



Cedar Valley Gems

Cedar Valley Rocks & Minerals Society
Cedar Rapids, Iowa

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

CEDAR VALLEY GEMS

MARCH 2016

VOL. 42, ISSUE 03

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

Next CVRMS Meeting Tues. March 15

7:00 pm

Rockwell Collins 35th St. Cafeteria
featured speaker

Cornell College Students

"New Zealand Field Camp and Projects "

Professor Ben Greenstein and two of his Cornell College geology students will appear at our monthly meeting to describe their 2015 field experience in New Zealand (partially sponsored by CVRMS scholarships). Additionally, they will discuss their special geology projects.



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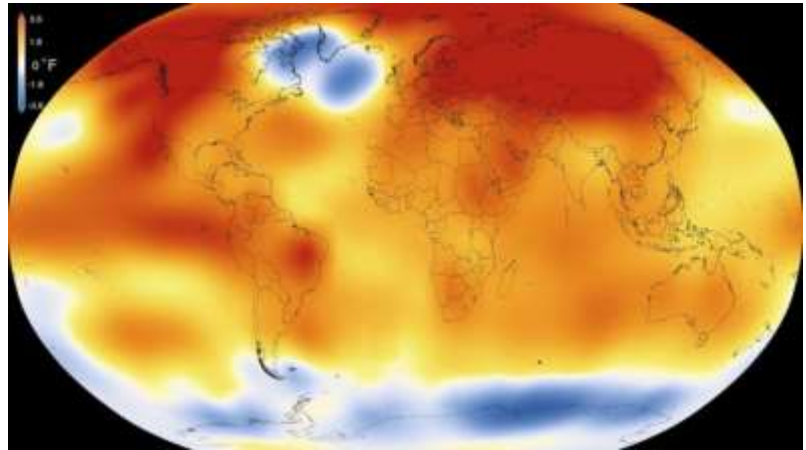
Quarry Safety Training

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

Record Warm Global Temps in 2015

NASA, NOAA analyses reveal global records shattered



Earth's long-term warming trend, showing temperature changes from 1880 to 2015. Orange colors are warmer than the 1951-80 baseline average, and blues are cooler. Credits: GSFC Scientific Visualization Studio

Earth's 2015 surface temperatures were the warmest since modern record keeping began in 1880, according to independent analyses by NASA and the National Oceanic and Atmospheric Administration (NOAA). Globally-averaged temperatures in 2015 shattered the previous mark set in 2014 by 0.23 degrees Fahrenheit (0.13 Celsius). Only once before, in 1998, has the new record been greater than the old record by this much. The 2015 temperatures continue a long-term warming trend, according to analyses by scientists at NASA. NOAA scientists concur with the finding that 2015 was the warmest year on record based on separate, independent analyses of the data. Because weather station locations and measurements change over time, there is some uncertainty in the individual values in their temperature database. Taking this into account, NASA analysis estimates 2015 was the warmest year with 94 percent certainty. The planet's average surface temperature has risen about 1.8 degrees Fahrenheit (1.0 degree Celsius) since the late-19th century, a change largely driven by increased carbon dioxide and other human-made emissions into the atmosphere. "Climate change is the challenge of our generation, and NASA's vital work on this important issue affects every person on Earth," said NASA Administrator Charles Bolden, "-- now is the time to act on climate." <http://www.nasa.gov/press-release/nasa-noaa-analyses-reveal-record-shattering-global-warm->

CVRMS February Meeting

February 16, 2016

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

Intro. of new members/guests- Welcome to two guests.

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

Treasurer's report by Dale- **Income** of, \$165 - dues, \$7898 - dealer fees, (all paid). \$32 - calendars, \$50 - t-shirts. **Total income** \$8145

Pay outs of: \$50 - speaker fee, \$41.40 - Sharon, 50\$ - bank (rental for the X-mas party), \$150 - flyers, \$135.46 - postage?, \$156 - calendars, \$387 - web site. **Total payout** \$818.15

Checking=\$22,128.07 , CDs=\$3500 and \$5000 CDs **Total** \$30,628.07

Motion to accept by Ray Anderson and seconded by Bill Desmaris, Passed.

Monthly Program

"Two stops on Alberta's Dinosaur Trail " by Bill Nickolson

Bill discussed his August 2015 trip to the Royal Tyrell Museum of Paleontology and to Dinosaur Provincial Park in Alberta, Canada, which included a hiking tour to a Centrosaurus bone bed exhibit.

Door Prize Winner— drawing was postponed to next meeting.

Show Information

- Sign-ups for show help, displays, and Sat. dinner were passed. We have need of lots of help. Also, donations for the pebble pit, silent auction, and door prizes.
- The Sat night dinner will cost \$22 each. Ray A. will speak after meal.
- Don't forget the pot luck on Friday night, bring lots of food, we seat close to 100.

MSHA training Monday April 4; afternoon class 2:00 pm at the Ladd library; evening class 6:30 location TBA sign-ups lists circulated

Field Trips

March 19 - Edelstein Treasures in Amana at 1:00 pm to see Catiri's triceratops. Following at 2:00 pm Ithiel will talk about recent trip to the Dominican Republic. Pre-trip meal at the Ronneberg Restaurant - if interested please call Marv.

March 26 - Mark Ginsburg's shop in Iowa City at 9:30 am to see 3d scanner, printer, and related equipment demonstrated.

Miscellaneous

Indian Creek Nat. Center requested help April 9th - scout merit badge prog.

Howard H Cherry Scout Camp, needs help Oct. - scout merit badge prog.

Home schoolers in Dubuque requested and Bill Desmaris will speak.

CR elementary school requested a program, Terry Baty will speak.

Julie Whitlatch suggested that the CVRMS enter the MWF yearbook contest this year. She will get the information and time requirements.

Request for CVRMS help sponsor Phil Curry as featured speaker at MAPS Expo, talk at 6:00 pm on April 1 at Clarion Motel, Iowa City. Talk is open to all. Ray Anderson moved to donate up to \$500 towards Phil's expenses, Tom Whitlatch seconded this and motion passed.

Flyers arrived from the River City Rock. Fort Dodge, re show on Apr 23-24. (The same weekend as the spring Davenport club show).

Marv leads discussion of software to boost CVRMS Rock Show face book page likes. The fee to use this service is minimal. No decision made.

Call for meeting to adjourn and second; meeting adjourned 9:33 pm.

Respectfully submitted,

Julie Whitlatch , Acting Secretary

Rock Calendar

CVRMS Events of Interest 2016

March 15 - CVRMS Mar. meeting - 7:00 pm - Rockwell Collins 35th St. Cafeteria
review of Cornell Students' Field Work

March 19 - CVRMS Indoor Field Trip
Catiri's triceratops @ Edelstein Treas
See page 9 for details.

March 26 - Indoor field trip, M.C. Ginsberg's Iowa City for 3D Design and Manufacturing demonstration,
See page 9 for details.

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

April 23 - BHGMS Rock & Mineral Show
Waterloo Center For Arts, Waterloo,
noon.-5 p.m.

April 23 - 24 - BHGMC Rock & Gem Show
Clarion Hotel, Davenport, IA
Sat. 9 a.m.-5 p.m. Sun. 10 a.m.-4 p.m

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

Amber discovery indicates Lyme disease is older than human race

Lyme disease is a stealthy, often misdiagnosed disease that was only recognized about 40 years ago. Recent discoveries of ticks fossilized in amber show that the bacteria



This tick trapped in ancient amber from the Dominican Republic can carry the bacteria that causes Lyme disease.

which cause it may have been lurking around for 15 million years – long before any humans walked on Earth. The findings were made by researchers from Oregon State University, who studied 15-20 million-year-old amber from the Dominican Republic. They identified the oldest fossil evidence ever found of *Borrelia*, a type of spirochete-like bacteria that to this day causes Lyme disease. Their findings were published in the journal *Historical Biology*.

In a related study, published in *Cretaceous Research*, OSU scientists announced the discovery of the oldest fossil record of Rickettsial-like cells, a bacteria that can cause another major



This group of spirochetes, the type that cause Lyme disease, were identified in a tick preserved in amber

human ailment, spotted fever. Those fossils from Myanmar were found in ticks about 100 million years old. In the United States, Europe and Asia, ticks are a more important insect vector of disease than mosquitos, They can carry bacteria that cause a wide range of diseases, affect many different animal species, and often are not even understood or recognized by doctors. It's likely that many ailments in human history for which doctors had no explanation have been caused by tick-borne disease. Lyme disease is a perfect example. It can cause problems with joints, the heart and central nervous system, but researchers didn't even know it existed until 1975. If recognized early and treated with antibiotics, it can be cured. But it's often mistaken for other health conditions. And surging deer populations in many areas are causing a rapid increase in Lyme disease.

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



CVRMS Board Meeting

CVRMS BOARD MEETING – FEBRUARY 23, 2016

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

Present: Marv Houg, Dale Stout, Ray Anderson, Joy Cummings, Sharon Sonnleitner

SHOW: Collector's Journal contacted Marv for an article. Marv has security line up. Committees were noted. Dale has send in the application for a raffle license.

Displays were reviewed. Sharon will meet with Tiffany at Oakdale to see the large plant fossils she has for display and will ask about getting the Iowa leaves Tiffany has in the repository. Ray will check will Mark Anderson about an artifact display. Ray Garton may be bringing a small dinosaur for display.

We will suggest to the Gazette a story about the cycads at Macbride or about the coal history of Iowa. Ray will talk to the Daily Iowan closer to the show about an article. Marv mentioned using Boost to spread messages on Facebook.

FIELD TRIPS: Marv announced March 19 is the field trip to see Ithiel and Janice's dinosaur in Amana, and March 26 at 9:30 is the field trip to Mark Ginsberg's 3-D lab in Iowa City. Egg carton day is February 28 at 2:00 at Sonnleitners'.

The Science Fair is March 19. Jay made a motion to recommend to the membership that we contribute \$200, the same amount as in previous years: \$50 for 1st and \$30 for 2nd for both juniors and seniors and \$40 to support the Science Fair. Seconded by Joy and approved.

Joy made a motion to continue our membership in ALAA (American Land Access Association), an organization that lobbies to keep BLM lands open. Seconded by Dale and approved.

Ray will create a Show publicity poster to display at MAPS Expo. MSHA training is scheduled Monday, April 4, at 2:00 and 6:00.

Respectfully submitted,
Sharon Sonnleitner, Acting Secretary



Coal Formation Linked to Assembly of Supercontinent Pangea

The consolidation of the ancient supercontinent Pangea 300 million years ago played a key role in the formation of the coal that is burned for energy in many parts of the world today, according to Stanford University scientists.

The findings, published in early January in the journal for the *Proceedings of the National Academy of Sciences*, contradicts a popular hypothesis that attributes the formation of Carboniferous coal to a 60-million-year gap between the appearance of the first forests and the evolution of wood-eating microbes and bacteria that could break them down.

In the new study, scientists took a closer look at this "evolutionary lag" hypothesis, examining the idea from various biochemical and geological perspectives. They demonstrated that this explanation for the creation of ancient coal is "inconsistent with geochemistry, sedimentology, paleontology, and biology." Their study of ancient, organic-rich sediments from North America showed that not all of the plants that existed during the Carboniferous period possessed high concentrations of lignin, a cell wall polymer that helps give plant tissues their rigidity and the components that ancient bacteria and fungi were supposedly unable to break down.



Instead the scientists proposed that formation of coal deposits during the Carboniferous period was closely tied to the tectonics and climate conditions of that time. They argued that during the Carboniferous, massive amounts of organic debris accumulated in warm, humid equatorial wetlands. The large basins that formed provided the "accommodation space"- where organic matter accumulated. With time that plant matter was eventually transformed into the coal that powered the Industrial Revolution and helped usher in the modern age. Coal accumulation is largely controlled by geological processes that operate on timescales of millions of years.

<https://www.sciencedaily.com/releases/2016/01/160120143005.htm>

Spotlight Gemstone: Aquamarine

March's Birth Stone



Aquamarine (from Latin: *aqua marina*, "water of the sea") is a blue or cyan variety of beryl [$\text{Be}_3\text{Al}_2(\text{Si}_3\text{O}_{12})_6$]. It occurs at most localities that produce ordinary beryl. The deep blue version of aquamarine is called *maxixe*. Maxixe's color fades to white when exposed to sunlight or is subjected to heat treatment, though the color returns with irradiation.

The pale blue color of aquamarine is attributed to Fe^{2+} . Fe^{3+} ions produce golden-yellow color, and when both Fe^{2+} and Fe^{3+} are present, the color is a darker blue as in maxixe. Decoloration of maxixe by light or heat thus may be due to the charge transfer between Fe^{3+} and Fe^{2+} . Dark-blue maxixe color can be produced in green, pink or yellow beryl by irradiating it with high-energy particles (gamma rays, neutrons or even X-rays). The largest aquamarine of gemstone quality ever mined was found in Marambaia, Minas Gerais, Brazil, in 1910. It weighed over 110 kg (240 lb), and its dimensions were 48.5 cm (19 in) long and 42 cm (17 in) in diameter. The largest cut aquamarine gem is the Dom Pedro aquamarine, now housed in the Smithsonian Institution's National Museum of Natural History. The best gems combine high clarity with limpid transparency and blue to slightly greenish blue hues. Like many beryls, aquamarine forms large crystals suitable for sizable fashioned gems and carvings. Beryl of different colors is known by different gemstone names. *Emerald* is colored by trace amounts of chromium and sometimes vanadium. *Golden beryl* can range in colors from pale yellow to a brilliant gold *Heliodoris* beryl in greenish-yellow shades, and *Goshenite* is colorless (pure) beryl. *Morganite* (also known as "pink beryl", "rose beryl", "pink emerald", and "cesian or caesian beryl", is a rare and a light pink to rose-color. *Red beryl* (formerly known as "bixbite" and marketed as "red emerald" or "scarlet emerald") is very rare. Light blue topaz is easily mistaken for aquamarine. The colors of these two gems can be identical, and their physical properties are very similar. Topaz is generally less expensive, and some fraudulent dealers may sell their topaz as aquamarine. Historically, aquamarine was thought to enhance the happiness of marriages. Its light blue color said to arouse feelings of sympathy, trust, harmony and friendship.

Phil Currie and Eva Koppelhus to Speak

Dr. Phillip Currie and his wife Dr. Eva Koppelhus will be in Iowa City for presentations in early April. Phil is a Canadian palaeontologist and museum curator who helped found the Royal Tyrrell Museum of Palaeontology in Drumheller, Alberta. He is currently a professor at the University of Alberta in Edmonton, Canada. He has served as the director of the Canada-China Dinosaur Project and has helped describe some of the first feathered dinosaurs. Phil is one of



Dr. Phillip Currie
University of Alberta

the primary editors of the influential *Encyclopedia of Dinosaurs*, and his areas of expertise include theropods (especially Tyrannosauridae), the origin of birds, and dinosaurian migration patterns and herding behavior. He was one of the models for palaeontologist Alan Grant in the film *Jurassic Park*. Dr. Currie will be the Keynote

Speaker at the 2016 Maps Exposition, presenting a program on "*The Dinosaurs of Alberta - old history and new discoveries*", at 7:00 pm on April 1 in the Ballroom of the Clarion Hotel, 2525 N Dodge St, Iowa City.

Eva Koppelhus is currently an Assistant Professor and Curator of Paleobotany and Palynology in the Biological Sciences Department at the University of Alberta in Edmonton. Eva specializes in paleobotany (the study of fossil plants) and palynology (the study of fossilized spores and pollen), especially from the Cretaceous Period (135 to 64 million years ago). Many of her research projects have been related to dinosaur sites in Alberta, Antarctica, Argentina and Asia. Dr. Koppelhus will be making a presentation "*Cretaceous Park, the Ancient Palaeo-environment of Dinosaur Provincial Park*" at the Geoscience Seminar on April 1 at 4:00 pm in room 125 in Trowbridge Hall on the University of Iowa



Dr. Eva Koppelhus
University of Alberta

What in the World?

February Photo



What in the World are these spherical geologic features?? Why are they significant?

The "What in the World?" photo for February is a view of the Administration Building of the Iowa State Penitentiary at Anamosa. The penitentiary was constructed by inmates in phases between 1892 and 1902, using very evenly-bedded, soft, yellow dolomite quarried nearby, the Anamosa Member of the Silurian Gower Formation. The Administration Building is the architectural focus of the reformatory complex, displaying Gothic Revival decorative elements. The two story porch across the facade and the building's elaborate cornice, parapet, tower, and turrets embellish the exterior of the building. Corinthian columns support the arched frieze of the porch on the first level. The columns rest on a decorative, open rail elaborated with carved urns and circular openings. The porch floor is marble. Elaborated with battlements, the porch's second story roof rests on steel posts. A decorative stone rail closes its north and south ends. Carved stone lions rest along the porch's stone entrance stairs. Low, free-standing carved stone posts also mark its entry. Battlements and a corbeled cornice embellish the building's eaves. An elaborate string course occurs over the front, third floor windows. The two story, octagonal, tower is centered over the pavilion. It supports battlements and octagonal turrets with battlements



Scientists had already known that almost 4.5 billion years ago the Earth was side-swiped by a Mars-sized planet called Theia (pronounced THAY-eh), producing the current Earth/Moon system. New evidence reported Jan. 29 in the journal *Science* substantially strengthens the case for a more head-on impact. The researchers analyzed seven rocks brought to the Earth from the moon by the Apollo 12, 15 and 17 missions, as well as six volcanic rocks from the Earth's mantle -- five from Hawaii and one from Arizona. The key to reconstructing the giant impact was a chemical signature revealed in the rocks' oxygen atoms. More than 99.9 percent of Earth's oxygen is O-16, so called because each atom contains eight protons and eight neutrons. But there also are small quantities of heavier oxygen isotopes: O-17 (with one extra neutron) and O-18 (two extra neutrons). Earth, Mars and other planetary bodies in our solar system each has a unique ratio of O-17 to O-16, a distinctive "fingerprint." The scientists did not detect any differences between the Earth's and the Moon's oxygen isotopes, calling them "indistinguishable." A glancing impact between Earth and Theia would have left a detectable difference in the isotopes ratios. A head-on collision, however, likely would have resulted in more thorough mixing and a similar chemical composition of both Earth and the moon.

New Evidence for Moon-Forming Collision



For more information see <https://www.sciencedaily.com/releases/2016/01/160129090451.htm>.

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.

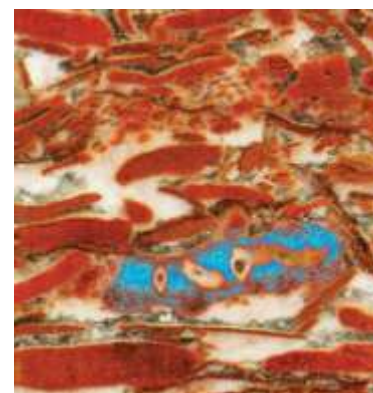
Rona Bradshaw asked, "I know there is geologic evidence of life on Earth for billion of years, but how old are the oldest-known animals and what did they look like?"

Geochemical evidence has been interpreted to show the presence of life on Earth 3.8 Ga (billion years). Structures in rocks dated to about 3.5 Ga have been identified as bacteria. But, the oldest undisputed evidence of life on Earth, fossilized bacteria, dates to 3 Ga. Animals are **multicellular, eukaryotic organisms** of the kingdom *Animalia*. All animals are motile, meaning they can move spontaneously and independently, at some point in their lives. Their body plan eventually becomes fixed as they develop, although some undergo a process of metamorphosis later on in their lives. All animals are heterotrophs: they must ingest other organisms or their products for sustenance. In August, 2010, scientists announced the discovery of the oldest fossils of animals. They discovered primitive sponge-like creatures that lived in ocean reefs about **650 million years ago**. The shelly fossils, found beneath a 635 million-year-old glacial deposit in South Australia, represent the earliest evidence of animal body forms in the current fossil record, predating other evidence by at least 70 million years. Previously, the oldest known fossils of animals were from two reef-dwelling organisms and jellyfish that lived around 550 million years ago. Geoscientists happened upon the new



Exposure of stromatolites (fossil algae) in south Australia that trapped ancient sponges.

fossils while working on a project focused on the severe ice age that marked the end of the **Cryogenian period** 635 million years ago. Their findings, published in the August 17, 2010, issue of the journal *Nature Geoscience*, provide the first direct evidence that animal life existed before--and probably survived--the severe "Snowball Earth" event known as the **Marinoan glaciation** (the last of



Tiny fossil sponge (stained blue) in fossil stromatolite.

several Precambrian Snowball Earth events) that left much of the globe covered in ice at the end of the **Cryogenian**. In rocks with abundant embedded mud chips they noticed wishbones, rings, perforated slabs and anvil shapes. Convinced that they had stumbled upon some sort of organism they analyzed the fossils. After considering a variety of alternatives, the scientists concluded that the fossil organisms most closely resembled sponges--simple filter-feeding animals that extract food from water as it flows through specialized body channels. Previously, the oldest known undisputed fossilized sponges were around 520 million years old, dating to the Cambrian Period. The scientists were not expecting to find evidence of animals that lived before the world-wide ice age, and since animals probably did not evolve twice, they were confronted with the question of how these reef-dwelling animals survived the "snowball Earth." These fossils pre-date the generally accepted age of the *Cambrian explosion* (the 20-25 million year period beginning about 542 million years ago that saw the diversification of most organisms and the appearance of most of today's major animal phyla including the vertebrates from which humans evolved). Prior to the Cambrian explosion, most organisms were simple, composed of individual cells occasionally organized into **colonies**. It is not yet known if the 635 million year age for these sponges indicate that the Cambrian explosion began earlier than previously believed, or if they represent only those animals who survived the last of the Snowball Earth episodes.

New 404 carat Diamond one of the largest ever

A massive diamond was recently unearthed in Angola, mining company Lucapa announced last month. At 404.2 carats, it measures about 2 ¾ inches across (about the length of a credit card). It was mined by the Lucapa Diamond Company's Lulo Diamond Project. The diamond was categorized it as a Type IIa stone (meaning it's virtually flawless) and it's also D-colored (entirely colorless - the rarest for a white diamond). The stone is the largest ever found in Angola and the 27th largest diamond ever recorded. The world record was a 3,106 carat (1.3 pounds) gem, called the "Cullinan." It was discovered in South Africa in 1905 and was cut to adorn the royal scepter, one of Britain's crown jewels. "Cullinan" was nearly triple the size of the second largest diamond on record.



Where Did this Diamond Come From and How Was It Formed??



Image of erupting Kimberlite pipe next to an older pipe.

Angolan diamonds were erupted during the lower Cretaceous (about 118 my) along a northeast-trending zone of fractures called the Lucapa Graben (which developed in the late Jurassic during the break-up of the supercontinent of Pangea and the opening of the Atlantic Ocean). They were produced in a series of small but powerful volcanic eruptions from deep in the Earth called kimberlites. These kimberlite volcanoes originate at least three times deeper than most other volcanoes, and the magma that is pushed toward the surface is high in magnesium, water, and carbon dioxide.

As the magma rises toward the surface, the volatiles transform to gases, producing a sudden expansion that propels the magma upward at supersonic



Geologic map of Angola showing the location of the Lucapa Graben and the Lulo Mine.

speeds. A useful analogy to this process is the uncorking of a shaken bottle of Champagne. The eruption ejects a column of material but does not form a large volcanic cone. Instead, a low ring of ejecta forms around a bowl-shaped depression over the subterranean column of magma (called a kimberlite pipe). The pipe contains pieces of rock carried up from great depth, mixed with gemstones such as garnets, spinels, and peridot, and in some cases diamonds. Hundreds of individual kimberlite pipes are found in the Lucapa Graben, several hundred in the area of the Lulo Mine that produced the huge diamond. The formation of natural diamonds requires very high temperatures and pressures that only occur in limited zones of Earth's mantle (about 90 miles below the surface) where temperatures are at least 2,000 degrees Fahrenheit. This critical temperature-pressure environment for diamond formation and stability is not present globally. Instead it is thought to be present primarily in the mantle beneath the very old stable interiors of continental plates.



Areas of Kimberlite emplacement.

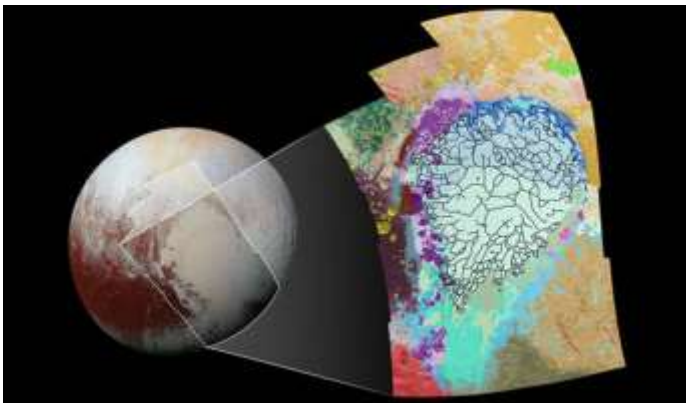
\$\$ Dues Time \$\$

No Doo-Doo, your Dues are Due.
Time to pay your dues for 2016. At \$15 per year for a family membership, it's a bargain!! Get your payment into Dale Stout as soon as you can.

New Geologic Map of Pluto



For those of you who enjoyed Dr Steve Spangler's program on Pluto at our January's club meeting, you may be interested in a newly created geological map of Pluto's famous heart-shaped region. It shows just how varied and complex the distant dwarf planet is. Scientists on NASA's New Horizons mission, which performed the first-ever flyby of Pluto on July 14, have put together a color-coded geological map of Sputnik Planum, the



huge nitrogen-ice plain that occupies the left side of Pluto's heart-shaped Tombaugh Regio. The map covers an area that stretches 1,290 miles from top to bottom and features a resolution of at least 1,050 feet per pixel, NASA said. (Some parts of the map are even sharper than that.) To make this map, New Horizons team members used the spacecraft's Long Range Reconnaissance Imager (LORRI), taking pictures at a distance of 48,000 miles from Pluto on July 14. At the time, New Horizons was less than 2 hours away from its closest approach, which brought the probe within just 7,800 miles of Pluto's surface.

Maw Sit Sit

Ever hear of "Maw Sit Sit: ? ? I hadn't until I ran across a reference to this interesting stone. Also known as "chrome jade", this bright green stone is composed of *kosmochlor*, with small amounts of *jadeite*, *eckermannite*, *albite* and *chromite*. *Kosmochlor* (NaCrSi₂O₆) is a rare sodium chromium pyroxene mineral that is abundant in some meteorites. *Jadeite's* composition (NaAlSi₂O₆) is similar to the



composition of *kosmochlor*. *Eckermannite* is a rare amphibole-group mineral. *Albite* is a common feldspar mineral. The typical gem cut from maw sit sit is a bright chrome

green cabochon with a few swirls of black color. The quality of the green color and a slight, yet interesting swirl of black are what determines its appeal to the buyer. The bright green color of Maw Sit Sit is caused by its very high chromium content. To date, all known maw sit sit deposits are in a small area of Kachin State of northern Myanmar (formerly known as Burma). The gem material receives its name from the village of Maw Sit Sit, located in the foothills of the Himalaya Mountains. The maw sit sit occurs along with jade, in veins associated with a large peridotite body that has

been heavily metamorphosed. It also occurs as pebbles, cobbles and boulders in streams and alluvial deposits. Most of the



mining is in these alluvial deposits. Nice pieces of maw sit sit are much more affordable than high quality jade. A beautiful cabochon sized for a ring or a pair of matched cabochons suitable for earrings often cost under \$100.

<http://geology.com/gemstones/maw-sit-sit/>

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



MARCH 19

MARCH 26

INDOOR FIELD TRIP
Catiri's Teenage Triceratops Adventures
 Saturday, March 19th starting at 1pm
 Meeting at: **Edelstein Treasures**
 4510 220th Trail, Main Amana

Patty the Teenage Triceratops is in Amana, Iowa! You will get a unique tour of the Juvenile Triceratops that Ithiel & Jenise Catiri have been excavating for 2 years in South Dakota. This late cretaceous creature is beautifully preserved and comes with a great adventure story. This is a great field trip for all ages. (There are stairs)
Cretaceous Cookies will be provided.

Find us on **facebook.**

If there is enough interest, we may meet for lunch on March 19 at the Ronneberg at noon.
 Let Marv know if you are interested.
M_houg@yahoo.com

Treasures from the Dominican Republic

Find us on **facebook.**

JURASSIC ADVENTURES
 Traveling Dominican Republic
 March 19th 2pm to 6pm
 at **Catiri's Art Oasis**
 Come to Amana & see all the new treasures from our latest trip. Refreshments will be served.

AMBER **LARIMAR**

Right from the mine. Beautifully crafted by local artists.

www.edelsteintreasures.com www.catirioasis.com

APRIL 3 - 4

INDOOR FIELD TRIP
Catiri's Teenage Triceratops Adventures
 Sunday, April 3rd & Monday, April 4th 2016
 Meeting at: **Edelstein Treasures**
 4510 220th Trail, Main Amana

Times & Sign Up Sheets will be available at the MAPS show.

Patty the Teenage Triceratops is in Amana, Iowa! You will get a unique tour of the Juvenile Triceratops that Ithiel & Jenise Catiri have been excavating for 2 years in South Dakota. This late cretaceous creature is beautifully preserved and comes with a great adventure story. This is a great field trip for all ages. (There are stairs)

www.edelsteintreasure.com Find us on **facebook.**

SPECIAL CVRMS FIELD TRIP
"3d Design and Manufacturing"
"Demonstration"

3d scanning, printing, computer controlled milling, Induction and vacuum casting

9:30 am Saturday, March 26
M.C. Ginsburg Objects of Art
 110 E Washington Street
 Iowa City

SIGN UP NOW

Please contact Ray Anderson at: rockdoc.anderson@gmail.com.

APRIL MAY JUNE
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?ref=page_internal or calling ZRS Fossils at (612) 210-9711.



Officers, Directors, and Committee Chairs

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Hospitality	Jeff Kahl	455-2201
Webmaster	Sharon Sonnleitner (sonnb@aol.com)	396-4016

Club meetings are held the 3rd Tuesday of each month from September through November and from January through May at 7:00 p.m. at the Rockwell Collins 35th Street Plant Cafeteria, 855 35th St NE, Cedar Rapids, Iowa. The December meeting is a Christmas dinner held on the usual meeting night. June, July, and August meetings are potlucks held at 6:30 p.m. at area parks on the 3rd Tuesday of each month.

CEDAR VALLEY ROCKS & MINERAL SOCIETY

CVRMS was organized for the purpose of studying the sciences of mineralogy, geology, and paleontology and the arts of lapidary and gemology. We are members of the Midwest (MWF) and American (AFMS) Federations. Membership is open to anyone who professes an interest in rocks and minerals.

Annual dues are \$15.00 per family per calendar year. Dues can be sent to:

Dale Stout
2237 Meadowbrook Dr. SE
Cedar Rapids, IA 52403

CVRMS website:
cedarvalleyrockclub.org

March Meeting:
 Rockwell Collins 35th St. Cafeteria
MARCH 15
 "Review of Field Camp and Research"
 Cornell College Geology Students



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