WITWATERSRAND GEM and MINERAL CLUB

Newsletter for SEPTEMBER 2014

P O Box 3708 Cresta 2118 South Africa
Room 215 G, 2nd floor Department of Geology University of Johannesburg Auckland Park

JUST A WORD FROM THE EDITOR

Whilst we are surviving hopefully the last of the winter, spring is upon us. And so out with the old and in with the new - the new amended constitution was accepted on the 13th August at the Special General Meeting. Thank you for all who attended the meeting, voted and enjoyed the social evening afterwards.

Please forward any gem or mineral news, adverts or articles which you feel should be within our next newsletter, please forward to witsgemclub@mweb.co.za or call me on 072 591 6202. Rock on!!!

EVENT CALENDAR FOR 2014 – Please diarize the following dates

THEMED EVENING on 10th September at UJ – Bring specimens relating to the Feldspar Group and Pseudomorphs
SPEAKER EVENING on 24th September at UJ – no speaker due to the public holiday, however we will view a presentation from the Dallas Mineral Collection Symposium, 2013
The 21st General Meeting of the International Mineralogical Association will be held in South Africa at the Sandton Convention Centre, Gauteng, from 1–5 September 2014. For more information go to www.ima2014.co.za
Kimberley Diamond Symposium & Trade Show: 11 - 13 September 2014
African Exploration Showcase : 7 November 2014
WGMC Year-end evening: 26 November 2014 (members only)

CLUB MEETINGS

The club meets every second and last Wednesday of each month at 19h00 for 19h30, excluding December, at the University of Johannesburg, Auckland Park, Department of Geology, Second Floor. Please use the entrance off Ditton Road, the building is directly opposite the mentioned entrance and parking is available to the left (limited) or around the turning circle to the right (plenty available). We welcome all visitors. Tea, coffee and biscuits are available at a donation of R4.00.

Thus, make a note in your diary for the 10th & 24th September 2014 at 19h00 for 19h30. I will see you there. And bring a friend or two.

THEMED EVENING (1) Feldspar Group

The name *feldspar* derives from the German *Feldspat*. The words *Feld*, "field", and *Spath* mean "a rock that does not contain ore." "Feldspathic" refers to materials that contain feldspar. The alternate spelling, *felspar*, has largely fallen out of use.

The feldspar group ($KAlSi_3O_8$ – $NaAlSi_3O_8$ – $CaAl_2Si_2O_8$), a group of rock-forming tectosilicate minerals, is a fairly large group with nearly 20 members recognized, but only nine are well known and common. Those few, however, make up the greatest percentage (60%) of minerals found in the Earth's crust. The following are some of the more common feldspar minerals:

The plagioclase feldspars:

- Albite,(Sodium aluminum silicate)
- Oligoclase (Sodium calcium aluminum silicate)
- Andesine (Sodium calcium aluminum silicate)
- Labradorite (Calcium sodium aluminum silicate)
- Bytownite (Calcium sodium aluminum silicate)
- Anorthite (Calcium aluminum silicate)

The K-feldspars or alkali felspars:

- Microcline (Potassium aluminum silicate)
- Sanidine (Potassium sodium aluminum silicate)
- Orthoclase (Potassium aluminum silicate)

The feldspars are a group of minerals that have similar characteristics due to a similar structure. All feldspars have low symmetry, being only monoclinic, 2/m, to triclinic, bar 1. They tend to twin easily and one crystal can even be multiply twinned on the same plane, producing parallel layers of twinned crystals. They are slightly hard at around 6, and have an average density at 2.55 to 2.76. They have a rather dull to rarely vitreous lustre. Crystals tend to be blocky. Some feldspars may be triboluminescent. They have two directions of cleavage at nearly right angles. Feldspars also tend to crystallize in igneous environments, but are also present in many metamorphic rocks.

The general formula, for the common feldspars, is XAl(1-2) Si(3-2) O8 . The X in the formula can be sodium, Na and/or potassium, K and/or calcium, Ca. When the cation in the X position has a positive one (+1) charge such as with sodium or potassium, then the formula contains one aluminum and three silicons ions. If the formula contains the positive two (+2) cation calcium, then the formula will contain two aluminums and only two silicon ions. This substitution keeps the formula balanced, because aluminum has a charge of positive three (+3) and silicon has a charge of positive four (+4). Basically, the more calcium in the crystal, the more aluminum that will be needed to balance the charge. The silicons and aluminums occupy the centers of interlinked tetrahedrons of SiO4 and AlO4. These tetrahedrons connect at each corner to other tetrahedrons forming an intricate, three dimensional, negatively charged framework. The cations that represent the X in the formula sit within the voids in this structure.The different feldspars are distinguished by structure and chemistry. The potassium or K-feldspars are polymorphs, meaning they have the same chemistry, KAlSi3 O8 , but different structures and therefore are different minerals. The plagioclase feldspars are a set of minerals that are in a series from a sodium rich end member, albite, to a potassium rich end member, anorthite. The intermediate members of the series are given arbitrary boundaries based on their percentage of sodium or calcium.

Often, feldspars are simply referred to as plagioclase and orthoclase (a K-feldspar) because identification to greater precision is difficult with ordinary methods. Once identified, however, some feldspar mineral varieties are found to have distinctive characteristics or originate from a classic locality and on these bases are recognized by mineral collectors as belonging to a specific feldspar mineral. - See more at: http://www.galleries.com/feldspar_group#sthash.JrEpNgET.dpuf

Production and uses

About 20 million tonnes of feldspar were produced in 2010, mostly by three countries: Italy (4.7 Mt), Turkey (4.5 Mt), and China (2 Mt).

Feldspar is a common raw material used in glassmaking, ceramics, and to some extent as a filler and extender in paint, plastics, and rubber. In glassmaking, alumina from feldspar improves product hardness, durability, and resistance to chemical corrosion. In ceramics, the alkalis in feldspar (calcium oxide, potassium oxide, and sodium oxide) act as a flux, lowering the melting temperature of a mixture. Fluxes melt at an early stage in the firing process, forming a glassy matrix that bonds the other components of the system together. In the US, about 66% of feldspar is consumed in glassmaking, including glass containers and glass fiber. Pottery (including electrical insulators, sanitaryware, tableware, and tile) and other uses, such as fillers, accounted for the remainder.
In earth sciences and archaeology, feldspars are used for K-Ar dating, argon-argon dating, thermoluminescence dating, and optical dating.

In October 2012, the Mars Curiosity rover analyzed a rock that turned out to have high feldspar content.

Feldspar is the abrasive component in Bon Ami household cleaner.

Plagioclase feldspar is the most abundant mineral group in the crust. It occurs chiefly in igneous and metamorphic rocks. Plagioclase may be abundant in sand and sedimentary rocks but it is not as common there as K-feldspar because its resistance to weathering processes is not as good.
$NaAlSi_3O_8$ (albite) — $CaAl_2Si_2O_8$ (anorthite)

Above is a classic association of amazonite with smoky quartz

Feldspar - READ more

http://en.wikipedia.org/wiki/Feldspar
http://www.gemstonebuzz.com/feldspar
http://www.sandatlas.org/minerals/
http://www.gemologyonline.com/feldspar.html

THEMED EVENING **(2) Pseudomorphs**

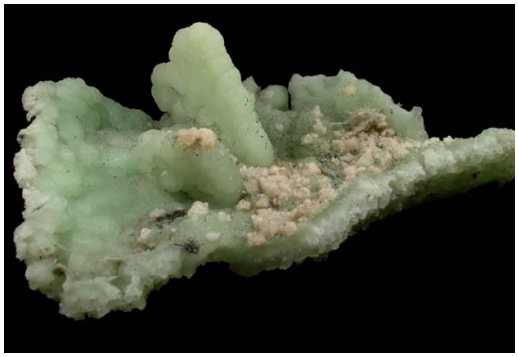
In mineralogy, a **pseudomorph** is a mineral or mineral compound that appears in an atypical form (crystal system), resulting from a substitution process in which the appearance and dimensions remain constant, but the original mineral is replaced by another.

The term pseudomorph comes from two Greek words. The words are *pseudes* which means false, and *morphe* which means shape or form (pseudomorph literally means "false form").

Pseudomorphs are minerals that have been chemically altered in some way and are new minerals which can have a new crystalline structure, but they still retain the shape of the original mineral. These changes occur when the mineral is reduced, oxidized, elements are added, or when elements are completely replaced. It is also possible for a mineral to pseudomorph into a new mineral and then turn back into the original mineral. There are many different pseudomorphic minerals in the world.

Terminology for pseudomorphs is "**replacer** *after* **original**", as in *brookite after rutile*

An **incrustation pseudomorph**, also called perimorph, results from a process by which a mineral is coated by another and the encased mineral dissolves. The encasing mineral remains intact, and retains the shape of the original mineral or material. Alternatively, another mineral may fill the space (the mold) previously occupied by some other mineral or material.



Prehnite pseudomorphs after Anhydrite with Gmelinite and Natrolite

Turquoise pseudomorph after Beryl from Apache Canyon Mines, West Camp, Turquoise Mountains near Baker, California, USA

For Interests sake

Pseudomorphs are also common in **paleontology**. Fossils are often formed by pseudomorphic replacement of the remains by mineral matter. Examples include petrified wood and pyritized gastropod shells.

In **biology**, a pseudomorph is a cloud of mucus-rich ink released by many species of cephalopod. The name refers to the similarity in appearance between the cephalopod that released it and the cloud itself, in this context meaning literally "false body." This behaviour often allows the cephalopod to escape from predation unharmed, and is often performed as part of what is known as the Blanch-Ink-Jet Maneuver.

In **philosophy**, the concept of pseudomorphose was used by the German philosopher Oswald Spengler to describe the fact that a more powerful civilization can acquire a form originally belonging to a less powerful civilization (O. Spengler, *The Decline of the West*, vol. 2, chapter III 'Problems of the Arabian culture', I 'Historic pseudomorphoses'.

Pseudomorphs - READ more

http://en.wikipedia.org/wiki/Pseudomorph
http://www.johnbetts-fineminerals.com/jhbnyc/pseudo.htm
http://academic.emporia.edu/abersusa/go336/holt/

GEOLOGICAL SOCIETY OF SOUTH AFRICA

For more information on the daily activities please follow this link
http://www.rca.co.za/conferences/kimberley/docs/KimberleyDiamondProgramme2014Final.pdf

Keynote address by Keith Scott on
"Global commodity demand cycles; implications for projects in Africa".

For more information contact RCA Conference Organisers on +27 11 487 2260/3819 or email robbie@rca.co.za

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MEMBERSHIP

Annual membership fees for 2014, from 1 March, are as follows:

- Family Member R250 per year
- Pensioner Member R200 per year
- Students R90 per year

Kindly pay your 2014 club fees and forward the proof of payment to jonohotz@gmail.com . This will enable you to continue to participate and enjoy the club's benefits.

Fees are payable to the Treasurer, Jono Hotz. The WGMC Banking Details are as follows:

Standard Bank	Cheque account
Account number:	200551744
Branch code:	006305

New members are welcome. To join kindly forward a completed club application form (available from witsgemclub@mweb.co.za) and proof of payment of annual fees to Jono Hotz at jonohotz@gmail.com.

University Access Card for members. These expire at the end of each year, thus to renew kindly contact Bruce Cairncross at the club meetings, who will arrange an access card for you on receipt of the following:

- 2 passport sized colour photographs
- R25.00 in cash
- a certified copy of your ID Document or passport

RAFFLE

The monthly raffle takes place on the last Wednesday of every month. Raffle tickets are on sale in the meeting room on the night at R10.00 a piece. Those selling minerals at the club, please donate a nice rock to the raffle. Contact Keith Bailey at the club meetings in this regard. We are requesting all mineral and gem dealers to please donate a specimen or two for the raffle. Keith would be happy to assist.

LIBRARY

Massimo Leone is at present updating the library and will give assistance to members wishing to borrow books. Should you have any books (old or new) on minerals, geology or lapidary that you wish to donate to the library, please contact Massimo at mass@thefacetingstudio.co.za or on 082 372 0328.

LINKED SOCIETIES

We exchange newsletters with the following societies. Should you be interested in reading any of them please contact witsgemclub@mweb.co.za and I will email them onto you. If you wish to join any of the clubs, or attend their lectures and outings, please contact the person listed below:

- FOSAGAM — Linda Stone — president@fosagams.co.za
- SAMS — Alison Rose — Alison@healthrad.co.za
- Nelspruit Gem & Mineral Club — Paul Vermaak — paul.vermaak@ellerines.co.za
- Pretoria Gem & Mineral Club — Lex Krabbendam — krabben@mweb.co.za
- Cape Town Gem & Mineral Club — Malcolm Jackson — jacksonhome@telkomsa.net

COMMITTEE MEMBERS

The Club has chosen the following members to serve on the committee, after they volunteered for the various positions. Committee members for the year commencing 1st March 2014 are as follows:

Chairman	Massimo Leone	082 372 0328	mass@thefacetingstudio.co.za
Vice Chairman	Kevin Hean	083 267 5342	rhombic@mweb.co.za
Mineral Section	Damian Kislig	072 203 1351	dwmkislig@gmail.com
Treasurer	Jono Hotz	082 4449628	jonohotz@gmail.com
Librarian	Massimo Leone	082 372 0328	mass@thefacetingstudio.co.za
Secretary	Althea Crundwell	082 338 9236	althea.crundwell@gmail.com
Communications	Claudette Denner	072 591 6202	witsgemclub@mweb.co.za

Other Club Contacts (non-committee members)

- Raffle Master — Keith Bailie — 082 928 9515
- Access cards — Bruce Cairncross — 082 599 2133

SOCIAL MEDIA

WGMC is on Facebook. Please join our group to receive the latest news on our meetings and speakers. https://www.facebook.com/Witwatersrand-Gem-and-Mineral-Club.

AT THE END

You made it this far. Thank you for taking the time to read through the WGMC newsletter. Remember that if you have something to add or share with your fellow members please feel free to email the details to witsgemclub@mweb.co.za . Keep on rocking. Ciao.

DISCLAIMER

Rock on!!!

Claudette Denner

Wits Gem & Mineral Club

Newsletter Editor