



Cedar Valley Gems

Cedar Valley Rocks & Minerals Society
Cedar Rapids, Iowa

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

CEDAR VALLEY GEMS

FEBRUARY 2016

VOL. 42, ISSUE 02

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

Next CVRMS Meeting Tues. February 16

7:00 pm

Rockwell Collins 35th St. Cafeteria
featured speaker

Bill Nicholson

"Two stops on Alberta's Dinosaur Trail "

In Bill's program he will discuss his August, 2015, trip to the Royal Tyrell Museum of Paleontology and to Dinosaur Provincial Park in Alberta, Canada. The visit to Dinosaur Provincial Park included a hiking tour



to a Centrosaurus bone bed exhibit. The talk will be illustrated with photographs taken at each location. This will be a non-technical, first-person account of a bucket-list-trip the narrator was

fortunate enough to get his wife to buy into.

Quarry Safety Training

MSHA quarry safety training will be offered on Monday, April 4 at 2:00 p.m. and 6:00 pm. Location is being finalized. Cost is \$10.00 per person. If interested register with Marv Houg at:

M_houg@yahoo.com

November Fireball Over Cedar Rapids



This sequence of photos show the fireball exploding in the sky over Cedar Rapids on Nov. 4, 2015, around 10:00 pm. The 5 photos represent about 1 second of a video that can be viewed on YouTube at:

<https://www.youtube.com/watch?>

Shortly after 10pm on the evening of Thursday November 4, 2015, a large fireball was observed crossing and then exploding in the night sky by residents in Iowa, Wisconsin, Illinois, Michigan, and Missouri. The fireball was apparently associated with the Taurid meteor shower, when the Earth passes through the debris strewn by Comet Encke as it orbits the sun every 3.3 years. Rock and dust particles, shed as the comet heats up near the sun, enter Earth's atmosphere and burn up. Most dust-size particles produce the short-lived streaks that we normally associate with meteor showers, but larger particles are much brighter, forming fireballs, some that explode as this one did. The Taurids produce more fireballs than any other meteor shower, including 36% of all fireballs reported in 2015. No fragments of this exploding fireball are known to have reached the Earth.

CVRMS January Meeting

January 19, 2016

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

Intro. of new members/guests- Welcome to Terri Schott and Kim Kleckner.

Minutes- Minutes of previous meeting reviewed. Motion to accept as published made by Tom, second by Dale.

Treasurer's report by Dale- Checking balance \$14,801.22. Dale reported that the club collected \$380.00 for Christmas distributions. The money was evenly dispersed to HACAP and Linn County Food Bank. Report filed.

Monthly Program

"An Up Close Look at Pluto: Last of the (onetime) Nine Planets"

Dr. Steve Spangler presented to us the report of Pluto and what the New Horizons spacecraft saw of Pluto: Pluto has a moon named Charon; Pluto has a crack in it; there are some pock marks; and it is 93 million miles away from us. Those are the key points written down by this reporter. Interesting and timely talk.

Door Prize Winner- Ray Anderson

Show Information

- Flyers are available for distribution. Everyone encouraged to take some and distribute.
- MSHA training is set for April 4 at library. Check with Marv or Dale for particulars.
- Saturday night HyVee dinner-\$12.00 per person. Drink and dessert supplied by club. Menu the same as previous years. Let Marv know so he can place the order.
- Programs-Ray has it worked out or is working on them.
- Raffle prizes-Marv working on getting a large geode. They are popular.
- Everyone encouraged to contribute to the silent auction, pebble pit and door prizes.
- Volunteer signup sheet passed around. There is a job for everyone.

Field Trips

Ray has lined up for Ginsberg jewelers in Iowa City, March 26, 9:30 am. He needs a head count so let him know. Also, be forewarned that there are at least 3 flights of stairs to climb. The last time this was planned we did not get enough.

Miscellaneous

Ray shared that on Sunday, January 31, "Strange Truths" program on National Geographic station at 8:00 pm. The Decorah Impact Structure will be featured.

Next month, February 16, Bill Nicholson will speak on Alberta's Dinosaur Trail.

April's program will be from the Cornell college students.

MAPS will have Phil Curry as the keynote speaker on April 1.

T-shirts are available for \$10. Various colors but only have large and a few xl and one 2x left. Enough interest will stimulate a new order. Let Dell know.

Tom reminded the club that there is a need for a delegate to the Federation show in August in South Bend, Indiana.

Motion made to adjourn made by Terry and second by AJ.

Meeting adjourned 9:00p.m.

Respectfully submitted,
Dell James, Secretary

Rock Calendar

CVRMS Events of Interest

2016

February 13- MAPS Feb. meeting 1:00 pm.
Trowbridge Hall, U of IA- program "*An Update on the Winneshiek Lagerstatte*" by Paul Liu

February 16 - CVRMS Feb. meeting - 7:00 pm - Rockwell Collins 35th St. Cafeteria- Bill Nicholson "*Two stops on Alberta's Dinosaur Trail* "

February 18-20 - Iowa City Darwin Days for details on events see <http://iowacitydarwinday.org/>

February 28 - CVRMS Indoor Field Trip Catiri's triceratops @ Edelstein Treas.
See page 3 for details.

March 16 - CVRMS Mar. meeting - 7:00 pm - Rockwell Collins 35th St. Cafeteria
review of Cornell Students' Field Work

March 26 - Indoor field trip, M.C. Ginsberg's Iowa City for 3D Design and Manufacturing demonstration, 9:30 am

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

April 4 - MSHA Quarry Safety Training
See page 1 for details.

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

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

“The Day the Sky Fell” in Decorah

As a part of the National Geographic Channel’s new “*The Strange Truth*” series, they will be airing an episode called “*The Day the Sky Fell*” on Sunday January 31, 2016. This episode will discuss the formation of Iowa’s Decorah Impact Structure and the extraordinary fossils recovered from this Middle Ordovician (~470 million years ago) structure. The Winneshiek Shale that filled the crater after the impact include concentrations of the carbonized carapaces of thousands of eurypterids, the oldest yet recovered on Earth, as well as an incredibly well preserved fauna of conodonts, fish, shrimp, worms, and other early life forms. Geologists Bob McKay and Paul Liu (see photo below) have been spearheading an Iowa Geological Survey study of the crater and the fossils in the Winneshiek Shale that was funded in part by a National Science Foundation grant. Additional information on the series can be found at <http://channel.nationalgeographic.com/the-strange-truth/>.



Photograph of the model of a large eurypterid constructed by National Geographic for their series *Strange Truths*. To the right of the eurypterid are Iowa Geological Survey geologists Paul Liu and Bob McKay, along with Tiffany Adrain, Collections Management Specialist at the University of Iowa; to the left are Decorah residents.

CVRMS Indoor Field Trip

Keep on Hikin'...



Indoor field trip to see Catiri's Triceratops

Saturday, Feb. 28, 1:00 pm at Ithiel's shop in Amana:

Edelstein Treasures, 4510 220th Trail, Amana, IA.

If there is enough interest, we may meet for lunch at the Ronneberg at noon.

Let Marv know if you are interested. M_houg@yahoo.com



CVRMS Board Meeting

CVRMS BOARD MINUTES – JANUARY 26, 2016

Home of Marv & Sue Houg. Called 7:20. Adjourned 9:05

Present: President Marv Houg, Dale Stout, Ray Anderson, Bill Desmarais, Jay Vavra, Sharon Sonnleitner

SHOW: Dale has confirmed with Mary Campbell that she will do a chalk drawing, with assistance from Ray.

Programs: Ray is working on the following programs. Tiffany Adrain is confirmed for “Professor T. H. Macbride’s 100 Year History Helps Solve a Mystery;” Jeff Schabillion on the coal-mine tree that was collected, if he can find his slides; Brian Witzske on Cretaceous Plants; Ray on coal.

Special Displays: Marv will ask Doug DeRosear for a display of his Colorado leaves and check into Wyoming Hill material along with others. Ray mentioned the Devonian Stump from New York that is in Trowbridge, Cretaceous plants and Cycads from the UI Repository, and Brian Witzske’s & Ray’s Guthrie County wood. Marv mentioned the Pleistocene wood from around here that is 1 – 2 million years old and still burnable.

Posters: Ray will work on a map of Iowa with locations of fossil wood/plants and the poster we had at a previous show of wood from the coal mines.

Raffle: Confirmed items: carved dragon from Carved Opal & Obsidian, large cut and polished geode from Mike Shumate. Possible items: large geode from Dave Malm; Marv will talk to Gary Peavy about an item and to Doug about a leaf.

Egg Cartons: Egg carton day was set for February 28, with snow date March 6, at 2:00 at Sonnleitners. Jay, Dale, Ray, Marv, Sharon & Bill Sonnleitner are planning to attend.

Ray will check with Tiffany on getting the model of the Eurypterid from Decorah. Dale hasn’t heard back from the UI traveling museum bus. Someone will check to see if we have enough good bones to have the bone dig. Dale will check with Cornell Geology Club and Sarah Horgan’s replacement to see if they plan to participate. Marv will check with River Products to see if they plan a display. Ryan will have a DNR booth. Sharon will get 1,500 more flyers printed.

AUCTION: The auction is mostly full. Marv will ask Andrew Halfmann about storing Clarence Burns’s material.

MSHA TRAINING: Set for Monday, April 4 at 2:00 and 6:00 at a place yet to be determined. We will pay for 2 nights’ hotel for John and Kelly, who present the training.

Respectfully submitted,
Sharon Sonnleitner, Acting Secretary



Mark Ginsburg of *M.C. Ginsburg Objects of Art* in Iowa City was one of the first area businessmen to utilize advanced digital 3D design and manufacturing techniques



in the production of his unique jewelry. He offers prototyping for complex devices and parts of new inventions, as well as proof of concept for patent processes.

In the **M.C. Ginsberg Studios for Advanced Design and Manufacturing**, located on the second floor of his Iowa City location, his group can not only produce custom jewelry pieces but also do architectural design, precision Bio-medical prototyping, and many other amazing feats of engineering and production. His shop has 3D printers, CNC (computer numerical controls) mills, laser welding, as well as induction thermal and vacuum casting machines. “*There’s no one jeweler on the planet that is doing what we’re doing,*” he said.

One example he described was the design of a piece that could be used to assist in a medical operation on an 8-month old child with an abnormal trachea. “*We started getting requests from doctors to do unique modeling. We’re using conventional jewelry techniques to come up with procedures to help surgeons save lives,*” he said. On another occasion, the company was able to take a CT scan and print an exact 3D version of a heart constructed from light silicone or plastic material. Doctors were able to take the model, look at it in more detail, and discover a small hole in the heart that couldn’t be spotted on the CT scan.

Mark has agreed to provide a tour of his facilities for CVRMS members on **Saturday, March 26**. We will be meeting at his store, **110 E Washington Street** in Iowa City, at **9:30 am**. Trip participants will have to climb stairs to the upper floors. If you are interested in attending, please contact Ray Anderson at:

rockdoc.anderson@gmail.com

Spotlight Gemstone: Amethyst

February's Birth Stone



Amethyst (1, 5) is a reddish- to bluish-violet variety of quartz (SiO_2) that can change to yellows or browns when heated. The name comes from the Ancient Greek words for "not intoxicated," a reference to the belief that the stone protected its owner from drunkenness. The ancient Greeks wore amethyst and made drinking vessels decorated with it in the belief that it would prevent intoxication. Amethyst is one of several forms of quartz and is a semi-precious stone, the traditional birthstone for February.

Amethyst is a purple variety of quartz and owes its violet color to irradiation, iron impurities, and the presence of trace elements, which results in complex crystal lattice substitutions. Natural amethyst is dichroic in reddish violet and bluish violet, but when heated, turns yellow-orange, yellow-brown, or dark brownish and may resemble **citrine (2)**, but loses its dichroism, unlike genuine citrine. When partially heated, amethyst can be converted to ametrine. Sometimes both purple and yellow colors appear in a single transparent gemstone. This combination of amethyst and citrine is called **ametrine (3)**. Ametrine is a rare natural gemstone, found in only one mine, in Bolivia. It is a relative newcomer to the natural gemstone trade, being available only in small quantities and for just the last few decades. Most ametrine is artificially produced by the heat-treating of amethyst.

If heated to about 500°C amethyst may produce a yellow-green variety of quartz called **prasiolite (4)**. Heat treatment is usually done in a laboratory oven, but some prasiolite is formed when amethyst is naturally heated. Amethyst can fade in tone if exposed to too much light, it can also be artificially darkened by irradiation. The hardness of amethyst is the same as quartz, 7.0, thus it is suitable for use in jewelry.

Petrified Palm Wood

Petrified palm wood is the fossilized trunks of Oligocene (20-40 million years old) palm trees, primarily found where the Catahoula Formation is exposed at locations in Louisiana, Texas, and Mississippi. Most specimens are a palm of the genus *Palmoxydon*, which has been named as the state fossil of Louisiana and Texas. *Palmoxydon* did not produce a true "wood" composed of cellulose and lignin. Instead it was a plant that looked similar to a modern palm tree with a trunk made up of parenchyma, a fibrous support material that surrounded hollow tubes of the plant's vascular structure known as xylem and phloem. These tubes transported water, nutrients, wastes, and other materials through the plant. When the palm died, it was preserved as a fossil if it was quickly covered

by water and sediments that would protect it from oxidation and destructive organisms. Ground water flowing through the sediments carried dissolved silica that sometimes precipitated within the hollow xylem and phloem to preserve them.



Petrified Eocene Palm Wood

The silica would also replace the fibrous parenchyma. This infilling and replacement of the plant structures with solid silica produces the characteristic spotted look of the fossil known as "petrified palm." Depending upon the angle the lapidary uses to cut the stone, this pattern can look like wood grain or a series of spots (see picture above). Palm wood ranges in color from white to honey brown or from chocolate brown to black, but red, orange, and pink colors are also found. Pieces of this material that are completely and uniformly silicified, usually by a variety of chalcedony, are very hard (around $7\frac{1}{2}$ on Mohs hardness scale). These may be of high enough quality to be cut, polished, and used as jewelry. Palm wood is also used to make small sculptures, spheres, book ends, and other ornamental objects. Opalized palm wood is rare but can be very beautiful.

What in the World?

January Photo



What in the World is this fancy building ??
where is it ??
and what is it made of ??



The **Diavik Diamond Mine** in Canada's remote Northwest Territories lies about 190 mi northeast of Yellowknife and is co-owned and operated by Rio Tinto. The mine consists of four kimberlite pipes associated with the Lac de Gras kimberlite field and is located on a 7.7 sq mi island (informally called Easter Island) in Lac de Gras, 140 mi south of the Arctic Circle. The area was surveyed in 1992 and construction began in 2001, with production commencing in January 2003. The mine employs 1,000 workers and grosses ~\$100 million in sales by producing about 7.5 million carats (3,300 lb) of predominantly large, white gem-quality diamonds annually. In December 2015, the discovery of the 187.7 carat Diavik Foxfire diamond (photo on right) was announced. It is one of the largest rough gem quality diamonds ever produced in Canada.



Bone-crushing prehistoric reptile the largest marine crocodile ever discovered

A five-foot-long skull discovered in war-torn Tunisia has led to the identification of a new species.



University of Alberta PhD student Tetsuto Miyashita is among seven scientists to report the largest crocodile ever known to swim the Earth's seas. Named *Machimosaurus rex*, the new species was the largest and the last survivor of crocodiles that lived in oceans during the age of dinosaurs, about 130 million years ago. The crocodile's skull was more than five feet long, with its total body length of about 35 feet. *Machimosaurus* had bullet-shaped teeth shaped with blunt tips and wrinkles, thought to have been used to crush carapaces of marine turtles. "These teeth weren't for cutting or piercing flesh," says Miyashita, "they were built for crushing bones." Marine crocodiles were formidable predators during the Jurassic Period, but many of them went extinct when these habitats were lost early in the Cretaceous. *Machimosaurus rex* survived in the remaining shallow sea habitat in northern Africa.

Read more at: <http://phys.org/news/2016-01-bone-crushing-prehistoric-reptile-largest-marine.html#jCp>

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, 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.

Jay Vavra asked "We are getting ready to prepare another batch of egg carton rock kits for sale at the Rock Show. We usually include a piece of galena (lead sulfide). With the awareness of the dangers of lead poisoning, is it dangerous to handle galena specimens ??"

Lead Toxicity of Galena

Though lead is common in our environment, it has no known purpose in our bodies. When lead gets inside the body, the body confuses it with calcium and other essential nutrients. This confusion can cause permanent damage to the health of both children and adults. People are in a state of positive lead balance from birth. In the United States, the average blood lead concentration has been reported at 0.03 mg/L in children aged 1 year and 0.11 mg/L in children aged 5 years. If ingested the percentage of lead absorption through the gastrointestinal (GI) tract is variable. Children are at greater risk for lead absorption than adults are. Lead is most damaging when they are six years and younger, when children are growing at a very fast rate - growing bones, developing stronger muscles and creating many connections in their brain. When lead instead of essential nutrients is "available" to the body, permanent harm to health can occur. Lead absorption is dependent on several factors, including the physical form of lead, the particle size ingested, the GI transit time, and the nutritional status of the person ingesting. Most references agree that inorganic lead (galena) is not absorbed through intact skin.

Galena (lead sulfide—PbS) contains lead, a toxic element. When it is bound to crystal structure as in galena, the lead content is of minor concern and the mineral is safe to handle. However, prolonged exposure via inhalation or ingestion of the pulverized dust can be hazardous to one's health. The **National Center for Environmental Health at the Centers for Disease Control and Prevention** in Atlanta has indicated that skin contact with galena is not dangerous. Nonetheless, to avoid any potential ingestion, they suggest that people should always wash their hands after handling galena. They note that *lead is poisonous in all forms* and that *lead poisoning is cumulative*. Lead sulfide (galena), however, is less toxic than the more soluble lead compounds, such as lead acetate, lead chloride, and lead oxide. The Center recommends that teachers take the following safety precautions when using the galena samples in the STCtm Rocks and Minerals Kit.

- Inform students that galena like all compounds containing lead is poisonous if it is taken internally.
- To reduce the risk of ingestion by hand-to-mouth contact have students wear disposable plastic gloves when they handle galena.
- Tell students to wash their hands after handling galena.
- Allow students access to the galena samples only under supervision.
- Do not allow students to take galena samples out of the classroom.

Since **no levels of lead exposure is safe**, most organizations seem to be erring on the side of safety and are removing galena from their rock kits. However, galena samples are still available for sale at thousands of web and commercial sites, most not including any toxicity warnings.



Cedar Valley Rocks & Minerals Society
Presents its
2016

GEM, MINERAL & FOSSIL SHOW

Iowa's Largest & Among Midwest's Largest

New Month,
Same Venue

Saturday April 16 - 8:30 a.m. to 6:00 p.m.
Sunday, April 17 - 9:30 a.m. to 5:00 p.m.

Hawkeye Downs Expo Center
4400 6th Street SW
Cedar Rapids, Iowa



OUR 52ND SHOW: PETRIFIED WOOD AND FOSSIL PLANTS

PROGRAMS

Programs on
Theme-Related Topics
Call ahead or check our
web site for Speakers & Times.

DEMONSTRATIONS

Tumbling
Glass Bead Making
Cabbing, Beading
Silversmithing
Flint Knapping
Geode Cracking

PEBBLE PIT FOR KIDS

1¢, 5¢, 10¢, 25¢, & 50¢ Items
\$1 Rock & Mineral Kits

SILENT AUCTION

Geodes, Minerals, Crystals, etc.

HOT FOOD

PROFITS GO TO
SCHOLARSHIPS



SLUICE FOR GEMS

MANY ITEMS FOR SALE, INCLUDING:

Books	Fossils	Jewelry	Minerals	Book Ends
Opal	Agates	Carvings	Seashells	Petrified Wood
Slabs	Geodes	Crystals	Tumblers	Lapidary Equip.
Gems	Beads	Spheres	Meteorites	Jewelry Findings

DISPLAYS

Agates
Minerals
Crystals
Fossils
Amethyst
Petrified Wood
Polished Stones
Artifacts
Spheres, Geodes

NOT RESPONSIBLE
FOR ACCIDENTS

DONATIONS REQUESTED

Adults.....\$3.00
Students\$1.00
(12-18)
Children Free
(Under 12)
Youth Groups Free
(w/adult)

CHILDREN MUST BE
ACCOMPANIED BY AN ADULT

For Additional Information, Contact:

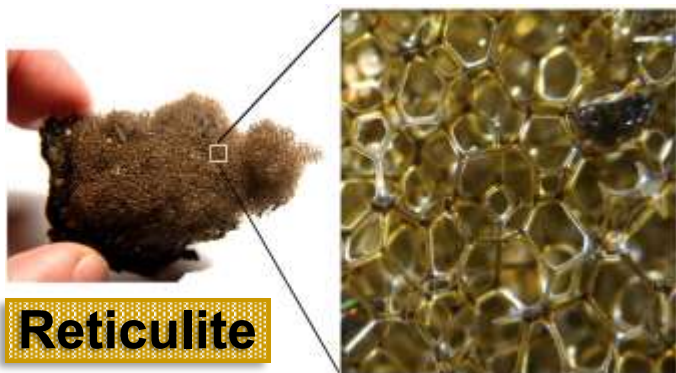
Marvin Houg (319-364-2868, m_houg@yahoo.com);
Sharon Sonnleitner (319-396-4016, sonnbn@aol.com); Tom Whitlatch (319-362-0684, whitlatcht@gmail.com)
For program, dealer, and show updates, check: www.cedarvalleyrockclub.org

Rocks and Fossils needed for the
2016 CVRMS Rock Show

Your club needs you to donate rocks and
fossils for use in the

- • Pebble Pit
- • Silent Auction
- • Door Prizes

If you can help please contact
Marv Houg at 364-2868
or M_houg@yahoo.com



Reticulite

Reticulite is an extreme form of pumice in which the bubbles have coalesced, leaving only a tenuous reticular network of glassy lava behind in the interstitial spaces between the bubbles. Reticulite is formed only by very high fountains of basaltic lava that contain dissolved gasses such as water vapor and carbon dioxide.

2016 Fossil, Mineral and Agate Collecting Tours: to Morocco & Australia

ZRS Fossils and Gifts in Minneapolis is offering three fossil, mineral, and agate collecting tours next year -- two to Morocco (April & May) and a new tour to Australia in June. You can learn more about participating in these tours, "Rockin' in Morocco" and "Rockin' in Australia" by visiting [https://www.facebook.com/ZRS-Fossils-and-Gifts-127956357265401/events?](https://www.facebook.com/ZRS-Fossils-and-Gifts-127956357265401/events?ref=page_internal) or calling ZRS Fossils at (612) 210-9711.

ZRS  **FOSSILS**
and GIFTS

Ancient Giraffe Relative, Thick Legs, Curly Horns

A recent study identified an ancient relative of the giraffe as a huge, heavy animal with thick legs, a flat face and massive, curly horns flaring out from its skull. Dubbed *Sivatherium giganteum*, the impressive creature would have been shorter than today's giraffe, with a less elongated neck, as was reported in the Royal Society journal *Biology Letters*. After analyzing bones dug up in India in the 1830s and now in London's Natural History Museum, a computerized 3D reconstruction of the animal stood about 5.9 feet tall at the shoulder and weighed about 1.2 tons. Added to the large, flattened horns or "ossicones" on the top of the skull, each about 28 inches long, it also had two smaller, pointy horns just over the eyes.



Artist's reconstruction of
Sivatherium giganteum

"It would have been an impressive and strong animal," said one of the authors. "Its face would have looked very different from a giraffe. Giraffes have very long, pointed skulls. *Sivatherium* had a very short, flattened skull." It is thought to have lived somewhere between the last five million and 12,000 years ago. However, some suggest that it may have become extinct as recently as 8,000 years ago, as depictions that greatly resemble it are known from ancient rock paintings in the Sahara desert.



Sivatherium - Museum of Evolution
Polish Academy of Sciences

Related to the giraffe and its cousin the okapi, *Sivatherium* was possibly the largest ruminant animal—those with multi-compartmented stomachs—to ever have lived. The first scientists to study *Sivatherium* bones misclassified the animal as an archaic link between modern ruminants and a long-extinct relative of elephants and rhinoceroses.

For the new study, the skeleton was reconstructed using 26 fossil bones from three individual animals. The ribs, back and pelvis are missing. The appearance of *Sivatherium* was constructed from giraffe and okapi anatomy, its two living relatives. <http://phys.org/news/2016-01-ancient-giraffe-relative-thick-legs.html>.

Officers, Directors, and Committee Chairs

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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. 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.

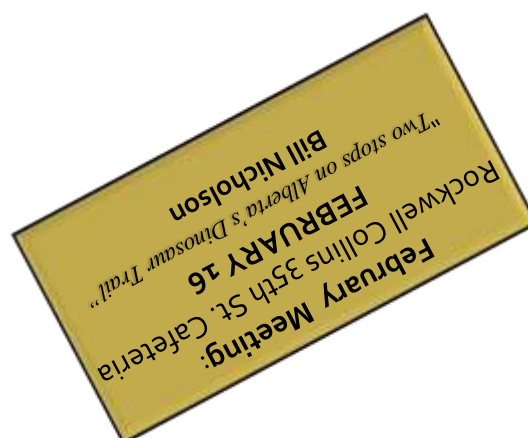
CEDAR VALLEY ROCKS & MINERAL SOCIETY

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



Ray Anderson, Editor
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