

FORSYTH GEM AND MINERAL CLUB, INC.

Nature's Treasures

July 20, 2017

Public Version



MEETING: The next meeting of the Forsyth Gem and Mineral Club will be held at **7:30 PM, July 20, 2017**, the third Thursday of the Month, at **Vulcan Materials Company's Training Center, 4401 N. Patterson Ave., Winston-Salem, NC.**



PROGRAM: The program for the meeting will be a talk by Wayne Steinmetz, a member of Southern Appalachian Mineral Society (SAMS) in Asheville. He will present on mineral identification, although the choice of topic was left open



Refreshments: Refreshments for the June meeting will be provided by **Beards and Sturiks**. The Club will provide cups and napkins and ice for the refreshments. Those volunteering to provide refreshments need only provide sufficient drinks and snacks, such as, cookies, cakes, crackers, or donuts, *and ice.*

2017 Refreshment List

January	Sandra & Stephanie Myers, Jim Jones	July	Beards, Sturiks
February	Brent Beck, Charles Whicker	August	Picnic
March	Bakers, Hughes	September	Show
April	McGilvarys, Brouhles	October	Caroline Jones, Daniel Bowles
May	Goodes, Pete Smith	November	Marions, Reeds
June	Gaskills, Schlottmans	December	Holiday/Show Dinner

If you enjoy the refreshments, please be prepared to take a turn in furnishing them. NOTE: if you volunteer to bring refreshments, please do so. If you are unable to attend for any reason, contact Vickie Gaskill or Jeanne Schlottman prior to the meeting so that alternate arrangements can be made.

Note: Due to equipment issues in the meeting area kitchen, it will be necessary for the refreshments providers to also bring ice for the drinks, at least for the next couple of months.



Dates To Remember:

September 8-10, 2017 – Annual Gem, Mineral, Jewelry, and Fossil Show



DON'T FORGET YOUR NAME TAGS



About the Program

Wayne Steinmetz earned an AB in chemistry from Oberlin College and an AM and PhD in chemistry from Harvard University. He is a physical chemist whose research focused on the molecular structure and spectroscopy of biologically active compounds. He taught for 37 years at Pomona College and is presently Professor Emeritus of Chemistry. At Pomona, he worked closely with members of its Geology Department. He was also a Boy Scout Leader and earned the Silver Beaver award. Since 1984 he has been a volunteer with the USFS and NPS with an emphasis on the maintenance and construction of hiking trails. He sings in 3 choirs. The focus of his mineral collection is obtaining examples of all 32 crystallographic point groups.



Upcoming Months - Meetings

A reminder that there will be no program meetings for August or September. The August meeting is replaced by the club picnic and the September meeting is replaced by the show.



Club Field Trips

There is no currently planned field trip for July. There may be some options discussed for a “last minute” trip at the July meeting, but there will not be time to get word out to all members.

Currently there are also no plans for club trips for August or September, due to the picnic and show.

The July business meeting will include discussion of options for October and later trips.

The July DMC field trip occurred before the month’s club meeting, and was included in the June newsletter. The August DMC trip will be described in next month’s issue.



Reviewing: Plagioclase

From Geology.com/minerals

A group of common rock-forming minerals. It is sometimes used as a gem material.

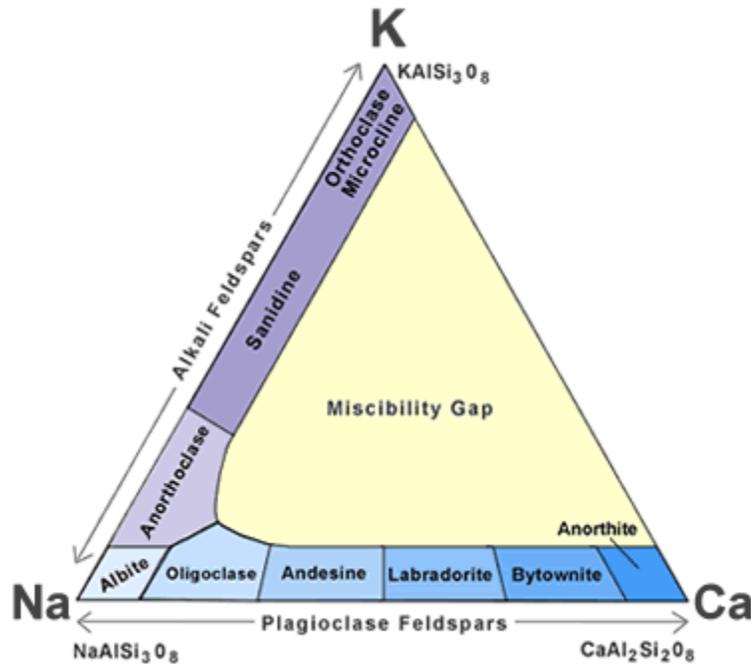
What is Plagioclase?

“Plagioclase” is the name of a group of feldspar minerals that form a solid solution series ranging from pure albite, $\text{Na}(\text{AlSi}_3\text{O}_8)$, to pure anorthite, $\text{Ca}(\text{Al}_2\text{Si}_2\text{O}_8)$. Minerals in this series are a homogenous mixture of albite and anorthite. The names of the minerals in the series are arbitrarily given based upon their relative abundance of albite and anorthite. The minerals of the plagioclase series are listed in the table below along with their relative abundance of albite (Ab) and anorthite (An).

Plagioclase Group Minerals

Mineral	% Albite	% Anorthite
Albite	100-90% Ab	0-10% An
Oligoclase	90-70% Ab	10-30% An
Andesine	70-50% Ab	30-50% An
Labradorite	50-30% Ab	50-70% An
Bytownite	30-10% Ab	70-90% An
Anorthite	10-0% Ab	90-100% An

The name “plagioclase” is frequently used instead of one of the more specific names in the table above. This is because the minerals of the plagioclase series are very similar and difficult to tell apart without laboratory testing. Thus the name “plagioclase” is commonly used in many field and classroom situations.



Feldspar classification: This diagram shows how feldspar minerals are classified on the basis of their chemical composition. The sequence of minerals along the base of the triangle represents the solid solution series of plagioclase between albite and anorthite.

Geologic Occurrence of Plagioclase

Members of the plagioclase group are the most common rock-forming minerals. They are important to dominant minerals in most igneous rocks of the Earth's crust. They are major constituents in a wide range of intrusive and extrusive igneous rocks including granite, diorite, gabbro, rhyolite, andesite, and basalt. Plagioclase minerals are important constituents of many metamorphic rocks, such as gneiss, where they can be inherited from an igneous protolith or formed during the regional metamorphism of sedimentary rocks.

Plagioclase is a common clast produced during the weathering of igneous and metamorphic rocks. It can be the most abundant clast in sediments located close to their source area and decreases in abundance downstream. This decrease is partly because quartz is more physically and chemically durable than feldspar and persists in greater relative quantities downstream in eroded sediments.

Physical Properties of Plagioclase Minerals

All feldspar minerals have two directions of perfect cleavage. It is usually easy to distinguish plagioclase feldspars because their two planes of cleavage intersect at 90-degree angles, and their cleavage faces often display striations. These properties make plagioclase feldspars relatively easy to identify with a hand lens in coarse-grained igneous and metamorphic rocks. Plagioclase in granitic rocks is normally white, pink, or red in color. In basaltic rocks it is normally gray to black.

Physical Properties of Plagioclase

Chemical Classification	Silicate
Color	Usually white or gray. Also colorless, yellow, orange, pink, red, brown, black, blue, green.
Streak	White
Luster	Vitreous. Pearly on some cleavage faces.
Diaphaneity	Translucent to transparent
Cleavage	Perfect in two directions that intersect at approximately 90 degrees.
Mohs Hardness	6 to 6.5
Specific Gravity	2.6 to 2.8

Diagnostic Properties	Perfect cleavage, with cleavage faces intersecting at right angles and striations often present on cleavage faces. Well-defined crystals are extremely rare.
Chemical Composition	$\text{NaAlSi}_3\text{O}_8$ - $\text{CaAl}_2\text{Si}_2\text{O}_8$
Crystal System	Triclinic
Uses	Plagioclase feldspars are important components of many building stones. Labradorite, spectrolite, sunstone, and moonstone are gem-quality plagioclase feldspars that are popular because of their optical phenomena. Transparent plagioclase of high clarity is sometimes faceted as a collector gem but lacks the durability needed for use in jewelry.

Uses of Plagioclase

Construction, Decorative and Architectural Stone

Plagioclase minerals are important constituents of some building stone and crushed stone such as granite and trap rock. These rocks are also cut and polished for use as countertops, stair treads, wall panels, building facing, monuments, and many other types of decorative and architectural stone.

Plagioclase as a Gemstone

Some rare specimens of plagioclase exhibit optical phenomena that make them highly desirable gem materials. Many people enjoy the adularescence of moonstone, the aventurescence of sunstone, and the labradorescence of labradorite.

Moonstone

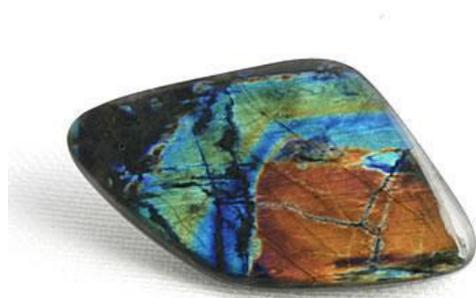
Moonstone is a name given to a gem material that consists of very thin, alternating layers of orthoclase (an alkali feldspar) and albite (a plagioclase feldspar). When light enters the stone, it interacts with these thin layers to produce a phenomenon known as "adularescence" (a white-to-bluish light that floats under the surface of the stone when it is turned under a source of light).

Sunstone

The name sunstone has traditionally been given to a transparent labradorite feldspar that contains plate-shaped copper inclusions which share a common alignment within the mineral. When cabochons or faceted stones cut from this material are moved under a source of incident light, bright flashes of reflected light are produced as the incident rays strike platelets being moved to the angle at which they reflect the incident rays. These flashes from reflective particles are known as "aventurescence." In Oregon, transparent gem-quality labradorite with a yellow, orange, red, blue, or green color is also called "sunstone" when it is mined from the same deposit as the aventurescent material.

Labradorite

Some specimens of labradorite exhibit a schiller effect, which is a strong play of iridescent blue, green, red, orange, and yellow colors when moved under a source of incident light. Labradorite is so well known for these spectacular displays of color that the phenomenon is known as "labradorescence." Pieces of labradorite with exceptional play-of-color are known as "spectrolite." These specimens sell for premium prices.



Spectrolite: Translucent labradorite with the best exhibit of spectral color is known in the gemstone trade as "spectrolite." This spectrolite free-form cabochon is about 38 millimeters across.

Collector Gems

Plagioclase minerals are rarely found in transparent crystals of exceptional clarity. Well-formed crystals are prized by mineral specimen collectors because of their beauty and rarity. They can sell for thousands of dollars. Transparent material of high quality is also cut into faceted gemstones which are often sold as “collector gems.” With a Mohs hardness of 6 and perfect cleavage, these stones are usually considered to be too fragile for use in jewelry.

Extraterrestrial Plagioclase

As with many minerals, plagioclase occurs in other parts of the solar system. Many of the rocks brought back to Earth from the Moon by Apollo 11 astronauts are lunar basalts rich in plagioclase. Basalt is one of the most common rock types present on the surface of the Moon, and much of that basalt is thought to contain plagioclase.

Large areas of Mars are covered with basalt flows and ejecta produced by asteroid impacts. Plagioclase has been identified in many of these basalts. Data from the thermal emission spectrometer onboard the Mars Global Surveyor suggests that plagioclase is the most abundant mineral in the crust of Mars.

Several meteorites have been found on Earth that are thought to be pieces of Mars. They are thought to be pieces of Martian bedrock, ejected beyond the influence of the planet's gravity by a large asteroid impact. Some of these meteorites contain abundant plagioclase.



Display Coordinator Needed

All things must change eventually. Dick Hartz has been the coordinator for the show display cases for many years, but has decided it is time to hang it up. Much thanks are due to Dick for his tireless work in this function.

As a result, the club will need a new coordinator for this year (and future years). Responsibility of the function consists primarily of just being the contact for club members who wish to put in display cases, making certain that there are sufficient cases reserved for member displays.

A secondary function is contact vendors on setup day to fill the remaining cases. (It is in their contract to be ready to supply such.)

Note that this does not include the cases that will be in the popular case voting contests. Coordination of those cases is handled by the show committee.



Meeting Minutes

The June FGMC meeting was called to order at 7:30 PM on June 15 by club president Jeanne Schlottman. There were 26 members and guests present.

Refreshments were provided by the Gaskills and Schlottmans.

The program was a presentation by Arthur Merschat of the US Geological survey on the Mt. Rogers area.

Door prizes were won by Joan Fulcher, who chose a calcite sample from Chihuahua, Mexico, and Charles Whicker, who chose a rainbow moonstone slab.

Arvil confirmed that the prizes for the display case popularity contest would again be \$50 gift certificates to Stones and Bones.

Arvil also noted that we will be putting together at least 750 grab bags at the picnic this year, and possibly more. It was also noted that it would greatly help to have a good bit of variety, so that not all of the bags are identical as to contents.

A discussion was held regarding doing some kind of fund-raiser at future shows to start building an FGMC scholarship fund, in lieu of contributing to the regional funds.

Respectfully Submitted,



Nature's Treasures

Nature's Treasures is the monthly newsletter of the Forsyth Gem and Mineral Club.

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