



# Cedar Valley Gems

Cedar Valley Rocks & Minerals Society  
Cedar Rapids, Iowa

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

CEDAR VALLEY GEMS

OCTOBER 2016

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Ray Anderson, Editor: [rockdoc.anderson@gmail.com](mailto:rockdoc.anderson@gmail.com)

## Next CVRMS Meeting Tues. October 18

7 pm

At the **NEW** Indian Creek Nature Center  
5300 Otis Road SE, Cedar Rapids  
(see page 11 for info on new Nature Center)

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

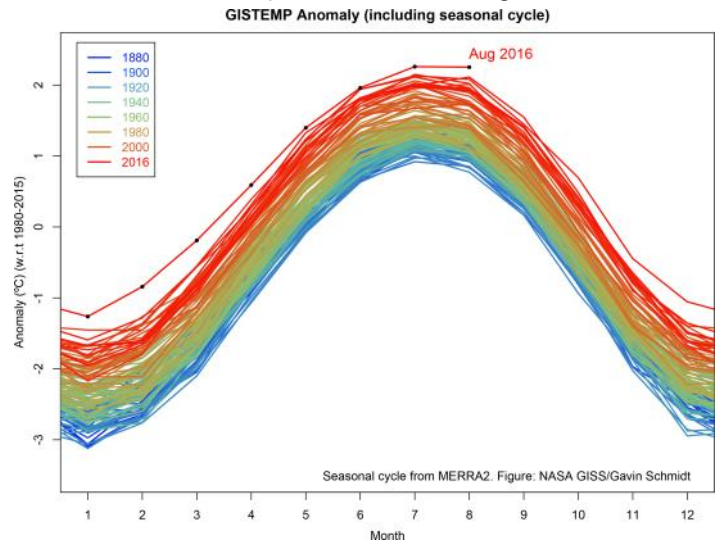
Dr. Jane Gilotti will bring several geoscience students from the University of Iowa to present reviews of their summer field work projects, sponsored in part by CVRMS Fieldwork Grants. Scholarship recipients Terryl Bandy, Daniel Coulthard, Sam Mraz, and Michael Simon will discuss projects and field work.



**GEOLOGY  
ROCKS**

## Global Climate Change? What Global Climate Change?

August 2016 was the warmest August in 136 years of modern record-keeping, according to a monthly analysis of global temperatures by scientists at NASA's Goddard Institute for Space Studies (GISS) in New York. Although the seasonal temperature cycle typically peaks in July, August 2016 wound up tied with July 2016 for the warmest month ever recorded. August 2016's temperature was 0.16 degrees Celsius warmer than the previous warmest August in 2014. Last



month also was 0.98 degrees Celsius warmer than the mean August temperature from 1951-1980. "Monthly rankings, which vary by only a few hundredths of a degree, are inherently fragile," said GISS Director Gavin Schmidt. "We stress that the long-term trends are the most important for understanding the ongoing changes that are affecting our planet." The record warm August continued a streak of 11 consecutive months dating back to October 2015 that have set new monthly high-temperature records. This monthly analysis is assembled from publicly available data acquired by about 6,300 meteorological stations around the world, ship- and buoy-based instruments measuring sea surface temperature, and Antarctic research stations. The modern global temperature record begins around 1880 because previous observations didn't cover enough of the planet.

<http://data.giss.nasa.gov/gistemp/news/20160912/>

# CVRMS Board Meeting

CVRMS BOARD MEETING – SEPTEMBER 27, 2016

7:15-9:50 at the home of Marv & Sue Houg

**Members Present:** Marv Houg, Dell James, Sharon Sonnleitner, Jay Vavra, , Dale Stout, Rick Austin, Joy Cummings

- Meeting called to order by Marv at 7:15 pm.
- Introduction of Rick Austin who has an extensive background in geology and has various interests. Also plays guitar, loves music, and his Grandma had a rock collection. Welcome Rick.

## Auction Recap

- Discussion regarding various sales and input from contributors. Club will net approximately \$10,700 after bills and accounting is completed.
- Dale moved that club absorb the cost of Amana trucking since it was to the club's benefit. Second by Joy. Motion passed.
- Total of 1368 lots sold which is over our desired goal of 1200.
- All agreed, the auction should start an hour earlier on Sunday.
- Discussion regarding auction advertising and how to get information out earlier to attract more potential customers. Suggestion to "fine" contributors who miss deadline to provide key information to Sharon. Suggestion to increase the club's percentage of sales? More discussion to follow.
- Discussed if we should allow a credit/debit card payments. Rick will look into the costs of club getting credit card reader for next auction. Would it be a perk for us to have the capability?
- Suggested that website be available with pictures etc. Sharon currently manages this but is there a way that it could be more convenient for the contributors. Rick will prepare suggestions. Maybe a check list type list for the contributors to complete.

## 2017 Rock Show

- Various ideas were discussed about the theme. Suggestion included "Quartz-The worlds most Durable Mineral" and "building block of calcite and quartzite"? Various ideas for potential displays that may be available.
- Euryptrid?? Tiffany will be asked. Suggestions from club members are welcomed.
- Shock Quartz program? Ask Ray Garten?
- Some dealers that were there last year to fill in for one year may want to return. Marv will find out. General discussion on where to place various displays, vendors etc. More to work on.
- Dates for 2017 show March 25,26 at Hawkeye Downs.
- Bone dig\_ Should we have it? Should it be changed? Are the University students to run it again? Marv will talk to Tiffany.

## Other Business

- Marv has not been able to talk with the various Federation leaders to get information. Will follow up.
- Marv will have sign up sheet for treats available at next meeting.

## Adjournment

Motion to adjourn made by Joy, second by Dale. Meeting adjourned at 9:50 p.m.

Respectfully submitted,  
Dell James

# CVRMS September Meeting

SEPTEMBER 20, 2016

AT INDIAN CREEK NATURE CENTER OLD BARN

**Call to order at 7:05 p.m.** by Marv Houg, President  
Introduction of new members, guests (Brenda Taylor)  
Bill Desmarais welcomed everyone to the Indian Creek nature center barn. Announced that John Meyers, director of center, is pleased to welcome our club to the new center where we will meet next time. It is located just up the road from the barn and by all reports is beautiful. The club plans to meet there until the Rockwell Collins site is again available.

**Minutes of previous meeting reviewed** –Motion to accept by Julie and 2nd by AJ. Minutes accepted as written.

**Treasurer's Report**-Dale reviewed briefly the proceeds from the auction which amounted to \$36,016. Saturday's take was \$21,393.00 and Sunday's \$14,623.00. The total accounting has not been completed but all in all a successful auction. Checking account balance \$8348.97. Motion to accept treasurer's report by Sheri and second by AJ. Approved as presented.

**Door Prize**-Marv Houg won door prize, receive next month.

**Monthly Program** "Iowa's Algific Talus Slopes and Ice Caves" by Ray Anderson

**Auction report**-Marv thanked everyone who worked to make the auction such a success. Special thanks to Sharon for providing the food for the weekend. General discussion followed. There were a total of 1325 lots which was over the predicted number of 1200. Beautiful and unusual specimens were available. In order to get out on Sunday at an earlier time, suggest we move the starting time to 9:00 a.m.  
Nominating committee- Dave Roush, board member, has moved. Ray asked Rick Austin and he graciously accepted, if he would fill in. His term will expire 2019. Marv asked three times for nominees from the floor. There were none. Motion to accept Rick Austin as board member made by Ray and second by Dell. Nomination approved.

**Christmas Party**-Will be held on second Tuesday of December, December 13, instead of our regular meeting date. It will be held at the new Indian Creek Nature Center. More info to follow.

**Crinoid for Iowa State Fossil** - Ray is heading up the drive to get the crinoid dedicated as the Iowa state fossil. Other attempts have been made in the past but fizzled out. Ray suggested that geological surveys, university earth science students and teachers have expressed lots of interest. Bill suggested that the VAST kits include a letter to write to legislators. General opinion, we need to use various resources to generate interest and place some pressure on the legislature.

*continued on page 3.*

## Mustgravite: a Rare Gemstone

**Musgravite** ( $\text{Be}(\text{Mg}, \text{Fe}, \text{Zn})_2\text{Al}_6\text{O}_{12}$ ) is one of the newest and most rare gemstones in the world. Musgravite is a silicate mineral whose main ingredients are beryllium, magnesium, and aluminum and its color ranges from a brilliant greenish gray to



purple. It was named 'musgravite' after the area Musgrave in Australia from where the material was first found in 1967. Two pieces of faceted gem-quality musgravite

from Sri Lanka were reported in 1993, and it has also been found near Johannesburg South Africa. The mineral has also been found in Greenland and Madagascar, but neither of them produces gem quality material. An incredibly hard stone (8-8.5) musgravite is also exceedingly rare, fetching \$35,000 - or more - per carat .

### CVRMS September Meeting *continued from page 2.*

**Field trips**-Bill reported that the Chicago Fields Museum bus trip scheduled for October 23, still has 11 vacancies and is open to the public or other clubs for \$25.00 per person. Individuals are responsible for their own museum admission fees. Bus will leave from 6100 7<sup>th</sup> St. Court S.W. at 5:30am and will leave Chicago at 4:00pm. Check with Bill Desmarais for more specific instructions if you have questions.

Jay has not been able to contact Toby for flint knapping class. Craig Kohl knows someone who flint knapps and will ask him. He will notify Marv of results.

**Other Business**-Julie inquired about the statement regarding the costs of hosting federation shows may be prohibitive. Discussion followed regarding the need to rent more space, the cost of doing such, what type accommodations are required, will it be a 3 day show, will there be an increase in revenue to compensate for the expenses of hosting the show? Tom will ask both Federations if there will be display cases and how many? What has the history of other clubs who hosted the show with regard to attendance and revenue increase? It was generally agreed that more information is needed before a decision can be reached. The basic question is whether it is worth the club's expense and extra efforts required to host the federation shows? More to follow and will be discussed at the board level.

**Adjournment**-Motion made to adjourn by AJ/and 2<sup>nd</sup> by Sheri. Meeting adjourned at 9:05p.m.

Respectively submitted,  
Dell James, Secretary

## Spotlight Gemstones: Tourmaline / Opal

### November's Birth Stones



If you were born in November you may choose from 2 birthstones, tourmaline or opal.

**TOURMALINE** is a crystalline boron silicate mineral compounded with elements such as aluminium, iron, magnesium, sodium, lithium, or potassium. It is a six-member ring cyclosilicate having a trigonal crystal system, occurring as long, slender to thick prismatic and columnar crystals that are usually triangular in cross-section, often with curved striated faces. The style of termination at the ends of crystals is sometimes asymmetrical, called *hemimorphism*. Tourmaline is distinguished by its three-sided prisms; no other common mineral has three sides. Prism faces often have heavy vertical striations that produce a rounded triangular effect. Tourmaline is classified as a semi-precious stone and the gemstone comes in a wide variety of colors. Varieties include **schorl** (Brownish black to Black), **dravite** (dark yellow to brownish black), **rubellite** (red or pinkish-red), **indicolite** (light blue to bluish green), **verdelite** or Brazilian emerald (green), and **achroite** (colorless). In all, 32 tourmaline group endmembers are recognized. **Bicolor** or **tricolor** tourmaline crystals are also found.

**OPAL** is a hydrated amorphous form of silica ( $\text{SiO}_2 \cdot n\text{H}_2\text{O}$ ). Its water content may range from 3 to 21% by weight, but is usually between 6 and 10%. Because of its amorphous character, it is classed as a mineraloid, unlike crystalline forms of silica, which are classed as minerals. It is deposited at a relatively low temperature and may occur in the fissures of almost any kind of rock, being most commonly found with limonite, sandstone, rhyolite, marl, and basalt. The internal structure of precious opal makes it diffract light. Depending on the conditions in which it formed, it can take on many colors. Precious opal ranges from clear through white, gray, red, orange, yellow, green, blue, magenta, rose, pink, slate, olive, brown, and black. Of these hues, the black opals are the most rare, whereas white and greens are the most common. It varies in optical density from opaque to semitransparent. Fossils are sometimes replaced or coated by opal.



## 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 museums, and one of the largest. It has dropped "Natural History" from its name, but it has stayed dedicated to the field.

>> TRIP NOW OPEN TO NON-MEMBERS—\$25 ea. WHILE SEATS ARE AVAILABLE >>



**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 elementals 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!



>> TRIP NOW OPEN TO NON-MEMBERS—\$25 ea. WHILE SEATS ARE AVAILABLE >>

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 **See page 2 for trip departure information.**

#### 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)

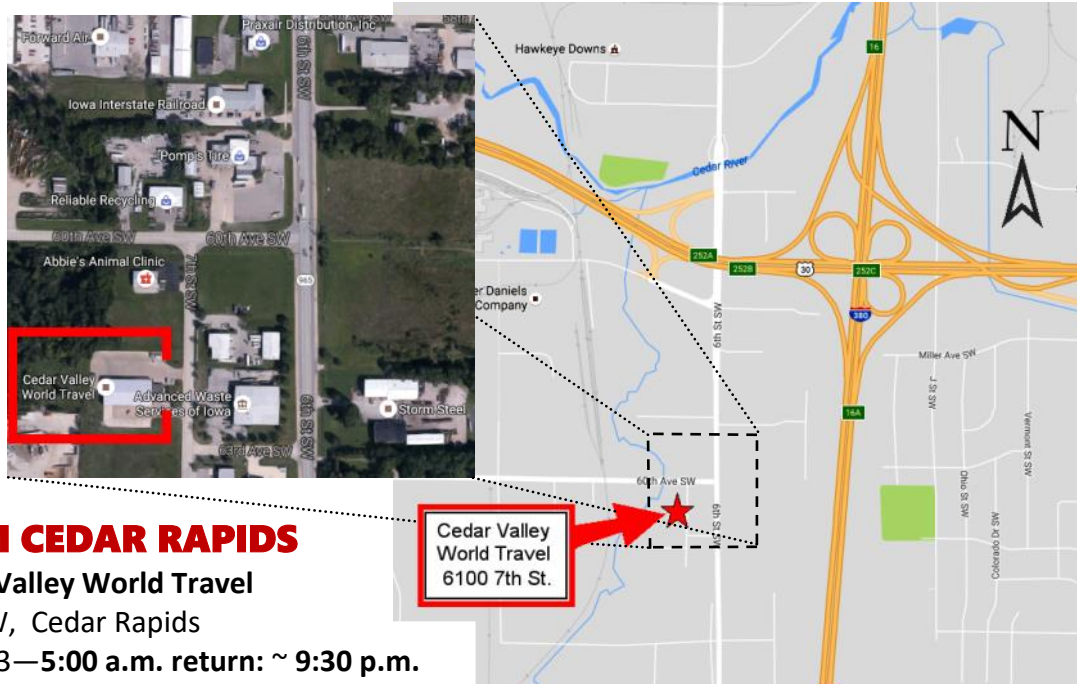
#### All-Access Pass Admission Charges:

(with admission to Terra Cotta Warrior Exhibit and one 3d movie)  
Adults \$38  
Children \$26 (ages 3 – 11)  
Seniors \$32 (ages 65+)  
Students \$32 (w/ valid ID)

# Where To Meet For Chicago Field Museum Field Trip

The bus to Chicago will leave from Cedar Valley World Travel in Cedar Rapids and will stop at the Clarion Hotel in Iowa City to pick up people there.

*see schedules below:*



## LEAVE FROM CEDAR RAPIDS

depart: Cedar Valley World Travel  
 6100 7th St SW, Cedar Rapids  
 Sat. October 23—5:00 a.m. return: ~ 9:30 p.m.  
*monitored parking available*

**Clarion Hotel Highlander  
 Conference Center**  
 2525 N Dodge St,

## LEAVE FROM IOWA CITY

depart: Clarion Hotel Highlander Conference Center  
 2525 N Dodge St, Iowa City  
 Sat. October 23—5:20 a.m. return: ~ 9:00 p.m.



## DON'T BE LATE

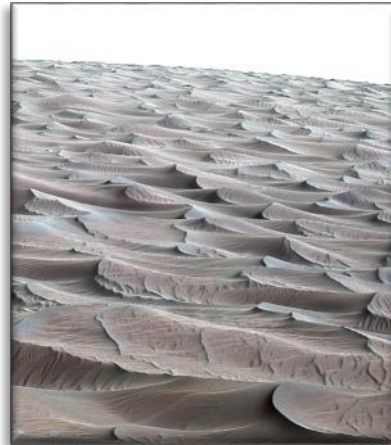
- bring*
- > camera
- > snacks & drinks
- > **SMALL** coolers  
 (must fit on or under seat)
- can purchase lunch at museum

## What in the World?



**What in the World** is this beauty??  
(hint: not a snow globe)

## September Photo



Last month's photo is the rippled surface of the first Martian sand dune ever studied up close. It shows a part of "High Dune" from the Mast Camera on NASA's Curiosity rover. Part of the "Bagnold Dunes" field along the north-

western flank of Mount Sharp, these dunes are active, migrating up to about one yard or meter per year. .

Credit: NASA/JPL-Caltech/MSSS

## Rock Calendar

### 2016

**Oct. 2 - Sunday At The Quarry**  
Raymond Quarry

**see Page 9 for more information**

**Oct. 7-9 - Sac and Fox Lapidary Club**  
Gem & Mineral show, Fairfield

**Oct. 18 - CVRMS October meeting -**  
New Nature Center building

**Oct. 9 - Joint CVRMS & MAPS field trip**  
lein quarry, Coralville

**Oct. 23 - CVRMS Field Trip**  
Field Museum, Chicago

**see Page 4-5 for more information**

### 2017

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

***"The Wonders of Quartz"***

Hawkeye Downs, Cedar Rapids

**March 31-April 2—MAPS National  
Fossil Expo 39**

***"The Silurian"***

Sharpless Auctions Facility, Iowa City



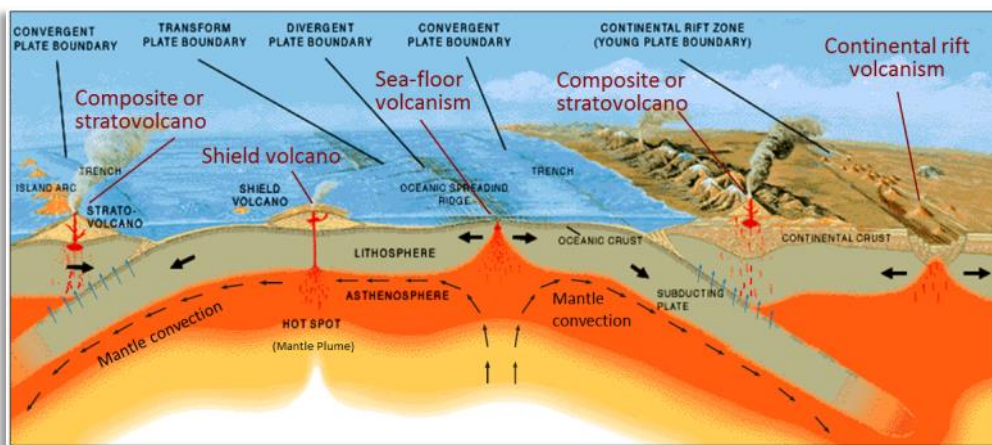
# Ask a Geologist

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.

**Rona Bradshaw asked:** "The geology stories that you tell me about how all of these landscapes formed usually include plate tectonics. You always say that the Earth started as a sphere of molten rock. How far back in Earth's history does this plate tectonic activity go?"

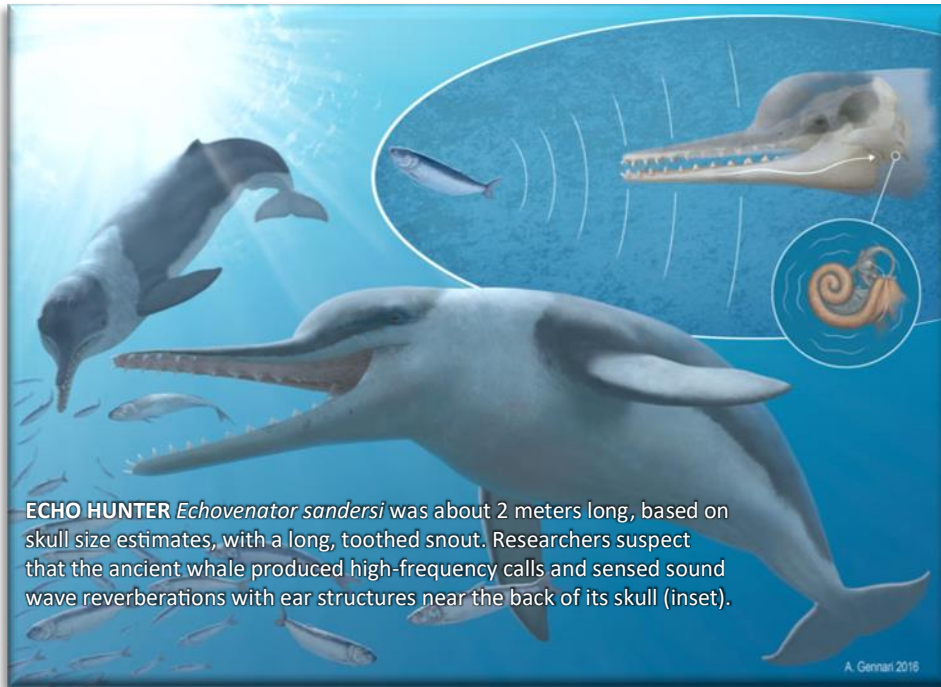
**Rock Doc replied:** You were actually listening?? Well, geologists are constantly refining their understanding of how geology worked during the early part of Earth's history. There are only a few surviving rocks from early Earth, say 4.5 to 3.5 billion years ago, and some of the younger ones are difficult to interpret. But I believe that the latest information suggests that volcanoes driven by the plate tectonic process were active up to 3.8 billion years ago. Geologists know that the upwelling and melting of Earth's mantle at mid-ocean ridges, and the eruption of new magmas on the seafloor, continually produce new oceanic crust. As the oceanic crust moves away from the mid-ocean ridges and cools it becomes denser than the underlying mantle. Eventually most of this oceanic crust sinks back into the mantle, triggering more volcanic eruptions. This process is known as subduction and it occurs at plate boundaries. Volcanic eruptions that are triggered by subduction of oceanic crust are chemically distinct from those erupting at mid-ocean ridges and oceanic island chains, such as Hawaii. The differences between the chemistry of magmas produced at each of these tectonic settings provide 'geochemical fingerprints' that can be used to try to identify the types of tectonic activity taking place early in Earth's history. Geochemical studies have identified similarities between modern subduction zone magmas and those erupted about 3.8 billion years ago, during the Eoarchean era, to argue that subduction-style tectonic activity was taking place early in Earth's history. But no suites of uncontaminated volcanic rocks older than 3 billion years could be found with compositions comparable to modern mid-ocean ridge or oceanic island magmas. Without those missing piece of the puzzle, geologists weren't sure whether the sub-



duction-like compositions of 3.8 billion year-old volcanic rocks really were erupted at subduction zones, or produced by some other early Earth process. Consequently, evidence for subduction-related tectonics earlier than 3 billion years ago has been highly debated in the geologic literature. A few years ago Carnegie Institution geologist Frances Jenner and her team collected 3.8 billion-year-old volcanic rocks from

Innersuartuut, an island in southwest Greenland, and found that the samples had compositions comparable to modern oceanic islands, such as Hawaii, and may represent the world's oldest recognized suite of uncontaminated oceanic island basalts. So this evidence argues that subduction of oceanic crust into the mantle has been taking place since at least for 3.8 billion years. Scientists believe that Earth formed around 4.54 billion years ago by accretion from the solar nebula, molten because of frequent collisions with other bodies, most notably with Theia, another planetary body about the size of Mars that collided with Earth around 4.31 billion years ago, totally melting Earth and producing our Moon. Since we have zircons up to 4.4 billion years (older than the Theia collision!) indicating crust had formed within 200 million years of accretion, it probably reformed within a few hundred million years after the Theia collision. Say about 4 billion years ago, with the evidence for subduction about 3.8 billion years.

## *Echovenator sandersi* (“Echo Hunter”) ancient relative of the modern dolphin



**ECHO HUNTER** *Echovenator sandersi* was about 2 meters long, based on skull size estimates, with a long, toothed snout. Researchers suspect that the ancient whale produced high-frequency calls and sensed sound wave reverberations with ear structures near the back of its skull (inset).

A roughly 27-million-year-old fossilized skull echoes growing evidence that ancient whales could navigate using high-frequency sound. *Echovenator sandersi* (“Echo Hunter”), the newly-named fossil whale species with superior high-frequency hearing ability was described by Dr. Jonathan Geisler (New York Institute of Technology) in the August, 2016, *Current Biology*. An ancient relative of the modern dolphin, “Echo Hunter” could hear frequencies well above the range of hearing in humans. Its super power was aided in part by the unique shape of its inner ear features, which has given scientists new clues about the evolution of

this specialized sense. The research pushes the origin of high frequency hearing in whales back in time—approximately 10-million years earlier than previous studies have indicated. Modern whales are divided on the sound spectrum. Toothed whales, such as orcas and porpoises, use high-frequency clicking sounds to sense predators and prey. Filter-feeding baleen whales, on the other hand, use low-frequency sound for long-distance communication. Around 35 million years ago, the two groups split, and *E. sandersi* emerged soon after. CT scans show that *E. sandersi* had features indicative of ultrasonic hearing in modern whales and dolphins. Most importantly, it had a spiraling inner ear bone with wide curves and a long bony support structure, both of which allow a greater sensitivity to higher-frequency sound. A small nerve canal probably transmitted sound signals to the brain. “This was a small, toothed whale that probably used its remarkable sense of hearing to find and pursue fish, with echoes only,” says Geisler. “This would allow it to hunt at night, but more importantly, it could hunt at great depths in darkness, or in very sediment-choked environments.” Discovered over a decade ago in a drainage ditch by an amateur fossil hunter on the South Carolina coast, the skull belongs to an early toothed whale. The fossil is so well-preserved that it includes rare inner ear bones similar to those found in modern whales and dolphins.



Skull of *Echovenator sandersi* unearthed in South Carolina similar to those found in modern whales and dolphins.

<https://www.sciencenews.org/article/new-fossil-suggests-echolocation-evolved-early-whales>



# SUNDAY AT THE QUARRY

OCTOBER 2, 2016

11 AM-4PM

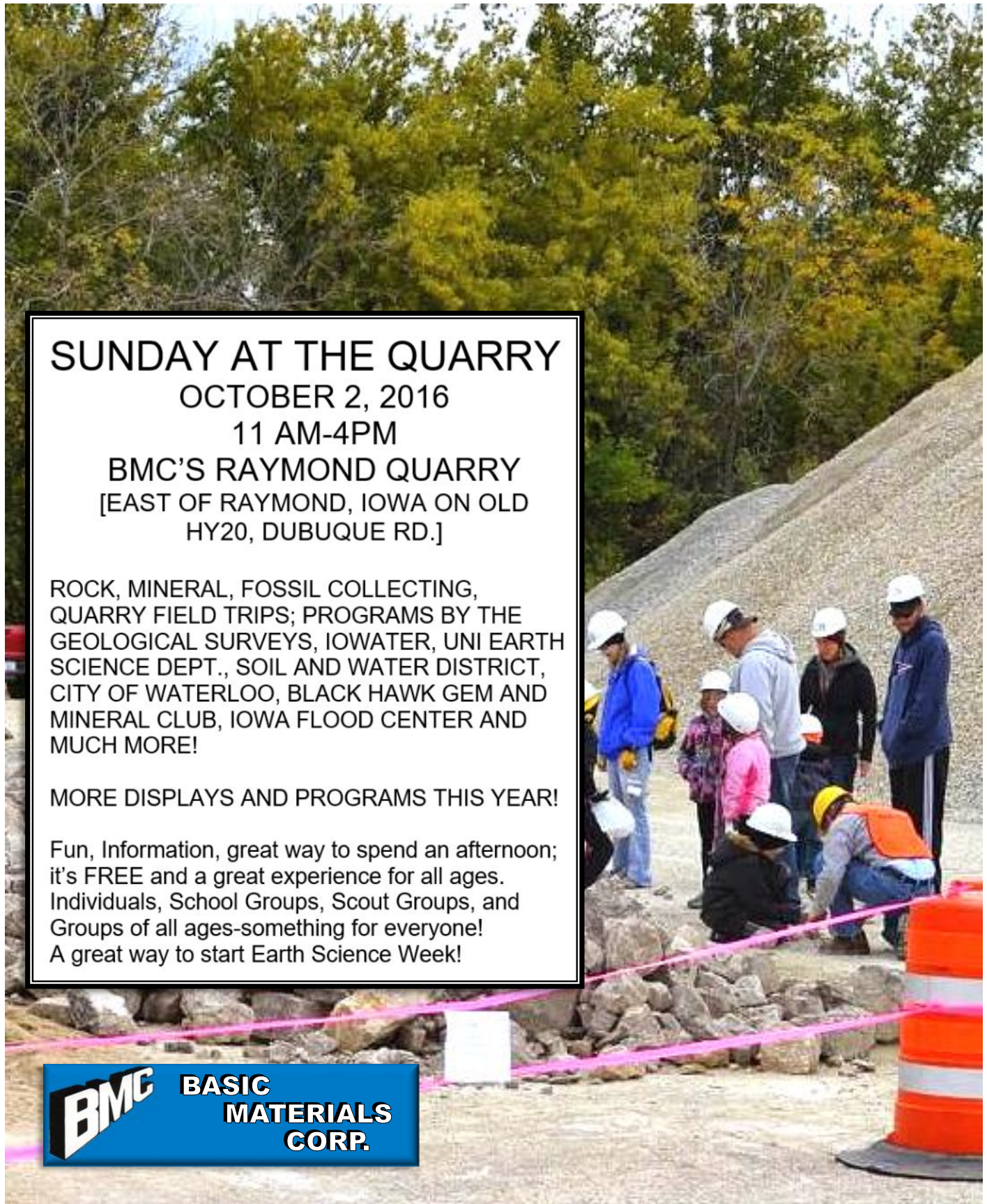
**BMC'S RAYMOND QUARRY**  
[EAST OF RAYMOND, IOWA ON OLD  
HY20, DUBUQUE RD.]

ROCK, MINERAL, FOSSIL COLLECTING,  
QUARRY FIELD TRIPS; PROGRAMS BY THE  
GEOLOGICAL SURVEYS, IOWATER, UNI EARTH  
SCIENCE DEPT., SOIL AND WATER DISTRICT,  
CITY OF WATERLOO, BLACK HAWK GEM AND  
MINERAL CLUB, IOWA FLOOD CENTER AND  
MUCH MORE!

MORE DISPLAYS AND PROGRAMS THIS YEAR!

Fun, Information, great way to spend an afternoon;  
it's FREE and a great experience for all ages.  
Individuals, School Groups, Scout Groups, and  
Groups of all ages-something for everyone!  
A great way to start Earth Science Week!

**BMC** BASIC  
MATERIALS  
CORP.



# CVRMS Rock & Mineral Auction 2016



On Saturday and Sunday (Sept 17-18) the CVRMS conducted its **2016 Rocks and Minerals Auction**. A total of 1368 lots were sold (more than our goal of 1200 lots) of beautiful and unusual specimens, rock crafting equipment, jewelry, fossils, and books. Preliminary estimates of the total sales suggest that the **Society** will net approximately \$10,700 before bills and accounting is completed. President Marv Houg thanks everyone who worked to make the auction such a success. Special thanks to Sharon Sonnleitner for providing the food for the weekend.

Marv auctions off rock and mineral treasures



Bob Roper helped sell a lot of 'lakers'.

Lots of agates, wood, and other specimens wait to go to auction



This beautiful geode attracted much interest. *thanks to Dell James for the photos*

Some of the rock cutting, polishing, and other equipment that was sold at the rock auction.





For at least the next few months the CVRMS will be holding its monthly meeting at a new venue, the Educational Building on the brand new campus of the Indian Creek Nature Center, at 5300 Otis Road less than 1/2 mile west of its previous location. The Indian Creek Nature Center opened in 1973 as Iowa's first nature center. It is the only privately funded nature center in Iowa. The barn that served as the original main building was built in 1932 with renovations in 1973 and 1986. With heavy public usage more renovations were needed, then the flood of 2008 proved that a new building should be built on higher ground. This led to the launching of a three-year fund raising campaign culminating in their new facility, the **Amazing Space**, a new educational and interpretive campus for the Nature Center. The 12,000-square-foot, \$5.9 million structure is the largest **net zero energy** building in Iowa and will be the first nature center in the world to achieve a **Living Building Challenge** certification. This certification, from the non-profit International **Living Future Institute**, is described as a philosophy, advocacy tool and certification program that promotes the most advanced measurement of sustainability in the built environment. The certification evaluation will come after 12 months of operation has demonstrated that the facility has a have proven performance and has meet all assigned Imperatives. To obtain Net Zero Energy certification the building must meet energy sustainability and low impact requirements. The **Amazing Space** includes:



**Geothermal System (Ground Source Heat Pump and Radiant Floors)** – The system relies on steady underground temperatures to preheat and precool air entering the building. In winter, liquid in the geothermal wells provides radiant floor heating throughout the building. During summer the geothermal system cools ventilated air entering the building.

**Harvesting the Power of the Sun** – A roof-mounted photovoltaic array will produce all the energy the building and site require. The system will be tied to the utility grid, allowing excess electricity on sunny days to be used by Alliant Energy customers. The system will be sized for future expansion.

**Sustainable Building Materials** – Responsibly sourced and produced materials will be used in the construction of the building and site. Toxic chemical products such as PVC piping, formaldehyde, and mercury will be avoided. Wood products will be salvaged or certified sustainable by the Forest Stewardship Council.

**LED Lighting & Natural Daylighting** – LED lighting will be used in all areas requiring traditional lighting. Well-placed windows allow daylight into all occupied spaces, reducing the need for electric lights. Operable windows will allow natural ventilation, reducing the demand on mechanical heating and cooling systems.

**Roof-Mounted Solar Water Heater** – The sun will preheat water that will be used to feed traditional hot water uses, such as sinks, kitchen use, maintenance, and a shower. On-demand electric heaters bring water up to final temperatures as needed.

It will be a treat to be able to use this wonderful new facility as the home of the CVRMS for the next few months. We hope that all members and other interested parties will be able to attend our meetings and see the **Amazing Space** for themselves.

## Officers, Directors, and Committee Chairs

President.....	Marv Houg ( <a href="mailto:m_houg@yahoo.com">m_houg@yahoo.com</a> ).....	364-2868
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Club meetings are held the 3rd Tuesday of each month from September through November and from January through May at 7:00 p.m., temporarily at a location to be announced. The December meeting is a Christmas dinner held near 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)

Next Meeting:  
**OCTOBER 18**  
 NEW Indian Creek Nature Center  
 "CVRMS-Sponsored Field Work"  
 by University of Iowa Students



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