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MARCH 2014

GNEISS TIMES

Wickenburg Gem & Mineral Society, Inc.
P.O. Box 20375, Wickenburg, Arizona, 85358
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www.wickenburggms.org

The purpose of this organization shall be to educate and to provide fellowship for people interested in rocks and minerals; to foster love and appreciation of minerals, rocks, gems, and the Earth. Membership shall be open to all interested people.

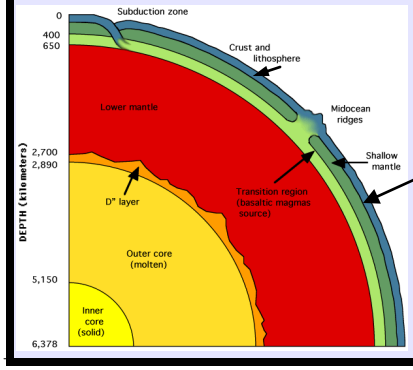
Since the field trip to Peridot Mesa and the program at February's meeting focused on basaltic magma and associated Olivine, I will highlight Olivine this month.

OLIVINE

Composition - $Mg^{+2}SiO_4$ - $Fe^{+2}{}_2SiO4$
System - *Orthorhombic*
Color - *Olive green, yellowish green (also greenish black and reddish brown)*
Luster - *Vitreous to pearly*
Streak - *White*
Hardness - *6,5-7*
Density - *3.3-3.4*
Fracture/Cleavage - *Conchoidal fracture, indistinct cleavage*

Olivine (which get its name from its green color) is actually not a single mineral species, but a series of minerals, whose end members are Forsterite (Magnesium-rich) and Fayalite (Iron-rich). It is a common mineral in mafic (magnesium and iron-rich) and ultra-mafic (ultra magnesium and iron-rich like dunite and peridotite) igneous rocks. However, it also occurs in metamorphic rocks (examples: marble and skarn) formed where igneous bodies come in contact with limestone or dolomite; and it occurs in stony and pallasite meteorites.

It is believed that Earth's uppermost Mantle (just below the Moho) is composed of peridotite (olivine and pyroxene) and garnetiferous peridotite (olivine, pyroxene and garnet). (See Figure below) The latter rock is often distinctly red (from garnet) and green (from olivine) and is sometimes referred to as *Christmas tree rock.*



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WELCOME NEW MEMBERS !!

WICKENBURG
Brett Harrison

STANTON
Jack Baskin
Shirley Clark
Aleta Kay Eddings
Jerry Hewitt

Olivine crystal etched out of marble, from Pakistan
Image by Stan Celestian

INSIDE THIS ISSUE

Meeting Minutes — February 7, 2014

The meeting was called to order at 7 pm by Vice President, Marty Hagan. Three guests were introduced. Forty two members attended the meeting.

Secretary, Sue Jones was absent. A motion was made, seconded and passed to approve the January 10, 2014 minutes as presented in the January newsletter.

Debbie Keiser, Treasurer, presented the treasurer's report. A motion was made, seconded and passed to approve the report.

FIELD TRIPS

Dragon Mine: Stan Celestian recapped the January 12 field trip to Dragon Mine.

Stanton Gold Claim: Members will meet at the flagpole in Stanton at 10 am on Sunday, January 9. There will be a historic tour of Stanton, followed by a visit to the Club's gold claim, where prospecting equipment will be demonstrated. A barbecue will be held back in Stanton. Hamburgers and hotdogs will be provided by the Stanton Club. Participants are asked to bring a side dish, and their own drinks.

In search of desert roses and Apache tears: Bob Bartlett will lead this field trip. It is scheduled for Tuesday, February 11. Members will meet at 10 am at Blaine's Corner.

Debbie Keiser mentioned that the Apache Junction Rock and Gem Club would be holding their show on February 22-23, in Mesa. She also reported that she and Dale would be conducting basic geology classes for the Eagle Scouts on February 8th and at the Hassayampa River Preserve on Wednesday, February 19th at 9 am.

A motion was made, seconded, and passed to donate $150 to the Wickenburg High school's graduating class for their graduation night event.

Show and Tell followed with members presenting unique and interesting finds. Al Roe won the Show and Tell drawing.

The evening's door prize winners were Rick Jones, Karen Coulter, Angie Hoffman, Judy Fisher, Nadine Schlaeppi, and one of our guests.

The meeting ended with a fascinating presentation "Hawaii Mafic Volcanoes," created and presented by Stan Celestian.

Respectively submitted:
Efrosine Richards for Susan Jones, Secretary

FREE GEM TREE CLASS

WHERE: Coffinger Park banquet room (regular meeting room)
WHEN: March 14 4:30-6:30

Before the club meeting on March 14th, club member Dave Perry will continue the free class on Gem Tree Making. During the first class, the trees were constructed; and during the second class, the polished stones will be glued onto the branches, the trees will be glued to their bases, second trees may be started, and other styles will be introduced.

TO BRING: wire **cutter**, smooth round **pliers** (needle nose best, but any smooth plier may be useful), a sheet of **waxed paper** for gluing, a cool **rock** for the tree base (3-4 inches long, 2-3 inches wide), small stones, if you want something other than those provided.

If you were unable to make it to the February session, there is a limited amount of supplies that may be available, if you'd like to start a tree in March. **Contact Debbie Keiser (928-684-1013), if you are interested.**

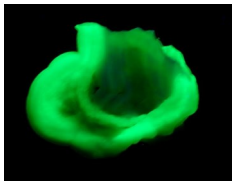
This is my (Susan Celestian) completed tree. The leaves are carnelian and the base is drusy quartz from near Bagdad, Arizona.

MORE PICTURES OF THE CLASS ON PAGE 4

FROM THE PRESIDENT

The field trip [Tuesday, February 11] had 13 vehicles and 32 people. We went down Aguila Road for a few miles. Everyone found a few specimens [Apache Tears]. We left there and went to a different area in search of Desert Roses and Geodes. Part of the group decided to go to Aguila for their flea market/vegetable market. The ones who stayed found Geodes and Desert Roses. I believe that everyone found something that they thought was a cool item.

Chalcedony Desert Roses are the Southwest's iconic desert forms of Quartz. Accessory uranium will fluoresce bright green.



One of the glimpses we get into the composition of the mantle is through xenoliths[1] of peridotite in basalt, such as those found on Peridot Mesa on the San Carlos Reservation in Arizona (see pictures under Field Trip to Peridot Mesa). Similar rocks are found in southeast Arizona in the San Bernadino Volcanic Field, and in many other sites around the United States and the world.

Olivine forms at high temperatures and pressures, so it out of equilibrium at Earth's surface. As a result, it is susceptible to chemical attack and tends to weather away fairly quickly in humid environments. But where there is a ready source (such as a nearby olivine-rich basalt) to replenish the supply, olivine may be a major constituent of sand, such as the sample below from Diamond Head Beach, Oahu, Hawaii:

USES OF OLIVINE

- Gemstone: Chrysolite and Peridot (birthstone of August)
- Refractory brick and casting sand
- Plug in blast furnaces
- Slag conditioner in blast furnaces — removes impurities from steel and forms slag
- Sequestration of CO_2 (crushed olivine will weather very quickly, with that process removing CO_2 from the atmosphere. All the CO_2 produced by burning 1 liter of oil can be sequestered by less than 1 liter of olivine (Wikipedia)
- Sauna stoves (Finland)
- Blasting abrasive & water jet cutting material
- Fertilizer/soil conditioner
- Roofing tiles (Italy)
- Ballast in oil platforms (North Sea)
- Anti-skid surface (walkways, paths, roadways)

Image from skywalk-

[1] A xenolith is a rock fragment (of a rock other than the rock in which it is enclosed) within an igneous rock. It is a 'sample' of the rock through which the igneous rock moved as it rose within the Earth's crust.

UPCOMING WGMS FIELD TRIPS

SATURDAY, MARCH 15

WHERE: Scott Mine (20 minutes from south end of Vulture Rd)

MEET AT Blaine's Corner (where paved south end of Vulture Rd tees into dirt east/west Aguila Road)

WHEN: Depart Blaine's Corner at 5:30pm
WHY: To collect fluorescent minerals
WHAT: Bring a UV light, if you have one; flashlight; hammer; collecting bags/buckets.

High clearance vehicles required; though 4WD not necessary. The drive from Blaine's Corner is about 1/2 hour, and it will be a typical desert run across washes and medium rocks up medium hills. There will be a full moon, so it won't be pitch black; but be prepared to walk over uneven ground in the dark. The collecting area is about 20 x 50 yards.

LEADERS: Craig Jones & Dale Keiser

FRIDAY, MARCH 14

WHERE: Coffinger Park banquet room, Wickenburg (regular meeting room)
WHEN: 4:30 pm
WHY: Gem Tree Making, Part 2
LEADER: Dave Perry

There has been interest expressed for an additional PERIDOT MESA TRIP. If there is enough further interest, Stan will talk to the mine owner about another in the Fall. Give Stan your name and number and/or email!

WHERE: Peridot Mesa, Apache Indian Reservation
WHY: To collect peridot (facetable & specimens)
WHAT: There will be fee involved: $10 for access to the reservation; $30 fee to mine owner, includes collecting material (at discretion of mine owner); additional specimens for sale

GEM TREE MAKING CLASS TAUGHT BY DAVE PERRY

The club bought the supplies, which Dave used to make 'kits' — pre-cut wire and polished stones for tree leaves. Then it was just a matter of everybody choosing the choicest kit. On the table, see the kits and some rocks for tree bases.

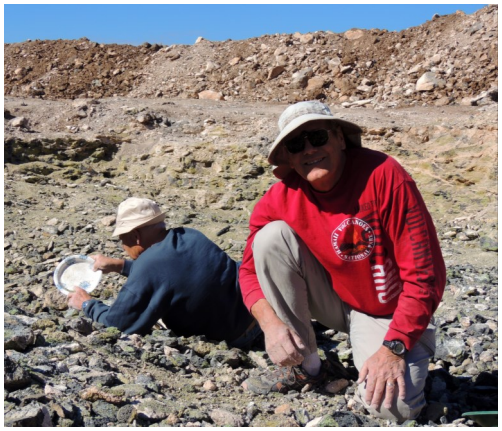
Dave Perry — *Gem Tree Maker Extraordinaire* — guiding his attentive pupils.

TONS OF FUN

FIELD TRIP TO PERIDOT MESA, JANUARY 25, 2014
Plodding, Prodding & Probing Piles o' Peridot for Pleasure

George Shargas's FIND OF THE DAY

Dale Keiser hanging his video camera out into the caravan's dust cloud for that perfect 'taste-of-the-field" shot..



FIELD TRIP TO CLUB GOLD CLAIM—STANTON, FEBRUARY 9, 2014

Painted by residents since 1928, Frog Rock lets you know you are close to the club claim.

Stanton Opera House, in which we all had lunch.

Bullet holes on the back side of the Opera House. Those old adobe walls have witnessed some wild times!

The club claim is easily accessible, where the road north out of Stanton crosses a creek — on the flank of aptly-named Rich Hill.

10:00AM you were all at the flagpole. After the "tourist speech" by Bill Coulter, we were off to the Nichol Marie claim. Some of the Stanton Branch members were already setup with different types of gold recovery equipment to show how this equipment works. Almost all of them got some gold.

12:00PM the kitchen crew went into action. The hamburgers and hot dogs started to cook. However about an hour or so before that, Kay was very busy in the kitchen making homemade cinnamon rolls for everyone to enjoy. [Editor's note: And they were DELICIOUS!]

About 12:30 we were ready for lunch and as usual there was more food than we could eat but we tried. We had salads, I don't even know how many, and baked beans and for dessert of course there were Kay's cinnamon rolls and lots of cookies.

We want to personally thank all of the Stanton members for all the hard work they put in to make this a big success.

Thank you all for coming. Bill & Karen Coulter

FIELD TRIP TO CLUB GOLD CLAIM—STANTON, FEBRUARY 9, 2014

Dry washer demonstration

After moving the big rock above, Stan Celestian found this little (and I do mean little ☺) golden beauty nestled in the sand.

*Pin head for scale

A beautiful nugget off of Rich Hill

ABOVE: Stanton` club members serving up hamburgers and hot dogs.

TO LEFT: Petroglyphs from near the claim.

Chowing down in the Opera House.
It was a great potluck!

A detour a couple of miles to the north on Date Creek Road, toward Hillside, one can see Skull Rock. The story goes around 1900, railroad workers painted the grinning ghoul to scare train passengers.

Officers and Chairpersons

President: Craig Jones ……..……...208-523-9355
Vice President: Martin Hagan ..…... 602-469-7770
Secretary: Sue Jones ……..…….. 208-523-9355
Treasurer: Debra Keiser …….. 928-684-1013
Program Director: Dale Keiser …… 928-684-1013
Publicity: currently open position
Membership: Roma Hagan …….. 602-469-7662
Editor: Susan Celestian …….. 602-361-0739
Field Trip: Dale Keiser & Stan Celestian
Show Chair: Beth Myerson ……..... 480-540-2318
Scholarship Chair: Steve Hill ……. 928-533-3825
Historian: Jeanine Brown ……..…… 928-684-0489

Meetings are held the **2nd Friday most months** at **Coffinger Park banquet room.** Potluck dessert at 6:30 pm. Business meeting at 7:00 pm. **Exceptions: February and December** meetings are held on the **first Friday of the month.** We don't meet in the summer — **no meetings in June, July or August**.

Membership Dues: $15.00 Adults per Person
$ 5.00 Juniors and Students

Meeting Dates for 2013/14

Wickenburg: Dec 6, Jan 10, Feb 7, Mar 14, Apr 11, May 9
Wickenburg field trips are usually the Sunday after the meeting.

Stanton meets 1st and 3rd Tuesday, Field Trips are 2nd & 4th Tuesday of the month.

NOTES FROM THE EDITOR

Have a geological interest? Been somewhere interesting? Collected some great material? Write a short story (pictures would be great). I take topic suggestions too. Deadline for the newsletter is the 20th of the month

Mail or Email submissions to:
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6415 N 183rd Av
Waddell, AZ 85355
azrocklady@gmail.com

Wickenburg Gem and Mineral Society is a member of the following:

AFMS | Rocky Mountain Federation of Mineralogical Societies | S.C.R.I.B.E. | Wickenburg Chamber of Commerce

UPCOMING AZ MINERAL SHOWS

March 15-16 - Cottonwood, AZ

CKM Productions, LLC Show and Sale; Mingus High School; 1801 E Fir Street; Sat 9-5, Sun 9-4; Admission $3, children under 12 free

April 4-6 - Phoenix, AZ

Minerals of Arizona Symposium; Clarion Hotel at the Phoenix Tech Center; northwest corner of Elliot Rd & I-10. Symposium registration fee is $40; but the Mineral Sale is FREE — there will be dealers in several of the hotel rooms: Friday 5-10, Sat 4:30-6 and after dinner. More information at: http://flaggmineralfoundation.org/home/minerals-of-az-symposium/

April 12-13 - Anthem, AZ

Daisy Mountain Rock & Mineral Club; Anthem School; 41020 N Freedom Way; Sat 10-5, Sun 10-4; Admission $3, seniors & students $2, children free

May 24-25 - Pinetop, AZ

White Mountain Gem & Mineral Club; Hon-Dah Resort-Casino Convention Center; 777 Hwy 260 (Jct of state routes 73 & 260); Sat 9-6, Sun 10-4 ***This information based on last year's event listing; I haven't seen a more recent one

June 6-8 - Flagstaff, AZ

Coconino Lapidary Club; Silver Saddle Outdoor Market; Corner of Route 89N and Silver Saddle Road; Daily 9-4; Free admission

If you are travelling, a good source for out-of-state (or in-state) gem and mineral shows AND clubs is http://www.the-vug.com/vug/vugshows.html
For out-of-the-country shows:
http://www.mindat.org/eventlist.php

A good source for a list of Arizona Mineral Clubs and contact information is http://whitemountain-azrockclub.org/Public_AZ_Clubs_Links.html

Thanks to Diane Cameron, who has volunteered to continue to post on the club's Facebook page! Check it out.

What is in..... Your Car or Pickup Truck

The Average Automobile contains:
- Over a ton of iron and steel
- 240 pounds of aluminum
- 50 pounds of carbon
- 42 pounds of copper
- 41 pounds of silicon
- 22 pounds of zinc

Source: USGS

BODY - Steel: Iron (ore minerals - hematite, magnetite, Goethite); Manganese (ore minerals - pyrolusite, hausmannite, manganite); Silicon; Carbon (ore mineral—quartz) OR
- Aluminum (Ore mineral - bauxite) OR
- Fiberglass (quartz)

It takes 2813 pounds of coal to supply the energy to process the ores and assemble an automobile

Source: mnh.si.edu

BATTERY: Lead (ore minerals - galena, cerussite, anglesite; Antimony as hardener (ore mineral - stibnite); Plastic

GLASS: Silica (ore mineral - quartz & Plastic (petroleum)

EXHAUST SYSTEM: Steel/stainless steel (Iron, Manganese, Nickel: ore mineral - pentlandite, Chromium: ore mineral - chromite), Aluminum, Titanium: ore minerals - rutile, ilmenite, or carbon fiber; Platinum (ore mineral - native platinum, arsenides

HEADLIGHTS: Glass or Polycarbonate plastic (petroleum), Quartz-halogen or Tungsten bulb (glass, ore mineral - scheelite)

CHROME BUMPER: Chromium (ore mineral - chromite); Steel

STEEL BELTED TIRES: Steel, Brass (zinc and copper: ore minerals - sphalerite and azurite/chalcopyrite/others), Carbon black (petroleum), Cobalt increases likelihood that rubber clings to steel belts (ore mineral - cobaltite)
BALANCE WEIGHTS: Lead (ore mineral-galena, anglesite, cerussite)

SPARK PLUGS: INSULATOR: Corundum, Quartz; ELECTRODE: Platinum (and or yttrium, iridium, tungsten, palladium, silver, or gold); METAL: copper, nickel-iron

WHEELS: Steel; Magnesium (ore minerals - magnesite, dolomite); Plastic (petroleum)

RADIATOR: Copper-Brass (Copper, Zinc) &/or Aluminum

BRAKES: Iron, Asbestos (ore mineral - chrysotile) Gold (electrical contacts)

LUBRICANTS: (Petroleum, Graphite, Molybdenum)

KEYS: Steel, Brass/ nickel/lead, Nickel-silver (copper, nickel, zinc)

SEAT BELT: Seat belt weight pendulum (lead)

Nearly 40 additional mineral products are used in the manufacture of an automobile, including:
- 1-2 pounds sulfur
- 1-3 pounds vanadium
- 1 pound antimony
- 4 pounds asbestos
- Less than 0.1 troy oz of gold
- Less than 0.1 troy oz of platinum
- Less than 1 pound of: barium, cadmium, cobalt, gallium, graphite, halie, silver, strontium, tin, titanium, tungsten, wollastonite, zirconium

Source: mnh.si.edu

WIRING: Copper and Aluminum
INSULATION: Petroleum-based compounds, Silica

And what about all those ROADS? Each mile of roadway takes:
- 400,000 tons sand and gravel
- 170,000 tons concrete (which uses Limestone, Shale, Sand and Iron ore)