



Cedar Valley Gems

Cedar Valley Rocks & Minerals Society
Cedar Rapids, Iowa

[HTTP://WWW.CEDARVALLEYROCKCLUB.ORG/](http://www.cedarvalleyrockclub.org/)

CEDAR VALLEY GEMS

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Ray Anderson, Editor: rockdoc.anderson@gmail.com

Next CVRMS Meeting Annual Meeting Tues. November 17

7 pm

Rockwell Collins 35th St. Cafeteria

Featured Speaker Iowa Geology Students
"CVRMS-Sponsored Field Work"

Dr. Jane Gilotti will bring several geoscience students from the University of Iowa to present a review of their summer field work projects, sponsored in part by CVRMS Fieldwork Grants.

What is Jet?

Jet is a black organic rock that forms when pieces of woody material are buried in sediment and are coalified. Though very similar to coal, it is less friable. Jet can be cut, carved, and polished to a bright luster. People have used jet for thousands of years to produce gemstones, beads, and many other objects. Jet is one of just a few organic gemstones. It is the material that inspired the phrase "jet black," which means "as black as possible."



These four stones of faceted jet clearly show how jet can accept a highly reflective polish.

<http://geology.com/gemstones/jet/>

CVRMS/River Products Help TAKO "Take A Kid Outdoors" - Kline Quarry

Eight very brave club members helped to teach a group of 68 kids (and an equal number of parents) about quarries, limestone, and fossils at Klein Quarry on October 3. Working with TAKO (*Take a Kid Outdoors*) and River Products Corp., the upper portion of the quarry was opened for the "*Rockin Rocks and Fossils!*" event. Kids and parents were outfitted with safety glasses and hard hats and allowed to *prospect* in a large pile of limestone blocks and col-



lect fossil and mineral treasures. Fortunately our members were assisted by TAKO, River Products, and Iowa Geological Survey staff as well as John Dawson (Kirkwood) and former State Geologist Don Koch. They were able to answer most questions and prevent injuries. After the geologizing, the attendees ate 132 hot dogs and 36 veggie burgers, washed down with several gallons of lemonade and many bags of chips. Thanks to all who helped with this event, and special thanks to Judy Joyce (TAKO) and Deb Tisor (River Products) for organizing the event. More photos of this event can be viewed at:

[https://www.facebook.com/media/set/?](https://www.facebook.com/media/set/?set=a.956653187711496.1073741847.199038683472954&type=3)

[set=a.956653187711496.1073741847.199038683472954&type=3](https://www.facebook.com/media/set/?set=a.956653187711496.1073741847.199038683472954&type=3)

CVRMS Regular Meeting

CVRMS MEETING MINUTES – OCTOBER 20, 2015

Marv Houg called the meeting to order at 7:12. New members Kim and Jeff and daughter Julie introduced themselves. Jeff Groff made a motion to approve the secretary's minutes as published. Seconded by Julie Whitlatch and carried unanimously. Treasurer Dale Stout reported totals of \$17,092.94 in checking. Tom Whitlatch made a motion to accept the treasurer's report. Seconded by Jay Vavra and carried unanimously.

CORRESPONDENCE: Julie announced the Davenport show will be held Halloween weekend at the Mississippi Valley Fairgrounds.

OLD BUSINESS: Marv extended thanks to all who helped with the September auction. Special thanks to Clarence Burns for his donation of 156 lots, which brought \$4,332, and to Sharon Sonnleitner for providing the food and her duties at setup. Most of the lots for next year are tentatively committed. Added to the list from last month's minutes are Darren Cruse – 200-300 – and Craig Kohl, who asked for 20 lot. Phil Oliver reduced his lots to 50, so Larry Krohn's will be increased to 150. Tom noted that the Sioux Empire Gem & Mineral Club might want to add some lots. Marv noted that we would want to see the material and make sure we have room for it before committing to it

FIELD TRIPS: Marv noted past trips to Klein Quarry in October, and to Jesup for geodes on October 17. Ray Anderson will check with Mark Ginsburg about setting up an indoor trip to see his 3-D printer. About 12 people present were interested. It was also suggested that a trip be set up to Jacob's and St. Francisville for geodes around Thanksgiving.

NEW BUSINESS: There was some discussion about whether we wanted to continue to have refreshments at the meetings. Consensus was that treats allow social time, so keep them, but keep them simple.

The program for the November 14 MAPS meeting will be held at Eidelstein Treasures in Amana, where Ithiel Catiri will show and tell about the dinosaur he and Janise found and are prepping in their basement.

In Dell James's absence, Sharon will check with the Guaranty Bank in Fairfax about reserving the community room on December 8 or the 15. A collection will be taken and the money will be donated to local food banks, such as HACAP, Meals on Wheels, or Linn County Food Bank.

Julie asked if Show contracts were out, and was informed they were not, but will go out soon. Tom announced that we should be sending a list of deceased members to the MWF every 6 months. Those names are read at their meetings.

Tom made a motion to adjourn at 9:30. Seconded by Jim and carried unanimously.

Respectfully Submitted,
Sharon Sonnleitner, Acting Secretary

Rock Calendar

CVRMS Events of Interest

2015

Dec. 8 - CVRMS Christmas Party
Guaranty Bank, Fairfax, Iowa
Eat at 6:30—Potluck
more details: www.cedarvalleyrockclub.org

2016

Apr. 16-17 - CVRMS Gem, Mineral, and Fossil Show
Hawkeye Downs, Cedar Rapids
Sat. 8:30 am - 6 pm; Sun. 9:30 am - 5 pm.
Theme: Fossil Plants & Petrified Wood

Sept. 17-18 - CVRMS Rock and Fossil Auction
Sat. 9 am - 7 pm; Sun. 10 am - 4 pm.
Amana RV Park & Event Center
39 - 38th Ave, Amana

Other Rock Hound Events

2015

Nov. 21 & 22. - Midwest Lapidary Auction
Walnut Creek Auction Headquarters
334 2nd Ave. West, Milan, IL
10 am. (doors open at 8 am)

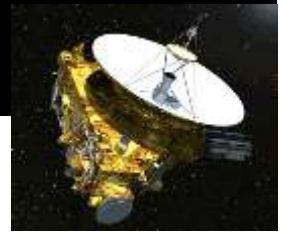
Auction comes from a previous privately owned lapidary store with a huge inventory featuring 5+ tons of foreign country & U.S. rocks, stones & minerals, polishing, cutting & weigh-out equipment, tons of jewelry making accessories & oils & grinding/polishing. Inventory and photos at www.walnutcreekauction.com 309/558-8087.

2016

April 1-3 - MAPS Expo XXXVIII
Sharpless Auctions
Exit 249 I-80, Iowa City, Iowa
Theme: Mesozoic Era

Pluto's Strange Geology Revealed by Spacecraft

"Pluto is showing us a diversity of landforms and complexity of processes that rival anything we've seen in the solar system."



New Horizons Spacecraft

Take a pinch of Mars, a sprinkle of Saturn's moon Iapetus and a dash of Neptune's moon Triton — and the recipe will yield something like Pluto. The first published scientific findings from NASA's New Horizons mission, which flew past Pluto in July, confirm that the dwarf planet does not resemble any other single world in the Solar System. Instead, its wildly varying terrain is a crazy quilt of geological patterns and textures — copied, pasted and tweaked from other planets and moons.



Scientists at NASA don't know how to interpret the geology of recent images of Pluto that shows a 300-mile wide scan of landscape. William McKinnon, Geology, Geophysics and Imaging team deputy lead said "It looks more like tree bark or dragon scales than geology. This'll really take time to figure out; maybe it's a combination of internal tectonic forces and ice sublimation driven by Pluto's faint sunlight.

"It's like a little bit of everything," says Carly Howett, a planetary scientist and New Horizons team member. Like Mars, Pluto has volatile compounds that cycle between freezing onto the ground and sublimating back into the atmosphere. Like Iapetus, it has stunningly bright terrain juxtaposed with dark areas. And like Triton, it seems to have streaks made by wind marring its icy surface.

Pluto's geological activity is driven both by heat leaking from radioactive elements in its interior — a remnant of its birth more than 4 billion years ago — and by the volatile compounds that flit between its surface and its atmosphere. As Pluto moves away from the Sun in its 248-year elliptical orbit, temperatures plummet and these compounds freeze out of the atmosphere and fall onto the surface as frost. When Pluto warms up again, methane, nitrogen, carbon monoxide, and other chemicals transform directly from ice on the surface into atmospheric gases.

High-resolution pictures from New Horizons' cameras show the effects of this seasonal process. The broad, bright plains known as Sputnik Planum seem to be covered by nitrogen glaciers; these flow gloppily, and quickly erase craters made by impacting asteroids. "Punching a hole in jello springs to mind," says Howett. "Everything suggests this ice is exceptionally soft" — making it unique in the Solar System.

Next to the light-coloured Sputnik Planum lies the dark, cratered, ancient-looking Cthulhu region. Its craters may be up to 4 billion years old, from a time when asteroids were heavily bombarding the early Solar System, says team member William McKinnon.

Mission scientists also found that Pluto is as close to perfectly spherical as New Horizons' instruments could possibly measure. This suggests that during its early development, the dwarf planet was warm, squishy and moldable enough to avoid locking into a deformed shape.

For more information see <http://www.nature.com/news/pluto-s-geology-is-unlike-any-other-1.18572>.

CVRMS Board Meeting

CVRMS BOARD MEETING MINUTES – October 27, 2015

Present: Marv Houg, Dale Stout, Ray Anderson, Jay Vavra, Sharon Sonnleitner called to order at 7:20 by Marv

2016 AUCTION: Dale will order the buyer registration and clerk triplicate forms. We will print the bid cards here.

2016 ROCK SHOW: Marv will get details from Ray Garton about a display Ray suggested bringing. The revised floor plan was discussed and basically approved as revised. Phil Oliver (wood) and Kathryn Schmit (Iowa City – pearls) will be contacted about filling ZRS's booth for this year only, since ZRS will be back next year. Dale will contact Mary Campbell to see if she will do a chalk drawing again, and Ray is available to help.

Show Programs: The following were suggested: Brian Witzke – leaves, Jeff Schabillion – giant log from Pella, Coal in Iowa (Ray will find someone), Ray – Petrified Wood of Iowa.

Sharon will prepare the show flyer by Friday. Some discussion about raffle prizes raised the question of whether we can secure prizes by asking a couple dealers to donate a large item instead of the several smaller items they usually give for door prizes.

Adjourned 9:30

Respectfully submitted,
Sharon Sonnleitner, Acting Secretary

Plymouth Rock



.. is a glacial erratic boulder of Dedham granite, a 680 million year old intrusive rock that forms much of the crystalline basement eastern Massachusetts and Rhode Island. When the Pilgrims arrived in 1620 the rock was many times larger than it is today, but many pieces have broken off since then.



Sitting Still? - Hardly

Chances are that you are sitting in a chair right now, so it seems like you are stationary. But in fact you are moving through the universe at a tremendous speed at this very moment. Let's take a look at where all that motion is coming from.

The first thing to consider is the Earth's rotation. The Earth is 24,900 miles in circumference at the equator. The earth takes 24 hours to make one rotation. So:

$$24,900 / 24 = 1,037 \text{ MPH}$$

As you move toward the poles that speed decreases. At the north pole the speed is zero and you are simply rotating in place at one rotation every 24 hours. So let's assume you are sitting somewhere in Iowa, you are moving at about **1,000 miles per hour**.

The Earth is also making one orbit around the Sun every year. That sounds like a long time, but the orbit is huge. The Earth is roughly 93 million miles away from the sun, giving its orbit a circumference of 584 million miles. That works out to **66,666 MPH**.

If you are on the side of the planet where the planet's rotation is moving in the same direction as the orbital direction, these two speeds add together. If you are on the opposite side, they subtract. We are trying to calculate a maximum speed, so we will be adding.

Our solar system itself is also moving in an orbit around the galactic core. The solar system is something like 25,000 light years away from the center of the galaxy, and the galaxy makes one rotation every 250 million years or so. That gives the solar system a speed of something like **420,000 MPH**.

And then the galaxy itself is moving. It has been calculated that the galaxy is moving through the universe at a speed of about **2,237,000 MPH**.

Adding it all up, you get:

$$1,000 + 66,666 + 420,000 + 2,237,000 = 2,724,666 \text{ MPH}$$

In other words, you are hurling through space at

2.7 million MPH

even though it feels like you are sitting still.

[Link to Monty Python's "Universe Song"](#)

Spotlight Gemstone: Topaz



TOPAZ (along with citrine) has been designated as the birthstone for November. It is a silicate mineral of aluminium and fluorine with the chemical formula $Al_2SiO_4(F,OH)_2$. Topaz is one of the hardest gemstones (hardness of 8), and it crystallizes in the orthorhombic system (crystals are mostly prismatic terminated by pyramidal and other faces). Pure topaz is colorless and transparent but is usually naturally tinted by impurities; producing pink, red, reddish-orange, yellow, gold, pale green, blue, pale gray, or white, It can be opaque to transparent/translucent.

Topaz is most often found in igneous rocks of felsic composition. It is also found in some hydrothermal veins and the altered rocks that surround them. It is a common mineral of pegmatites and also found in the cavities of rhyolite and granite. Rarely, topaz is found in metamorphic rocks such as schist or quartzite. Topaz is not an abundant mineral but occurs worldwide.

Imperial Topaz, the most prized color, is a magnificent orange with pink undertones. Brazilian Imperial Topaz can be bright yellow to deep golden brown or violet. Brown or pale topazes can be treated to make them bright yellow, gold, pink or violet.

Naturally occurring **blue topaz**, the state gemstone of Texas, is quite rare. In fact, blue was once the most rare color of topaz, but it is now the most common, due to man's ability to enhance its color. Colorless or pale topaz can be heat treated and irradiated to produce a more desired darker blue.

Orange topaz, also known as precious topaz, is the traditional color for the November birthstone. It is the symbol of friendship, and the state gemstone of Utah.

Mystic topaz is colorless topaz which has been artificially coated giving it the desired rainbow effect.

The ancient Egyptians and Romans associated this golden gem with the sun god giving it the power to protect and heal. Legend says that topaz dispels enchantment. With its worldwide appeal throughout the ages, once you find that perfect topaz you'll soon be under its spell.

New Dinosaur

Abydosaurus: A New Species of Sauropod Dinosaur closest known relative is *Brachiosaurus*

Republished from a news release by [Brigham Young University](http://www.byu.edu).



Illustration of *Abydosaurus mcintoshi*

A team of paleontologists has discovered a new dinosaur species they're calling *Abydosaurus*, which belongs to the group of gigantic, long-necked, long-tailed, four-legged, plant-eating dinosaurs such as *Brachiosaurus*. In a rare twist, they recovered four heads - two still fully intact - from a quarry in Dinosaur National Monument in eastern Utah. Complete skulls have been recovered for only eight of more than 120 known varieties of sauropod.

Because sauropod skulls are made of thin bones bound together by soft tissue they usually fall apart quickly after death and disintegrate. So most of what scientists know about sauropods is from the neck down. The skulls from *Abydosaurus* give a few clues about how the largest land animals to roam the earth ate their food. They didn't chew their food; they just grabbed it and swallowed it.

Analysis of the bones indicates that the closest relative of *Abydosaurus* is *Brachiosaurus*, which lived 45 million years earlier. The four *Abydosaurus* specimens were all juveniles.

BYU geology students and faculty resorted to jackhammers and concrete saws to cut through the hardened 105-million-year-old sandstone containing the bones. At one point the National Park Service called in a crew to blast away the overlying rock with explosives.

The skulls are temporarily on display at BYU's Museum of Paleontology, where visitors can also watch BYU students prepare other bones from *Abydosaurus*.

The generic name refers to Abydos, the Greek name for the city along the Nile River. The specific name *mcintoshi* honors the American paleontologist Jack McIntosh.

What in the World?

October Photo



This rock exposure is in Canada, but the structures shown here can be found at many locations around the world. What are they???



Sand Cave in Pikes Peak State Park is in the drainage below Bridal Veil Falls

October's photo was a colorful, fresh exposure of iron-stained St. Peter Sandstone next to Sand Cave in Pikes Peak State Park near McGregor. The color is created by various oxidation states of iron transported into the pure white sandstone by groundwater. McGregor resident Andrew Clemens collected these colored sands and created spectacular sand art in bottles in the late 1800s. Read more about Andrew Clemens and his spectacular artwork below.



McGregor's Andrew Clemens: Sand Artist

Andrew Clemens., born in 1852, became deaf at age 5 as a result of a serious illness known then as "brain fever." When he turned 13, he attended the State School for the Deaf and Dumb in Council Bluffs. During summer vacations, he created his technique for sand paintings. Clemens collected colored sand from the MacGregor area, including near Sand Cave (see article above). He separated the dry sand into piles of uniform grains of each color. These naturally colored grains formed the basis for Clemens' sand paintings. To create his sand paintings, Clemens used only a few tools: brushes made from hickory sticks, a curved fish hook stick, and a tiny tin scoop to hold sand. His sand paintings ranged from original designs to reproductions of images from photographs.

Because the majority of the bottles that Clemens used were round-top drug jars, he painted his designs upside down. Clemens inserted the sand using the fish hook stick. The brushes were used to keep the picture straight. No glue was used in the process; the sand was only held in place by pressure from other sand grains. Once a design was completed and the bottle was full, the bottle was sealed with a stopper.

Clemens gave away many of his sand paintings as gifts and sold others in the McGregor grocery store, \$1 for small bottles and \$6 - \$8 for larger personalized bottles. Bottles like the one he made for his mother (shown on right) have been valued in excess of \$50,000.



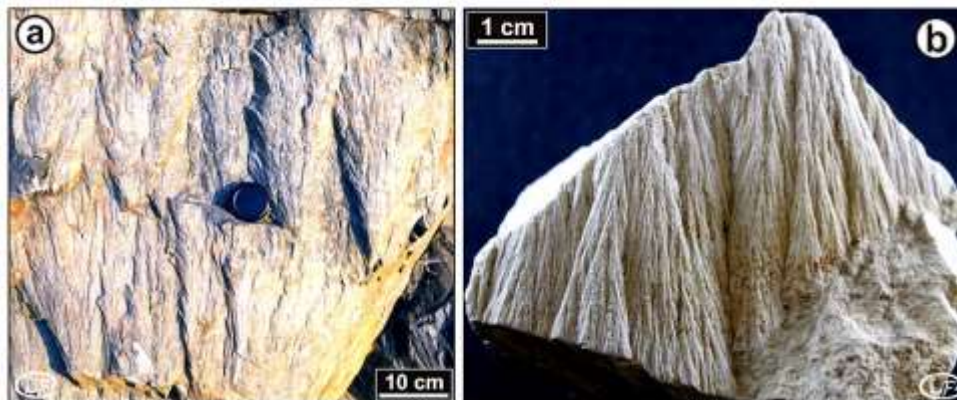
Ask a Geologist

by Ray Anderson aka "Rock Doc", CVR&MS Vice President

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.

Marv asked, What is a Shatter Cone ??

Shatter cones are the only distinctive meteor impact shock-deformation feature that can be seen with the naked eye. These features consist of conical striated fracture surfaces (see pictures) and are best developed in fine-grained rocks (such as limestone), but can sometimes be observed in coarser-grained rocks such as granite where they are usually more poorly developed. By definition, shatter cones are "*distinctive curved, striated fractures that typically form partial to complete cones.*" The striated surface of shatter cones is either a positive or a negative feature, with the striations radiating along the surface of the cone. Shatter cones usually occur in the central uplifts of complex impact structures (greater than 3 miles in diameter) or as isolated fragments in impact breccias. They are usually found as composite groups of commonly partial to complete cones, with frequently opposite orientations. Thus, shatter cone apex orientation can not be used to determine the center of a crater or its size.



Shatter cones. (a) Exposure view of shatter cones in quartzite from Sudbury structure (Ontario, Canada). (b) Macrophotograph of typical horsetailing shatter cone surfaces (in limestone from Steinheim structure, Germany).

The presence of shatter cones is widely accepted as unequivocal proof of a meteorite impact crater, but details of the processes that form them is still not completely resolved. It is generally accepted that shatter cones form at relatively low shock pressures, typically between approximately 2 and 10 GPa (greater than the maximum pressures for terrestrial geologic processes like volcanic eruptions). They are not found associated with all impact craters, and the precise mechanism of their formation is still enigmatic. Most scientists relate the formation of shatter cones to the passage of the impact shock front or the release from shock loading as it interacts with some anomaly in a rock unit, such as a pebble or void. However, none of the existing models of their formation explains all relevant aspects of shatter cones, namely, their (1.) conical to hyperbolic shape, (2.) the presence of diverging striations and grooves, and (3.) their hierarchical bifurcation that produces the horsetailing effect (see photos).

No shatter cones have yet been identified with either of Iowa's impact structures, at Manson or Decorah. The rocks that would exhibit shatter cones are buried beneath glacial drift at Manson and none of these features have been identified in Manson drill cores. The Decorah impact structure may not have been large enough to produce shatter cones, but if it did those rocks are also buried beneath younger strata.

The most commonly seen shatter cones come from Kentland (Indiana), Wells Creek (Tennessee), Crooked Creek (Missouri), Beaverhead (Montana), Santa Fe (New Mexico), Steinheim (Germany), Sudbury (Canada), Siljan (Sweden), Vredeford (South Africa), Rochechouart (France), and Ries (Germany).



Officers, Directors, and Committee Chairs

President.....	Marv Houg (m_houg@yahoo.com).....	364-2868
Vice President. ...	Ray Anderson (rockdoc.anderson@gmail.com)	337-2798
Treasurer	Dale Stout (dhstout55@aol.com)	365-7798
Secretary	Dell James (cycladelics@msn.com)	446-7591
Editor	Ray Anderson (rockdoc.anderson@gmail.com)	337-2798
Liaison	Joy Cummings	981-2482
Imm. Past Pres. ...	Sharon Sonnleitner (sonnb@aol.com)	396-4016
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Director '17.....	Jay Vavra	447-9288
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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

December 8
HOLIDAY PARTY
Dr Jane Gilotti & students
"Iowa Student Field Projects"
NOVEMBER 17
Rockwell Collins 35th St. Cafeteria
November Meeting:



Ray Anderson, Editor
812 Dewey Street
Iowa City, Iowa 52245