

## FRIENDS OF MINERALOGY, INC MIDWEST CHAPTER

### AFFILIATIONS:

THE MINERALOGICAL RECORD  
THE MINERALOGICAL SOCIETY OF AMERICA  
AMERICAN GEOLOGICAL INSTITUTE  
ROCKS & MINERALS MAGAZINE

### NEXT MEETING:

Saturday, May 3, Cincinnati GeoFair,  
Cincinnati Gardens

FRIENDS OF MINERALOGY  
MIDWEST CHAPTER  
JOHN BLUE, EDITOR  
16155 SHURMER RD  
STRONGSVILLE, OH 44136

**FIRST CLASS**

, and Ar-

me in a cab-

**FRIENDS OF MINERALOGY**  
**MIDWEST CHAPTER**

Vol XXII No 3

Page 1

**MAY 2008**

**AFFILIATIONS:**  
**AMERICAN GEOLOGICAL INSTITUTE**  
**THE MINERALOGICAL RECORD**  
**THE MINERALOGICAL SOCIETY OF AMERICA**  
**ROCKS & MINERALS MAGAZINE**

**OFFICERS 2008**

President	David Straw, 1555 Capri Ln, Richmond, IN 47374-1548 Strawdl@aol.com	(765) 966-4249
Vice President Programs	Robert Harman, 3209 St James Ct, Bloomington, IN 47401 bobannhar@aol.com	(812) 237-8994
Vice President Field Trips	Dr. Ernest Carlson, PO Box 1164, Brady Lake, OH 44211-1164 ecarlson@kent.edu	(330) 678-8875
Secretary (OH)	Anne Cook, 684 Quilliams, Cleveland Hts, OH 44121-1955 abcook6@juno.com	(216) 381-9003
Secretary (IN)	Vacant	
Treasurer	Lorraine Wright, 1505 S Randolph St, Indianapolis, IN 46203 Lwright@indy.rr.com	(317) 784-1159

**COMMITTEE CHAIRS**

ing  
Featurin Ed

Paul Schwin, 38 W Washburn St, New London, OH 44851	(419) 929-9074
John Blue, 16155 Shurmer Rd, Strongsville, OH 44136 jblue@n2net.net	(440) 238-4412

**PRESIDENT'S MESSAGE**

The displays at Tucson this year were great. The theme was classic American mineral locations. I especially enjoyed the displays from the Midwest; southern Illinois, the celestine belt in Ohio, plus Elmwood, and Missouri locations. Many of the specimens were provided by current and former members of our chapter. Peggy Fisherkeller provided a display of Indiana calcites from the State Museum. Nelson Shaffer spearheaded the National FoM booth and several members from various chapters helped out.

Ernie Carlson is working on field trips and will let us know when he has dates firmed up. Alan Goldstein and others are working on the symposium for this November 1&2.

Last call for dues, please renew to continue receiving the newsletter and to participate in field trips. See you at the Cincinnati show on May 3. Our meeting is at 4:30.

Dave Straw

## PYRITE & MARCASITE DECOMPOSITION

Excerpts from talk by Frank Howie on Unstable Minerals  
The Geological Society (UK)

Under appropriate conditions many, but not all, pyrite and marcasite specimens will decompose into a gray or white powder and sulfuric acid. This not only leads to the loss of the specimen, but also can damage cabinets and effect near-by specimens (by the release of acid).

The process of decomposition is oxidation.  $\text{FeS}_2$  oxidizes to ferrous sulfate and sulfuric acid, and further oxidation changes the sulfate and some acid to ferric sulfate.

It has been held that bacterial action is necessary for oxidation of the sulfide to occur under normal environmental conditions. Frank Howie has investigated the chemistry of this process over a number of years and has conducted many controlled experiments. He concludes that bacterial action plays no part at all; so antibacterial treatment of specimen is useless.

The essential condition is exposure to air at high relative humidity (RH). At a RH of less than 50% very little decay of pyrite occurs. At around 55% RH the rate rises rapidly and continues to increase as the RH nears 100%.

Some pyrite appears to resist the attack when all around disintegrate. Scanning Electron Microscopy (SEM) has shown that the attack starts in regions having microcrystalline structure. If the structure has crystallite size in excess of about 10 $\mu\text{m}$ , the crystallites will be angular and packed. Below 1  $\mu\text{m}$ , the crystallites are round with open interstices giving a micro-porous structure. This acts like a sponge and provides a path for the moisture ingress at the start of the decay process, a process that is initiated by electrolysis.

Similar decomposition occurs in many other sulfides, e.g. Arsenopyrite, Realgar, Chalcocite, Stibnite, and Argentite.

The remedy is to keep the specimen in an RH below 50%. This is generally achieved most of the time in a cabinet having close fitting doors situated in a living room environment. To ensure full time protection, the use of silica gel as a desiccant is suggested (kept with the mineral specimen. *From The Gemrock via The Quarry 4/01*

## BENITOITE, BLUE BEAUTY

James Marshall Couch discovered the rare mineral benitoite on February 22, 1907. The discovery was near the headwaters of the San Benito River in San Benito County, California. The discovery area is about 25 miles north of Coalinga and about 70 miles south of Hollister. At that time, mercury and chromium mining activity was taking place in this rugged area of California.

He found triangular blue crystals during a prospecting trip for cinnabar, the red ore of quicksilver (mercury). The blue crystals were plentiful in veins of brecciated, gray-green schist associated with serpentine. Couch was awestruck by so many beautiful blue crystals covering the ground and imbedded in white natrolite on veins of schist traversing walls of green serpentine.

When first discovered, the crystals were thought to be sapphire. George Louderback, a geology professor at the University of California, Berkeley, and a consultant to the California State Mine Bureau, found the crystals too soft for sapphire and declared the discovery to be a new and unique mineral.

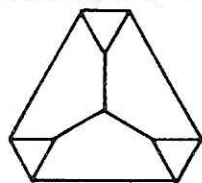
(Cont'd Next Page)

In 1907 Louderback gave benitoite its name. Benitoite was named from its discovery in San Benito County near the headwaters of the San Benito River and near San Benito Peak. The benitoite, which occurs at the discovery location, is the type locality of this mineral. While the mineral benitoite is found in a few other locations worldwide, it is not found in the quantity and quality offered by its type locality in San Benito County, California.

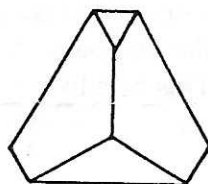
Benitoite is a rare mineral combination of barium titanium silicate with a hardness of 6 - 6.5. It occurs in a zone of narrow veins of white natrolite covering gray-green schist, which was formed in a lode hydrothermal replacement deposit. This metamorphic mass of schist, found in a watered dike is part of a large serpentine formation in the area.

Triangular benitoite crystals are often found in association with black neptunite crystals of cylindrical form, also imbedded in the natrolite. In addition, and only occasionally, this layer may contain small, yellowish joaquinite crystals of knobby form. It's a rare and valuable collector's item that contains all three minerals in one specimen.

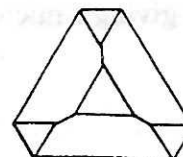
In its perfect form, benitoite crystal exhibits symmetry, with its beauty partially created from balanced proportions. A perfectly shaped crystal is triangular with six flat surfaces on each side, and with the triangle having three flattened ends. Perfectly symmetrical crystals are hard to find, as most crystals do not have the balanced proportions exhibited by a classic crystal. Also, most crystals are fractured, and good faceting material is difficult to obtain.



A classic, six-plane symmetrical design. Benitoites with identical classic shapes on both sides are rare.



A four-plane configuration. Sometimes benitoites exhibit a variety of shapes. Flat-back benitoites with a classic or odd opposite side and benitoites with pointed ends, along with other odd creations, have been



A common seven-plane configuration. The CFMS logo uses a modification of this shape with an enlarged center triangle.

The color of benitoite crystals can range from dark blue to light blue to white. Most crystals contain all three colors, with solid blue crystals a rarity. When first discovered, the crystals were thought to be sapphire because of their blue color and luster. In an unweathered condition, crystals may have a glossy luster which gives beauty to the crystals.

A benitoite crystal with symmetrical triangular shape, lustrous flat surfaces, beautiful blue color, transparency and dispersion equal to a diamond, is a wonder to behold. A benitoite crystal becomes a valuable gemstone when transparent, free of flaws, and of good color. Benitoite crystals large enough to facet into gemstones are scarce and have a substantial value. Cut stones over one carat are rare. A crystal cut to diamond angles and proportions may actually appear to be a cornflower-blue diamond. A few crystals up to two inches across have been found, but most are less than one inch.

Benitoite fluoresces beautifully white, light or dark blue, under short-wave ultraviolet light. It is a good idea to use a short-wave light at night to discover crystals which are not apparent during daylight hours. Under long-wave ultraviolet light, only the white parts of the crystals will show a light red.

Benitoite was designated the official California State Gemstone on October 1, 1985, by the adoption of Assembly Bill 2357. *Article by Bea & Sherm Griselle from CFMS Newsletter, March 2001*

**TENTATIVE FIELD TRIPS**

Here is a short note regarding field trips. Nothing is definite yet, but I have requested from Shelly Materials trips on Saturday May 24 to Auglaize quarry and June 7 to Lime City quarry. The trip to Genoa will be this fall. I will notify members by email and surface mail for those who don't have email addresses as soon as I get definite responses.

Ernie Carlson

**MINERAL CLEANING - The Waller Solution**

By John Betts

This method of mineral cleaning was first introduced to me by Roland Franke as a simple method of cleaning iron stain from minerals. Further research reveals different methods of using the basic solution. As originally described by Roland, the solution is made by dissolving in one liter of distilled water:

- 8.4 g Sodium bicarbonate
- 17.4 g Sodium dithionite
- 5.9 g Trisodium salt of Citric acid

Once mixed, the minerals are immersed in the solution. Cleaning action can be accelerated by placing it in an ultrasonic cleaner\*. This solution is not appropriate for indoor use, because once mixed, there is a strong odor of rotten eggs (hydrogen sulfide). Use only outdoors or in an area with proper exhaust venting. As usual, read and comply with all precautions on the individual component packages. \*Ed Note - Not recommended for fragile specimens.

The solution is good only about 24 hours and should be discarded after that. Since a liter of solution may be more than you need, the Geological Museum of Copenhagen (Hansen 1984) suggests a variation - you can prepare stock buffer solution of water, 28g sodium bicarbonate and 59g sodium citrate. Then when ready, place our specimens in a container, pour in buffer solution to cover the specimens, then carefully sprinkle on to 1g sodium dithionite for every 30 ml of buffer solution. After five minutes, add another 1g of sodium dithionite in the same way. They also recommend sealing tightly with a lid and keeping at room temperature to avoid the formation of sulfides and sulfur.

Of you have heavy iron staining, a specimen may require several treatments in succession as the solution becomes saturated and loses effectiveness. After your piece is clean, wash in distilled water for an equal amount of time that the specimen was in the solution. Then wash in running (or regularly changed) tap water.

Apparently the cleaning works by reducing Fe<sup>+3</sup> to Fe<sup>+2</sup> and then dissolving the Fe<sup>+2</sup> in the citric acid. The sodium bicarbonate balances the pH to neutral. This last point means that, theoretically, you can clean any material in it without worrying about etching. Practically though, caution should be taken by testing on samples prior to immersing your best pieces.

Reference: Hansen, Morgan, "Cleaning Delicate Minerals", Mineralogical Record, March-April 1984, p103  
*From New York Mineralogical Club Newsletter via The Opal, October 1996.*

**WORDS THAT SHOULD EXIST**

**FRUST** (frust) n The small line of debris that refuses to be swept onto the dust pan and keeps backing a person across the room until he finally decides to give up and sweep it under the rug.

**PHONESIA** (fo nee' shuh) n. The affliction of dialing a phone number and forgetting whom you were calling just as they answer.



!!!! LATE BULLETIN AT PRINTING !!!!

Dr Carlson has confirmed the field trip dates to Auglaize & Lime City. Details will follow. Let him know you are interested as numbers may be limited.

# Cincinnati GeoFair 2008

43<sup>rd</sup> Annual

Gem, Mineral, Fossil & Jewelry  
Show of Greater Cincinnati

[www.geofair.com](http://www.geofair.com)

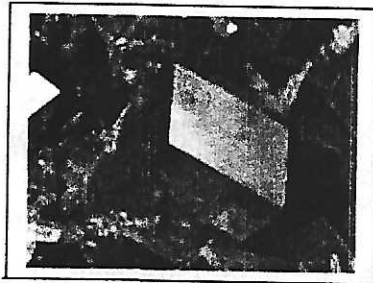
**May 3**  
Saturday  
10 am to 6 pm

**May 4**  
Sunday  
11 am to 5 pm



Featuring:

*American Fossil Treasures*



*American Mineral Treasures*

**Show Location**  
Cincinnati Gardens  
2250 Seymour Avenue  
[www.geofair.com](http://www.geofair.com) for directions

**FREE PARKING**

## Gem, Mineral, Fossil & Jewelry Vendors 44 RETAIL DEALERS

- |                                 |                      |
|---------------------------------|----------------------|
| Amber America                   | Maspeth, NY          |
| ARA Imports                     | Solon, OH            |
| AYS International               | Jackson Heights, NY  |
| Bead-Azzled                     | Mainville, OH        |
| Bernie's Gems                   | Trafalgar, IN        |
| Butterflies by God              | Maryland Heights, MO |
| Cardinal Minerals               | Huntington, CT       |
| Carroll's Originals             | Fort Dodge, IA       |
| Carved Opal & Obsidian          | Austin, TX           |
| Caveny Creations                | Fort Mill, SC        |
| Cecilia Gems with a Smile       | Columbus, OH         |
| CLD & Associates                | Cincinnati, OH       |
| The Crystal Circle              | Cincinnati, OH       |
| Crystal Perfection              | Winston-Salem, NC    |
| Earth's Art                     | Borden, IN           |
| Fall Creek Enterprises          | Rolla, MO            |
| Fun with Rocks                  | Tucson, AZ           |
| Gems by Celestial Dancer        | Carmel, IN           |
| Geodite Minerals                | Knoxville, TN        |
| GP Rock Shop                    | Huntington, WV       |
| Hollow Mountain Industries      | Louisville, KY       |
| Jack's Jewelry                  | North Ridgeville, OH |
| JC Pearls                       | Lisle, IL            |
| J. L. Jewelers                  | Fairfield, OH        |
| Lady Bug Mining                 | Quincy, CA           |
| Lost Cove Minerals              | Marion, NC           |
| The Mineral House               | Bucyrus, OH          |
| Minerals America                | New Eagle, PA        |
| Minhas                          | Philadelphia, PA     |
| Mountain Minerals International | Louisville, CO       |
| Multi-Facet Productions         | Rock Creek, OH       |
| Nature Bazaar                   | Marietta, GA         |
| Nature's Expressions            | Ann Arbor, MI        |
| North Star Minerals             | West Bloomfield, MI  |
| Quest Crystals                  | Warren, OH           |
| Roy Hurlburt Minerals           | St. Louis, MO        |
| Schooler's Minerals & Fossils   | Blue Springs, MO     |
| The Silverlady II               | Cincinnati, OH       |
| Silvertown                      | Cleveland, OH        |
| Slinger's Snob Appeal           | Louisville, KY       |
| Terrestrial Treasures           | Grand Junction, CO   |
| Universal Fossils               | Berkley, MI          |
| Universal Rock Shop             | Columbus, NC         |
| Utah Redrock                    | Sedona, AZ           |

## 7 WHOLESALE DEALERS

- |                            |                |
|----------------------------|----------------|
| Anil B. Dholakia           | Franklin, NC   |
| Aurora Mineral Corporation | Freeport, NY   |
| Howard Schlansker          | Marshfield, MA |
| Larimar International      | Amboy, IL      |
| Midwest Minerals           | Tucson, AZ     |
| Throwin' Stones            | Ashville, NC   |
| Top Gem Minerals           | Tucson, AZ     |