of secondary significance.

Both the western and eastern pegmatites on the Ferndale Estate were noted as containing significant quantities of microcline, a potassium feldspar which is a prime ingredient in ceramics. For this purpose a quarry was opened in the western (northern) pegmatite. This quarry appears to have been irregularly mined for feldspar from around 1930 till possibly 1959. One report indicates that 10.91 tonnes of beryl were mined from the pegmatite. Simpson (1948) noted that "The western vein ... contains a high portion of first class ceramic microcline that it has been worked in a quarry for that mineral. During these operations large quantities of common beryl have been exposed. In the face and walls of the quarry the vein is seen to be composed mainly of microcline and quartz with bunches of beryl and occasionally albite and tourmaline." Considering the small size of the quarry, its production was never large. Beryl samples from this quarry were used by Lord Rayleigh in 1933 to determine its helium content at 9.64 cuic mm per gram (Rayleigh 1933). Simpson probably supplied these specimens from a visit he made to the quarry in

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The Secretary, J. Reeve
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Ordinary meetings of the Society are held on the **FIRST** Wednesday in February, April, June, August, October and December in the **W.A.Lapidary and Rock Hunting Club rooms 31 Gladstone Street Rivervale**, commencing at 7.30pm. The January meeting will involve social activities at a time and place to be notified.

Visitors are most welcome

Newsletter of the Mineralogical Society of Western Australia
13 Buchan Place, Hillarys, 6025
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OUR SOCIETY's MISSION
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.

OBJECTIVES
Whilst focusing on the minerals of Western Australia, the overall objectives of the Society shall be:
(a) To advance the science of mineralogy.
(b) To disseminate knowledge of minerals, their occurrence and associations.
(c) To establish and maintain a register of mineral species and their occurrences in Western Australia.
(d) To increase knowledge of related fields of earth science.
(e) To keep members abreast of developments in mineralogy.
(f) To encourage an appreciation of the aesthetic value of minerals.
(g) To promote the proper care and preservation of mineral specimens.
(h) To promote the conservation of the geologically unique and of the environment in general.
(i) To provide a means of contact between professionals and amateurs in the various fields of the earth sciences.
(j) To foster a sense of cooperation and understanding between individuals, institutions and resource companies in the field of mineralogy.
(k) To provide a forum for debate and discussion on matters relating to mineralogy.