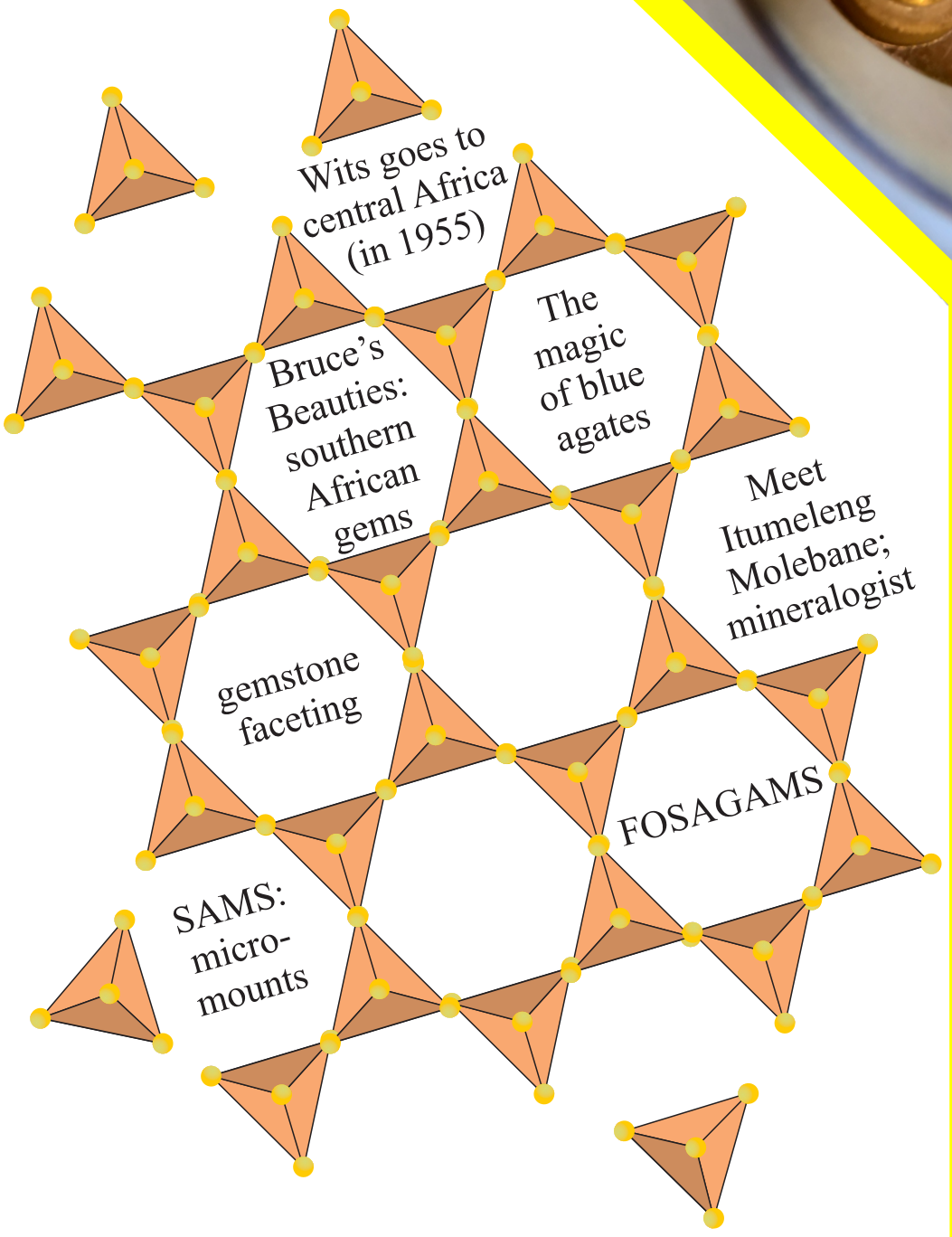
the Geode
the Geode

MINSA
Mineralogical Association of South Africa
A division of the GSSA

Gem & Mineral Collecting in South Africa



The GEODE

Minsa Newsletter
Volume 10
No. 4
December 2023

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NEWSLETTER
Volume 10 No. 4
December 2023

Contents

The Editor's Site

Greetings from Minsa for the final quarter of 2023, just in time for the seasonal holidays. Here we are at the end of the "year of Energy", just in time for the season of recharging. In this final issue of the year, we feature the theme of South African gem and mineral societies, and mineral collecting in southern Africa. The focus here is on gemstones as being the simplest to highlight, but as is pointed out later, almost any mineral can be collectable in the right circumstances, and it's not all about gems. My office contains rocks that are special because they are old, or shocked, or because of where they came from and what I was doing there, and very occasionally because they are pretty. Some are toxic. Almost none have commercial value (i.e., only the few I actually paid for).

The Editor, at his site.

We have contributions here from a range of enthusiastic experienced mineral collectors, book-ended by an introductory article from myself on one side, and an overview of the South African governing body, FOSAGAMS, from Petra Dinham, and of the South African Micromount Society (SAMS), on the other. Our crossword and our photo essay both

highlight gemstones of southern Africa, to remain theme-worthy.

As always, this product benefitted and benefits immensely from the contributions of the Minsa committee, from our contributors, and particularly from Petra Dinham for her consistently reliable rounding up of crucial contributions, and for her keen editorial eye. (Petra also means rock or stone, so it was fated to be so).

So until 2024, which is the Chinese year of the Wood Dragon (?; given the dragon's proclivity for fire, this strikes me as an odd combination, but I am sure the Chinese know what they are doing here). There are actually two parallel naming cycles incorporated within this name, one based on five fixed elements (earth, water, fire, metal, wood) and one based on twelve animals. Look it up on Wikipedia yourself, like I just did, if you need more.). On behalf of Minsa, all the best.

Steve Prevec

From the Chair

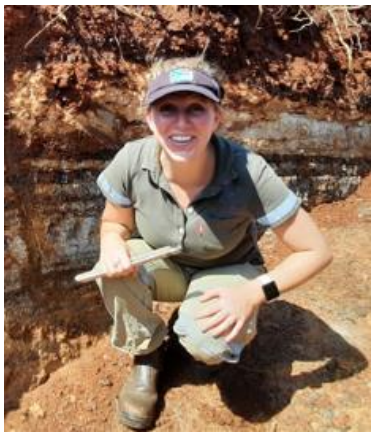
Greetings all Minsa members and enthusiasts!

As the festive lights twinkle and the year winds down to a close, I find joy in reaching out to you through The Geode. I hope that this holiday season brings you and your loved ones a time of joy, excitement and a well-deserved break.

While our Minsa meetings are on a brief hiatus during this festive season, our enthusiasm for mineralogy never rests. May this period of festivity reignite our sense of wonder and prepare us for the exciting endeavours that lie ahead in the upcoming year.

As we gather with loved ones, may the joy of the season fill your hearts and homes, and may we all carry this spirit and goodwill into the new year and all our future gatherings.

I look forward to reconnecting with you as we resume our activities with renewed energy. Until then, I wish you a holiday season as enchanting as the rarest of minerals and as joyful as the most splendid of gemstones.



Sara Turnbull

Chair, 2023-24 Minsa Executive Committee

With warm holiday regards,

Sara

Minsa News

Upcoming activities of interest

- IMSG (Igneous & Metamorphic Studies Group) conference at Oribi, KZN (Jan. 22-24)
- "Meet-A-Mineralogist" (Sybrand de Waal) Tour to Namibia (2024; date to be confirmed)
- 100 years of the Merensky Reef: Minerals, metals and mining. GSSA meeting, Rustenburg (15-23 Aug.; conference is 20-21). Note that there is a planned session on "Geometallurgical characterisation of Merensky Reef and massive chromitites of the Bushveld Complex".
- European Mineralogical Conference (EMC 2024: Dublin; 18-23 Aug.)

Articles

Meet a Mineralogist

Name: Itumeleng Molebale

Affiliation: Rio Tinto, Richards Bay Minerals

Itumeleng Molebale is a Specialist Mineralogy and Quality Assurance at Rio Tinto Richards Bay Minerals. Itumeleng has Masters' qualifications in Applied Mineralogy as well as in Technology and Innovation Management, both from the University of Pretoria.

"I started my career as a mineralogist with Mintek as a bursar then later I was appointed as a junior mineralogist. During my time with Mintek I was introduced to Automated Scanning Electron Microscopes (MLA & QemScan) and worked on process mineralogy of different commodities such as PGM, base metals, uranium, and rare earth elements" says Molebale. Itumeleng is currently with Richards Bay Minerals as a mineralogist where he is responsible for process mineralogy of heavy minerals sands.

What is your favourite mineral, and why?

"So many excellent properties united in a single metal" - Zientek, ML

Pt-Pd bearing minerals are my favourite minerals. One of the reasons is that when I was first introduced to Automated mineralogy, I worked on PGM's project, and I had to create a keyfile on MLA Quanta 600. I have gained so much knowledge from that exercise and it set me up for success as a process mineralogist.

What is your most funny or memorable field- or lab-work experience?

The most memorable lab experience was when my former colleague and I were working on Quanta 600 to collect a key file for PGM and BMS project. We had so much fun with collecting EDS spectra for the unknown minerals and the MLA suite software bombed out when we tried to process the unknowns in the sample due to the long keyfile.

What is the most exciting aspect of mineralogy for you?

The big picture under the microscope; we see what others don't see. With the mineralogy data you can do more to minimise risk in terms of orebody knowledge, mine planning and process mineralogy. It is a good tool when used properly to predict recoveries and losses of economic minerals of interest.

What motivates you to go to work every day?

I enjoy my work and I get to work with different stakeholders from the mine to mineral processing plant on projects that involves mineralogy. I also enjoy working on new exploration projects. It always challenges and excites me when I must add new minerals to key file and understand the mineralogy of the new orebody. Mostly I enjoy passing mineralogy knowledge on to geology and metallurgy graduates and to assist them with the project that they will be working on. I believe geoscientists and process metallurgists should understand mineralogy to improve on recoveries and minimise waste.

What is the most exciting project you have worked on?

For the last decade I have been working with mineralogy of heavy minerals sands. Between October 2022 and February 2023, I was seconded to RioTinto Bundoora Technology and Development Centre in Melbourne Australia. During my secondment I had an opportunity to work on a different commodity and

different processing method. I had an opportuning to join the team that was working on Nuton leaching project. The project was about Nuton leaching of copper bearing minerals.

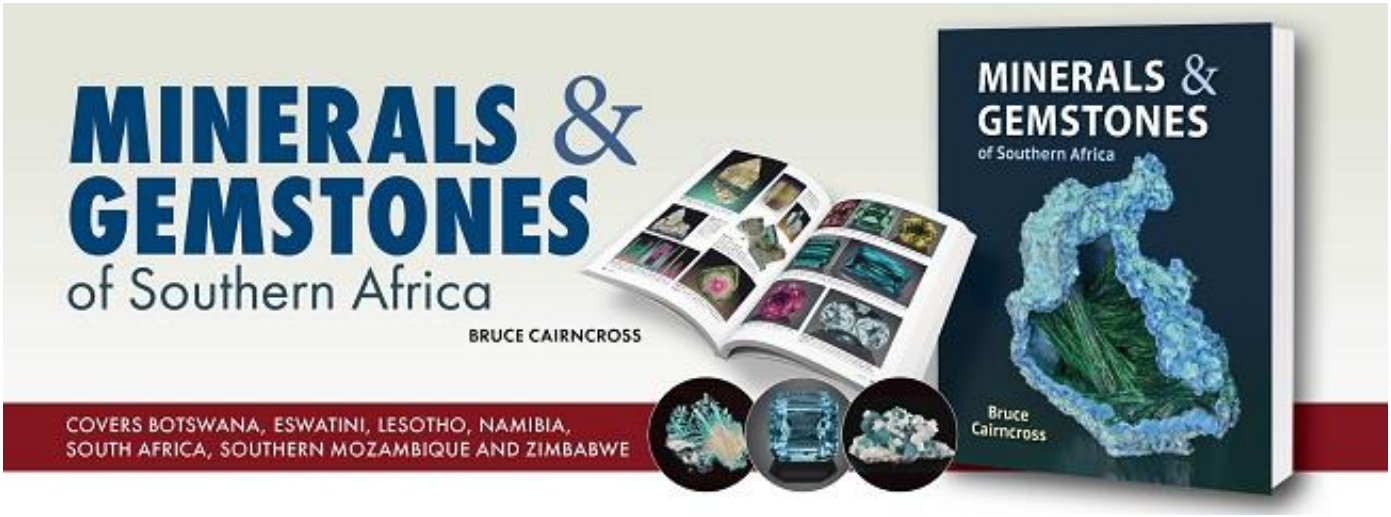
What advice would you give your younger self, when you were just starting out in the industry?

Get involved in a mentorship program and always learn from the senior employees. Be open to constructive criticism and learn from it.

What route did you take to become a mineralogist?

I studied BSc honours on Geology at the University of Pretoria. During my Honours I choose to do a mineralogy project on the gold deposit from Kloof gold mine under the supervision of Prof Roland Merkle. My interest in mineralogy grew further towards the end of my Honour's year, when I met Dr Amanda Quadling who was then the mineralogy manager at Mintek. It was at this point that I was offered a bursary to study for an MSc in Applied Mineralogy at the University of Pretoria. After completing my studies, I joined the Mineralogy division at Mintek as a junior mineralogist and later joined RBM as a mineralogist.

"Interviewed" by Bavisha Koovarjee



ATTENTION

POSTGRADS, PROFESSIONALS, ACADEMICS AND FRIENDS OF THE EARTH SCIENCE

MINSA IS LEADING AN IMPORTANT ENDEAVOR TO COMPILE A COMPREHENSIVE DATABASE OF WORDS RELATED TO MINERALS, GEOLOGY, AND LANDFORMS IN ALL OF THE COUNTRY'S NATIONAL LANGUAGES. THE ULTIMATE GOAL IS TO UPLOAD THIS VALUABLE COLLECTION OF TERMS INTO A NATIONAL REPOSITORY, WHICH SERVES AS A CENTRALIZED RESOURCE FOR LINGUISTIC INFORMATION. BY UNDERTAKING THIS INITIATIVE, WE AIM TO BROADEN THE SCOPE AND ACCESSIBILITY OF OUR SCIENTIFIC FIELD, ALLOWING A LARGER SEGMENT OF THE POPULATION TO ENGAGE WITH MINERALOGY, GEOLOGY, AND GEOMORPHOLOGY.
THIS EFFORT REPRESENTS A CRUCIAL INITIAL STEP TOWARDS FOSTERING INCLUSIVITY AND EMPOWERING A WIDER RANGE OF INDIVIDUALS IN SOUTH AFRICA TO ACTIVELY PARTICIPATE IN THE EARTH SCIENCES

FOR MORE INFORMATION CONTACT: MINSA@GSSA.ORG.ZA

September issue theme:

Gem and Mineral Societies in southern Africa.

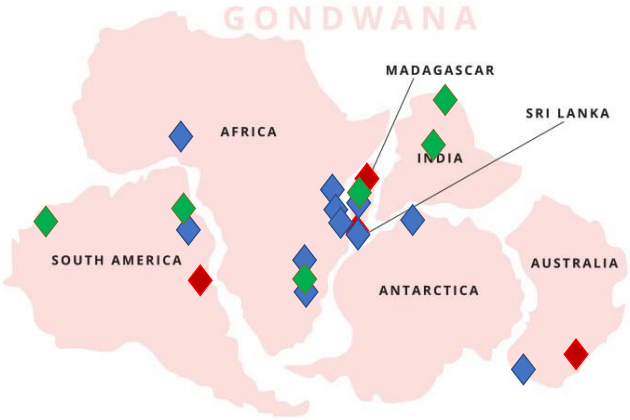
South and southern Africa is replete with local gem and mineral societies where the mineral enthusiast can interact in person with like-minded folk and compare their discoveries in a way that online can't entirely satisfy. These societies require a local critical mass but not necessarily a big, university-hosting city, to exist, which makes them more widely accessible. Plus, most of your university lecturer types (recognising that this encompasses a wide range of expertise and interests, from say, Bruce Cairncross at the one end, to, say, myself, near the other) are not gem specialists per se, and many is the first-year mineralogy student who gets their course credit and realises that they still don't know an emerald from a sapphire, as neither of these are actually technically mineral names. Nobody ever gets showered with / kills a giant for / kisses amphibians in search of corundums and beryls in the old fairy tales, at least not the ones I remember. But I digress. Although almost any mineral can, in the right circumstances, become a gemstone (i.e., possessing economic value for its appearance), in much the same way that many geologists (I am aware that I am writing mainly for mineralogists) can appear interesting and attractive in the right lighting and distance

Southern Africa is sufficiently well-endowed with pegmatites to generate a viable modest resource in gemstones. Not perhaps on the scale of Brazil, but still worthy. A prominent continental flood basalt province and subsequent geothermal heating generated by stepwise post-glacial and post-hotspot (?) uplifting of our continent has also gifted us a good environment for geode and semi-previous stone development as well.

A good place to start is the catchily-monickered Federation of South African Gem and Mineral Societies (FOSAGAMS; rolls right off the tongue), which incorporates eight regional societies or clubs across South Africa. There is likely one "near" you (unless you live in the Northern Cape, as it happens, which is ironically where our pegmatite belt is best developed).

They offer annual "gemborees", as well as workshops and other events, and can be found out about here at https://fosagams.co.za/, for example. Note that the status of activity of some of their branches is uncertain; there are reports that some may have declined in recent years.

Above, the locations of eight gem and mineral club locations to serve you better, clockwise from lower left: Cape Town, Kimberley, Gqeberha (Port Elizabeth), Pietermaritzburg, Durban, Mbombela (Nelspruit), Pretoria, and Johannesburg. Below, locations of our main sources of gemstones in the former constituents of Gondwana (excluding diamonds, which are of course mainly to be found at shops in Antwerp and Rotterdam).



In this figure (pink Gondwana map stolen from Gemtopia; resource locations added by this author), approximate locations of resources of sapphires (blue) and rubies (red), both of which are, in real life, corundum, and emeralds (green), which are beryl, are indicated, compiled from various fairly arbitrary internet sources I'm too lazy to name.

Interestingly, in a disappointing sort of way from a local perspective, the non-diamond gemstone minerals of

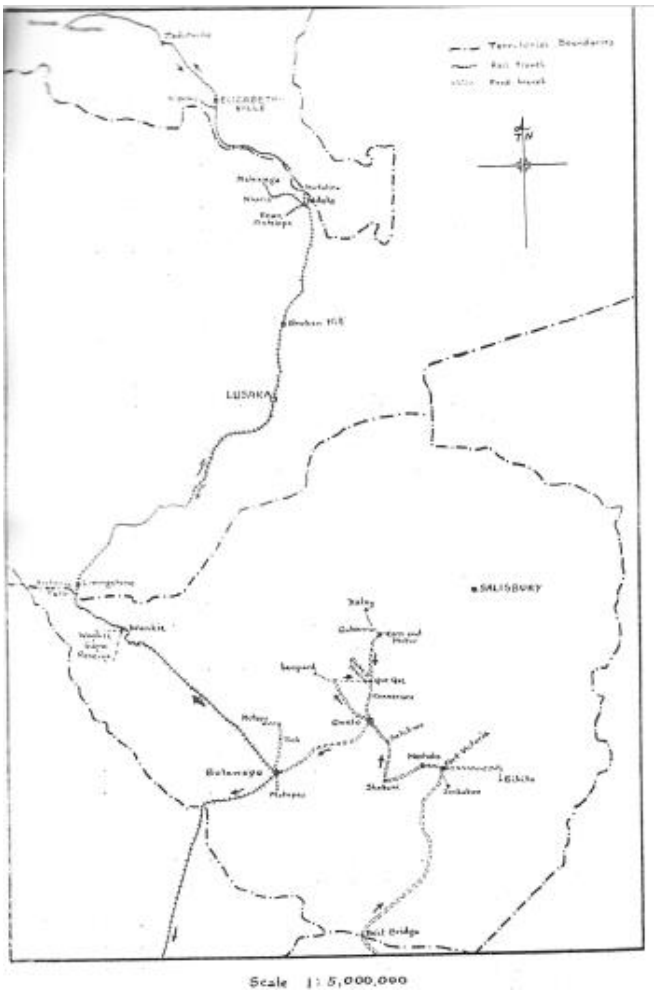
southern Africa, such as the prominent economic reserves in central Namibia (Tsumeb) and in Malawi, for example, are all located within Pan-African belts, a suite of metamorphic continent-continent collision zone sutures joining, or separating, as you prefer, older cratonic crustal blocks. This suturing event occurred at around 500 million years ago across Africa, part of the creation of the supercontinent component of Gondwana, hence the term Pan-African used hereabouts. Sadly for us, these Pan-African belts are relatively volumetrically scarce in South Africa itself, although it would be insensitive and petty to complain about this, what with our global reserves of diamonds, gold, platinum, chromium, vanadium, andalusite, etc. The pegmatites we do have possess modest economic quantities of Li-bearing minerals and attractive rose quartz, but nothing to brag about at international gem society meetings unless we arrive at the icebreakers really early and impress the delegates from Iceland and New Zealand, but then makes ourselves scarce when the Indians and South Americans turn up.

In this issue's gem and minerals societies feature, we have contributions on gem collecting in Africa from the 1950s, and thoughts on gem collecting in South Africa in the modern era. These are followed by contributions from two active members in the Cape Town Gem & Mineral Club, in which the joys of gem faceting are presented, and the joy of minerals and mineral provenance pursuits expounded. We finish this themed selection with a review of the activities of FOSAGAMs, introduced earlier here, and also of SAMS (the South African Micromount Society).

Mineral collecting in Africa: the last extended Wits field trip from South Africa north to the then Belgian Congo

Louis J. Cabri
lcabri@outlook.com

During the mid-year winter break in June and July 1955 I participated in what turned out to be the last Wits geology and mining trip north through the Rhodesias as far as the Belgian Congo. The leaders were Messrs. E.P. Edwards and T.P. Simpson (Department of Mining Engineering) and Dr. H.B.S. Cooke (Department of Geology), and we were 45 students in the upper years of Geology, Mining Geology and Mining Engineering, plus four graduate students. We travelled in two railway coaches during the night and visited a different mine every day. It was a great opportunity for mineral collectors. We visited the mines in the mornings, mostly going underground, and in the afternoons played against the mine's rugby team, and were then well-entertained with a braai and lots of beer. Because the Belgian miners had no rugby team we played field hockey on a field of hard-packed sand. I was allowed to play in the field hockey match because I was the only French speaker, even though I had never played before or even knew the rules of the game. We had a wonderful singalong afterwards well lubricated with Belgian beer and singing drinking songs like "Auprès de ma blonde, C'est si bon, si bon…"



The field excursion was divided into two sections. We first visited a large number of mines in the southern part of the trip, beginning at the Messina Copper Mine and then in Southern Rhodesia (Zimbabwe) mainly gold mines (Cam & Motor, Gatooma, Leopard, Matope, Que

Que), but also chromite at Selukwe, the Shabani chrysotile asbestos mine, the Bikita mine that produced lithium from petalite and spodumene as well as tantalum from tantalite, and the Wankie Coal mine. There were two side excursions by chartered buses, one to visit the mysterious ruins of Great Zimbabwe where construction began in the eleventh century and continued for three hundred years, and to visit the Memorial and grave of Cecil Rhodes in the Matopos Hills, with its distinctive granite kopjes with large exfoliated spheroidal boulders, where photos show me leaning on boulders.

The train then travelled north, stopping in three important mining areas. The first stop was the Broken Hill (Kabwe) lead-zinc mine, which was the largest lead producer in Africa, that also produced lesser quantities of vanadium, silver, and cadmium. It contained 65 mineral varieties and is the type locality for three secondary Zn phosphates (tarbuttite and parahopeite) and a Zn-Cu secondary phosphate (zincolibethenite). The underground stopes (tunnels) were relatively narrow and in places we walked into veritable Aladdin's caves that were lined with large calcite crystals nearly a metre in size. The complex ore mineralisation was hand-sorted on a conveyor belt.

The next stop was at the rich and large copper belt mines (Mufulira, Nchanga, Nkana, and Roan Antelope) in Northern Rhodesia (Zambia) and the Belgian Congo (Democratic Republic of the Congo) where we went underground at the Musonoi mine near Kolwezi (c.f., Wilson, 2018). The Cu-Co-U deposit contains 85 mineral species and the type locality for 7 minerals. It is also known for its rare assemblage of uranyl selenites, as well as palladium minerals, and we also sampled where uranium minerals from other localities were dumped, before we ended up in Elisabethville (Lubumbashi) where some of the guys climbed a flagpole to steal the Belgian flag on a dare. I came back with a large box full of interesting minerals that sadly was lost in later years during moves.

Some of the fourth-year geology and mining engineering students prior to going underground at the Musonoi mine are seen in the photo taken by Andrew Freyman.

Standing L to R: Jack Higgs, Max von Muller, Tex Coetzee, Unknown, Chris Roering, Mike Ryder, Geoff Crewe-Brown, Peter Fockema, Socrates Vartsos, Unknown, Don Garlick.

Kneeling L to R: Barnard Smith, Alf Brown, Rupert Leuner, Louis Cabri, Ken Neale, Ian McGregor, Unknown. I believe the only ones still alive besides myself, and Andrew who took the photo, are Peter Fockema and Don Garlick.

STAFF

(Dept. of Mining Engineering)	(Department of Geology)
1. Mr. E. P. Edwards 2. Mr. T. P. Simpson	3. Dr. H.B.S. Cooke

STUDENTS

	NAME	Initials	Group		NAME	Initials	Group
1.	Askew	J.F.R.	4 MG	26.	Johnston	H.A.	4 M
2.	Bannister	F.C.	3 M	27.	Kamstra	M.W.	4 M
3.	Behr	S.H.	4 MG	28.	Krafft	G.C.	4 M
4.	Bertram	R.C.	G d	29.	Lawrenson	B.J.	3 M
5.	Blane	V.F.	3 M	30.	Le Roux	P.J.	3 M
6.	Brown	A.N.	4 M	31.	Leuner	W.R.	4 MG
7.	Cabri	L.J.P.	4 SC	32.	MacGregor	B.I.	4 MG
8.	Casati	J.A.L.	Gd	33.	Mackay	M.G.	4 MG
9	Cinamon	J.V.	3 M	34.	Madeyski	M.A.	3 M
10.	Coetzee	A.C.	3 M	35.	Neale	K.F.	2 M
11.	Cowley	R.E.F.	4 M	36.	Ogilvie	C.E.	4 M
12.	Crewe-Brown	G.	4 MG	37.	Oltman	R.E.	4 M
13.	Dall	A.E.	3 M	38.	Pegneux	A.M.R.	Gd
14.	Davies	J.J.L.	4 M	39.	Rheeder	O.F.	3 M
15.	du Plooy	C.J.	3 M	40.	Roering	C.	4 MG
16.	Feather	R.G.	Gd	41.	Rossouw	J.R.	3 M
17.	Fenton	C.T.	3 M	42.	Ryder	M.J.	4 SC
18.	Fockema	P.D.	4 MG	43.	Sealey	A.A.	4 M
19.	Fordyce	B.G.	4 M	44.	Shaw	C.T.	3 M
20.	Forward	N.E.	4 M	45.	Smith	B.A.	3 M
21.	Freyman	A.	3 M	46.	Vartsos	S.T.	3 MG
22.	Garlick	G.D.	3 MG	47.	von Muller	M.J.S.	3 M
23.	Hall	H.A.	4 M	48.	Wheeler	P.R.	4 M
24.	Harris	H.H.	3 M	49.	Wood	D.O.	4 M
25.	Higgs	J.W.	4 MG				

Reference:

Wilson, Wendell E. (2018) The Musonoi mine, Kolwezi District, Lualaba Province, Democratic Republic of the Congo. The Mineralogical Record, 49 (2) 236-304.

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Book Prize

The **MINSA 2024 Book Prize** nomination call is now open!

We kindly request that you promote this opportunity to your institution's relevant stakeholders, or alternatively, you may suggest appropriate candidates yourself. If feasible, we encourage you to forward this email to the relevant Department Heads and/or Faculty Supervisors at your institution/university.

Attached to this email, you will find all the necessary documentation regarding the Book Prize. The 2024 award submission deadline is June 2024. Nominees can be registered by scanning the QR code or clicking on the Nominate button.

Thank you for your cooperation and support.

Nominate

Mineral collecting in South Africa

Richard Harrison
Richard.Harrison@sgs.com

In the 1970's, 1980's and even 1990's and into the early 2000's, South Africa had a large and vibrant mineral collecting community, spanning many active clubs, societies and interest groups in all the major cities.

This was largely supported by relatively easy access to high quality specimens, primarily from the Kalahari Manganese Fields, lower Orange River and various other localities (such as Musina, famous for ajoite and papagoite).

Over the intervening years several things have happened – removal of specimens from mines has become increasingly difficult due to changes in mine policy, blasting techniques (destroying many fine specimens) or the type of body being mined, as well as the gradual depletion of historically artisanal sites like the pegmatite bodies along the lower Orange River – famous for deep red, hematite-included quartz and well known for fluorite from Riemvasmaak.

Similarly, although still producing, local supply of specimens from areas like the Kalahari Manganese Fields and Musina have largely dried up, driving (alongside inflation) a steady upward trend in the price of mineral specimens.

There is some flow of rather fine material from Namibia and other countries in Southern Africa into South Africa, however these are often at international price-points and difficult for local collectors, especially young collectors, to access – which brings me to my point.

A decline in the mineral collecting hobby can be linked to one main factor, at least in South Africa – the lack of young, new and motivated collectors joining, either due to modern difficulties accessing collecting sites or the prohibitive costs in collecting in any systematic fashion.

There are bright spots on the horizon – The Cape Town Gem and Mineral Club is extremely active and has managed to attract and encourage many young members, and the Pretoria club maintains a strong lapidary focus with dedicated workshops and hobbyists.

However, for mineral collecting to survive as a hobby in South Africa we need to develop connections with academic institutions (As with the United States and Europe), as well as encourage younger members, and, importantly, link with professional bodies.

There is a consequence to hobbyist collectors dying out as a breed – much local (read: locality) knowledge, know-how (read: lapidary, workshops and fine polishing) and general history relating to our mineral heritage will be lost, unless this can be passed on to a younger generation.

The problem does not only persist with clubs – collectors participating in friends of museum groups with a specific focus on Earth sciences are far and few between, leading to outdated displays and information in the institutions meant to house and foster an interest in natural sciences, which only perpetuates the cycle.

So, as a call-out, to all hobbyist collectors and mineral enthusiasts: Consider becoming involved with local clubs and organizations!

Faceting gemstones; for fun and profit

Duncan Miller
embo@telkomsa.net

The Geode of September 2023 invited submissions from gem and mineral collectors, so here goes. I have been a member of the Cape Town Gem & Mineral Club for as long as I can remember, having gone on my first club field trip in the mid-1960s. I started faceting gemstones in 1970. Then, via weekly night classes given by the late Herbie Pienaar at Stellenbosch University, in 1976 I qualified as a Fellow of the Gemmological Association of Great Britain. Several University of Cape Town degrees and a rolling stone academic career followed. Now I am happily 'retired', an Affiliated Professor in the Geology Department at the University of the Free State, and still faceting gemstones. A mineral collection comes with the terrane – they leap into your hands and demand to be

taken home to be catalogued, photographed and boxed.

Now my interest in faceting involves cutting and polishing the 'hard' stones, on speciality equipment imported from the USA. These are soft ones, under 5 Mohs's hardness, or ones with multiple perfect cleavage, and those with interesting inclusions or strong pleochroism that must be orientated appropriately. For this a good knowledge of the physical mineralogy of each species is necessary. It is a great pity that South African geology departments tend to view gemmology as frivolous. It is a perfect way of introducing optical mineralogy, using macro-crystals whose optical properties can be demonstrated with very simple equipment. For example, birefringence can be explored with nothing more sophisticated than two crossed polarizing filters, or even more simply by rotating a crystal viewed between a white computer screen and polarizing sun glasses or 3D movie glasses (see 'How to play with polarized light' on Olaf Medenbach's wonderful educational website https://homepage.rub.de/olaf.medenbach/eng.html).

My present joint research activities include mineralogy of the Blue Lace Agate deposit at Ysterputs in southern Namibia (with Jo Wicht, CT Min Soc; and Megan Welman-Purchase and Freddie Roelofse, UFS) and palaeoenvironments at Yzerfontein (with Stephan Woodborne, iThemba LABS; and Mary Evans, Wits University). For my downloadable pfd files 'Stories in Stone', a lay-person's introduction to the geology of the southwestern Cape, as well as a guide to local rock art, and numerous articles about minerals and gemstones, please go to the Articles and Field Guides tabs on the website of the Cape Town Gem & Mineral Club (http://ctminsoc.org.za/).

Here are some photographs of unusual gemstones I have faceted over the past few years.

Sphalerite 63,02 ct, Aliva, Spain.

Barite 5,38 ct, Brukkaros, Namibia.

Cuprite 29,18 ct, Onganja, Namibia.

(continued…)

Enstatite 6,48 ct, unknown locality.

Fluorite 16,20 ct, Zimbabwe.

Kunzite (spodumene) 24,06 and 29,94 ct, Brazil.

How Falling in Love with a Chunk of Blue Rock led me on a Geological Journey

Joanna Wicht
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(Cape Town Gem & Minerals Club member)

After my first encounter with a piece of Blue Lace Agate about 18 years ago, I was hooked. More examples bought at our Mineral Club's Open Day, at Magic Minerals in Philadelphia and from Swanson's Yard at Springbok, all added to my collection. Then, after taking up lapidary work and moving onto stone carving, even larger pieces from the Springbok yard were acquired as we passed through the town on our way home from trips to Namibia and the Northern Cape. The more pieces in my possession, the more there was to see, and I became increasingly curious about how such a beautiful stone could have been created.

Not being a geologist, I pestered Duncan Miller and the late Maurice Conradie with my questions and wildly imaginative ideas on its possible formation because there were minimal references to hand. I stored every scrap of information in a file; from books, conversations with people and the internet. Maurice put me in touch with the late Dave Glenister from the University of Stellenbosch, who in turn contacted his old associate Herbie Pienaar who had long retired but had visited the mine many years ago. Little snippets here and there started to bring the history together. When passing through Springbok again mid- 2015, I was invited by Lionel Swanson (son of the late George) to visit the actual mine. At the next available opportunity, my husband and I raced back up to Springbok to take advantage of the offer. It was 47 °C at Vioolsdrif that day, but undaunted we carried on and I took as many photos as I could in the incredible heat.

With photos and a better idea of what the land on Ysterputs looked like, and the encouragement, editing assistance, patience, (and not forgetting constructive criticism) from both Duncan and Maurice, I was able to put together a basic reference and photographic website on Blue Lace Agate early in 2016. (www.namibianbluelace.co.za). Sadly, Lionel Swanson halted mining in January 2017, but I continued on the hunt for unusual specimens that might give a clue as to how the Blue Lace Agate had formed.

Then Duncan asked me if I would like to share all the information I had gathered, and between us we could try and work out the geological events from a scientific aspect. Many discussions, examinations of rock, and numerous possibly-helpful references later, the combined forces of artist and scientist produced our first article which was printed in the Mineral Chatter of June 2020, the monthly newsletter of the Cape Town Gem & Mineral Club. It has since been accepted by the Friends of Minerals Forum (Wicht, J. & Miller, D. 2020. Blue lace agate from Ysterputs, southern Namibia. *Yacimientos Minerales en FMF* **3**(119):3–12. https://www.foro-minerales.com/forum/viewtopic.php?p=150145#150145).

Then we moved on to looking more closely at the prolific points on many of the specimens that had always been called "*chalcedony after fluorite*". That research resulted in another article (Wicht, J. & Miller, D. 2021. Blue chalcedony pseudomorphs from Ysterputs, southern Namibia. *Yacimientos Minerales en FMF* **3**(126):3–12. https://www.foro-minerales.com/forum/viewtopic.php?t=14865&sid=e8abfa01718e71a81c3cc997db354b85).

Currently we have joined up with Freddie Roelofse and Megan Welman-Purchase at the University of the Free State who are assisting with the scientific analyses. My own personal research recently led me to Rhodes University and Steve Prevec. I was totally unaware that he is Editor of *The Geode,* and was looking for articles on "Gem and Mineral Collectors". Here is my contribution.

So that is the story behind my amazing geological journey, particularly in connection with my much-loved Blue Lace Agate.

The Wise Man of Ysterputs (image and sample c/o J. Wicht. The height of the Wise Man is 27 cm).

The Snail (image and sample c/o J. Wicht. Sample is 11 cm tall).

FOSAGAMS – an introduction

FOSAGAMS is the Federation of South African Gem and Mineral Societies. Their stated aims and objectives are:

- To bring about close association between the Earth science societies of southern Africa as well as to co-operate, and possibly affiliate, with similar federations globally.
- To organise, through members, national events and other activities for the benefit of members and the public.
- To co-operate with state departments and other organisations in order to promote interest in the mineral resources of Southern Africa, and related disciplines.

The 'Southern African Gem and Mineral Magazine' (formerly 'The South African Lapidary Magazine') is the official publication of FOSAGAMS and is issued three times annually. The magazine primarily focuses on readers in southern Africa interested in the Earth sciences. Copies of the magazine are available on the website and may be downloaded free of charge.

The following gem and mineral and lapidary clubs fall under the auspices of FOSAGAMS:

- Pretoria Gem and Mineral Club*
- Witwatersrand Gem and Mineral Club
- Natal Mineral and Gem Society*
- Cape Town Gem and Mineral Club*
- Pietermaritzburg Gem & Mineral Club*
- Nelspruit Gem and Mineral Club*
- Kimberley Lapidary Club
- Port Elizabeth Gem and Mineral Club

According to the website of FOSAGAMS, several of these clubs have magazines or newsletters; these have been marked with asterisks in the preceding list. Access to the listed newsletters is restricted on the FOSAGAMS website. Their secretary notes that interested Minsa members should approach the individual clubs for more information on their Newsletters and activities. The South African Gem and Mineral Club is the previous name for FOSAGAMS, and their current Newsletter can be accessed on the mother body website (www.fosagams.co.za). These newsletters are currently distributed to ca. 750 readers, including various libraries, museums, universities, and elsewhere.

The mother body has created two WhatsApp groups to promote communication with its club members:

- The "SA Gem and Mineral clubs" chat group that welcomes input from anyone on related mineral and gem topics. To join this group, contact Linda Stone at 082 598 9117 or Tjaart van der Merwe at 063 525 8182.
- The "FOSAGAMS" WhatsApp group was created to advertise all upcoming club activities to members, such as training courses, outings, and national and international shows and auctions.

A popular activity of FOSAGAMS is the annual 'Gemboree', held over the Easter weekend. What is a Gemboree, you may ask? According to the website, the word GEMBOREE evolved from the Scout term JAMBOREE (which in broad terms means a "rally of Boy Scouts"). "GEM" replaced "JAM".

The Australian rockhounds claim that they 'invented' this word and at some stage were not enamoured that other countries and communities took over the word 'GEMBOREE'. However, today, it is universally accepted as being in broad terms 'a rally of rockhounds'. In Australia their Gemboree is combined with their National Gem and Mineral Show.

In South Africa, the GEMBOREE is normally hosted by a member Club, at a venue that has the necessary amenities to cater for a large gathering, has suitable gem and mineral collecting sites and is reasonably accessible to the host Club (necessary for pre-planning).

Some Minsa members are also members of various amateur South African gem, mineral and lapidary clubs, including the South African Micromount Society (SAMS) which does not fall under FOSAGAMS. Minsa makes an effort to stay abreast of the main activities of all the amateur gem, mineral and lapidary clubs and to pass on news of noteable activities to our membership.

Minsa has a reciprocal agreement with the Cape Town Gem and Mineral Club to make newsletters available to our respective membership. The Minsa newsletter is a quarterly publication, whereas Cape Town Gem and Mineral Club issue 'Mineral Chatter' monthly.

Article collated by P. Dinham, mainly from information on the FOSAGAMS website.

Mineral picking for micromounts: a treasure hunt in miniature

"The most inspiring thing about gold, is not the value, but under magnification, the true beauty of each grain." (Anonymous)

This is true not only for gold, but for all micro minerals…

Jaco Delport
fossil@tuks.co.za

The South African Micromount Society (SAMS) is interested in all of this. SAMS, established in 1974, is a non-profit organization dedicated to the collection, study, and research of mineral deposits, particularly within South Africa. SAMS compiles Locality Data Sheets for each visited site, documenting minerals and referencing them internationally through Mindat. The society's interest extends beyond South Africa, encompassing operating and historical mines, providing valuable mineralogical records. Members, whether amateur or professional, focus on collecting and understanding micro-minerals, with samples one millimetre or smaller. SAMS engages in regular meetings, outings to mineral deposits, and the organization of seminars to promote interest in mineralogy. The society's collection of representative samples, photos, and documents is available to members and interested parties upon request.

Finding and gathering mineral specimens, or mineral picking, is an essential step in the process of making micromounts, the fascinatingly small marvels of the mineral world. It is a thrilling journey that combines the excitement of exploration with the fulfilment of acquiring fine items for your collection. The technique of micromounting is fuelled by mineral picking, which is all about the following.

Locating undiscovered treasures:

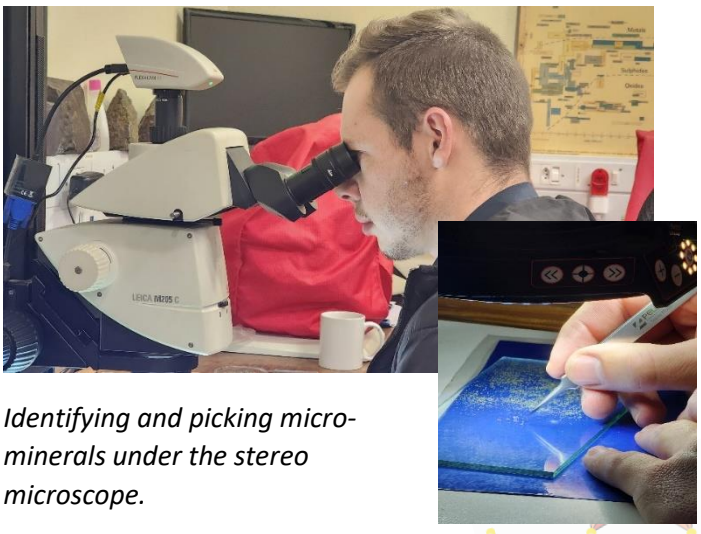
Micromounters look for rocks that have a lot of tiny, perfectly formed crystals. Prospective sites include pegmatites (a giant-crystalline igneous rock, like granite on steroids), veins (a sheet of crystallized minerals filling a crack or fracture, like a tiny, sparkling scar brimming with treasure), and vugs (a rock's secret jewel box, cradling crystals like glittering treasures in its hollow heart). Furthermore, quarries, mines, and even road cuts may contain undiscovered riches.The key is to observe carefully and with sharp eyes. Unusual surfaces, colour changes, and patterns within the rock matrix could all be signs of microscopic jewels just waiting to be discovered.


Micromount enthusiasts hunting for treasures.

The careful extraction:

Carefully extracting a potential specimen starts after it has been found. The partners become conventional hammers, chisels, and fine hand tools, which enable accurate mineral separation from the host rock. It takes skill and patience not to break the tiny gems. Consider the task of retrieving a pea-sized diamond, each tap matters!

However, there is a new kid on the block, called a SELFRAG. Selective fragmentation of a specimen by hand or crusher is sometimes impossible as it can damage the crystals you want. SELFRAG ensures fragmentation along grain boundaries, keeping the crystals you want intact.



Identifying and picking micro-minerals under the stereo microscope.

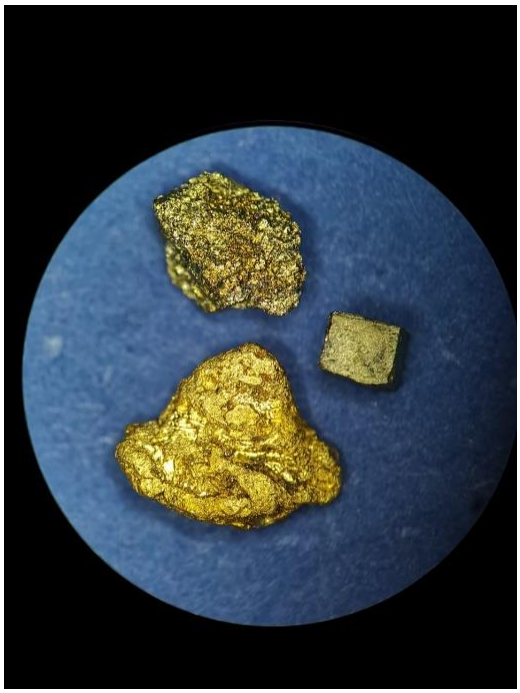
Picking the crystals you want:

Mineral separation under a stereo microscope, or "picking," is a meticulous dance of observation, precision, and patience, transforming tiny gemstones from hidden secrets within their rock matrix into miniature masterpieces for display.

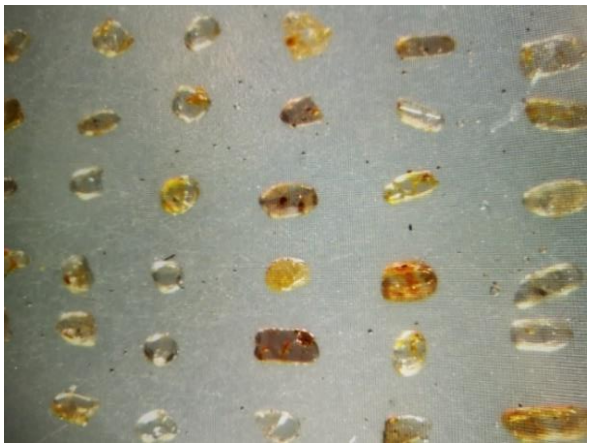
Imagine wielding tweezers finer than a hair, chipping away rock like a miniature sculptor, and meticulously revealing the sparkling facets of a crystal smaller than a grain of rice. It is a thrill hunt for miniature treasures, demanding keen eyes, steady hands, and a deep appreciation for the hidden beauty buried within our planet.

A micromount masterpiece was the prize:

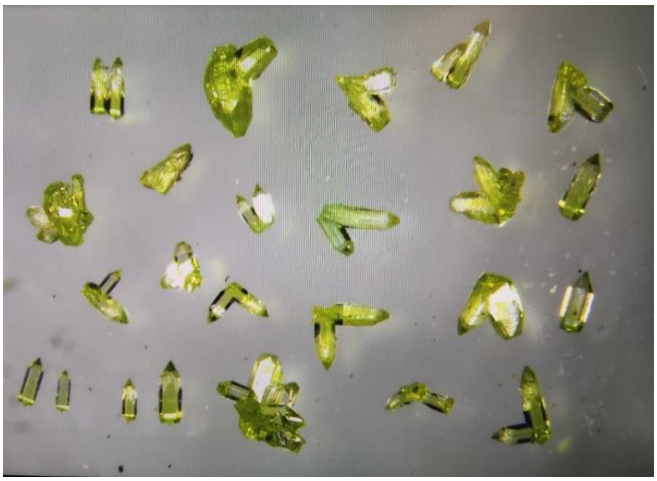
The core of the micromount is the extracted mineral, which is frequently no bigger than a thumbnail. The rock matrix is then painstakingly cleaned and trimmed by expert micromounters to showcase the stunning crystals. Some even go as far as to mount the specimen ingeniously on cork, acrylic, or other materials, turning it into a small artwork. At this point, photography also plays a key role, showcasing hours of meticulous and dedicated work.



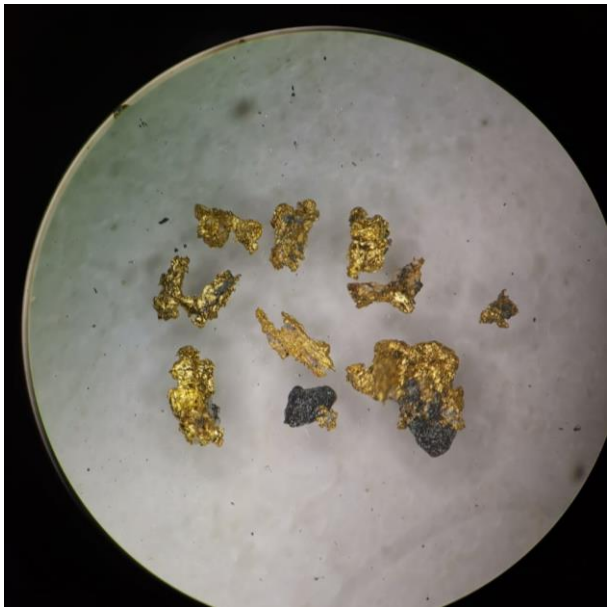
Microscopic gold, pyrite, and chalcopyrite.



Zircons with and/or within inclusions.



A variety of twinned crystals.



Partially-liberated gold and host rock.

Beyond the tangible element:

Finding beautiful rocks is not the only aspect of mineral harvesting. It is an exploration voyage that links you to the astounding diversity of the mineral world and the region's geological past.

Every micromount is a snapshot of Earth's formation processes captured in time, telling a different tale. Gathering them ignites a passion for the planet beneath our feet and turns it into a quest for knowledge and understanding.

Mineral picking is what keeps micromounting alive. It is the beginning of an enthralling adventure that turns little things into exquisite, instructive, and engaging exhibits of Earth's hidden treasures.

According to the SAMS code of conduct, mineral collection should be done carefully and responsibly. For example:

- Prior to accessing private property or protected areas, obtain the required authorization.
- Be mindful of the surroundings and remove all traces of your visit.
- When gathering within quarries or mines, be mindful of potential safety risks.

I would be pleased to provide more information or respond to any queries you may have if you are interested in learning more about mineral picking and micromounting. Recall that the world of micromounts is just waiting for you to discover!

SAMS contacts:

Jaco Delport: fossil@tuks.co.za; 082 376 0768

South African Micromount Society (SAMS):

Alison Rose; samicromount@gmail.com

THE CANADIAN JOURNAL OF MINERALOGY AND PETROLOGY

formerly known as THE CANADIAN MINERALOGIST

Got a short geological study with a mineralogical focus?

Have you identified:

- A new occurrence or a compositional variant of a known mineral?
- A novel mineral assemblage or mineral composition diagnostic of its petrogenesis, and/or of associated minerals of interest (including ore mineralization)?
- A new mineral?
  - The Canadian Journal of Mineralogy and Petrology has a new fast-stream publication process specific to new mineral announcements to get this information out ASAP.
  - We are also introducing a new Short Communications format.

Then look no further: from pegmatites to platinum group minerals, ***The Canadian Journal of Mineralogy and Petrology*** has been providing a timeous research outlet for quality mineralogical and petrological studies since 1957.

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What do southern Africa and Canada have in common?

Granite-greenstone terranes, a *ca.* billion-year old high grade metamorphic belt (Grenville-Namaqua-Natal), a Proterozoic anorthosite belt, a major impact structure, kimberlites, a variety of major ore deposit types, pegmatites, and lots of research geoscientists, to name a few aspects. Help reunite Pangaea; ideas make the best bridges!

Our editorial staff are experienced and accommodating, and we have over twenty international research-active Associate Editors in a wide range of fields, from crystallography through crustal and mantle mineralogical environments to magmatic and non-magmatic ore deposits, to facilitate rapid expert reviews and quality publications.

Regular thematic issues feature and promote specific mineralization environments and honour researchers from the mineral geoscience community. Recent examples include issues for Anthony Naldrett (2021), Critical Minerals (2022), and Ron Peterson: Mars and Beyond (2023).

The Canadian Journal of Mineralogy and Petrology is a hybrid journal offering both subscription and **GOLD OPEN ACCESS** options, and can be accessed on Geoscience World, as well as through membership in the Mineralogical Association of Canada. We also feature accommodating page charge policies and relatively research-friendly rates.

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https://www.mineralogicalassociation.ca/the-canadian-mineralogist/
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Bruce's Beauties: Local Gemstones

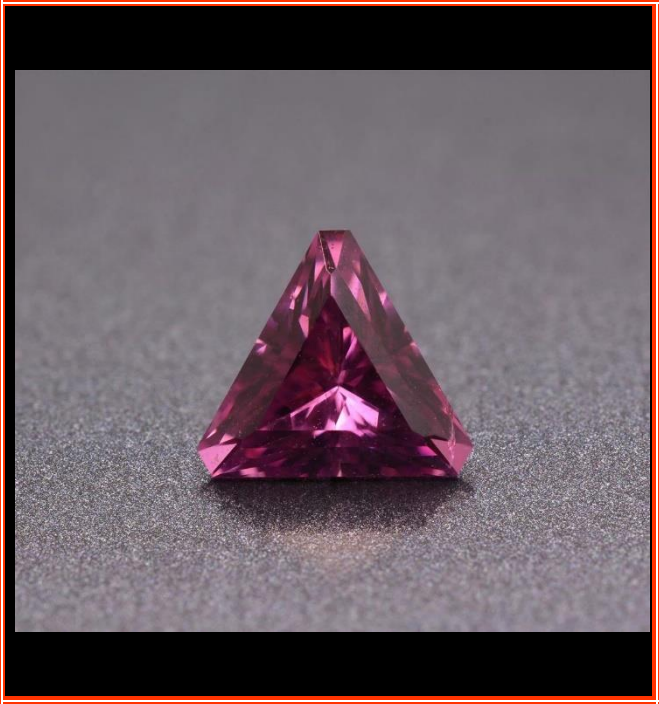
As the theme for this Geode is local gem and mineral clubs, the specimens featured here are from local, southern African sources and illustrate faceted material as well as natural crystals. For anyone interested, the local South African clubs are governed by the national federation FOSAGAMS (see elsewhere in this issue for more on them).

A faceted 27.93-carat topaz with a natural crystal from Klein Spitzkoppe, Namibia. The cut stone belongs to Massimo Leone. Specimen and photo Bruce Cairncross.

Two natural spessartine garnet crystals (left one is 1.2 cm) and a 0.73-carat faceted gem. The trade name for these is "Mandarin garnet'. From a small deposit on the Kunene River, northern Namibia. Bruce Cairncross specimens and photo.

Above at left: A 4.5 cm quartz crystal with inclusions of red hematite and amethyst. Small analcime crystals stud some of the crystal faces. An 8.45-carat stone was faceted from a similar quartz, full of hematite. From the Goboboseb Mountains west of the Brandberg, Namibia. Bruce Cairncross specimens and photo.

Above at right: A 2.2-carat amethyst, from Zimbabwe. Bruce Cairncross specimen and photo.



Elbaite gemstone, 0.88-carats from the Karibib0Usakos region, Namibia. Bruce Cairncross specimen and photo.

It is unusual to facet rhodochrosite, a soft manganese carbonate. This is a 24.24 fancy cut example from the Kalahari manganese field, South Africa. Bruce Cairncross specimen and photo.

Fluorite would not ordinarily be considered a gemstone, but any transparent mineral that can yield faceted material might be considered here. This is an 18.04-carat fluorite cut from crystals, such as the 4.6 cm green octahedral specimens shown here, from Riemvasmaak, Northern Cape Province, South Africa. Faceted stone belongs to Massimo Leone. Specimen and photo Bruce Cairncross.

Minsa invites its members (and their friends) to contribute submissions for our next issue of the Geode, for March 2024.

Submissions can be sent to minsa@gssa.org.za or to s.prevec@ru.ac.za and should reach us by 29th February 2024 (yes, it's a leap year next year).

Great moments in rock lyrics

"Generals gathered in their masses
Just like witches at black masses"

Credited to William "Bill" Ward, Tony Iommi, Ozzy Osbourne & Michael "Geezer" Butler (Black Sabbath), from their 1970 classic early metal oeuvre, "War Pigs".

Rhyming the homonyms *masses* with *masses* is genius (as in "are they allowed to do that?").

Yes, this is pure space filler, but as we incorporated "rock" and "mass" (as yet an additional homonym) into it, we are calling it mineralogical.

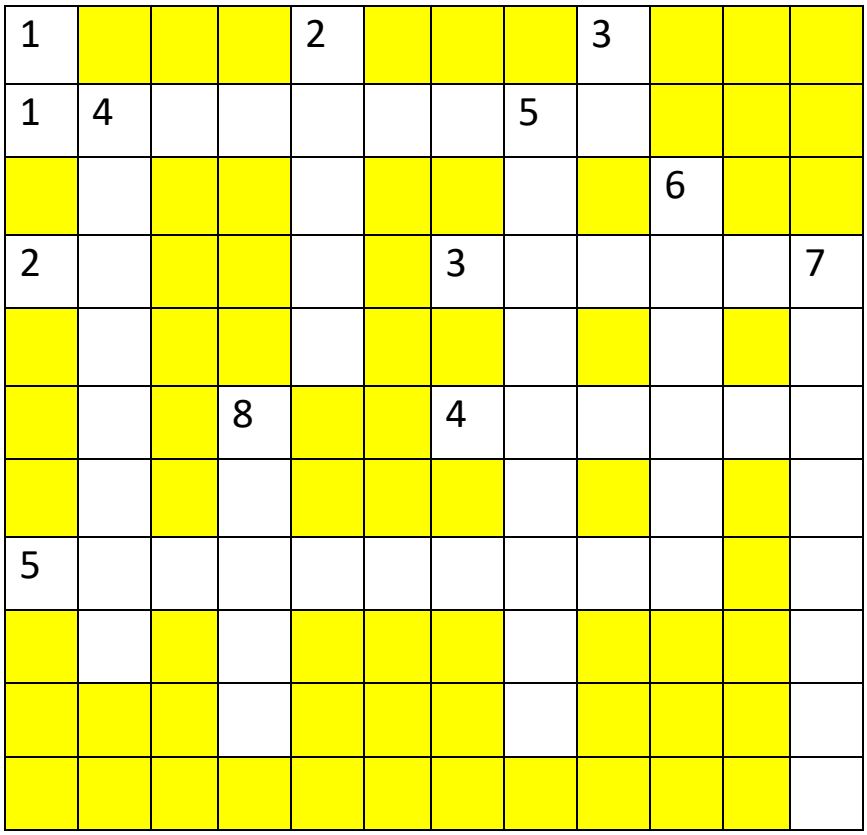
Since we still have space to fill here, we call your attention to the 1960 song "Spoonful" (written by Willie Dixon, performed by Chester Burnett, the "Howlin' Wolf"), for having two mineralogical references in one verse:

"Well, it could be a spoonful of diamonds
It could be a spoonful of gold,
Just a little spoon of your precious love
Will satisfy my soul".

The composition of the spoon is not stated, but additional alloys may be involved. That would make three mineralogical references, potentially.

Minsa Crossword for December 2023

The theme for this crossword is southern African gemstones. Obviously.



ACROSS:

1. A rose-coloured (from whence it derives its name) garnet variety from the pyrope-almandine family (i.e., not Mn-bearing), mined from Tanzania to Madagascar along the Mozambique Belt.
2. The dominant cation in the mineral corundum, the parent mineral of sapphires and rubies.
3. An orange-tinted garnet found in East Africa, whose name (apparently) derives from the Swahili word for prostitute, and derives from the pyralspite series.
4. The gem version of cordierite, its name derives from its violet colour (in Greek), it is also found across southeast Africa and in Namibia.
5. The boron silicate mineral group, for which Mozambique is one of the world leading gem producers; as well as Namibia, Zambia and Madagascar, it can also be found in South African pegmatites.

DOWN:

1. The element to which the green colour in emeralds, such as those found in the Murchison greenstone belt (South Africa), is attributed.
2. An orthosilicate gemstone found in granitoids with the formula $Al_2SiO_4(F,OH)_2$, mined in Zimbabwe, Mozambique and Madagascar.
3. The primary cation found in emeralds, along with Al and Si.
4. A grossular-flavoured garnet discovered in northeastern Tanzania, ironically named for the Kenyan park in which its discoverer was later murdered (apparently over mining rights), and which is otherwise most widely known for the 1898 event involving two man-eating lions, a railway construction project, and a movie version starring Val Kilmer.
5. The gem name for the golden to greenish-yellow variant of beryl, it has been reported in the Kleine Spitzkoppe granite in Namibia, and from Madagascar.
6. This is definitely not a gemstone, but it fit perfectly into this space. If you are looking to end a relationship quick, why not give a gem made of this mineral, which is an ionic salt that will dissolve in water at room temperature but does make nice crystals.
7. The purple variant of quartz, this mineral is mined all over Namibia, and in the Northern Cape near Hotazel in South Africa.
8. Once popular as a girl's given name (its popularity peaked just before World War I), it is the basis for emeralds and aquamarine in its gem forms.

Minsa Crossword Solution for September 2023

The theme for this crossword was critical metals and their minerals, just because.

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			P			E			I	
			G						7 T	A
		8 P	E	T	A	L	I	T	E	

ACROSS:

1. A Ta oxide ore mineral found in granitic pegmatites, named for an individual in Greek mythology who murdered his father-in-law after first reneging on the bride price.
2. The two letter acronym for the 4th lightest element, it is essential in X-ray analytical equipment, modern aircraft, missiles, and the James Webb Space telescope.
3. A light rare earth and thorium phosphate mineral, it is also useful as a geochronometer in granitic rocks.
4. A heavy rare earth metal, one of the many named after the village of Ytterby in Sweden, it is used to create the green colour in cathode ray tubes.
5. The informal name for niobium-tantalum ores of columbite, it is mined most extensively in the DRC and Rwanda.
6. The mineral group into which allanite belongs, into which light rare earth elements (such as Ce) in particular substitute for Ca2+. As a critical metal ore mineral, it is most prominent in carbonatitic deposits in China and Brazil.
7. The two letter abbreviation for the refractory high field strength element below niobium in the periodic table, it is a "technology-critical" element, valuable as a capacitor.
8. A Li phyllosilicate, it decomposes to spodumene and quartz in upper greenschist facies conditions, and is found in pegmatites.

DOWN:

1. The Y-phosphate mineral which is a significant ore of heavy rare earth metals, along with accessory U and Th. It forms as an authigenic mineral during diagenesis and is mined in heavy mineral sands.
2. The primary ore mineral for Ta, this oxide is the Ta-end member of columbite (the Nb oxide ore), and is thus the source of half of the portmanteau (look it up, like I had to) from 5 across.
3. A rare earth metal (REM) fluor-carbonate, this vein mineral has become the preferred light rare earth metal ore mineral because it is REM-rich but poor in radioactive elements such as Th, simplifying its mine waste management.
4. The high field strength element best known to geochemists as the prominent negative spidergram anomaly characteristic of subduction-generated magmas, it's use as an additive for high-temperature steel makes it an essential critical metal.
5. The acronym for the three chemical members of the platinum group metals who are geochemically affiliated with iridium.

Note: The recommended deadline for submissions for the next issue of the Geode is February 29th, 2024.