



# Cedar Valley Gems



Cedar Valley Rocks & Minerals Society  
Cedar Rapids, Iowa

CEDAR VALLEY GEMS

DECEMBER 2016

VOL. 42, ISSUE 10

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



**Next CVRMS Meeting**  
**Tues. DEC. 13**  
**CHRISTMAS PARTY & POTLUCK**

The **CVRMS 2016 Christmas Party** will be a week earlier than our usual monthly meeting, on **December 13** at the **Indian Creek Nature Center's "Amazing Space"** nature center. We will **meet around 6:00 pm** and **eat at 6:30** in the **Elizabeth M. Allsop Auditorium**. The club will provide ham and turkey as well as soft drinks. Participants are invited to bring other dishes to contribute to our annual feast. Please bring your own table service and a big appetite. Games will be organized with prizes for winners. Ray will put together a show of slides contributed by participants in the Field Trip to the Field Museum. **See Page 8 for Additional Information**



Elizabeth M. Allsop Auditorium.

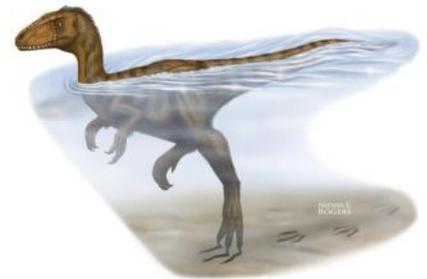
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**hope  
your  
Christmas  
ROCKS !**



## Dinosaurs Were Strong Swimmers

A University of Alberta researcher has identified some of the strongest evidence ever found that dinosaurs could paddle long distances. Working together with an international research team, U of A graduate student Scott



Persons examined unusual claw marks left on a river bottom in China that is known to have been a major travel-way for dinosaurs. Alongside easily identified fossilized footprints of many Cretaceous era animals including giant long neck dinosaurs, researchers found a series of claw marks that indicates a coordinated, left-right, left-right progression. "What we have are scratches left by the tips of a two-legged dinosaur's feet," said Persons. "The dinosaur's claw marks show it was swimming along in this river and just its tippy toes were touching bottom." The claw marks cover a distance of 15 meters which the researchers say is evidence of a dinosaur's ability to swim with coordinated leg movements. The tracks were made by a carnivorous theropod dinosaur that is estimated to have stood roughly 1 meter at the hip. Fossilized rippling and evidence of mud cracks indicate that over 100 million years ago the river, in what is now China's Szechuan Province, went through dry and wet cycles. The river bed, which Persons describes as a "dinosaur super-highway" has yielded plenty of full foot prints of other theropods and gigantic four-legged sauropods. With just claw scratches on the river bottom to go with, Persons says the exact identity of the paddling dinosaur can't be determined, but he suspects it could have been an early tyrannosaur or a *Sinocalliopteryx*. Both species of predators were known to have been in that area of China.

<https://www.sciencedaily.com/releases/2013/04/130408123502.htm>

## CVRMS October Meeting

Meeting at new Indian Creek Nature Center, November 15

Call to order at 7:10 p.m. by Marv Houg, President

**Introduction of new members, guest-**Kyle Bartless, Jenny Arkle, Kelsey Feser, Emily Finzel (writer apologizes for misspelled or missed names)

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

**Treasurer's Report-**Dale gave treasurer's report, Checking balance at \$25,449.44. Motion to accept by Lisa , second by Terry. Report accepted.

**Correspondence-**Dale reported that he received word from the geology club at U of I that they are looking for donations of rocks, jewelry etc. to sell at their annual public invited sale to be held on November 30 and Dec. 1. Proceeds used to fund their fall field trip. Anyone willing to donate some material can let Dale know and he will deliver them in time for the sale. Call him 365-7798 or email [dhstout55@aol.com](mailto:dhstout55@aol.com).

**Monthly Program-**Dr. Emily Finzel (Univ of Iowa) *"Using sand grains to identify ancient river systems: an example from the Pennsylvanian strata of Iowa."*

**Door Prize-**Dolores Slade won door prize and chose a book.

### New Business

**1. Election of officers.** Regular meeting closed at 8:15 pm. Annual meeting called to order at 8:16 pm. Marv read the proposed slate of officers as listed in the newsletter. President-Marv Houg, Vice President-Ray Anderson, Treasurer Dale Stout, Secretary Dell James, Editor Ray Anderson, Liason Joy Cummings, Director 2019 Rick Austin, Webmaster Sharon Sonnleitner. There were no nominations from the floor. Motion by Tom and second by AJ to accept the proposed slate of officers. Motion passed unanimously. Annual meeting closed 8:22pm, monthly meeting reconvened.

**2. Show Report.** Sharon is working on flyers. Julie asked if contracts have been sent out. Bob Roper is working on them . Marv announced that all vendors must have their own individual sales tax permit. Will speak with Bob so that the permit forms could be sent with the contracts. Discussion about the official names for the show. ***"Calcite and Quartz, Two of Earth's Most Versatile Minerals Abundant in Iowa"*** Motion made by Jay to approve the title, second by Matt B. Motion passed.

### Old Business

**1. Christmas Party.** Will be held on second Tuesday of December, December 13.at the new Indian Creek Nature Center. Dell will provide more info for the newsletter. Meeting begins around 6:pm and dining will begin at 6:30. Club will provide the meat, potatoes, stuffing, gravy and drinks.

*continued on page 10*

## CVRMS Board Meeting

NOVEMBER 29, 2016 – 7:20 PM

7:15 at the Home of Marv & Sue Houg  
Present: Marv Houg, Dale Stout, Ray Anderson, Bill Desmarais, Rick Austin, Sharon Sonnleitner

**AUCTION:** The current list of auction consigners is: Jeff Vogel – 10, Larry Krohn – 150, Darren Cruse – 20, Marv Houg – 50. Marv will contact others from 2016 to see if they have lots.

**SHOW:** Sharon will get 2500 flyers printed, 1000 of which will go to the VAST Center. Marv will check on the status of the dealer contracts.

Possible programs include "Geodes" (Ray), "The Magic of Quartz" (Ray), "Calcite," "Quartz and Limestone as Industrial Minerals," "Using Limestone" (Limestone Producers?), "Characteristics of Quarts & Calcite" – for kids - (Bill), "Cave Structures."

Possible posters (Ray) include Map of Iowa with Calcite and Quartz locations, Petrification, How Animals Use Calcium Carbonite.

Possible displays include Petrified Wood, Geodes, Agates, Jaspers, Flowstones/Stalactites/Stalagmites, Onyx figurines, Coprolite.

Dale will check with the UI Geology Club to see if they want to sell the bones again, and if they do, we will give them all the profit. Marv will check with Gary Peavy about additional bones.

We will check on securing the following prizes for raffle: Box of specimens (have), Amethyst cathedral (Marv will check with Gary Peavy), Amethyst Plate (Dave Malm?), Large geode, Jack Neuzil dinosaur (Bill will check), an item from ZRS in lieu of door prizes (Marv).

We will again have a potluck on Friday at 6:30 and catered dinner from Hy-Vee on Saturday at 6:15.

**MISC:** Ray will deliver the Clarence Burns scholarships to the UI and Cornell. Marv will check with John from ZRS about the best day for MSHA training. Discussion of PayPal and Square credit cards determined PayPal will be better if it does not tie the account to an individual. Dale will order agate calendars from the Gem Shop.

Motion to adjourn was made by Dale, seconded by Ray. Adjourned at 9:35.

Respectfully submitted,

Sharon Sonnleitner, Acting Secretary



## The Membership Has Voted

The November 17 CVRMS meeting was our **Annual Meeting**, which meant that members elected club officers for 2017. The membership agreed with suggestions from the nominating committee that the current slate of officers should be retained. They include:

### 2017 CVRMS Officers

<b>President</b>	Marv Houg
<b>Vice President</b>	Ray Anderson
<b>Treasurer</b>	Dale Stout
<b>Secretary</b>	Dell James
<b>Editor</b>	Ray Anderson
<b>Liaison</b>	Joy Cummings
<b>Director '19</b>	Rick Austin
<b>Webmaster</b>	Sharon Sonnleitner

Congratulations to next year's CVRMS officers.

## CVRMS MERCANTILE

If you are looking for some **Christmas gift ideas** or just need a rock fix, give me a call. I have many different items for sale including **geodes, minerals, fossils, agates**, and many other items. Some specific items include **Amethyst Cathedrals, Brazilian Agates, Condor Agates, Shark Teeth, Mexican Coconut Geodes** (uncracked), **Brazilian Agate Slabs, Pyrite, Occo Geodes, Tranca Geodes** (cracked and uncracked), **Quartz Crystals, Bismuth Crystals, lots of Keokuk Geodes, local Trilobites**, and **much much more**.

*open by appointment only*

call: **Marvin Houg 319-364-2868** (home) or **319-350-9435** (cell)

address: 1820 30<sup>th</sup> Street Drive S.E., Cedar Rapids, Iowa

*If you are a CVRMS member and have club-related materials for sale send a short paragraph (as the one above) to me and I'll try to get it in the next newsletter. [Ray Anderson](#), editor*

## Spotlight Gemstones: Zircon, Tanzanite, Turquoise

### December's Birth Stones



**If you were born in December you may choose from 3 birthstones, zircon, tanzanite, turquoise**

**Zircon** is a mineral belonging to the group of nesosilicates. Its chemical name is zirconium silicate and its corresponding chemical formula is  $ZrSiO_4$ . A common empirical formula showing some of the range of substitution in zircon is  $(Zr_{1-y}, REE_y)(SiO_4)_{1-x}(OH)_{4x-y}$ . Zircon forms in silicate melts with large proportions of high field strength incompatible elements. The crystal structure of zircon is tetragonal crystal system. The natural color of zircon varies between colorless, yellow-golden, red, brown, blue, and green. Colorless specimens that show gem quality are a popular substitute for diamond and are also known as "*Matura diamond*".

**Tanzanite** is the blue/violet variety of the mineral zoisite (a calcium aluminium hydroxyl sorosilicate— $Ca_2Al_3(SiO_4)_3(OH)$ ) belonging to the epidote group. It was discovered in Northern Tanzania in 1967, near the city of Arusha and Mount Kilimanjaro. Tanzanite is used as a relatively cheap gemstone, where it can substitute for the far more expensive sapphire after undergoing artificial heat treatment to form a deep blue coloration. Naturally formed tanzanite is extremely rare and is endemic only to the Mererani Hills. Tanzanite is noted for its remarkably strong trichroism, appearing alternately sapphire blue, violet and burgundy depending on crystal orientation. Tanzanite can also appear differently when viewed under alternate lighting conditions. The blues appear more evident when subjected to fluorescent light and the violet hues can be seen readily when viewed under incandescent illumination. Tanzanite is usually a reddish brown in its rough state, requiring heat treatment to bring out the blue violet of the stone.

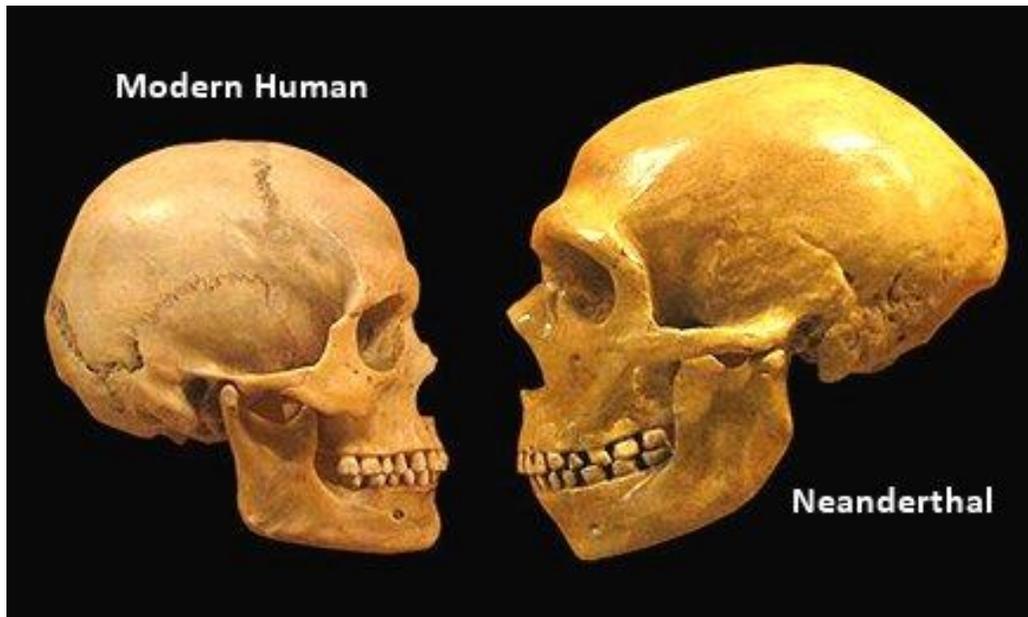
**Turquoise** is an opaque, blue-to-green mineral that is a hydrated phosphate of copper and aluminium, with the chemical formula  $CuAl_6(PO_4)_4(OH)_8 \cdot 4H_2O$ . It is rare and valuable in finer grades and has been prized as a gem and ornamental stone for thousands of years owing to its unique hue. The substance has been known by many names, but the word *turquoise* dates to the 17th century and is derived from the French *turques* for "Turks" because the mineral was first brought to Europe from Turkey, from mines in the historical Khorasan Province of Persia. Pliny the Elder referred to the mineral as *callais* and the Aztecs knew it as *chalchihuitl*.

• • • information from Wikipedia

# The Fate of Neanderthal Genes

*Modern humans and Neanderthals interbred tens of thousands of years ago. New work shows how the difference in population size has led to genes that survived in Neanderthals being removed from the modern human genome.*

The Neanderthals disappeared about 30,000 years ago, but little pieces of them live on in the form of DNA sequences scattered through the modern human genome. A new study by geneticists at the University of California, Davis, shows why these traces of our closest relatives are slowly being removed by natural selection. "On average, there has been weak but widespread selection against Neanderthal genes," said Graham Coop, professor in the UC Davis Department of Evolution and Ecology and Center for



Population Biology, and senior author on a paper describing the work published Nov. 8 in the journal [PLOS Genetics](https://doi.org/10.1371/journal.pgen.1004888). That selection seems to be a consequence of a small population of Neanderthals mixing with a much larger population of modern humans. Neanderthals split from our African ancestors over half a million years ago, and lived in Europe and Central Asia until a few tens of thousands of years ago. Archaeological discoveries have shown that they had quite a sophisticated culture, Coop said. Thanks to DNA samples retrieved from a number of fossils, we have enough

data on the Neanderthal genome to identify their genes among ours. When modern humans left Africa about 50,000 to 80,000 years ago and spread through Europe and Asia, they interbred with Neanderthals. The first hybrid offspring would have been, on average, a 50-50 mix of modern human and Neanderthal genes, and could then have themselves bred with modern humans, Neanderthals or other hybrids. So what happened to the Neanderthal DNA? Today, Neanderthal genes are a few percent of the genome of people of European ancestry, a little more common in people of East Asian descent, and almost absent in people of African ancestry. Coop and postdoctoral researchers Ivan Juric and Simon Aeschbacher devised methods to measure the degree of natural selection acting on Neanderthal DNA in the human genome. One hypothesis has been that Neanderthals quickly became genetically incompatible with modern humans, so their hybrid offspring were not "fit" in evolutionary terms – they either failed to thrive or were not fertile.

The researchers found something different. Rather than showing strong selection against a few Neanderthal genes, they found weak, but widespread selection against many Neanderthal DNA sequences that is slowly removing them from our genome. Coop said that's consistent with a small, isolated population of Neanderthals mixing with a much larger population of modern humans. Inbreeding in small populations means that genetic variants can remain common even if they're harmful to some degree. But, when they mix into a larger population, natural selection starts to act against those variants and weed them out. "The human population size has historically been much larger, and this is important since selection is more efficient at removing deleterious variants in large populations," Juric said. "Weakly deleterious variants that could persist in Neanderthals could not persist in humans. We think that this simple explanation can account for the pattern of Neanderthal ancestry that we see today along the genome of modern humans." The findings are consistent with other recently published work. If Neanderthals had been more numerous when modern humans encountered them, we might have a different mix of Neanderthal and human genes, Juric said.

<https://www.ucdavis.edu/news/fate-neanderthal-genes>

## Asteroid impacts could create niches for early life, suggests Chicxulub crater study

Scientists studying the Chicxulub crater have shown how large asteroid impacts deform rocks in a way that may produce habitats for early life.



Split drill cores collected from the peak ring of Chicxulub crater. The left two cores consist of basement granite. The right two cores are impact melt rocks that were created by the heat associated with the impact.

Around 65 million years ago a massive asteroid crashed into the Gulf of Mexico causing an impact explosion so huge that the blast and subsequent effects wiped out around 75 per cent of all life on Earth, including most of the dinosaurs. This is known as the **Chicxulub impact**.

In April and May 2016, an international team of scientists undertook an offshore expedition to drill into part of the Chicxulub impact crater. Their mission was to retrieve samples from the rocky inner ridges of the crater -- known as the 'peak ring' -- drilling 506 to 1335 meters (1600 to 4800 feet) below the modern day sea floor to learn more about the ancient cataclysmic event. Now, the researchers have carried out the first analysis of the core samples. They found that the impact blast millions of years ago deformed peak ring rocks in such a way that it made them more porous, and less dense, than any models had previously

predicted. Porous rocks provide niches for simple organisms to take hold. Nutrients would also have been available in these pores, provided by circulating water that would have been heated inside the Earth's crust. The early Earth was constantly bombarded by asteroids, and the team inferred that this bombardment must have also created other rocks with similar physical properties. This may partly explain how life took hold on Earth. The study, which was published in the journal *Science*, also confirmed a model for how the peak rings were formed in the Chicxulub crater, and how peak rings may be formed in craters on other planetary bodies. The team's new work has confirmed that the asteroid, which created the Chicxulub crater, hit the Earth's surface with such a force that it pushed rocks, which at that time were ten kilometers (5 miles) beneath the surface, farther downwards and then outwards. These rocks then moved inwards again towards the impact zone and then up to the surface, before collapsing downwards and outwards again to form the peak ring. In total they moved an approximate total distance of 30 kilometers (over 18 miles) in a matter of a few minutes. Professor Joanna Morgan, lead author of the study from the Department of Earth Science and Engineering at Imperial College, London, said: "*It is hard to believe that the same forces that destroyed the dinosaurs may have also played a part, much earlier on in Earth's history, in providing the first refuges for early life on the planet. We are hoping that further analyses of the core samples will provide more insights into how life can exist in these subterranean environments.*" The next steps will see the team acquiring a suite of detailed measurements from the recovered core samples to refine their numerical simulations. Ultimately, the team are looking for evidence of modern and ancient life in the peak-ring rocks. They also want to learn more about the first sediments that were deposited on top of the peak ring, which could tell the researchers if they were deposited by a giant tsunami, and provide them with insights into how life recovered, and when life actually returned to this sterilized zone after the impact.

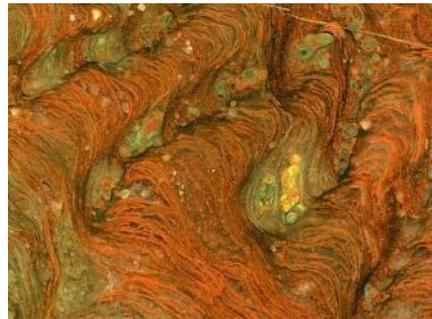
<https://www.sciencedaily.com/releases/2016/11/161117140904.htm>

# What in the World?



What in the World has nature done to this cliff?

## October Photo



Well, I know A.J. got this one right. It is **Mary Ann Jasper**, algal stromatolites, petrified in jasper (quartz) and sometimes including thin layers of iron oxide from the

Gunflint Fm, Biwabik Fm. and related banded iron formations that were deposited in the southern Lake Superior region about 1.85 billion years ago. The stromatolites, mounds of blue-green algae that lived in shallow, warm ocean waters, are still doing well in numerous locations on Earth today, most notably Shark Bay in Australia. This agate is popular among rock collectors and jewelry makers.

## Rock Calendar

2016



**Dec. 13 - CVRMS CHRISTMAS PARTY**  
New Nature Center building

*See Page 8 for Additional Information*

*We Wish You a Merry Christmas*



2017

**March 25-26 - CVRMS Gem, Mineral, and Fossil Show**  
*"Calcite & Quartz*  
*Two of Earth's Most Versatile Minerals*  
*Abundant in Iowa"*  
Hawkeye Downs, Cedar Rapids

**March 31-April 2—MAPS National Fossil Expo 39**  
*"The Silurian"*  
Sharpless Auctions Facility, Iowa City

**Sept. 16-17—CVRMS Rock Auction**  
Amana RV Park and Event Center  
Amana, Iowa

# Ask a Geologist

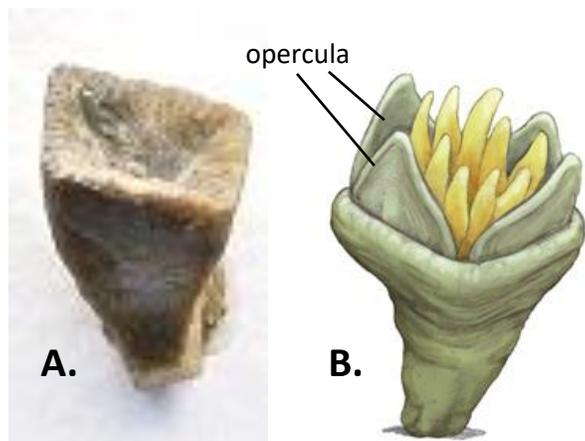
by Ray Anderson aka "Rock Doc", CVRMS Vice President

**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.

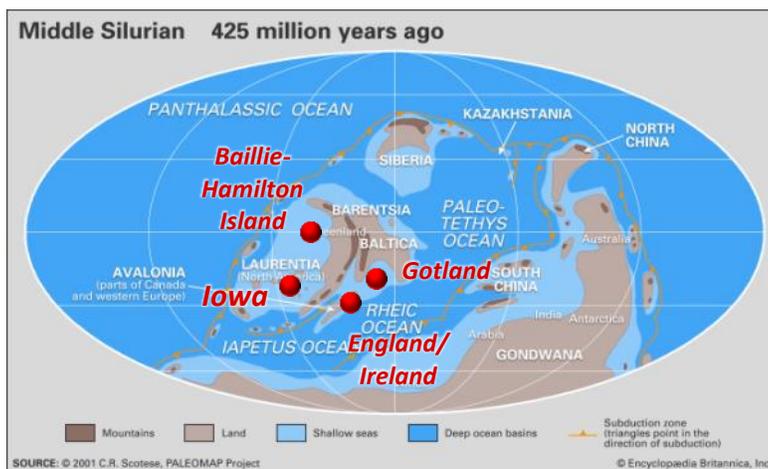
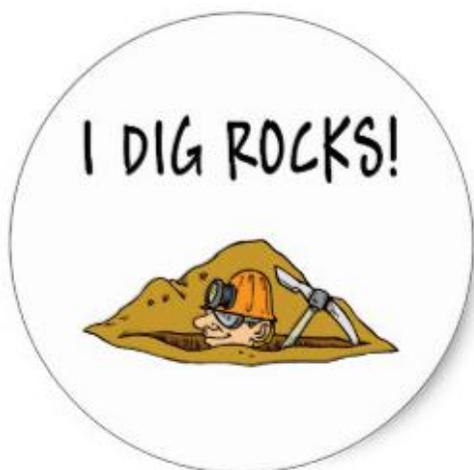
**Sharon asked** "tell us more about the square horn corals like the one that Lisa found and showed us on the bus trip to Chicago. Why is it square? and why is it found in so few places?"

**Rock Doc replied:** "The Silurian square horn coral, *Goniophyllum pyramidale*, was a solitary rugose coral that can be found in the Hopkinton Formation in the Scotch Grove area of Jones County, Iowa. The fossil is relatively rare, and has been found only in eastern Iowa, England, Ireland, the Swedish island of Gotland in the Baltic Sea, and it has recently (2013) been reported from Baillie-Hamilton Island in the Canadian Arctic. The fossil is known only from Silurian Llandovery strata (444 to 433 million years ago). The coral animal was protected by four opercula (calcite plates that serve as a lid or cover) that opened to allow the coral animal to feed and closed to form a 4-sided pyramidal roof to protect it. These opercula are sometimes pre-

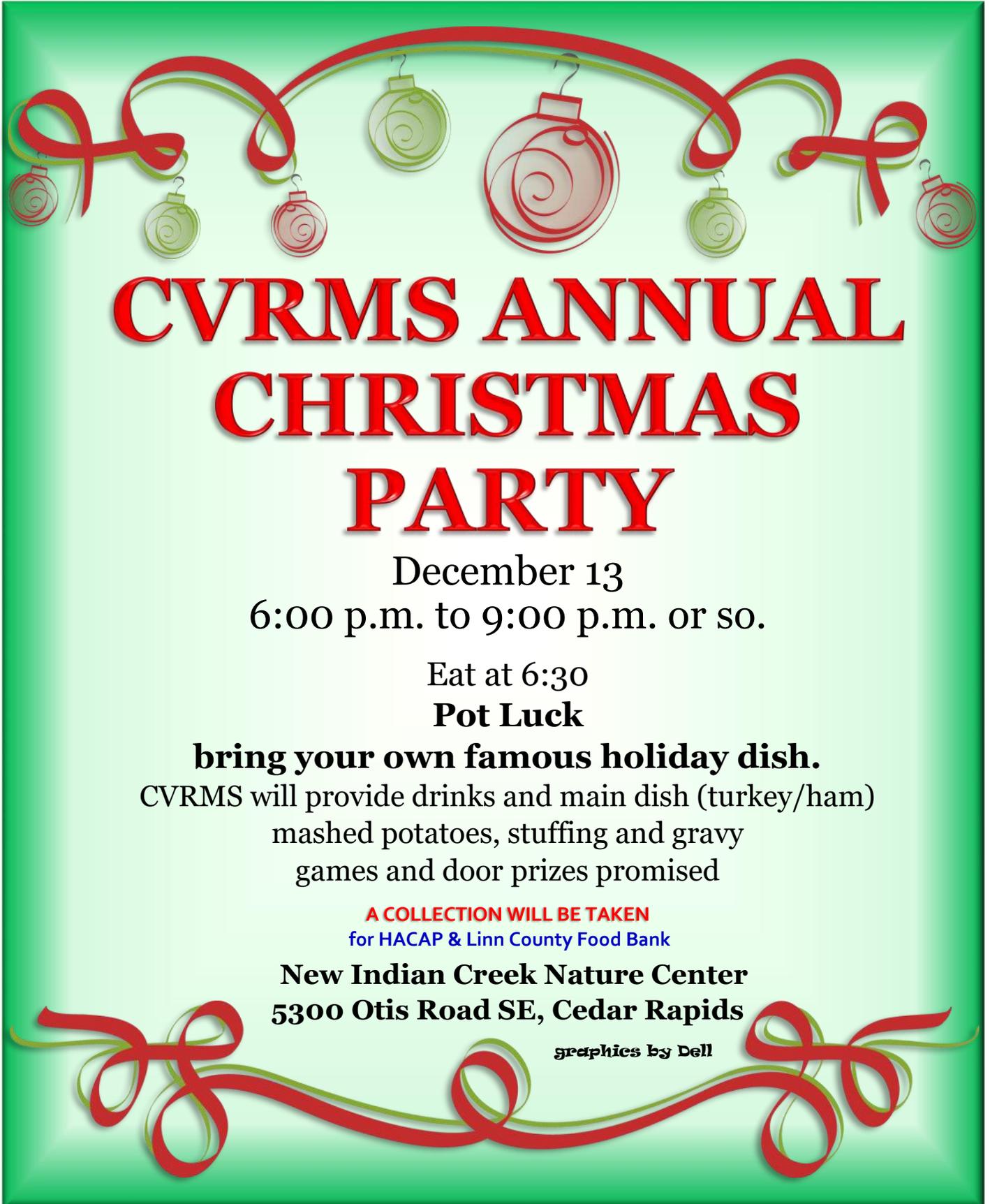
served, and exceptional specimens reveal that two opposing opercula are trapezoidal in shape while the other two are triangular. It is known that as the animal got larger it produced new, larger opercula outside of the smaller ones, then shed the smaller opercula. Why the normally cone-shaped corals evolved to their square body form and why this form was so short-lived is not well understood, but this shape does facilitate the operation of the protective opercula. The distribution of known occurrences of the square coral is also confusing. It has been reported from several oceans on the margins of Laurentia (see map below) but isn't known from the Gondwana Supercontinent.



A. a photograph of *Goniophyllum pyramidale* and B. an artist's reconstruction of the coral showing animal (yellow) and opercula that close to covers calyx.



Paleogeography of Earth during the Silurian. Red dots identify *Goniophyllum* localities.



# **CVRMS ANNUAL CHRISTMAS PARTY**

December 13  
6:00 p.m. to 9:00 p.m. or so.

Eat at 6:30  
**Pot Luck**

**bring your own famous holiday dish.**  
CVRMS will provide drinks and main dish (turkey/ham)  
mashed potatoes, stuffing and gravy  
games and door prizes promised

**A COLLECTION WILL BE TAKEN**  
for HACAP & Linn County Food Bank

**New Indian Creek Nature Center**  
**5300 Otis Road SE, Cedar Rapids**

*graphics by Dell*

## When Corals Meet Algae: Symbiotic Relationship Crucial to Reef Survival Dates To the Triassic

Coral cannot survive on its own for long. It needs to create a symbiotic relationship with algae to survive. Algae provides approximately 90 percent of the energy coral needs, which means that their partnership must be preserved in order to keep the coral healthy. This mutually beneficial relationship between algae and modern corals also provides algae with shelter, gives coral reefs their colors, and supplies both organisms with nutrients. According to a new study by an international team of scientists including researchers from Princeton University, this symbiotic relationship arose during



Microbes are responsible for much of the color on coral reefs a time of massive worldwide coral-reef expansion more than 210 million years ago. It suggests that the interconnection of algae and coral is crucial for the health of coral reefs, which provide habitat for roughly one-fourth of all marine life. Reefs are threatened by a trend in ocean warming and other environmental "stresses" that has caused corals to expel algae and turn white, a process called coral bleaching. Bleached corals continue to live. But the algae provide the

coral with 90% of its energy, after expelling the algae the coral begins to starve. In order to protect coral, algae, and the marine species that live in reef environments, scientists need to know more about how the symbiotic relationship between coral and algae begins.



bleached shallow reef in Salomon Atoll

## Fossilized Dinosaur Brain Tissue Identified

Researchers have identified the first known example of fossilized brain tissue from a dinosaur. An unassuming brown pebble, found by a fossil hunter in 2004 in England has been confirmed as the first example of fossilized brain tissue from a dinosaur. The fossil, most likely from a species closely related to *Iguanodon* that lived during the Early Cretaceous Period about 133 million years ago, displays distinct similarities to the brains of modern-day crocodiles and birds. Meninges, the



specimen of dinosaur brain

tough tissues surrounding the actual brain, as well as tiny capillaries and portions of adjacent cortical tissues were preserved as mineralized 'ghosts,' according to research

presented in a *Special Publication of the Geological Society of London*. Finding fossilized soft tissue, especially brain tissue, is very rare, which makes understanding the evolutionary history of such tissue difficult. "The chances of preserving brain tissue are incredibly small, so the discovery of this specimen is astonishing," said co-author Dr. Alex Liu of Cambridge's Department of Earth Sciences. According to the researchers, the reason this particular piece of brain tissue has been so well-preserved is that the dinosaur's brain was essentially 'pickled' in a highly acidic and low-oxygen body of water (similar to a bog or swamp) shortly after its death. This allowed the soft tissues to become mineralized before they decayed away completely, so that they could be preserved. The researchers used scanning electron microscope techniques to identify the tough membranes, or meninges, that surrounded the brain itself, as well as strands of collagen and blood vessels. Structures that could represent tissues from the brain cortex (its outer layer of neural tissue), interwoven with delicate capillaries, also appear to be present. The structure of the fossilized brain, and in particular that of the meninges, shows similarities with the brains of modern-day descendants of dinosaurs, namely birds and crocodiles. In typical reptiles, the brain has the shape of a sausage, surrounded by a dense region of blood vessels and thin-walled vascular chambers (sinuses) that serve as a blood drainage system. The brain itself only takes up about half of the space within the cranial cavity. In contrast, the tissue in the fossilized brain appears to have been pressed directly against the skull, raising the possibility that some dinosaurs had large brains which filled much more of the cranial cavity.

<https://www.sciencedaily.com/releases/2016/10/161027175858.htm>

### minutes from, November 15 CVRMS meeting—continued

Pot luck for desserts, salads, vegetables, appetizers, rolls and whatever else anyone chooses to bring. Bring your own place settings. Bring door prizes for the give aways. Hat will be passed for contributions.

#### 2. Crinoid for Iowa

Ray has a plan for a series of presentations to be developed for teachers as well as templates for letters that students and others can send to state legislators. We need to get their attention. Other clubs, interested groups etc. will be included. Ray is working on it.

#### 3. Field trips

The bus trip to the Fields Museum was an overwhelming success. 44 people attended. Ray is asking for pictures so he can put together a slide show and preview it at the Christmas party. Bill Desmarais was responsible for putting the trip together. A huge thank you from the club for stepping up.

#### 3. Flint knapping

Craig and Jay are still working on getting something set up for a flint knapping class. More to follow.

#### 4. Clarence Burns scholarship

Clarence Burns donated a large amount of material to our auction. The board discussed whether a separate scholarship designation should be made in Clarence Burns name to the University of Iowa and Cornell. The University would get \$2000 and Cornell \$1000. Marv spoke with Clarence and he is pleased that we would promote this. Ray spoke with the schools and they will use these funds for different purposes than the regular scholarships we donate. Motion to approve the recommendation made by Terry and second by Matt B. Motion passed unanimously.

#### Other Business

- Bill Demarais informed us that the Nature cCenter is allowing us the use of their facility and it is beautiful. They are asking for help with programs. Bill and Ray will help out but anyone else who is interested is encouraged to assist. The center also inquired whether we would like to put on a mini show of sorts open to the public but limited to club members. The gift shop sales are also open to us. They prefer that they have Iowa materials. Details need to be worked out but some things for the club to think of.

- Tom—we still have stuff at Wikiup for display. It has not been updated in some time. The Board needs to discuss further

- Dale says he gets inquiries from people who want to know where to buy rock related items, etc. Since Christmas is fast approaching, maybe a list of possible vendors could be put in newsletter and Website to use as a referral. For instance, who knew that there is a new rock shop located in Clarence?

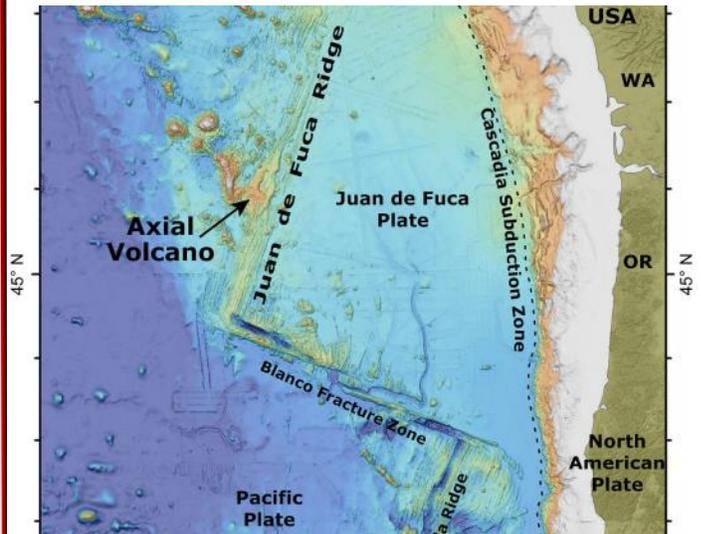
**2019 Show.** The board recommended that we sponsor the 2019 combined MWF/AFMS show in coordination with our annual show held in March. Seconded by AJ. Motion carried. Specific dates with an iron clad contract will be forthcoming.

**Adjournment.** Motion made to adjourn by Joy and 2<sup>nd</sup> by AJ/ Meeting adjourned at 9:20p.m.

Respectfully submitted,  
Dell James, Secretary



Axial Seamount, an active underwater volcano located about 300 miles off the coast of Oregon and Washington, appears to be erupting—after two scientists had forecast that such an event would take place there in 2015. Geologists Bill Chadwick of Oregon State University and Scott Nooner of the University



of North Carolina Wilmington made their forecast last September during a public lecture. They based their forecast on previous research, which showed how the volcano inflates and deflates in a repeatable pattern as it responds to magma being fed into the seamount. In late April the region experienced thousands of tiny earthquakes—a sign that magma is moving toward the surface—and the seafloor dropped by 2.4 m, also a sign of magma being withdrawn from a reservoir beneath the summit. “It isn’t clear yet whether the earthquakes and deflation at Axial are related to a full-blown eruption, or if it is only a large intrusion of magma that hasn’t quite reached the surface,” Chadwick said in an interview. “There are some hints that lava did erupt, but we may not know for sure until we can get out there with a ship.” The researchers say such an eruption is not a threat to coastal residents. The earthquakes at Axial Seamount are small and the seafloor movements gradual and thus cannot cause a tsunami. Axial Seamount provides scientists with an ideal laboratory, not only because of its close proximity to the Northwest coast, but for its unique structure. Chadwick and Nooner expect that Axial can give them insights into how volcano magma systems work, and how eruptions might be predicted.

<http://oregonstate.edu/ua/ncs/archives/2015/apr/researchers-think-axial-seamount-northwest-coast-erupting-%E2%80%93-right-schedule>

# Dinosaurs Wiped Out Rapidly in Europe 66 Million Years Ago

Dinosaurs were flourishing in Europe right before their rapid demise, according to a new study. This would help confirm that dinosaurs the world over were wiped out by an asteroid's impact 66 million years ago - a theory sometimes questioned due to lack of non-North American fossil evidence. *"The European fossil record, just as that from North America, suggests a rather sudden event that swept quasi-instantaneously through ecosystems that otherwise were doing quite well,"* team leader Zoltan Csiki-Sava, of the University of Bucharest, said. *"We do not see a pattern of dwindling diversity that finally peaked in the extinction event itself, but instead one of rich and diverse local faunas distributed across the European islands, faunas that were abruptly decimated without any prior warning."* While most in the science community agree that a comet is what ultimately killed off the dinosaurs, a debate continues over how well they were doing when the 6-mile wide rock hit the Yucatan Peninsula at the end of the Cretaceous period. *"The asteroid didn't hit a static, idyllic 'lost world' of the dinosaurs,"* Stephen Brusatte, an author of the report, told FoxNews.com. *"It hit a planet that was experiencing intense volcanism and temperature and sea level change. So there has been a debate about whether some of these things were gradually weakening the dinosaurs, and then the asteroid was more of a final blow."* All of the evidence supporting a rapid widespread dinosaur die-off up until now has been collected in North America. However, the past 20 years has seen a groundswell in European research and the continent has offered some of the best late-Cretaceous fossil samples to date. Csiki-Sava said. *"It is only by chance (a combination between mainly better rock availability and more human effort poured into this line of research) that the North American fossil record grew more rapidly and soon become the best one in the world for that particular time period. As such, it captured attention and was used as a template to understand end-Cretaceous extinction. The data was harder to gather in other continents, including Europe, and the resolution of the European fossil record is still far from that coming from North America. But its growth is spectacular, and that is due to the activity of a large number of mainly young researchers working all across Europe."* The new study is a combination of late-cretaceous fossil research - not just of dinosaurs, but of other land-living vertebrates as well - culled from all across Europe. *"Although dinosaurs are an important part of this picture, they only tell part of the story, because there were both losers and winners (survivors) of the end-Cretaceous extinction event,"* Csiki-Sava told FoxNews.com. *"So we [chose] to look at the complete picture, to gain a better understanding of the events that took place 66 million years ago and wiped [out] - among other organisms - the dinosaurs."* The researchers surveyed how the creatures were changing right up to point of the asteroid's impact. It painted a picture of a species that was thriving, far from the brink of extinction. Brusatte said, *"in Spain, the one place that preserves good fossils right bang at the end of the Cretaceous - there were numerous types of dinosaurs thriving during the last few hundred thousand years before the asteroid hit. That is about as good of resolution as we can get with the fossil record."* The theory that a comet killed the dinosaurs first gathered worldwide attention when Walter Alvarez posited it in 1980, pointing to an increase in iridium levels (the substance asteroids are made of) in the Earth approximately 66 million years ago. *"For a few years it (the theory) was very controversial,"* Brusatte says, *"but then later in the 80's a crater was found in Mexico (the Chicxulub Crater) that is dated to exactly 66 million years ago, right when the dinosaurs died. There is also all other kinds of evidence that an asteroid hit- but the crater is the smoking gun. So we know for an absolute fact that a big asteroid, about 6 miles wide, hit Mexico at the end of the Cretaceous."* Various models have suggested the prehistoric creatures were killed off by heat from the impact; other theories say it was a global cooling brought about by dust kicked up in the blast. *"Both effects would have lasted something at the order of at most hundred years, far below our capabilities to detect time-scale of events,"* Csiki-Sava said. *"So the unfortunate answer is that we will probably never know whether it was the heat or the cold, or a combination of these. All we can see is that many of these species were wiped out rapidly - but you have to consider that this is geologically speaking 'rapidly', which can mean anything at the order of hundreds of thousands to about 1 million of years, as it is impossible to have a better accuracy time-wise."*



Children watch a life-sized Tyrannosaurus Rex dinosaur model in Vienna Feb. 7, 2014.

<http://www.foxnews.com/science/2015/01/29/dinosaurs-thriving-in-europe-before-asteroid-hit-new-study-shows.html>

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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:**

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