



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.

HEMATITE

By Susan Celestian

Formula: Fe_2O_3 (iron oxide)

Crystal System: Trigonal

Crystal Forms: massive, crystalline, oölitic, micaceous (aka specular), fibrous, botryoidal

Color: metallic silver, gray, dull brown, rusty red, bright red

Cleavage/Fracture: no cleavage; uneven-subconchoidal fracture

Tenacity: Brittle

Luster: metallic, submetallic, earthy

Streak: bright to dark rusty red

Specific Gravity: 5.26

Hardness: 5.5-6.5

Hematite is a common mineral in Arizona, and is often confused with meteorites (it is heavy, often metallic-looking, and sometimes magnetic, due to associated magnetite) -- giving many a rockhound a flash of false delight. However, a quick streak test will reveal its true identity, as hematite leaves a rusty-red streak, while meteorites leave a faint grayish one. See Figure 1.



FIGURE 1 Streak Test

Firmly rub a fresh surface of an unknown mineral across an unglazed tile, to leave a streak of powder. The color of the streak may be diagnostic. In this case, the lower streak is that of a metallic meteorite, the upper

streak is that of magnetite, and the middle streak is hematite. That reddish-brown streak is diagnostic for hematite. Photo by Stan Celestian

The name *Hematite*, originated about 300-325 BC, and was derived from the Greek - *haimatitēs lithos* - for "blood stone". In fact, it may be the first mineral given a name ending in 'ite'.

It is found in igneous, sedimentary, and metamorphic rocks. So, how does hematite form? It may originate within a crystallizing magma, or probably more often as a precipitate out of hydrothermal ("hot water") fluids that invade a host rock. It will also form where hot magma contacts other rocks, as a product of contact metamorphism. Huge and important deposits of hematite formed in the early oceans, as a sedimentary deposit.

Conventional wisdom, has it that between 2.4 and 1.8 billion years ago, cyanobacteria (also known as "blue-green algae) began to produce oxygen through photosynthesis. Iron was an abundant component of the Earth's early anoxic (no oxygen) oceans, and as oxygen entered the system, it quickly combined with that iron, producing hematite (and some magnetite), that precipitated out to produce extensive sedimentary beds. As the oxygen was used up by the oxidation of iron, red cherts or clays formed, until the oxygen built up once again to produce hematite. In this way, Banded Iron Formations (BIF's) formed. They are very thick

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Meeting Minutes — February 3, 2017

The meeting was called to order at 7 P.M. by president Craig J. There were 40 members present. The pledge of allegiance was recited. The January minutes were read and approved. The treasurer's report was read and approved. The membership has been holding steady over the past several years. Tables for the November show continue to be reserved.

Jim S. discussed the field trip the group went on yesterday to the Anderson Mine, where all had a good time. Opening and closing gates on trips was discussed. If gates are open when arriving, we are to leave the gates open. Methods of closing the gates were discussed, including the last vehicle closing the gates, the second vehicle in line waiting till the last vehicle enters, then closing the gate, and leaving a ribbon on the gate to remind the last person to close the gate.

A request was made to assist Beth M. with show advertisements.

The mushroom rhyolite claim has been returned to the BLM. The claim is currently open, and we can come and go anytime. It was discussed the WGMS putting a claim on it or to just go when we wish.

New business: The gold prospecting group at Stanton has an outing there on February 23-25, 2017. On Tues March 21, 2017, there will be a potluck at Al and Irma R's after 9 A.M. The club will provide burgers. Bring a chair.

The monthly meetings will continue to have a potluck prior to the meetings. There needs to be someone to help set up tables, and to get coffee ready.

The presentation was given by Stan C. regarding rock collection in Arizona. Thanks were given to Stan for a very informative program. Calvin W. will do the program at the March meeting.

Show and Tell: There were four for show and tell. Terry W. won the drawing.

Door prizes: Micki W., Al R., Jim T. and Gloria L. won the door prizes.

The meeting was adjourned at 8:40 P.M.

Respectfully submitted, Judy, Secretary



Speaker Stan Celestian balances a table that was used as the screen for his presentation to the club. Stan talked about igneous, sedimentary, and metamorphic rocks, bringing lots of samples of Arizona rocks. Who knew rocks could be so COOL!

Photo by Susan Celestian



MARCH SPEAKER

Calvin Webb

PowerPoint: "Some Things That Some People Don't Know About Volcanoes".

NOTES FROM THE EDITOR

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

**FIELD TRIP NEAR BAGDAD, AZ -- Chert, Drusy Quartz, and more
THURSDAY FEBRUARY 16**

All photos by Susan and Stan Celestian



Rockhounds Wyatt Earp (left) and Tickled Pink (right)



There were 15 vehicles on the trip!



Did you see this crested saguaro on the way out?

Bagdad continued on page 4.....

....Bagdad continued from page 3



Lots of brecciated and contorted chert



The ground is littered with iron oxide-stained chert



Calcite crystallizes in vugs in basalt

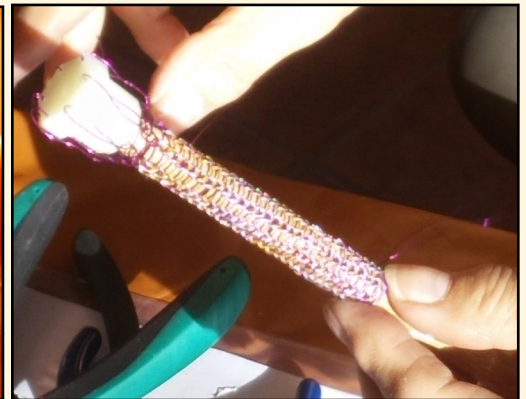


As wet ground surrounding these rocks has frozen this winter, ice crystals have pushed the soil away from them, leaving obvious gaps.



VIKING WEAVING CLASS Tuesday, February 21, 2017

At 10 am, 11 Wickenburg club members met at Tom and Alice S's to learn how to do Viking Weave. Jim and Linda Bosley, two very talented people, were kind enough to travel to Wickenburg to conduct a class. The cost was \$25/person, and that included a packet including 2 rolls of wire, a dowel topped by a "guide", a cloth working pad, and detailed directions. I think everyone finished a bracelet, and went home with a new skill. Now for the time to practice it!



The wire is woven around a dowel. When the project is 60% or so of the desired final length, it is drawn through a series of ever smaller holes. The weaving is

compressed and the "cable" gets longer. Then it is finished with bell caps and a clasp. Some of us even made our own clasp, like the one on the bracelet to the right. Photos by Susan Celestian



.....Hematite continued from page 1

(hundreds to thousands of feet), geographical extensive rock units, comprised of black-gray bands of hematite, alternating with red bands of chert.

There are alternate, but as yet unconfirmed, explanations for the formation of BIF's; however, most are similar to this one, in that they invoke alternating periods of oxygen-depleted and oxygen-rich oceans or ocean basins. Others propose that hematite may be deposited out of metal-rich brines issuing into the ocean at active rift zones; or that specific microbes (such as some bacteria) could produce hematite by direct oxidation.

Following are some images (Figures 2-8) of several of the various forms of hematite.

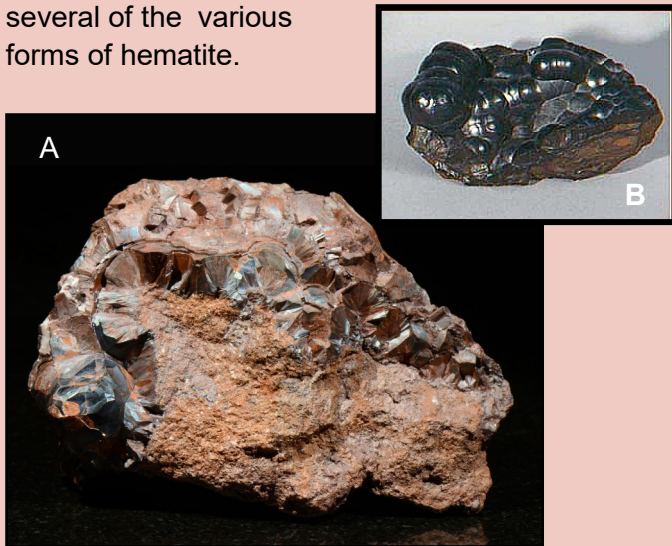


FIGURE 2 Kidney Ore (A) This fibrous form of hematite is iron-oxide-red and forms in the mammillary habit ("bubbly-looking"). *Photo by Stan Celestian* (B) is a black mammillary hematite. *Photo courtesy of USGS*



FIGURE 3 Hematite Crystal This well-formed crystal is a bit unusual for hematite, which is more often black and massive. Locality: Brazil. *Photo by Stan Celestian*



FIGURE 4 (right) and FIGURE 5 (below) Specular Hematite aka Specularite

The image to the right is a coarsely-bladed form, from the Planet Mine area, Mohave Co., Arizona; while the



image below is a sparkly aggregate of small micaceous flakes of hematite, from the Champion Mine, Houghton Co., Michigan. *Photos by Stan Celestian*

FIGURE 6 Oolitic Hematite This form of hematite occurs where hematite precipitates out of a gently agitated fluid. Hematite



crystallizes around a 'seed' and as that rolls around, ooids are formed. Locality: Birmingham, AL *Photo by Stan Celestian*



FIGURE 7 Hematite "Rose" Rarely, as hexagonal and lamellar crystals of hematite overlap, "roses" form. Locality: Ouro Preto, Minas Gerais, Brazil *Photo by Stan Celestian*

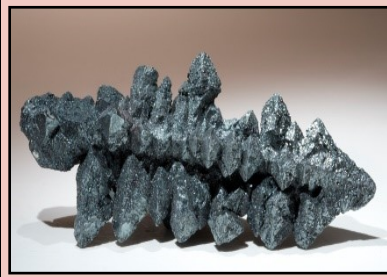


FIGURE 8 Hematite after Magnetite This is an aggregate of octahedral magnetite crystals that have been replaced by specular hematite. *Photo by Stan Celestian*

UPCOMING AZ MINERAL SHOWS

Monthly - Tempe, AZ Gallery TCR , 906 S Priest, #107; Sat 9-6; Free. For dates, go to: https://www.facebook.com/pg/gallerytcr/events/?ref=page_internal

March 11 - Coolidge, AZ Pinal Gem and Mineral Club; Pinal Geology and Mineral Museum, 351 N. Arizona Av; Sat 10-4; Admission: free.

March 18-19 - Cottonwood, AZ CKM Productions, LLC; Mingus Mt. HS, 1801 E Fir St.; Sat 10-5, Sun 10-4; Admission: \$3, Children under 12 free.

March 25-26 - Anthem, AZ Daisy Mountain Rock and Mineral Club; Boulder Creek High School Gym, 40404 N Gavilan Peak Pkwy; Sat 9-5, Sun 10-4; Admission: \$3/adult, \$2 seniors/students; children free.

March 31, April 1-2 - Tucson, AZ Flagg Mineral Foundation; Desert Botanical Gardens, 2021 N Kinney Rd; Mineral Sale Friday evening, Program Saturday 8-4, Field Trip Sunday; Registration: \$45. More information and registration form can be downloaded at -- <http://flaggmineralfoundation.org/home/minerals-of-az-symposium/>

May 6-7 - Kingman, AZ Mohave Co. Gemstoners; Kingman Academy of Learning, 3420 N Burbank Av.; Sat 9-5, Sun 9-4; Admission: free.

May 27-28 - Pinetop, AZ White Mt. Gem and Mineral Club; Hon-Dah Convention Center, 777 Hwy 260; Sat 9-6, Sun 10-4; Admission: \$2/adult, \$1/seniors.

May 27-28 - Bisbee, AZ City of Bisbee; Queen Mine, 478 N Dart St.; Sat-Sun 9-5; Admission: free.

June 2-4 - Flagstaff, AZ Coconino Lapidary Club Gem, Mineral and Jewelry Show, Silver Saddle Outdoor Market, Hwy 89N & Silver Saddle Rd (3.5 mi north of Flagstaff Mall); 9-4 daily; Admission: free.

August 4-6 - Prescott Valley, AZ Prescott Gem and Mineral Club; Prescott Valley Event Center, 1301 Main; Fri-Sat 9-5, Sun 9-4; Admission: \$5/adult, \$4/seniors, children under 12 free.

If you are travelling, a good source of 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/shows.php?current=1>

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

WHEN: Thursday, March 2, 2017
WHERE: Mushroom Rhyolite site and other
WHAT: Lapidary material; maybe Apache Tears
MEET: Goodwill parking lot in Wickenburg; Leaving at 9:00 am

WHEN: Tuesday, March 14, 2017
WHERE: North Ranch
WHAT: Equipment & Yard Sale
MEET: TBA

WHEN: Saturday, March 16, 2017
WHERE: Vulture Mine/Reserve Mine Tour
WHAT: Historic gold mine & Copper Minerals
MEET: TBA

WHEN: Tuesday, March 21, 2017
WHERE: Erma & Al's, Congress, AZ
WHAT: Rock & Jewelry Sale
MEET: TBA

DATES SUBJECT TO CHANGE

Officers and Chairperson

President: Craig Jones.....208-523-9355
Vice President: Mel Canter 502-641-3118
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 J, Bob B, Mel C
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 2017

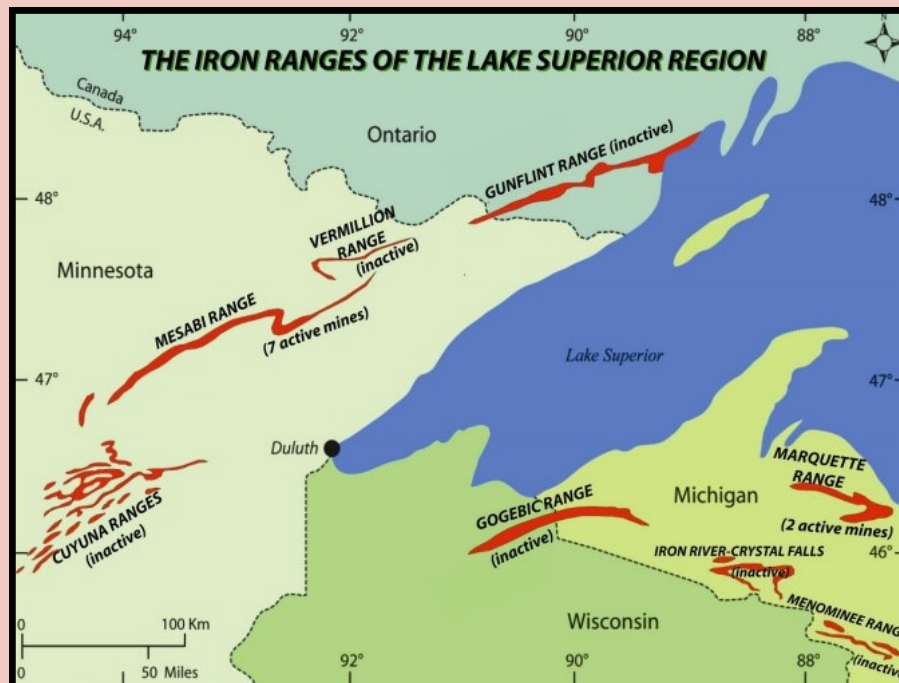
Wickenburg: Jan 13, Feb 3, Mar 10, Apr 14, May 12, Sept 8, Oct 13, Nov 10, Dec 1

Stanton meets Thursday after the Wickenburg meetings. Jan 19, Feb 9, Mar 16, Apr 20, May 18, Sept 14, Oct 19, Nov 16, Dec 7 (subject to change)

MINERALS IN OUR EVERYDAY LIVES

USES OF HEMATITE

- The primary iron ore mineral: Some of the world's largest mines are iron mines, removing up to 100 million tons of ore per year. In the U.S. iron is mined in Michigan and Minnesota (see map below).
 - Red pigment (many pictographs through the ages -- some as old as 40,000 years -- have been made using hematite as a pigment); look for it in the ingredients list of some cosmetics
 - Radiation shielding
 - Ship ballast
 - Polishing compound (jeweler's rouge)
 - Jewelry (polished and carved stones) -- not to be confused with *hematine*, which is an artificial stone (barium strontium ferrite) that resembles specular hematite, and is polished to make tumbled stones, beads, and other modern jewelry components



Map illustrating the important iron deposited in the Lake Superior Iron Ranges. Illustration courtesy of the USGS



Even NATURE celebrates Valentine's Day!