THE MINERALOGICAL SOCIETY OF NEW SOUTH WALES INC

Website: ***www.minsocnsw.org.au***

Please address all correspondence to :-
The Secretary, 58 Amazon Road, Seven Hills, NSW 2147

NEWSLETTER MAY 2023

The May Meeting will be held in the clubrooms of the Parramatta and Holroyd Lapidary Club at 73 Fullagar Road, Wentworthville, at 7.30 pm on Friday the 5th of May.

The program at the May Meeting will comprise the

Annual Member's Mineral Auction.

The Meeting will start at 7.30pm and after any announcements the Auction will commence immediately and may last to between 9.00 and 9.30pm. There will probably be a fifteen-minute break about half-way through the evening. Information on material for the sale has been slow to come in but it is hoped that by the commencement of the Auction there should be between 70 to 80 specimens being offered for sale.

It has been decided that it would be impractical to provide virtual coverage for the Auction.

A list of specimens for auction is still being compiled with more information still coming in but a list will be distributed in a day or two. Members may still bring in more material on the evening which if time permits, can be added to the end of the sale list. Vendors bringing in specimens for sale are recommended to arrive by 7.00pm to set out their sales.

Members wishing to bid for any items should acquire a bidding number label at the reception table and write their names with their bidding number on a record sheet. Transactions must be conducted entirely between the vendor and purchaser and made by cash, - or cheque if acceptable. Credit card facilities would not be available. During the Auction if any vendor feels that bidding on any of their specimens is not proceeding high enough they can bid for the specimen themselves to take it back.

A number of trays of minerals or single specimens may be sold by silent auction. Members can bring in a tray to leave for display on a table accompanied by a bid form which will be provided. Specimen trays or boxes should be labelled clearly and the vendor should write his or her name on the bid form. The bid forms would be checked at the end of the evening with the highest bidders purchasing the tray or specimen/s. There will be no need to notify the Society in advance about trays being brought in for sale as they will not be listed.

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FORTHCOMING MEETINGS and PROGRAMS

June 2nd: There will be a lecture by Luis Martins on :- '**Pegmatites: What are they and why do we like them?**

July 7th: The program is not finalised but will include a sale for the **Kids with Cancer Foundation.**

August 4th: Society A.G.M. and Memorial Lecture.

The SOCIETY COMMITTEE

PRESIDENT:	Dieter Mylius	Mobile: 0412 516 193
	E-mail:	*dieterm@internode.on.net*
VICE-PRESIDENT:	John Chapman	Tel: (02) 9808 3481
	E-mail:	*chapmanjr@optusnet.com.au*
SECRETARY:	George Laking	Tel: (02) 9636 7145
	E-mail:	*bglaking@tech2u.com.au*
TREASURER:	Graham Ogle	Mobile: 0400 683 574
	E-mail:	*quartzandsirius@hotmail.com*
COMMITTEE MEMBERS:	Haley Bambridge	Mobile: 0413 100 344
	Peter Beddow	Tel: (02) 8810 8446
	David Colchester	Tel: (02) 9449 3862
	Geoff Parsons	Tel: (02) 9548 3289
	Mark Walters	Mobile: 0421 012 647

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The APRIL MEETING

The Meeting was opened by the Vice-President, John Chapman, who welcomed members to the meeting and also welcomed a number of people who were attending by virtual mode. There were a few announcements.

Ed Zbik reported that Library acquisitions were continuing with welcome additions of large numbers of Mineralogical Records, and 'Rocks & Minerals' magazines donated by Terry Hogarth and Bruce Barnes.

The Vice-President had to advise the Meeting that insufficient support from members had been provided for the Society to provide and supervise an information table at the forthcoming **Hawkesbury Expo**. At least four people, with preferably one or two more, would have been needed to man the table for the two days of the Show and not enough had volunteered.

The first speaker of the evening was David Colchester who delivered a second talk on Mineral Identification, the talk following on from the one he gave at the March Meeting. As before, the following notes and images have been provided by the speaker.

What is its Name? A Review of Mineral Identification

Presented by David Colchester

Introduction

The first question asked when viewing a mineral specimen is:

What is its name? often followed by a statement on its appearance.

This talk will summarise the procedures used to identify a mineral and hence giving it a name.

Naming the mineral involves identifying a sufficient number properties in a specimen, which together make it unique to a particular mineral.

Some of these properties can be identified by observation alone. Those properties that cannot be seen are identified using tests.

Mineral specimen identification methods

Every mineral has a unique crystal structure and a limited range in its chemical composition, which combine give each mineral a unique set of properties. However, when naming a mineral specimen only some of these properties need be identified.

The methods of mineral identification may be placed into four categories:

1 Mineral recognition
2 Mineral determination
3 Optical mineralogy, optical properties using polarized light
4 Identification using X-ray diffraction

Rarely are these methods used in isolation.

1. Mineral Identification By Recognition

Based on a mineral's appearance especially as habit and colour as well as the mineral's occurrence.
Relies on mental images of previously examined examples.
Helped If mineral is known to occur in the particular locality.
May be confirmed by comparison with apparent properties listed in mineralogy texts.
Non destructive.
Properties observed are both objective and subjective.
Used and practised at our micro mineral group meetings.

Objective & Subjective Properties

Subjective properties are based on personal perspectives or preferences of the observer.
Objective properties are not influenced by personal viewpoint.

2. Mineral Identification Using Determinative Tests

Previous familiarity with the mineral not necessary (but helpful!)
Properties obtained by physical and/or chemical tests and matched to those listed in mineralogy texts.
Tests are often time consuming often using expensive complex instruments.
Most of these tests are destructive.
Properties determined are objective.

List of some determinative tests

Physical properties:
goniometry, cleavage, density, hardness, magnetism, radioactivity
Chemical properties:

Qualitative tests:	Instrumental quantitative tests:
Flame tests,	E D X
bead tests,	Micro probe
spot tests,	F T I R
micro crystal tests	X R F
abrasion pH	

3. Optical Mineralogy (polarised light microscopy).

Crystals interact with light in a complex way and the crystals of each mineral species has its own set of unique properties which can be analysed with a polarized light microscope.
The "traditional" polarised light microscope was designed by E. Bertrand in 1870 after about 3 decades of development.

Optical mineralogy using a polarized light microscope became the principal means of mineral identification and characterization for the next 100 years.
The advent of mineral identification by X R D heralded the demise and neglect of this method of mineral identification. (a great pity!)
Properties are objective.

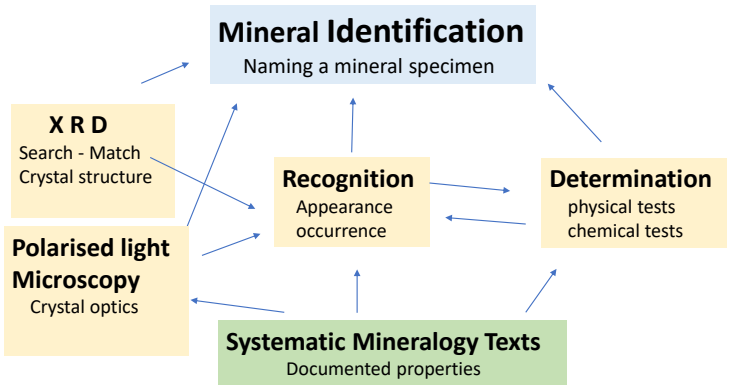
Properties of minerals determined by polarized light microscopy

crystal system	optic axial angle (2V)	habit / form
colour	sign of elongation	size
pleochroism	optic sign	interfacial angles
retardation	extinction angles	habit / form
birefringence	beta angle	Miller indices
refractive indices	optic axial plane	optical orientation

4, Mineral Identification by X R D

Every mineral species has a unique X R D signature.
These X R D signatures are all listed in a data base started in1950. Low quartz was listed in 1954 as N^O 5 – 490 as was calcite N^O 5 – 586
I like to think that was when mineral identification using X R D started then: 59 years ago.
The data base is searched till the X R D signature of an unknown mineral is matched to a mineral signature in the data base. Most of the hard work is now done by computer.
Requires an expensive instrument.
The method is self-contained.
X R D tests are destructive.
Properties determined are objective.

CONCEPT MAP – MINERAL IDENTIFICATION



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The second lecture of the evening was given by Graham Ogle on : - 'The Punta de Su Seinargiu Mine in Sardinia; - Kingsgate's Cousin'. A summary will be provided in a later Newsletter.

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FIELD TRIP

A COPPER MINE IN THE TUMUT AREA
MARCH 2023

Report by Mark Walters and Denis O'Brien

Ten people gathered at Tumut over the weekend of 31st of March and the 1st of April to explore a copper mine in the Tumut area. The roads were good, and Denis led the way via his preferred longer scenic route rather than the shortest one. The final approach track through the pine forest was deepish rutted mud and non-4wds were left behind for the last 1km. Haley led the way in her red Jeep to the parking area.

The mine has a spectacular setting in the hills with extensive views over the valleys below. Ancient grass trees are scattered over the area and make a dramatic sight on the skyline. The group was not alone on Saturday. A paraglider appeared overhead skimming along on the thermal currents. The host geology is serpentine and has magnificent colours and patterns within.

The main minerals found were various copper species, sphalerite, and green serpentine. Some specimens of chalcopyrite were magnetic and deflected a compass needle, and so may have a component of cubanite within the ore. Haley uncovered a spectacular blue boulder on the waste dump. Lesser minerals found included bornite, haematite, pyrite and possibly magnetite.

Saturday night dinner was held at the Oriental Hotel in Fitzroy Street and was a great social event enjoyed by everyone. On Sunday Mark, Geoff, Lynne, and Terry went to an area that had alluvial gold workings in the 1930s, unfortunately it looked like the entire catchment has been sluiced and no gravels were found. Travelling downstream we panned a few buckets and only tiny, terminated quartz crystals were found. Despite no success fun was had and we headed home.

Weekend participants were Mark Walters, Denis O'Brien, Ken Mitchell, Graham Ogle, Glenn Brown, Marion Ong, Geoff Parsons, Haley Bambridge, Terry Hogarth, and Lynne Webb.

FIELD TRIP PHOTOS

Car park site – 4wd needed to get in.

Walking into the mine site

Wonderful views from the mine site

Marion Ong

Lynne Webb and Terry Hogarth

The Paraglider overhead

Graham Ogle

Ken Mitchell

Inspecting Haley’s blue boulder

Haley’s colourful copper boulder

Collecting around the old mine shaft

Collecting on the steep waste dump

Terry with the old shaft to the right