



Wickenburg Gem & Mineral Society, Inc.

P.O. Box 20375, Wickenburg, Arizona, 85358

E-Mail — wgmsociety@gmail.com

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.

WHAT ARE SEDIMENTARY ROCKS??

Sedimentary rocks form at the Earth's surface. They are created by the *weathering* (breakdown) of pre-existing rocks (into fragments and ions-in-solution), *erosion* (transportation), *deposition* (or precipitation) by gravity, wind, or water, and *lithification* (hardening). The environments in which they form will be reflected in the characteristics of the rock — color, grain size, grain shape, mix of grain sizes, mineralogy assortment, sedimentary structures, and included fossils. It is from sedimentary rocks that geologists draw the clues needed to reconstruct the surface environments of Earth's past. Who lived here? Where were the oceans, and sandy beaches? Where did streams flow? Where did glaciers shape the topography?

There are two types of sedimentary rocks:

Clastic (aka Fragmental or Detrital) - composed of pieces of previously-existing rocks (sediment)

Non-clastic (aka Chemical) - composed of crystals or organic debris

See Figure 1 (page 2) & Sedimentary Rock Chart (page 3)

Clues present in Clastic Sedimentary Rocks

GRAIN SIZE: The longer a rock fragment is transported, the smaller it becomes. So a rock with large fragments has undergone very little transportation, and can be considered as having been deposited close to the source. On the other hand, rocks composed of small fragments have undergone extensive transportation — often as a result of multiple trips through the rock cycle. See Figure 2. *Sed Rox continued on page 2.....*

**DUES
ARE PAST DUE!
SEE PAGE 5 FOR DETAILS**

**2016 ANTHEM
GEM &
MINERAL
SHOW**

**SATURDAY, MARCH 12TH 9AM-5PM
SUNDAY, MARCH 13TH 9AM-4PM
BOULDER CREEK HIGH SCHOOL
40404 N. GAVILAN PEAK PKWY
ANTHEM, AZ 85086**

\$3 ADULTS \$2 STUDENTS & SENIORS KIDS UNDER 12 FREE

\$1 OFF COUPON

DAISY MOUNTAIN ROCK AND MINERAL CLUB
Find us on WEBSITE WWW.DMRMC.COM

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Meeting Minutes — January 8, 2016

The meeting was called to order by Dave at 7:00 PM, the pledge of allegiance was recited, and a short prayer offered. The minutes of the December meeting were not read, due to no copy was available at the meeting. The financial report was read by Debbie Keiser and approved. Yearly budget was done, it is the same budget as last year. Six new members and guests were introduced.

There was no old business.

New business discussed. The meeting in February will be held on the first Friday of February, February 5, 2016, due to the Gold Rush Days being held in Wickenburg on the second Friday of February. It was discussed to purchase a new flag to have on hand when no other was available during meetings. This was approved by members.

A field trip for Wednesday, January 13, 2016 was discussed. Will meet at Alco parking lot at 10:00 AM, and will go to the Vulture Peak Rd.

Show and tell was done by five members. Al Poe won the show and tell drawing.

Dale Keiser had a virtual field trip about the Vulture Peak Rd. location.

Door prizes were won by Debbie, Alison, Sharlene, and Mel.

Meeting ended at 8:05 PM.

Respectfully submitted,
Judy Zimmerlee

<http://www.wickenburggms.org/>

If you ever have photos from a club field trip, send a couple to Dale, for posting on the website.

.....Sed Rox continued from page 1

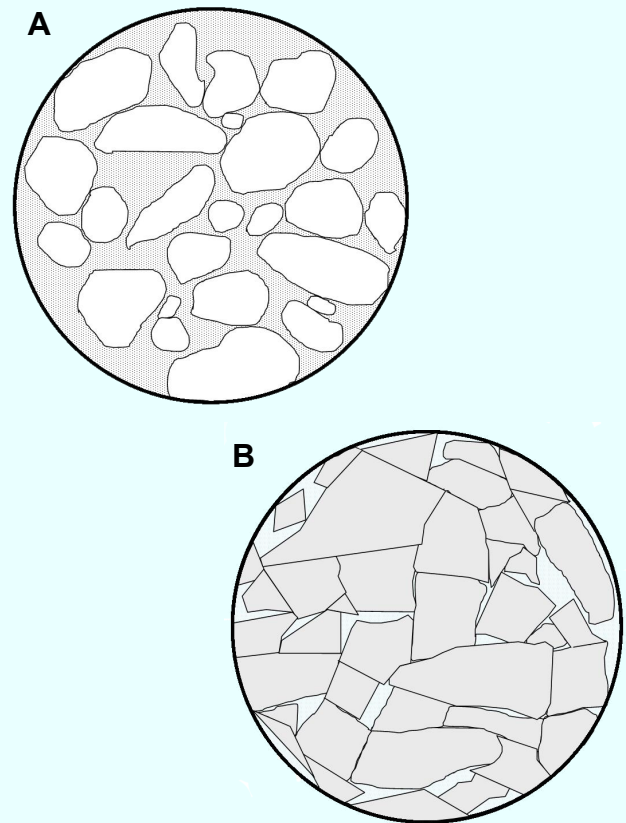


FIGURE 2 Microscopic View of Typical Clastic and Non-clastic Rocks "A" above is a clastic rock. The larger rock fragments lie next to each other, surrounded by finer particles. In contrast, "B" is a non-clastic rock. In this case, crystals of calcite have grown, so that they interlock with adjacent crystals. *Illustration by Susan Celestian*

NOTES FROM THE EDITOR

Have a geological interest? Been somewhere interesting? Have pictures from a club trip? Collected some great material? Write a short story (pictures would be great). I'd like topic suggestions also.

Deadline for the newsletter is the end of the month.

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

.....Sed Rox continued from page 2

CLASTIC SEDIMENTARY ROCKS

Coarse-grained (pebbles, cobbles, boulders)	Medium-grained (sand)	Fine-grained (silt, clay)
<p>BRECCIA - large, angular fragments, with fine matrix</p> <p>CONGLOMERATE - large, rounded fragments, with fine matrix</p>	<p>QUARTZ SANDSTONE - mostly quartz sand; looks sandy; may shed loose grains of sand</p> <p>ARKOSE - assorted sizes, with visible feldspar; often reddish</p> <p>GRAYWACKE - assorted sizes, with mica and rock fragments; dark gray or greenish-gray</p>	<p>SHALE - composed of clays, which lead to fine layers; dull luster; soft</p> <p>SILTSTONE - composed of fine particles of quartz and feldspar; massive; gritty feel</p>

NON-CLASTIC SEDIMENTARY ROCKS

LIMESTONE - composed of precipitated crystals of calcite; will fizz in acid

- * **Crystalline Limestone** - fine to sugary calcite crystals, without fossils
- * **Fossiliferous Limestone** - fine calcite crystals, usually marine fossils
- * **Oolitic Limestone** - composed of small spheres of calcite
- * **Coquina** - composed of nearly only shells and shell fragments
- * **Chalk** - composed of the microscopic calcite shells of planktonic animals (coccoliths, foraminifera)
- * **Travertine** - coarsely crystalline calcite (very sugary), often banded in various colors (browns, reds, blacks)

DOLOSTONE - similar to limestone, but composed of dolomite; will fizz weakly after powdered; generally devoid of fossils

CHERT - microcrystalline quartz; conchoidal fracture; waxy luster; any color

- * varieties include flint, chert, jasper, chalcedony, agate, opal (although chalcedony, agate, opal do differ a bit from flint, chert, jasper)

ROCK SALT - composed of halite; cubic cleavage; salty taste

GYPSUM - composed of gypsum; easily scratched by fingernail

- * varieties include: alabaster (massive, sugary); selenite (generally clear); satin spar (fibrous)

DIATOMITE (aka diatomaceous earth) - composed of the microscopic silica shells of diatoms; similar to chalk, but will scratch glass will not fizz in acid, and is less dense.

COAL - composed of the carbonized remains of plant debris; brown-black; low density

- * varieties include: peat (loose visible plant debris), lignite (brown, with some visible plant remains), bituminous ("soft coal", black)

.....Sed Rox continued from page 3

GRAIN SHAPE: This is defined as a grains **roundness**. The longer a rock fragment is transported, the rounder it becomes. See Figure 2.

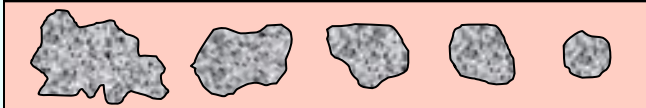
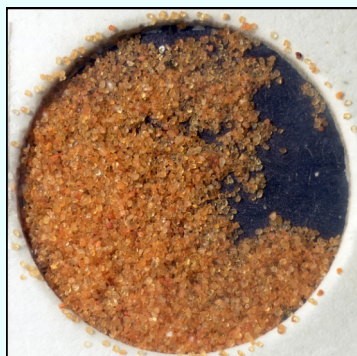


FIGURE 2 Rounding of Rock Fragments As the length of transportation increases, rock fragments become smaller and rounder (even more spherical). The rock fragment on the left is newly created, so is large and very angular. The fragment on the far right is small and very round/spherical. The latter has probably been re-cycled multiple times within the Rock Cycle. *Graphic by Susan Celestian*

MIX OF GRAIN SIZES This is called **sorting**. A poorly sorted sediment has a wide range of sizes; while a well sorted sediment will be composed of uniformly-sized particles. Sorting is accomplished as the transporting medium(s) winnow out fine particles, and leave the larger particles behind. See Figure 3.



FIGURE 3 SORTING of SEDIMENTS The top image is of sediment from the San Pedro River. It is poorly sorted, with very small to fairly large particles. Poorly sorted sediments are generally considered to originate fairly close to the source,



The bottom image is of a sediment from Coral Pink Sand Dunes. It is very well sorted, with very uniformly-sized particles. Well sorted sediments have travelled long distances. (Dune sands are extremely well sorted because wind is a very selective transporting medium.

Photos by Stan Celestian

MINERALOGY ASSORTMENT The longer a sediment is transported, the “cleaner” it becomes.

Some minerals (such as mica, feldspars, and ferromagnesian) are readily broken down in the weathering environment; while quartz is highly resistant and persistent. So, as time passes, the vulnerable minerals will weather away, leaving behind an increasing percentage of quartz.

The grain shape, sorting, and mineralogy assortment characteristics of any given sediment contribute to the definition of a sediment’s **maturity**.

Referring back to Figure 2, the San Pedro River sediment is **immature** — angular grains, wide range of sizes, and abundant feldspar and rock fragments; while the Coral Pink sediment is **mature** — small, rounded, uniformly-sized quartz grains.

COLOR There is a general correlation between the oxygen levels of the environment of deposition, and the color of a rock.

The source of the color is also frequently due to the presence of small amounts of iron. Sedimentary rocks that form in well-oxygenated environments (in particular, terrestrial environments such as alluvial fans, deltas, and floodplains), are often red, brown, purple, or orange. This is due to the iron being oxidized to hematite. On the other hand, oxygen-deficient environments cause the iron to be reduced, or to combine with sulfur (forming pyrite), to produce black, gray, or green colors. These conditions exist in environments such as lagoons, deep lakes, estuaries, offshore marine.

Black color may also be the result of the presence of organic carbon, such as in swampy or marshy environments, where organic debris accumulates at a rate that exceeds the capacity of the environment to facilitate its decay/oxidation.

SEDIMENTARY STRUCTURES These I will discuss in a future newsletter.

UPCOMING AZ MINERAL SHOWS

January 8 - February 28 - Quartzsite, AZ Desert Gardens Rock, Gem and Mineral Show; Desert Gardens Show Grounds, Admission/Parking: free. <http://www.xpopress.com/quartzsite-shows-swapmeets-schedule.html>

January 29 - February 14 - Tucson, AZ Tucson Gem & Mineral Showcase; 43 different gem, mineral, fossil, bead & jewelry shows - nearly 4000 vendors. <http://www.xpopress.com/tucson-gem-mineral-fossil-jewelry-shows-schedule.html>

January 29 - February 14 - Marana, AZ Miner's Cooperative, Mark Jacobs Sports Park, 6901 N Casa Grande Highway; Daily 8:30-5; Admission: free. <http://tucsonrockgemmineralshow.com/>

February 11-14 - Tucson, AZ Tucson Gem & Mineral Show, Tucson Convention Center, 260 S Church Ave; Thur-Sat 10-6, Sun 10-5; Admission fee.

February 20-21 - Apache Junction, AZ 50th Annual Jewelry, Gem and Rock Show, Skyline HS Gym, 845 Crimson Rd; Sat 9-5, Sun 10-4; Admission adults \$3, students \$1, children free.

March 12-13 - Anthem, AZ Daisy Mt. Club Show and Sale, Boulder Creek HS, 40404 N. Galvin Peak Parkway; Sat 9-5, Sun 9-4; Admission adults/seniors \$2, children free. **See \$1 off coupon on page one of the newsletter.**

March 19-20 - Cottonwood, AZ CKM Productions, LLC, Mingus Union High School; 1801 East Fir Street ; Sat. 10-5, Sun. 10-4; Admission \$3, Children under 12 free admission.

May 21-22 - Show Low, AZ White Mountain Gem & Mineral Club, Elks Club; 805 E. Whipple; Sat. 12-7, Sun. 12-5; Adults \$2, Seniors 70+ free, Children 18 & under free.

June 3-5 - Flagstaff, AZ Coconino Lapidary Club, Outdoor Market at Silver Saddle; Highway 89N & Silver Saddle Rd.; Fri. 9-7, Sat. 9-7, Sun. 9-4; Admission: free.

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> or <http://www.rockngem.com/ShowDatesFiles/ShowDatesDisplayAll.php?ShowState=AZ> 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

UPCOMING WGMS FIELD TRIPS

DATES SUBJECT TO CHANGE

CONSIDER VOLUNTEERING TO PLAN OR HELP PLAN TRIPS. YOU WOULD NOT NEED TO LEAD EVERY TRIP, BUT KEEP THINGS ON TRACK.

If you all have some place that you would like to go, let Bob Bartlett **623-388-0749**, Marty Hagan **602-469-7770**, or Craig Jones **208-681-4770** know.

We have some dates to fill in.

This is your club. Let's go out and have some fun.

Check the website for field trip announcements, especially if you don't have email!

Officers and Chairpersons

- President:** Craig Jones208-523-9355
- Vice President:** Martin Hagan 602-469-7770
- Secretary:** Judy Zimmerman
- 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:** Craig Jones, Bob Bartlett, Marty Hagan
- 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 do not 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 2016/2017

Wickenburg: Jan 8, Feb 5, Mar 11, Apr 8, May 13, Sept 9, Oct 14, Nov 11, Dec 9

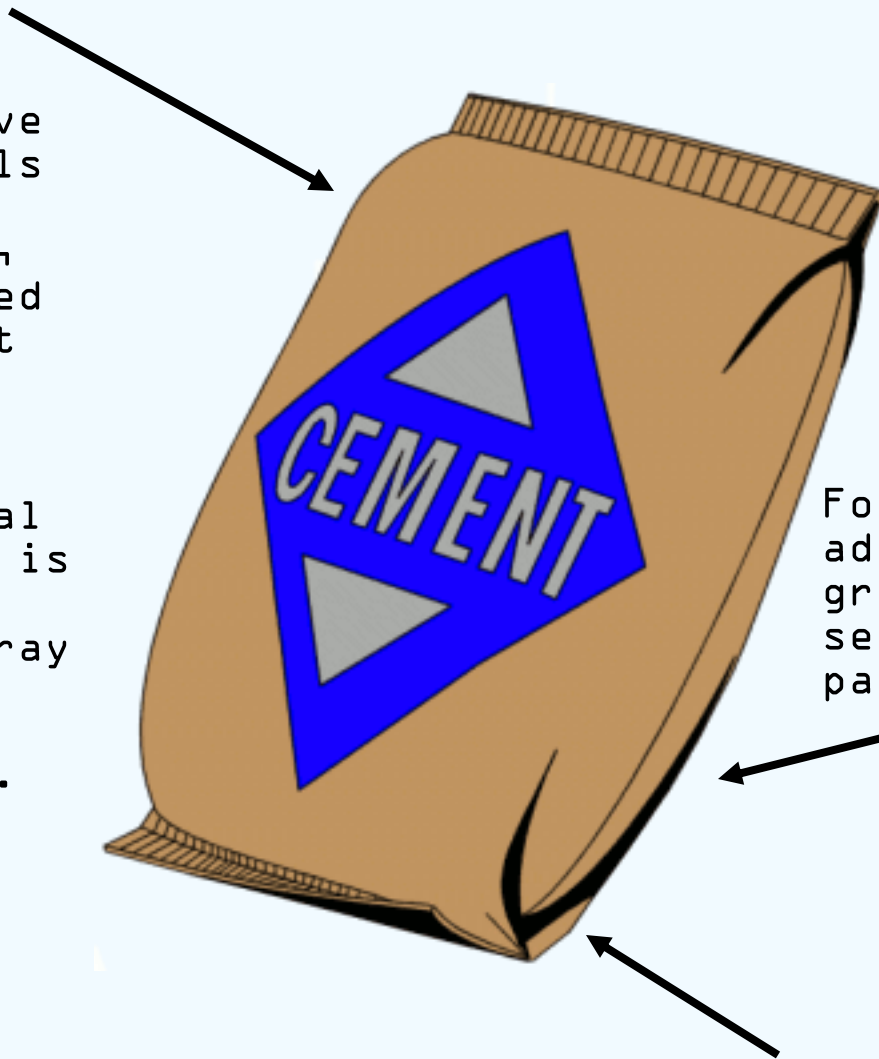
Stanton meets Thursday after the Wickenburg meetings. Jan 14, Feb 11, Mar 17, Apr 14, May 19, Sept 15, Oct 20, Nov 17, Dec 8 (subject to change)

MINERALS IN OUR EVERYDAY LIVES

WHAT IS IN CONCRETE?

The basic components of Portland cement are sedimentary rocks – limestone, shale & sand, plus slate, slag, and iron ore.

The above materials are crushed, and baked at about 2700° F, in huge kilns. The final product is marble-sized gray balls, called clinker.



For concrete, add sand and gravel – both sedimentary particles.

Before bagging, clinker is ground super fine. At this time, another sedimentary material – gypsum (hydrous calcium sulfate) – is added to slow the hardening time, and to accelerate strength. Without gypsum, Portland cement will set up immediately.

Susan Celestian, editor
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Waddell, AZ 85355



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