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MARCH 2016

GNEISS TIMES

Wickenburg Gem & Mineral Society, Inc.
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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.

MEDIUM-GRAINED CLASTIC SEDIMENTARY ROCKS — Sandstone

Sandstone is a medium-grained clastic sedimentary rock, with sand grains between 1/16 mm and 2 mm diameter. Composition is usually quartz and feldspar—both fairly hardy minerals in the weathering environment (especially quartz). See Figure 1.

CLASTIC SEDIMENTARY ROCKS

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

FIGURE 1 Clastic Sedimentary Rock Chart

The term "sandstone" encompasses a number of varieties:

Graywacke is generally dense, fine-grained and angular quartz, feldspar and rock fragments (usually with visible mica); dark-colored; and contains a high percentage of clay. See Figure 2.

Graywacke Environments of Deposition: deposited as turbidity currents (underwater landslide) into deep marine environments, such as the depths off the edge of continental shelves or deep ocean trenches. Rivers dump fine-grained sediments on continental edges. These sediments pile up until they are over-steepened and fail, sending a viscous mix of sediment and water roiling downslope.

Sandstone continued on page 2…..

FIELD TRIP TO GILA BEND MOUNTAINS MARCH 23, 2016

On Wednesday, March 23rd, Stan Celestian led a club trip to the Gila Bend Mountains, in the vicinity of 4th of July Butte, in search of drusy quartz and banded agate. A good time was had by all ☺. See Figures 11-23.

FIGURE 11 Geode lined with quartz crystals, embedded in basalt. *Photo by Stan Celestian*

FIGURE 12 Alice Schneider shows off her geode find. *Photo by Stan Celestian*

FIGURE 13 Blooming hedgehog cactus (Echinocereus engelmannii) *Photo by Stan Celestian*

Gila Mts continued on page 4…..

INSIDE THIS ISSUE

Meeting Minutes — March 11, 2016

The meeting was called to order by Marty Hagan with 35 people in attendance. The pledge of allegiance was said. The minutes for the February meeting were not available. The treasurer's report was approved as presented by Debbie. Guests and new members were introduced. A cake was served and card was given to Erma for her birthday.

Fieldtrips:

March 16 at 11AM Stanton. Hamburgers will be provided, along with a pot/luck Lunch. Visit the Club's Claim. Rick will have a dry washer set up and there will also be a demonstration of large rock polishing.

March 23 Gila Bend, Quartz with drusy. 9AM depart Alco parking lot, drive south on Vulture Mine Road to Interstate 10. People coming from Surprise and Phoenix will meet at the Truck stop on exit 103 and Interstate 10. (10AM) Stan will be leading the group.

Shows: Anthem AZ and Deming New Mexico March 12-13. Wickenburg Show Nov 26-27, 2016.

Claim: New federal law required the WGMS to change the claim from one 40 acre claim to two 20 acre claims. Dale will field new names Nicol Marie #1 and Nicol Marie #2.

Terry mentioned that the Mushroom Rhyolite claim is available. A nomination was voted and approved to claim the 20 acre Mushroom Rhyolite south of Aguila. Funds to file the paper work were also approved. Dale will look into filling this claim.

The next meeting will be April 8.

Show and tell prize was won by Terry W and the door prize winners were Ken F, Rick J, Mel C and Karen Perry's grandson.

Stan C gave a program on the many exciting treasures displayed at the Tucson Gem & Mineral show held every year in February. He also showed pictures and maps of quartz with drusy near Gila Bend which will be a future field trip.

Respectively Submitted
Debbie Keiser

……...Sandstone continued from page 1

FIGURE 2 Graywacke
Image from
nasa.gov/mer/classroom/schoolhouse/rocklibrary/index2.htm

Since water is much thicker than air, when the sediments of a turbidity current come to rest in the quiet depths, the fragments settle out by size — the largest particles settle out first, and progressively finer and finer particles settle out. This produces a sedimentary structure called *graded bedding* (a subject for a later article). Sequences of turbidity current deposits are called *turbidites.*

Sandstone continued on page 3……

http://www.wickenburggms.org/

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

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

……...Sandstone continued from page 2

Arkose is generally a gray to red, coarse sandstone (although it can be fine), composed of over 25% feldspar (which shows as chalky white fragments), with quartz, mica, and rock fragments — all angular to somewhat rounded. See Figure 3.

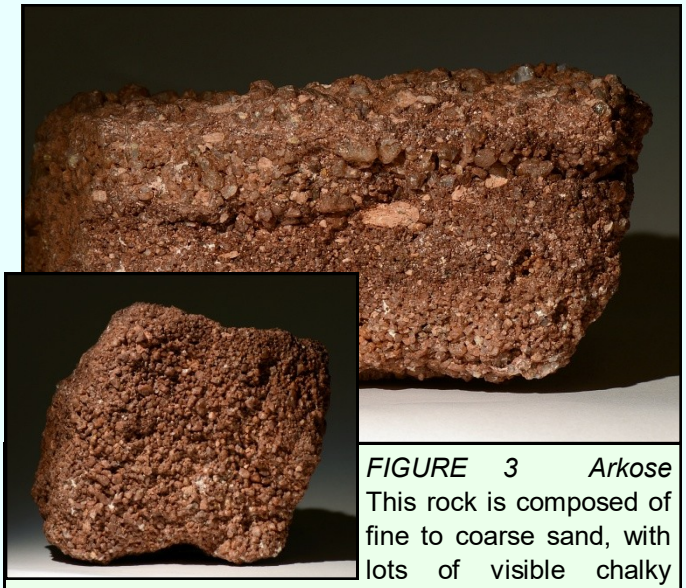


FIGURE 3 Arkose This rock is composed of fine to coarse sand, with lots of visible chalky white feldspar grains. *Photo by Stan Celestian*

Arkose Environments of Deposition: Remember that feldspar decomposes fairly quickly in the weathering environment, so arkose is often indicative of deposition fairly close to a granitic source. Climate may occasionally by a controlling factor — either too cold or dry to facilitate the chemical weathering necessary to breakdown feldspar. The crushed granite (grus) in many desert landscapes is basically the building block of arkose. Additionally, some stream and alluvial fan

FIGURE 4 Arkosic sand in San Pedro River, Arizona This coarse, poorly-sorted sand is "dirty" with visible angular to sub-angular chalky feldspar co-mingled with quartz and rock fragments. *Photo by Stan Celes-*

Quartz Sandstone is sandstone that is composed of mostly quartz sand grains. While quartz is a major component of all sandstones, these are over 95% quartz. See Figures 5-7 (increase the size of your onscreen view for a near-microscopic look).

Quartz is an extremely hardy mineral at Earth's surface. It is hard, with very strong atomic bonds, and does not cleave. As a result, quartz will persist, while feldspars, micas, amphiboles, and pyroxenes break down and weather away. Remember the Rock Cycle? Sedimentary rocks containing quartz may recycle over and over again — and each time, the percentage of quartz goes up.

FIGURE 5 Quartz Sandstone The purity of this rock is reflected in the white color. This is the Coconino Sandstone, a Permian dune deposit. *Photo by Stan Celestian*

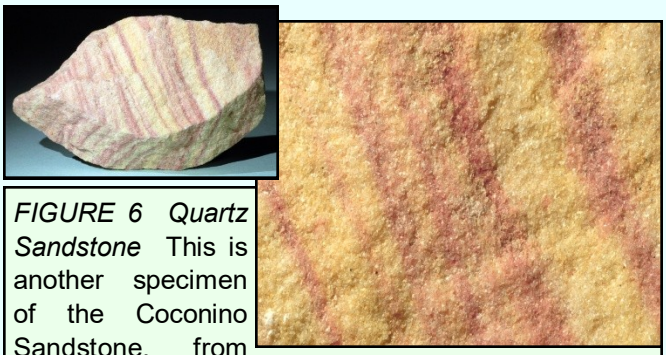


FIGURE 6 Quartz Sandstone This is another specimen of the Coconino Sandstone, from near Forest Lakes Arizona. It has been permeated by iron-rich groundwater, that stained the rock with pink-red banding. *Photo by Stan Celestian*

FIGURE 7 Quartz Sandstone aka Kanab Wonderstone This is a close-up view of the Jurassic-aged Navajo Sandstone — another dune sand, that (like Figure 6) has been stained by iron-rich water. *Photo by Stan Celestian*

Sandstone continued on page 4……...

……...Sandstone continued from page 3

Quartz Sandstone Environments of Deposition: Quartz Sandstone is typical of very selective environments, such as marine and lake beaches, stream bars, barrier islands, and dunes. See Figures 8-10, for pictures of future quartz sandstones.

FIGURE 8 Fluvial Sand — a River Sand Bar at Falls of the Ohio, IN This sand reflects a lot of weathering and transportation — angular to rounded quartz grains, with few of other minerals. Stream sands will generally have a varied range of sand sizes. *Photo by Stan Celestian*

FIGURE 9 Dune Sand, Indiana Dunes, IN Wind is a VERY selective transporter — it will moves only a narrow range of sand sizes. The result is a fine-grained sand of rounded and frosted grains. *Photo by Stan Celestian*

FIGURE 10 Beach Sand, Boca Grande, FL Sand on the beaches of Florida has travelled very long distances, having originated out of the igneous and metamorphic rocks of states to the north. By the time the sand makes it to Florida, there is almost nothing left but quartz — pretty well-sorted and well-rounded quartz. A few shell fragments can be seen, as chalky white grains. *Photo by Stan Celestian*

……...Gila Mts continued from page 2

FIGURE 14 John Baker has found a geode also! *Photo by Stan Celestian*

FIGURE 15 Amygdaloidal Basalt — basalt whose gas bubbles (vesicles) have been filled with quartz (mineral-filled vesicles are called amygdules) *Photo by Stan Celestian*

FIGURE 16 Mel Canter — Have Bucket Will Travel *Photo by Stan Celestian*

FIGURE 17 Beautiful jasper also litters the desert floor. *Photo by Stan Celestian*

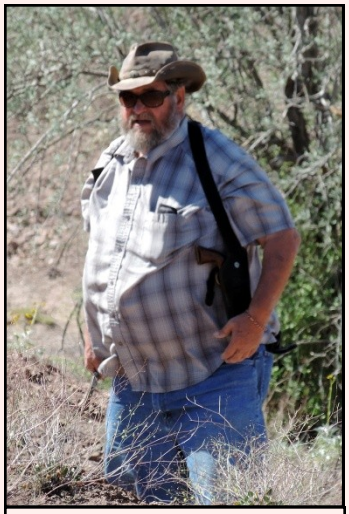


FIGURE 18 Rick Jones looking for trouble? *Photo by Stan Celestian*

FIGURE 19 Lloyd Cochran has his eyes on the ground — a true rockhound. *Photo by Stan Celestian*

FIGURE 20 Lunchtime! *Photo by Stan Celestian*

Gila Mts continued on page 5……...

UPCOMING AZ MINERAL SHOWS

May 7-8 - Kingman, AZ Mohave County Gemstoners Club, Kingman Academy of Learning; 3420 N Burbank; Sat. 9-5, Sun. 9-4; Admission: free. www.gemstoners.org

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. whitemountain-azrockclub.org

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.

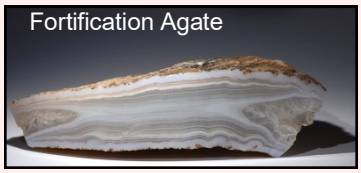
If you are travelling, a good source for out-of-state (or in-state) gem and mineral shows AND clubs is http://www.the-vug.com/vug/vugshows.html or http://www.rockngem.com/ShowDatesFiles/ShowDatesDisplayAll.php?ShowState=AZ For out-of-the-country shows: http://www.mindat.org/eventlist.php\ A good source for a list of Arizona Mineral Clubs and contact information is http://whitemountain-azrockclub.org/Public_AZ_Clubs_Links.html

Gila Mts continued from page 5……..

Figures 21-27 highlight more finds from the field trip — all photos by Stan Celestian.


Quartz crystals with iron oxide coating


Quartz coating calcite crystals


Fortification Agate


Paula Stanley's cornucopia of treasures!

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 Jones ……..…….....208-523-9355
Vice President: Martin Hagan ..…... 602-469-7770
Secretary: Judy Zimmerlee ..…….. 517-652-1355
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

HISTORIC & CURRENT USES OF SANDSTONES

Building/architectural stone:

- facing stone
- building block — for example, the Brownstones of the east coast are built out of arkoses, deposited during the Jurassic and Triassic
- flooring
- flagstone/paving (for example, the Permian Coconino Sandstone of northern Arizona
- curbing
- whetstone, such as wheels for grinding wheat into flour
- armor rock for seawalls — graywacke

Industrial stone

- source of silica for glassmaking: for example, the Ordovician St. Peter's Sandstone of Missouri
- proppant (holds open fractures and cracks) in the oil and gas industry
- aggregate in cement, concrete and mortar
- soil conditioner

Other

- tombstones, sculptures, monuments
- coasters: being porous, sandstone coasters absorb the "sweat" off the glasses of icy beverages

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