Cedar Valley Gems

Cedar Valley Rocks & Minerals Society
Cedar Rapids, Iowa

CEDAR VALLEY GEMS | APRIL 2015 | VOL. 41, ISSUE 4

Another Outstanding Rock Show Success

The March 28-29 Cedar Valley Rocks & Minerals Society's show drew 4,585 for another very successful weekend. Dealers were happy - some said Saturday was their best-ever first day for our show. Show patrons enjoyed the giant calcite crystal, keswick agate, and the Amana meteorite - a significant number said "thank you" on the way out of the show. Mary Campbell's 3-D drawing was a hit - lots of people commented how cool it was. The raffle brought in over $900 - a little boy pulled his grandmother's name to win the wooden Utahraptor. 200 egg carton collections were sold out by about noon Sunday. There were always kids making plaster fossil and dinosaur-track casts. The fluorescent booth was popular - after attending the program, kids brought rocks back to see if they fluoresced. Programs were excellent and well-attended. Member displays were well done, and many of us were surprised to see the rock-painting skills of one of our members.

Next Club Meeting: April 21 @ 7 p.m. Rockwell Cafeteria

Club Speaker and Presentation

Tom Foster, DEO (Department Executive Officer) of the University of Iowa Department of Earth & Environmental Sciences and three of his students (recipients of CVRMS grants) will speak on experiences from Geologic Field Methods and Field Camp at the April 21 meeting of the CVRMS. Dale and Dell are hosting.

More Images from the CVRMS 51st Rock Show

It takes a lot of people to put on our show. A huge pat on the back for all of you who helped to set up, run, and tear down the show and to those who brought food for the awesome potluck Friday night - so many members with such great skills, friendly dispositions, and willingness to do whatever needs to be done. Thank Club Members and volunteers!

CVRMS Board Meeting

Board Minutes - April 7, 2015
Members Present: Marv Houg, Dell James, Sharon Sonnleitner, Ray Anderson, Jay Vavra, Dave Roush
Call to order: 7:22 p.m. by Marv, President at his home.

Show Report: By all reports, another successful show. All expenses not yet totaled but rough figure for profit about $11,000. No negative reports were recorded. Various successes were cited such as the raffle, and the pebble pit. A job well done by everyone and thanks to all members for their support. How do we make it better for next year? Various changes to be made include the addition of some new vendors. The side walk art project generated many comments. All agreed that Mary Campbell, artist, was a welcome addition to our show.

Scholarships: Discussion regarding the amount of funds available for scholarship disbursement. Motion made by Ray, second by Dave to recommend approval of the following:

Cornell	$2500.00
University of Iowa	$3500.00
VAST	$1500.00
Science Fair	$200.00
Connections	$100.00

Motion approved. The recommendation will be made at next monthly meeting. Sharon assemble a report which will show a total of donations made over the past years and perhaps compose a newsletter article.

Jay suggested someone look into Kirkwood for potential arena availability since the equestrian program is being disbanded. Marv will look into it further.

Auction: People are approaching Marv about auction articles they have. More attention will be paid to the auction. Marv will put together a list of potential contributors for the next meeting.

Field trips: Marv will line up some field trips.

Miscellaneous: Already discussing the next them for show 2016. Petrified wood and Fossilized Plants? Thank you notes need to be sent to the raffle donors.

Motion to adjourn by Dale, second by Dell. Meeting adjourned 10:14 p.m.

Respectfully submitted
Dell James, Secretary

March Club Meeting

President Marv Houg called the March 17th meeting to order at 7:05 pm at Rockwell Collins. The Secretary's report was approved.

Introduction of new members or guests-Sharon Johnson, Brian Johnson, Chance Wilson.

Minutes reviewed. Motion to approve as published by Ray, second by Julie. Motion Approved.

Treasurer's report by Dale. Report filed. Checking Balance $10, 230.61

Monthly Program
Dr. Ben Greenstein and students from Cornell College reviewed their latest trip to the Bahamas, sun burn and all.

Door Prize Winner-Anita Heaverlo

Upcoming Show report. Programs will be presented by Ray Anderson, Mark Anderson, Ryan Clark and Michael Lace.

Sidewalk art project being worked out by Ray and artist, Mary Campbell.

Volunteers still needed for various tasks.

Reminder that display cases will have card identifying what it is, and where it came from.

Catered dinner by Hy-Vee on Saturday. Let Marv know and pay $13.00 for each. Club members to supply desserts. Let Dell know.

Dealers potluck Friday 6:30 pm.

Needed displays, pebble pit material, and door prizes.

Security supplied by AJ and Bill as well as Linn County Sheriff's Department.

Motion made to adjourn by Jeff Kahl and second by Tom. Meeting adjourned at 8:55 pm.

Respectfully submitted,
Dell James, Secretary

Fort Dodge Gypsum: A Salt from Iowa's Jurassic Sea

Edited article by Raymond R. Anderson from Iowa Geology 1998, Iowa Department of Natural Resources.

One of Iowa's most valuable mineral resources is found in a small area of central Webster County, in and around the town of Fort Dodge. The resource is gypsum, and this deposit, part of the Jurassic-age Fort Dodge Formation (about 145 million years old), comprises one of the most pure gypsum deposits known on Earth. The occurrence of this gypsum was first reported in the 1850s from natural exposures at the land surface, and it was mined as building stone by early settlers in the area. Today, gypsum is used primarily to produce wallboard (also called sheetrock), which is valued for its versatility, fire-retarding properties, and ease of installation. The value of gypsum mined annually in the Fort Dodge area to feed this flourishing gypsum wallboard industry is about $10 million.

Gypsum is a soft, white to gray, "chalky" mineral (see photo above) composed of calcium sulfate and water ($CaSO_4 \cdot 2H_2O$). The gypsum at Fort Dodge, like most commercial-scale deposits, had its origins in the evaporation of seawater from a restricted shallow basin. Water from the Jurassic-age Sundance Sea passed over a low-lying barrier into the basin, where the mineral salts became concentrated by evaporation in the hot semi-tropical sun. When the brine became sufficiently concentrated, gypsum crystals formed and settled to the floor of the basin. The gypsum beds at Fort Dodge average over 95% pure gypsum and contain no anhydrite. The extent of the original depositional basin is unknown, but it was certainly larger than the 15 square miles of gypsum remaining today.

As the Jurassic passed into the Cretaceous Epoch about 135 million years ago, the continent slowly drifted northward out of the dry latitudes where the gypsum formed, into wetter, more temperate latitudes closer to North America's present position. Great Cretaceous rivers flowed across Iowa, first eroding most of the original gypsum deposit, then reburying the region with river sediments. The remaining gypsum was buried for tens of millions of years until a new episode of erosion uncovered it, and again began to wear away the resource. Most recently, the gypsum bed was buried once again, this time by glacial materials carried by continental ice sheets that advanced into Iowa beginning about 2.5 million years ago.

Although it was mined from underground in the past, gypsum is currently extracted by stripping in open pits. After mining, the gypsum is processed into a variety of products, the most common of which are wallboard and plaster-of-Paris. To produce wallboard, the gypsum is "calcined," an industrial term for the process that includes the grinding of gypsum to a fine powder which is then heated for 2 to 3 hours. During the heating process, the powdered gypsum goes through a complex series of temperatures (as high as 204°C) that drives off some of the water to produce a material called ß-hemihydrate. To manufacture the wallboard, the ß-hemihydrate is combined with water to form a slurry that is poured onto a continuous strip of special paper. As the slurry crystallizes, forming tiny interlocking needles of gypsum, a top layer of paper is added with rollers that insure the proper thickness. The wallboard then goes through heaters that expel excess water as the board solidifies. It is then cut to size and stacked for shipping.

Gypsum from Fort Dodge was used to create one of the great hoaxes in U.S. history. In the 1860s, New England native George Hull traveled to Fort Dodge and purchased one acre of land along Gypsum Creek. He engaged local quarrymen to excavate the largest block of gypsum possible. The block was shipped to Chicago where sculptors carved it into the form of a giant man. Then they scoured the sculpture with a sandy sponge to remove the chisel marks and "aged" the figure by pitting it with needle-tipped hammers and discoloring it with sulfuric acid. The sculpture, now appearing very old, was shipped to New York and secretly buried on an up-state farm near Cardiff. A year later, the "petrified man" was "discovered" and proclaimed the "eighth wonder of the world." Despite being quickly identified as a hoax , the Cardiff Giant went on tour, earning Hull about $20,000. The giant came home to Fort Dodge for display between 1913 and 1923, and then was returned to New York where it is currently on exhibit at the Farmers Museum in Cooperstown.

Spotlight Gemstone: Rose Quartz

Rose quartz is one of the many quartz varieties used as a gem material. It gets its name from its delicate pink color, which ranges from very light (almost white) to medium-dark. The most appealing color typically occurs in larger sizes, and small rose quartz specimens with good color tend to be rare. Rose quartz is always found in massive form, so it lacks regular, flat crystal faces. It's typically found in pegmatites, but also occurs in hydrothermal veins.

Rose quartz owes its pink color to microscopic inclusions of aligned silicate mineral fibers. Advanced testing has shown that they're generally similar—but not identical—to the mineral dumortierite. The fibers likely crystallized out as the host gem cooled, and they're aligned according to the crystal directions of the rose quartz.

This pastel gem's inclusions give it a characteristic cloudy translucence, so it's generally cut into beads and cabochons. Sometimes, the inclusions produce a six-rayed star if the fashioned gem is cabochon-cut and correctly oriented. The most transparent rose quartz rough might be faceted. Cutters can intensify the color by applying concave facets and cutting gems in larger sizes.

Besides the typical cloudy rose quartz, which is colored by inclusions, there's a type of transparent quartz that owes its pink color to a different mechanism. Some in the trade call it "pink crystalline quartz," "crystalline rose quartz," or simply "pink quartz." Compared to massive rose quartz, it's exceptionally rare. It might occur as beautiful clusters of transparent, well-formed crystals. The finest examples are from Brazil, especially a deposit near Galiléia, located near Governador Valadares in the state of Minas Gerais. The best are often left as mineral specimens, which can command high prices at auction. In 2013, a superb example called La Madona Rosa (the Pink Madonna) sold for $662,500.

Edited from the Gem Institute of America website.

EVENTS

April 25-26: Black Hawk Gem and Mineral Club Spring Rock, Gem and Jewelry Show, Clarion Hotel 5202 Brady St, Davenport, IA 52806 Sat. 9 a.m.-5 p.m. Sun. 10 a.m.-4 p.m. The show features rocks, minerals, fossils, agates, geodes, tumbled stones, beads, silver and beaded jewelry, carved stones, spheres, and arrowheads. Demonstrations on glass bead making, faceting, and flint knapping. Learn to make arrowheads and/or crack you own geodes. Free admission. Call (563) 445-3034.

April 25-26: Fort Dodge annual show; River Valley Rockhounds Inc, Iowa Central Community College East Campus; 2031 Quail Ave., east edge of Fort Dodge; Sat. 9 am-5 pm, Sun. 11 am-4 pm; contact Jim Baumer, (515) 955-6783; e-mail: jbaum@frontiernet.net

May 1-3: Kalamazoo, Michigan. 56th Annual Rock, Gem, Fossil, Jewelry & Mineral Show. Organized by: Kalamazoo Geological & Mineral Society. Kalamazoo County Expo Center (2900 Lake Street)

May 16-17: Wauwatosa, WI. Wisconsin Geological Society Annual Show. Sat & Sun 10 am - 5 pm Hart Park-Muellner Building, 7300 Chestnut St., Wauwatosa. Contact: Paul Schmidt, (414) 771-8668; pvs@wi.rr.com; www.wisgeologicalsociety.com

May 16-17: North Olmsted, OH. Parma Lapidary Club Annual Show. Sat & Sun 10 am - 5 pm. Soccer Sportsplex, 31515 Lorain Rd., North Olmsted Contact: Martha Lamparyk, (440) 926-3680; parmalapidary@yahoo.com; www.parmalapidary.com

May 23-24: Wheaton, IL—39th Annual Gem, Mineral, Fossil & Jewelry Show. Organized by: Chicagoland Gem & Mineral Association DuPage County Fairgrounds (2015 W. Manchester Road)

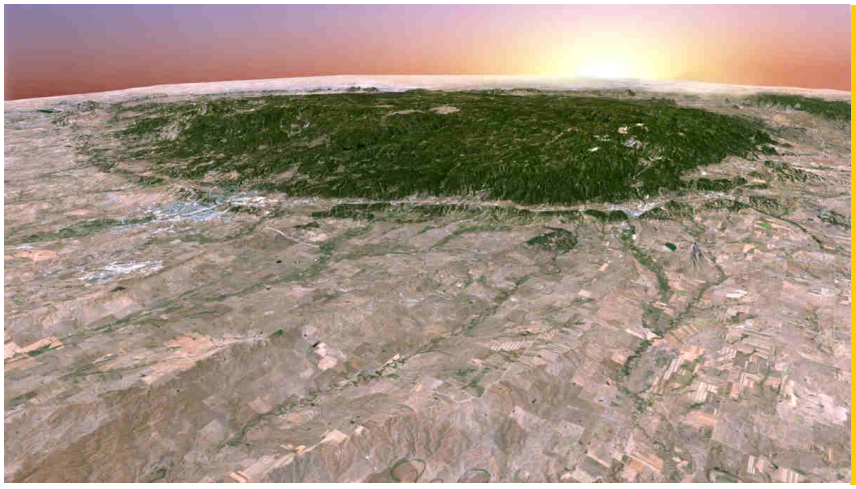
June 12-15: Lodi, CA—CFMS (Federation Show)

July 16-18: Cody, WY—RMFM (Federation Show)

August 21-23: South Bend, Indiana. 52nd Annual Jewelry, Gem, and Mineral Show and Sale Organized by: Michiana Gem and Mineral Society St. Joseph County 4-H Fairgrounds - Esther Singer Building (5177 South Ironwood Road)

Oct. 23-25: Austin, TX—AFMS (Federation Show)

What in the World?



Can you answer the question related to this photo taken by the LANDSAT satellite?

What is the name of the landform in this extraordinary oblique view image?

Read the answer in next month's Cedar Valley Gems newsletter.

Two Pennsylvania Collecting Sites Closed

Excerpt from Eastern Federation of Mineralogical and Lapidary Societies Newsletter (March, 2015)
By Scott Peters, ALAA Representative for Pennsylvania

First, **Rossville malachite/azurite location in northern York County, Pennsylvania,** well-known to collectors and well-advertised in books and articles, has become dangerous due to over collecting. **IF ANYONE IS SEEN AT THE SITE, THE OWNERS WILL NOTIFY PROPER AUTHORITIES.**

Second, the **St. Clair, Pennsylvania fern fossil location is now closed to collecting**. A representative for the owners said "overzealous collectors began bringing in power tools to collect, posting their trips and selling the fossils via the internet." The owners will prosecute any individuals they find collecting on their property.

Please do not attempt to collect at these locations unless you receive express (current written) permission from the owners of these properties. You will risk prosecution and may cause the loss of any possibility of reopening these sites.

If you know of any other collecting sites that have been closed, or are in danger of closing, or any laws that may restrict our collecting activities, please email me at: slipgapdms@aol.com.

I will pass the information on in future EFMLS Newsletters and also via ALAA website www.amlands.org and Facebook www.facebook.com/American-Lands-Access-Association.

ASK A GEOLOGIST *by Ray Anderson, CVRMS Vice President*

Limestone and Dolomite Differences

Ask a Geologist is a monthly column that gives CVRMS members an opportunity to learn more about a geologic topic. If you have a question that you would like addressed, please send it to **rockdoc.anderson@gmail.com**, and every month I will answer one in this column. Please let me know if you would like me to identify you with the question. I will also try to respond to all email requests with answers to your questions, regardless of if it is chosen for the column.

Jack Gilmore asked what is the difference between limestone and dolomite?

Limestone (calcium carbonate) is composed of atoms of calcium, carbon, and oxygen ($CaCO_3$); dolomite (calcium magnesium carbonate) is limestone with magnesium atoms replacing some of the calcium [$CaMg(CO_3)$ 2]. Both rocks generally begin as life as lime sediments, calcium carbonate shells and other hard parts secreted by the animals that lived in shallow tropical or sub-tropical seas. Animals like corals, bryozoans, clams, etc. use calcium and carbon dioxide from sea water to make their shells that we see preserved as fossils in limestone. But much more calcium carbonate is contributed by billions of microscopic animals such as coccolithophores and foraminifera as well as some marine plants such as the green algae Penicillus, Rhipocephalus, and Halimeda whose miniscule shells and plates add a huge amount of lime mud to the environment. Calcium carbonate can also precipitate directly out of sea water in high evaporation areas.

These limey materials accumulate on the sea floor, water is forced out of the sediments, and they solidify (or lithify) into a rock, limestone. In some environments this lithification can occur very rapidly. World War II relics, beer bottles, and Coke bottles have been found cemented into limestone on the Pacific Ocean islands.

The process that converts limestone to dolomite (or dolostone) is not well understood. It is generally believed that after the limestones had at least partially lithified, as the seas withdrew from the region, fresh rainwater, carrying magnesium (Mg) leached from the emergent lands, percolated through these limestone reacting with the calcium carbonate to form dolomite [$CaMg(CO_3)$ 2], a process called dolomitization. The amount of magnesium in dolomite can vary greatly, it is rarely equal parts of calcium and magnesium.

The dolomitization process increases the porosity of the rock, and when these pores are connected by fractures as in many units in Iowa, these dolomites make good aquifers. Dolomitization also frequently degrades fossil preservation in the rock. Both limestone and dolomite are mined for use as aggregates in concrete and asphalt, but dolomite is sometimes slightly harder than limestone, so it is often preferred.

Geologists usually use dilute hydrochloric acid to differentiate between limestone and dolomite, which releases carbon dioxide (CO_2) in reaction to the acid. When the acid is placed on limestone it effervesces aggressively (fizzes real good); on dolomite it is much less aggressively, in fact sometimes you have to get look at it under a hand lens to see the few small bubbles. Stains are also used to differentiate the two rocks, especially in slabs and thin-sections. Alizeran red stain will color limestone reddish-brown but will not stain dolomite. Potassium ferricyanide will stain dolomite blue while not affecting the limestone.

The term carbonate rocks includes both limestones and dolomites. In Iowa we see some carbonates like those in the Ordovician Galena Group that are extensively dolomitized in some places (Dubuque area) and pure limestone in others (Decorah area).

WEBSITE OF THE MONTH

wheretofindrocks.com

This website has it all; field guides, mineral searches, minerals on Facebook, why collect rocks, find a rock shop and much, much more.

Information about rocks, collecting, and reference links is available on the site as well as several blog articles. Plus there is a tremendous list of upcoming rock shows scattered around the country.

One recent highlight on the front page is a detailed list of preparing your 4x4 for rock collecting off road. Perhaps there's some life experiences that were drawn upon for that article. Give the site a read.

Officers, Directors, and Committee Chairs

President	Marv Houg (m_houg@yahoo.com)	364-2868
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Director '16	Dave Roush (daroush1@gmail.com)	363-7842
Director '17	Jay Vavra (pending)	pending
Sunshine	Dolores Slade (doloresdslade@aol.com)	351-5559
Hospitality	Jeff Kahl	455-2201
Webmaster	Sharon Sonnleitner (sonnb@aol.com)	396-4016

Club meetings are held the 3rd Tuesday of each month from September through November and from January through May at 7:00 p.m. at the Rockwell Collins 35th Street Plant Cafeteria, 855 35th St NE, Cedar Rapids, Iowa. The December meeting is a Christmas dinner held on the usual meeting night. June, July, and August meetings are potlucks held at 6:30 p.m. at area parks on the 3rd Tuesday of each month.

CEDAR VALLEY ROCKS & MINERAL SOCIETY

CVRMS was organized for the purpose of studying the sciences of mineralogy, geology, and paleontology and the arts of lapidary and gemology. We are members of the Midwest (MWF) and American (AFMS) Federations. Membership is open to anyone who professes an interest in rocks and minerals.

Annual dues are $15.00 per family per calendar year. Dues can be sent to:

Dale Stout
2237 Meadowbrook Dr. SE
Cedar Rapids, IA 52403

CVRMS website:
cedarvalleyrockclub.org

April Meeting:
Rockwell Collins 35th St. Cafeteria
APRIL 21 @ 7P.M.
Program Tom Foster
Geologic Field Methods and Field Camp

David Chase, Editor
2077 Sunland Dr SE
Cedar Rapids, IA 52403