



# 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](mailto:rockdoc.anderson@gmail.com)

## Summer CVRMS Potlucks Eat at 6:30

**June 21: Ellis Park Cedar Rapids  
Overlook Pavilion - Lapidary**

**July 19: Squaw Creek Park Mead-  
owlark Pavilion, Marion - Geode  
Cracking**

**August 16: Squaw Creek Park  
Pavilion - Bingo with great prizes**



## Needed: Delegate to Represent CVRMS at the 2016 MWF Convention

The CVRMS is looking for someone to represent the club at the 76th annual Midwest Federation of Mineralogical and Geological Societies Convention in South Bend, Indiana, on August 19, 20, and 21. If you are thinking of attending the meeting please contact Marv Houg ([m\\_houg@yahoo.com](mailto:m_houg@yahoo.com)). For more convention information see <http://www.am-fed.org/mwf/convention/convention.html>.

## 2016 Rock Show Big Success

Final information is now available on the CVRMS 2016 Rock and Fossil show. Attendance was down 25% from last year, with a total of 3443 attendees (2465 adults and 978 children). The later show date and good weather were probable reasons for the lower attendance. CVRMS profits for the show were also lower at \$9707, down about \$2000 from last year. Show receipts totaled \$19,090 with show expenses of \$9383. Most of this profit will go to the CVRMS scholarship programs. Although the crowds were lower,



visitors apparently came to prepared to buy, since most dealers reported excellent business, and the silent auction up more than 13% more profitable than last year. The CVRMS wishes to thank all members and others who worked so hard to make this year's show a success, despite the later show date. Next year's show will return to late March (March 25-26, 2017) and hopefully attendance and profits will return to higher levels.

## CVRMS May Meeting

Meeting held at Guaranty Bank Community Room, Fairfax, IA

**Call to order:** 7:15 p.m. by Marv Houg, President.

**Introduction of new members or guests-** Lisa Blunt new member

**Minutes** -Minutes of previous meeting reviewed. Motion to approve made by Jeff, 2<sup>nd</sup> by Bill. Motion passed.

**Treasurer's report** by Dale- Checking balance \$21,021.62 Dale passed out a compilation of show incomes and expenses .

### Monthly Program

Ray Anderson presented *Iowa's Landscapes*

**Door Prize Winner-** Mary Hensel

### New Business

1. Tom Whitlatch made a motion that we have an annual rock, gem and mineral show in 2017. Motion second by AJohnson. Discussion followed that the dates will be March 25 and 26, 2017. Motion approved.

2. Auction report Marv reported that there are approximately 1100 lots. A list is being put together for the flyers.

3. Summer picnics

a. June- Ellis Park overlook. Lapidary- bring cabs, rough for polishing, etc. Various members will bring polishers, saws, etc.

b. July-Squaw Creek Meadow Lark Pavilion geode cracking. Bring your own and some will be available by members.

c. August- Morgan Creek-Bingo always fun with lots of prizes All picnics are pot luck and eat about 6:30 p.m.

### Field Trips

1. Marv called to set up for Klein Quarry on May 8. He has not heard from them yet but Dale will send out notice when he finds out more.

2. Marv will talk with Glenn at Waterloo for a possible joint geode dig.

3. Bill still checking on possibility of a bus trip to the Fields Museum in Chicago.

4. Class for flint knapping is in the works, Jay spoke with Toby Morrow, the knapper, and he is willing to do a class with 4-5 people per class. Details to be worked out. More information to follow.

### Other business

1. Marv reported on last Sunday's field trip to Conklin Quarry. Fossils, millerite found. About 28 people attended. Marv and Glenn still discussing the possibility of a geode dig in Waterloo.

2. Tom announced the next meeting of the Gold Prospectors Saturday 21 at 6pm at Diamond Lake.

3. American/Midwest show in South Bend, Indiana. Still asking for delegate from our club to represent us. Let Marv know if anyone is interested.

4. Agate Expo in Cedarburg, WI. Tom has cards for dates etc.

5. Dennis Schlicht inquired about show clean up and asked if we can place a time restriction on vendors so we can get out earlier. This will be discussed further at board as we make plans for next year's show.

6. A program suggestion was made by Harold McKenzie regarding East Siberian methane explosion . A geologist could talk about Arctic Ocean, etc. Ray will discuss further at board level.

### Adjournment

Motion made to adjourn by AJ and 2<sup>nd</sup> by Terry Baty Meeting adjourned at 9:15 pm.

**Respectfully submitted,**

Dell James, Secretary

## Rock Calendar

### 2016

**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

**see Page 10 for more information**

**Oct. 23 - CVRMS Field Trip**

Field Museum, Chicago

**see Page 3 for more information**

### 2017

**March 25-26 - CVRMS Gem, Mineral, and Fossil Show**

Hawkeye Downs, Cedar Rapids



## The Cedar Valley Rocks and Minerals Society is organizing a field trip by bus to the Field Museum of Natural History in Chicago on October 23, 2016.

The CVRMS will be chartering a bus to carry club members and others to the Field Museum on Sunday October 23, 2016. The Field Museum was constructed for the 1893 World's Columbian Exposition with the help of Marshall Field, the department store pioneer who donated his good name and \$1 million to the project. In the 1920s the Field Museum of Natural History moved from its South Side home, which years later became the Museum of Science and Industry, to its current home on the lakefront Museum Campus. It has become one of the world's premier natural history museum and one of the largest such museums. It has dropped "Natural History" from its name, but it has stayed dedicated to the field.



**Sue:** In 2000, the Field Museum first displayed, the spectacular 67-million-year-old fossilized *Tyrannosaurus rex* skeleton, the largest and most complete specimen of its kind. Her overall length is 40.5 feet and her skeletal weight is 3,922 pounds. Sue is more than 90% complete by bulk meaning scientists have recovered more of Sue's bones than any other *T. rex*.

**China's First Emperor and His terracotta warriors:** For the remainder of this year the Field Museum is offering a special exhibit of China's terracotta soldiers. First Emperor, Qin Shihuang was buried in a palatial tomb, surrounded by all his worldly treasures. To guard his mausoleum, he commissioned an army of terracotta warriors unlike anything seen before or since. The figures vary in height according to their roles, with the tallest being the generals. The exquisitely crafted terracotta figures included about 8,000 soldiers, 130 chariots with 520 horses and 150 cavalry horses.



**Grainger Hall of Gems:** The Field Museum's newly renovated Grainger Hall of Gems takes a unique approach to its display of precious stones. For a greater understanding of their relationships, the gems are arranged according to type, from organic gems such as amber, coral, and pearls, to elements made from one type of atom, such as diamonds. Each display features a gem in its three stages of transformation: as a raw crystal, as a cut and polished stone, and as a jewel mounted in a finished ring, brooch, or necklace. The exhibit includes a 341-carat aquamarine and a 97.45-carat Imperial Topaz, the rarest type of topaz and the largest owned by any museum in the world!

Seats on the bus will be provided at no charge to CVRSM members (in good standing on June 1, 2016), with a modest charge to non-members if seats are available. Individuals will be responsible for their admission charges and other expenses. We will be departing early Sunday morning, spending much of the day at the Museum, then returning in that evening (exact timetable not yet determined). We will be on our feet most of the day, with a lot of walking and stairs, so be prepared. If you are interested **contact Bill Desmarais ([desmarais\\_3@msn.com](mailto:desmarais_3@msn.com))** to reserve a seat. Non-members will be placed on a waiting list to for available seats, first come first served.

### Field Museum Admission Charges

#### Basic Admission Charges:

Adults \$22  
Children \$15 (ages 3 – 11)  
Seniors \$19 (ages 65+)  
Students \$19 (w/ valid ID)

#### Discovery Pass Admission Charges:

(with admission to Terra Cotta Warrior Exhibit)  
Adults \$31  
Children \$22(ages 3 – 11)  
Seniors \$26(ages 65+)  
Students \$26(w/ valid ID)

#### All-Access Pass Admission Charges:

(with admission to Terra Cotta Warrior Exhibit and one 3d movie)  
Adults \$31  
Children \$22(ages 3 – 11)  
Seniors \$26(ages 65+)  
Students \$26(w/ valid ID)



# CVRMS Board Meeting

**CVRMS BOARD MEETING – MAY 31, 2016**

7:20-9:20 at the home of Marv & Sue Houg

**Members Present:** Marv Houg, Dell James, Sharon Sonnleitner, Jay Vavra, Bill Desmarais, Dale Stout, Dave Roush, Ray Anderson, Joy Cummings

**Meeting called to order** by Marv at his residence at 7:20 pm.

## Show

Ray will include a write up about the past show in the next newsletter. Next year's show will be March 25-26, 2017.

## Auction-September 17-18 at Amana.

Still working on listing for flyer. So far, there does not seem to be any equipment up for auction. Midwest newsletter has our auction listed as a rock swap included. Dale will see about getting that corrected.

Advertisement-Dell will handle Collectors Journal, Hoopla and Tidbits.

Dale will look into Craig's List, Facebook and whether we can get onto auctionzip.com for auction announcement.

Sharon will get bidder cards, printed. Dale will get supplies that are needed. Sharon will do the concession.

## Programs/field trips

Jay is still in contact with flint knapper and working on a class. More to follow.

Bill reported on his investigation into the club sponsoring a bus trip to Chicago Field museum. Cedar Valley World Travel has various opportunities for the club. It all depends on participation and interest.

Motion made by Joy to plan on Oct 23 as the date for a club sponsored field trip to Chicago Fields Museum. Second by Dave. Discussion involved the price and how much would the club be able to subsidize. Also, would other clubs or nonmembers be allowed to join and price of their participation. The goal is to keep the price manageable. Ray will include in newsletter and Bill will find out more of the details. Contact person if you are interested in holding your place is Bill Desmarais. Motion passed.

## Scholarships

Motion made by Dale to repeat the amounts awarded in the previous year. Second by Ray.

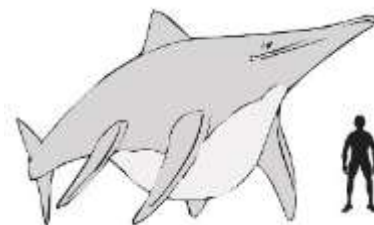
Discussion followed regarding the various ways of dispersing monies to recipients. How to determine the amounts etc. Agreed that a separate board meeting is needed to determine various amounts and based on what kind of formula. This year's awards will be as follows:

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

Motion approved. Will be presented to general membership as a recommendation for approval.

## What Killed the Marine Reptiles Found Near a Nevada Ghost Town?

Located near an abandoned mining town in Nevada, **Berlin-Ichthyosaur State Park** may be the loneliest fossil monument in America. The park is about a three-hour drive from Reno, near the small town of Fallon. But there's something very special about this isolated spot that has drawn a multi-institution team of paleontologists into the Nevada desert. The park's name comes in part from a massive bone bed that has puzzled scientists since its discovery in 1928. Excavations in the 1950s and '60s



Sketch of *Shonisaurus popularis*  
(man for scale)

by paleontologists revealed that the site includes nearly 40 fossil ichthyosaurs, of one of the largest marine reptiles of all time. Named *Shonisaurus popularis*, they could reach 49 feet in length, and the paleontologists undertaking the original excavations suspected that the dense accumulation was a mass stranding similar to what happens to whales today. But continuing work at the site didn't support this idea. The preservation of the bodies and the details of the rock they were found in showed that they had been deposited in deep water, not on the shore, so something else must have happened to the ichthyosaurs. Some sort of deadly algae bloom seemed like a good candidate. And more recently, one researcher jumped into the deep end of speculation to suggest the ichthyosaurs had been killed by an enormous squid, which carefully arranged the bones in its lair. But the true story of what happened has remained hidden in the rock.

Recently paleontologist Rick Kelley, his colleagues, and the Smithsonian's 3D Digitization team employed a multi-platform digitization approach, using medium-range laser scanning, LiDAR, structured light scanning and photogrammetry to digitize the fossil site at multiple scales. The result is a high-resolution digital version of the bone bed that provides a pterosaur's-eye-view of the whole site, as well as detailed scans of the individual bones. This will not only provide key information about the fossils, but will also eventually allow people all over the world to virtually explore the bone bed through publicly released digital models. Preliminary clues have led to ideas about what happened to the ichthyosaurs, but scientists are still actively investigating the data and debating what it suggests. The *Shonisaurus* die-off wasn't the first of its kind, nor will it be the last, so figuring out what happened to the marine reptiles might do much more than help scientists piece together conditions in the late Triassic, about 217 million years ago .

<http://www.smithsonianmag.com/science-nature/what-killed-these-marine-reptiles-found-nevada-ghost-town-180957533/>

## Spotlight Gemstone: Alexandrite

*June's Birth Stone*



Those with June birthdays can apparently choose between birthstones. The American Gem Society lists Pearl, Alexandrite, and Moonstone as June's birthstone. Other gems identified as June birthstones include Smokey Quartz, Light Amethyst, and Tanzanite, but let's discuss **Alexandrite**. Alexandrite is a gem form of the mineral chrysoberyl, an aluminate of beryllium with the formula  $\text{BeAl}_2\text{O}_4$ . This rare gemstone is named after the Russian tsar Alexander II (1818-1881), the very first crystals having been discovered in April 1834 in the emerald mines near the Tokovaya River in the Urals. The discovery was made on the day the future tsar came of age. Although alexandrite is a relatively young gemstone, it certainly has a noble history. Since it shows both red and green, the principal colors of old Imperial Russia, it inevitably became the national stone of tsarist Russia. The most sensational feature about this stone, however, is its surprising ability to change its color. Green or bluish-green in daylight, alexandrite turns a soft shade of red, purplish-red or raspberry red in incandescent light. This unique optical characteristic makes it one of the most valuable gemstones of all, especially in fine qualities. Alexandrite is very scarce: this is due to its chemical composition. It differs from other chrysoberyls in that it not only contains iron and titanium, but also chromium as a major impurity, which accounts for the spectacular color change. Rarely, vanadium may also play a part. When the Russian deposits were thought to have been exhausted, the coveted color change alexandrines were discovered in Minas Gerais, Brazil, in 1987. Although the color of the Brazilian stones is not as strong a green as that of Russian alexandrite, the color change is clearly discernible and occasionally Brazilian alexandrite with chatoyancy is discovered, an effect not observed in Russian alexandrite. Alexandrites are also found in Sri Lanka, India, Burma, Madagascar and Zimbabwe, but the stone is still considered rare. With a hardness of 8.5, alexandrite is an uncomplicated stone to wear. The more distinct the change of color, the more valuable the stone. Finely faceted alexandrite above one carat are among the most expensive gems in the world, rarer than fine ruby, sapphire or emerald.

[http://www.gemstone.org/index.php?option=com\\_content&view=article&id=127:sapphire&catid=1:gem-by-gem&Itemid=14](http://www.gemstone.org/index.php?option=com_content&view=article&id=127:sapphire&catid=1:gem-by-gem&Itemid=14)

## Origin of Earth's Oldest Crystals

New research suggests that the very oldest pieces of rock on Earth -- zircon crystals -- are likely to have formed in the craters left by violent asteroid impacts that peppered our early planet, rather than via plate tectonics as was previously believed.



Scanning electron microscope picture of a zircon crystal from the Sudbury crater.

These ancient crystals were discovered on a sheep ranch in the Jack Hills region of western Australia in 2001.

Scientists have dated an ancient zircon to about 4.4 billion years, making it the oldest confirmed piece of the planet's crust. The origin of these crystals,

which are approximately the width of a human hair has become a matter of major debate. Fifteen years ago these crystals first made headlines when they revealed the presence of water on the surface of the Earth (thought to be a key ingredient for the origin of life) when they were forming. Ten years ago, a team of researchers argued that the ancient zircon crystals probably formed when tectonic plates moving around on the Earth's surface collided with each other. However, current evidence suggests that plate tectonics as we know it today was not functioning on the early Earth. So, the question remained, where did the crystals come from? Recently, geologists suggested these grains may have formed in huge impact craters produced as chunks of rock from space, up to several miles in diameter, slammed into a young Earth. To test this idea, researchers from Trinity College Dublin decided to study a much younger impact crater to see if zircon crystals similar to the very old ones could possibly have formed in these violent settings. In the summer of 2014 the team collected thousands of zircons from the Sudbury impact crater, Ontario, Canada, Earth's second oldest known crater at almost two billion years old. After analyzing the crystals they discovered that the crystal compositions were indistinguishable from the ancient crystals from Australia. Just two years ago a different group of scientists studied the likely timing of impacts on the early Earth and they suggested that these impacts might explain the ages of the ancient zircons. They were understandably very happy to see that the chemistry of the zircons from the Canadian impact crater matched the oldest crystals known to man.

<https://www.sciencedaily.com/releases/2016/04/160428173233.htm>

## What in the World?

### May Photo



**What in the World** are these fossils in sandstone??  
Where do you think it was found?? and how old is it??

The May photo is an image of a portion of the Our Lady of Grace Grotto at St. Mary's Church in West Burlington. Located at 502 West



Mount Pleasant Street, the grotto was started in the spring of 1929 by two Benedictine priests. The Grotto was dedicated on July 13, 1931 and was built entirely of donated rocks and geodes. Contributions were received from every state and many foreign nations, including the Holy Land. Inside the Grotto is a statue of the Blessed Virgin Mary. The domed interior sparkles with the glint of quartz crystals found in the geodes. Through the years the parishioners have volunteered their time and talent to restore, maintain, and make the necessary improvements. The grotto is always open, and visitors are invited to stop by and enjoy the beautiful and peaceful surroundings.



Helenite, also known as Mount St. Helens obsidian, emerald obsidianite, and ruby obsidianite, is an artificial glass made from the fused volcanic rock dust from Mount St. Helens and marketed as a gemstone. Helenite was first discovered accidentally after the eruption of Mount St. Helens in 1980. Workers from the Weyerhaeuser Timber Company were attempting to salvage equipment damaged after the volcanic eruption. Using acetylene torches, they noticed that the intense heat was melting the nearby volcanic ash and rock and turning it a greenish color. The silica, aluminium, iron, and trace amounts of chromium and copper present in the rocks and ash in the area, combined with the heat of the torches, transformed the volcanic particles into a compound that would be later commercially replicated as helenite. As word of the discovery spread, jewelry companies took note and began to find ways to reproduce the helenite. Helenite is made by heating rock dust and particles from the Mount St. Helens area in a furnace to a temperature of approximately 2,700 °F (1,480 °C). Although helenite and obsidian are both forms of glass, helenite differs from obsidian in that it is man-made. The stone has been marketed by the jewelry industry because of its emerald-like color, good refractive index, and durability. It is seen as an inexpensive alternative to other naturally occurring green gemstones like emerald and peridot. Helenite can also come in various red, green and blue varieties.

from <http://geology.com/gemstones/helenite/>



# Ask a Geologist

by Ray Anderson aka "Rock Doc", CVRMS 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](mailto: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.

I was moving rocks to my new house when **Rona Bradshaw** asked: "What is that rock??"

**Rock Doc replied:** The rock is a block of Silurian dolomite, loaded with moldic fossils of the brachiopod *Pentamerus oblongus* found at the Tripoli Quarry. The rock is from the Silurian Hopkinton Formation, Marcus Member. It was collected from a spoil pile at the quarry, and

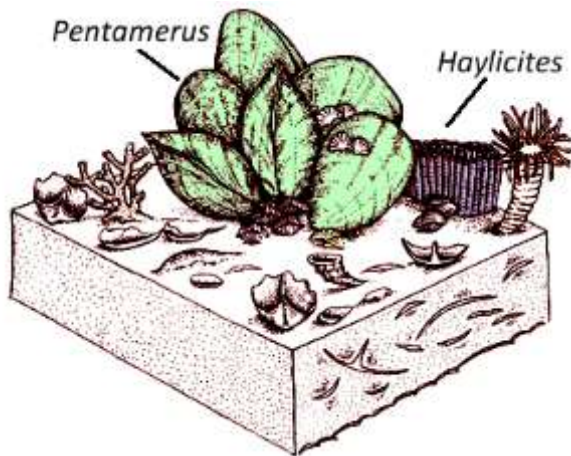
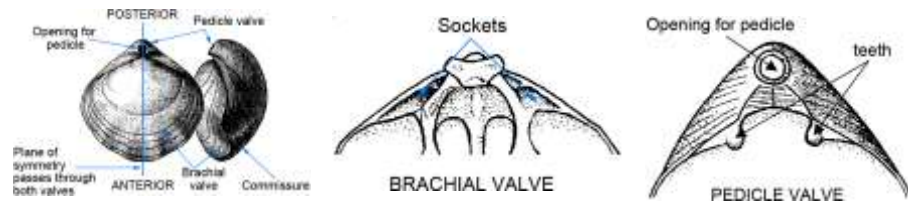


Illustration of *Pentamerus* in life position

also contains specimens of *Halysites* and *Favosites* corals and crinoids. *Pentamerus* specimens sometimes occur in "nests," that is, clusters of specimens still in life position. The *Pentamerus* are found mostly as internal molds that are created when the animal is buried alive (probably by a storm that kicked up a lot of mud burying the brachiopods. The organic portions of the brachiopods decayed away and the shell was filled with calcium carbonate mud. At some later time, probably during the dolomitization of the rock, the original shell material was dissolved away leaving only a fossilized cast of the original organic portions of the animal. The "v-shaped" notches at the end of the internal mold shows the shape of the original *Pentamerus* shell. The illustrations below show the structure of a brachiopod, their pedicle valves that are attached via a stalk-like pedicle to the sea floor, and a brachial valve that opens to allow the animal to feed by filtering organic material from the sea water. With these casts we are looking at an impression of the interior surface of the brachiopod. The posteri



Illustrations of a brachiopod shell and its components

(or hinge region) of the brachiopod is at the top of the illustrations to the left. In the casts you can see a straight slit that represents the ventral muscle field complex (or spondylium) that opened and closed the brachial valve. We would not see this feature (or rather what is left of it) if the exterior shell had not been dissolved. The internal molds of these fossils are popularly referred to as "turtle heads" or "fossil pig's feet because of unique appearance. *Pentamerus* is the most common brachiopod found at Tripoli and a good biostratigraphic marker for the Hopkinton Formation.



### Spectacular fish, plant, insect, bat, bird, turtle, horse and other types of fossils have been found



Location of Green River Formation

Rocks of the Green River Formation contain a story of what the environment was like during the mid-Eocene (~50 million years ago) in what is now parts of Colorado, Utah and Wyoming. At that time uplift of the Rocky Mountains was slowing, and the landscape consisted of rugged mountains



Fossils of a Green River Fm. leaf and fish

separated by broad intermountain basins. Streams draining the steep mountains carried large amounts of sand, silt, mud and dissolved minerals into lakes that occupied the intermountain basins. Over time the sand, silt, and mud began infilling the lakes, their dissolved minerals altered the chemistry of the lake waters. The Green River climate was moist and warm, perfect for rapid plant growth. A dense community of plants grew on broad swampy areas that developed around the margins of the lakes. These plants dropped a steady supply of leaves, branches, seeds and woody materials into the swamp waters. The water cover of the swamp protected the plant debris from decay and it accumulated rapidly. The plant debris layers grew thicker and more extensive over time. Eventually the layers of plant debris were buried and transformed into coal seams. Conditions in the lakes were also ideal for thriving blooms of blue-green algae. They spread over many parts of the lakes as a thick skum of green filaments and strands. For several million years enormous amounts of algal debris sank to the bottom



Green River Fm. fossil bat

and was incorporated into the lake sediments. Through time the algae-rich sediments were transformed into the largest oil shale resource on Earth.

These Green River swamps and lakes provided an exceptional environment for fossil formation. The lakes and swamps were calm environments where remains were quickly buried by sediments. In some parts of the lakes, sediments were deposited in very thin layers known as varves, with a thin layer of dark-colored sediment deposited during the growing season and a thin layer of light-colored sediment deposited in winter. The varves ranged in thickness from a fraction of a millimeter to a few millimeters each. These rocks contain one of Earth's most spectacular deposits of exceptionally preserved plants, animals, insects and fish, the **Green River Lagerstätte** (a sedimentary rock unit with an extraordinary fossil content.) When these thinly layered rocks are split the smooth bedding surfaces often reveal a delicately-preserved fossil. Millions of Green River fossils have been collected by amateur and professional collectors. Palm leaves, ferns and sycamore leaves are very common, and fossils of turtles, bats, birds, mammals, snakes and crocodiles have also been found in the Green River Formation. They are now in collections, exhibits and museums around the world. Photographs of a number of specimens are presented on this page.



Green River Fm. dragon fly



Green River Fm. fossil boa

More information at <http://geology.com/articles/green-river-fossils/>



## All Gold Mined on Earth Came from Meteorites !

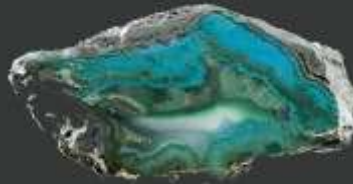
During the formation of Earth, the heaviest elements, dominantly iron, sank to its center to form our core. Along with the iron went the vast majority of the planet's precious metals (gold, platinum, etc.). In fact, there are enough precious metals in the core to cover the entire surface of Earth with a 15 foot thick layer. But if all iron and precious metals are in the core, what have humans been mining throughout history? In fact, precious metals are tens to thousands of times more abundant in Earth's silicate mantle than they should be. Geologists theorized that the cataclysmic sequence of meteorites that hit Earth during its *Late Heavy Bombardment* period (4.1-3.8 billion years ago) after the core formed delivered all of these heavy metals, including gold. To test this theory, Dr Matthias Willbold and Professor Tim Elliott of the Bristol Isotope Group in the School of Earth Sciences analyzed rocks from Greenland that are nearly four billion years old. These ancient rocks provide a unique window into the composition of our planet shortly after the formation of the core but before the proposed meteorite bombardment. The researchers determined the tungsten isotopic composition of these rocks. Tungsten (**W**) is a very rare element (one gram of rock contains only about one ten-millionth of a gram of tungsten) and, like gold and other heavy elements, it should have sunk to the core as it formed. Like most elements, tungsten is composed of several isotopes, atoms with the same chemical characteristics but slightly different masses. Isotopes provide robust fingerprints of the origin of material and the addition of meteorites to Earth would leave a diagnostic mark on its **W** isotope composition. Dr Willbold observed a 15 parts per million decrease in the relative abundance of the isotope **182W** between the Greenland and modern day rocks. This small but significant difference is in excellent agreement with the theory that the heavy metals present near the Earth's surface are the fortunate by-product of bombardment of 20 billion-billion tons of asteroidal material about 4 billion years ago.



## What is Gem Silica?

**Gem silica** is a bluish green to greenish blue variety of chalcedony that receives its vivid color from the presence of **copper**. It is often known as "chrysocolla chalcedony" or "gem silica chrysocolla." Gem silica is the most valuable variety of chalcedony, with quality cut gemstones selling for over \$100 per carat. The best specimens have a pleasing blue color with strong saturation, a uniform translucence, and a lack of inclusions. Even though **gem silica** is one of the most beautiful blue gemstones, most people have never heard of it. That is because it is a very rare gem. It is seldom seen in jewelry and is used mainly by a small number of high-end jewelry designers. Only a few locations have produced noteworthy amounts of gem silica. It is always associated with **copper** deposits and is a secondary mineral that forms as nodules, cavity linings, and fracture fillings in the rocks above and adjacent to copper deposits. Its occurrence, habits, and deposit geometries are like any other type of chalcedony. Commonly associated minerals include **quartz**, chalcedony, chrysocolla, and **malachite**. Deposits are usually small in size and volume. It is a material produced by the gram rather than by the ton. The Miami-Inspiration Mine in **Arizona** is the best recent source of high-quality gem silica. The Keystone Copper Mine in Arizona produced notable amounts of gem silica in the early 1900s. Gem silica has been produced occasionally and in limited amounts from locations in New Mexico, Mexico, Peru, Taiwan, and the Philippines. The name "**gem silica chrysocolla**" is a misnomer because chrysocolla is not the primary constituent; "**chrysocolla chalcedony**" is appropriate if the material contains chrysocolla; but the name "**Gem silica**" is the most appropriate name.

Gem Silica Nodule:



Gem Silica Cabochon:



Botryoidal Gem Silica:



Stalactitic Gem Silica:



<https://www.sciencedaily.com/releases/2011/09/110907132044.htm>

# 2016 Auction Venue - Amana, Iowa

The CEDAR VALLEY ROCKS & MINERALS SOCIETY Presents

## A TWO-DAY ROCK and MINERAL AUCTION

**Amana RV Park and Event Center, 39 38th Ave, Amana, Iowa 52203**

**Saturday, September 17 – 9:00 a.m. - 7 p.m.?**

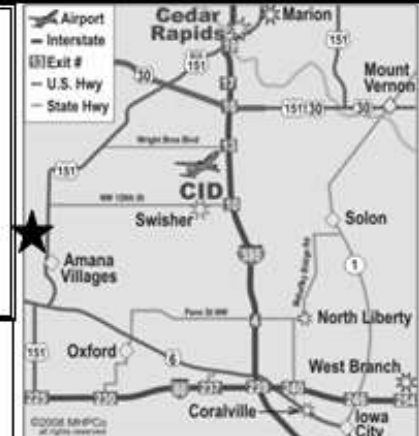
**Sunday, September 18 – 10:00 a.m. – 4 p.m.?**

**Viewing Hours: Fri., Sept. 16, from 5:00 to 7:30 p.m.; Sat. at 7:30 a.m.; Sun at 8:30**



**APPROXIMATELY  
1,200 LOTS**  
From Several Collections  
Minerals, Rough, Fossils,  
Equipment, Books  
**Many Excellent Specimens**

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**THE FOLLOWING IS A VERY PRELIMINARY LIST OF ITEMS TO BE AUCTIONED  
EQUIPMENT WILL SELL AT 2:00 ON SATURDAY**

### ROCKS & MINERALS

Agate: Agate Creek Australia, Argentina, Black River, Blue Holly, Brazil (slabs, specimens, stand-up), Bubble Gum, Cold Water, Condor, Graveyard Point Plume, Kentucky, Laguna, Lake Superior, Missouri Lace, Montana Moss, Poppy jasper, Prairie, Puma  
Agate Rough: Kentucky, Lake Superior  
Agate Slabs  
Geodes  
Green Avertine, rough  
Gold ore, Colorado  
Jasper: Noreena, Picasso, Polychrome  
Jasper rough  
Jade: Wyoming  
Fluorite, fluorescent  
Keswick specimens  
Malachite/Chrysocolla  
Mexican Coconuts  
Native copper  
Obsidian  
Ollie specimens

Petrified Wood: Araucarioxylon, Conifer, Palm, Sequoia  
Pints quarry specimens, some large  
Pyrite  
Pyrite Suns Quartz XLS  
Red Coral  
Ruck's Pit Specimens  
Septarian  
Silver ore, Colorado  
Thompsonite (old, in matrix)  
Thundereggs: Bruno Canyon, Demming, Oregon  
Turquoise  
Youngite (old specimen)

### JEWELRY

Belt Buckles (30x40, new)

### MISC.

Goniatite/Marble carvings  
Spheres: Agate, Petrified wood

### FOSSILS

Brittle star  
Coral  
Crinoid  
Fish  
Stromatolites  
Tampa Bay Coral  
Trilobite  
Wood (Iowa coal mines)

EQUIPMENT (will sell at 2:00 on Sat.)

### BOOKS

Barlow Collection  
Lapidary Books  
Metaphysical

I.D. will be required to obtain buying number. Cash or good check. Two forms of I.D. required for all checks.

No items removed until settled for on day of sale. Not responsible for accidents, theft or damage.

Announcements day of sale take precedence over advertising.

CONTACTS: Marvin Houg 319-364-2868, m\_houg@yahoo.com or Sharon Sonnleitner 319-396-4016, sonnbl@aol.com; www.cedarvalleyrockclub.org



## Newly discovered baby Titanosaur sheds light on dinosaurs' early lives

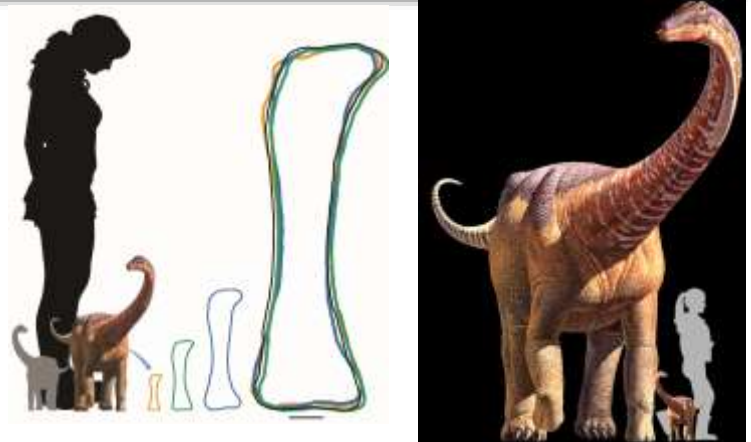
Long-necked sauropod dinosaurs include the largest animals ever to walk on land, but they hatched from eggs no bigger than a soccer ball. A lack of young sauropod fossils, however, has left the earliest lives of these giants shrouded in mystery. Did they require parental care after hatching like some other dinosaurs, or were they self-reliant? Research led by Kristi Curry Rogers of Macalester College in St. Paul, sheds the first light on the life of a young *Rapetosaurus*, a titanosaurian sauropod buried in the Upper Cretaceous Maevarano Formation of Madagascar.

The baby behemoths developed quickly (without the need for parental care after hatching, much like some birds and herding mammals of today) and were capable of a wider array of maneuvers than adult members of their species. The preserved partial skeleton that was exhumed was so small that its bones were originally mistaken for those of a fossil crocodile. The baby's limbs at birth were built for its later adult mass, however as an infant it weighed just a fraction of its future size," Curry Rogers said. "This is our first opportunity to explore the life of a sauropod just after hatching, at the earliest stage of its life."

The detailed microscopic study of the *Rapetosaurus* bones revealed patterns similar to those of living animals and made it possible for the scientists to determine that it grew as rapidly as a newborn mammal and was only a few weeks old when it died.

The team also observed microscopic zones deep within the bones that proved similar to the hatching lines in today's reptiles, and to neonatal growth lines in extant mammals, allowing them to estimate the weight of the newly hatched *Rapetosaurus* was around 7.7 pounds. Clues came from its cartilage growth plates, which bear a striking resemblance to the modified growth cartilages that occur during starvation among living vertebrates. When combined with evidence of an intensely drought-stressed ecosystem represented in the Maevarano Formation, it's clear that this *Rapetosaurus* had it rough, Curry Rogers said. "Between its hatching and death just a few weeks later," she said, "this baby *Rapetosaurus* fended for itself in a harsh and unforgiving environment."

[http://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=138275&org=NSF&from=news](http://www.nsf.gov/news/news_summ.jsp?cntn_id=138275&org=NSF&from=news)



*Rapetosaurus* at hatching (gray) and a neonate (color), with its femur scaled to that of an adult.

A comparison of an adult *Rapetosaurus*, a baby *Rapetosaurus* and a human.

### Minutes: CVRMS Board Meeting May 31, 2016 cont'd from p.4.

#### Miscellaneous

Program suggested from last club meeting regarding the methane gas explosions in Arctic region. Ray can do a program on Climate Change if there is an interest. It was noted that we want to keep programs related to the general interests of the members.

Question raised about ways to enable vendors to vacate the building more quickly. Maybe vendors can start packing up a little earlier?

We still do not have anyone planning on going to South Bend, Indiana for the Midwest Federation show/meeting. Dale will send email seeking volunteers. The club can help pay for some of the expense. Dates are August 19-20-21, 2016.

Marv reported that the field trip to Jessup for Geodes was successful. About a dozen people participated. The weather cooperated perfectly.

**Motion to adjourn** by Joy, 2<sup>nd</sup> by Jay Meeting adjourned 9:30pm.

**Respectfully submitted**  
Dell James, Sec

## Officers, Directors, and Committee Chairs

President.....	Marv Houg ( <a href="mailto:m_houg@yahoo.com">m_houg@yahoo.com</a> ).....	364-2868
Vice President. ...	Ray Anderson ( <a href="mailto:rockdoc.anderson@gmail.com">rockdoc.anderson@gmail.com</a> ) .....	337-2798
Treasurer .....	Dale Stout ( <a href="mailto:dhstout55@aol.com">dhstout55@aol.com</a> ) .....	365-7798
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Editor .....	Ray Anderson ( <a href="mailto:rockdoc.anderson@gmail.com">rockdoc.anderson@gmail.com</a> ) .....	337-2798
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Imm. Past Pres. ...	Sharon Sonnleitner ( <a href="mailto:sonnb@aol.com">sonnb@aol.com</a> ) .....	396-4016
Director '16 .....	Dave Roush ( <a href="mailto:daroush1@gmail.com">daroush1@gmail.com</a> ) .....	363-7842
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Director '18 .....	Bill Desmarais ( <a href="mailto:desmarais_3@msn.com">desmarais_3@msn.com</a> ) .....	365-0612
Sunshine .....	Dolores Slade ( <a href="mailto:doloresdslade@aol.com">doloresdslade@aol.com</a> ) .....	351-5559
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Webmaster .....	Sharon Sonnleitner ( <a href="mailto:sonnb@aol.com">sonnb@aol.com</a> ) .....	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](http://cedarvalleyrockclub.org)

**Summer Potluck Picnics:**

**JUNE 21**  
 Ellis Park Overlook Pavilion

**JULY 19**  
 Squaw Creek Park Meadowlark Pavilion, Marion

**AUGUST 16**  
 Morgan Creek Park Pavilion  
 eat at 6:30



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