Cedar Valley Gems

Cedar Valley Rocks & Minerals Society

Cedar Rapids, Iowa

cedarvalleyrockclub.org

CEDAR VALLEY GEMS **SEPTEMBER 2018** **VOL. 44, ISSUE 7**

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

Next CVRMS Meeting Tues. Sept 18

Hiawatha Community Center
101 Emmons St., Hiawatha - 7:15 pm

featured speaker:

Steven R. Spangler
University of Iowa
Department of Physics and Astronomy

"A SKY FULL OF PLANETS: the amazing discovery of 5000 planets around other stars"

The study of planets in our solar system constitutes one of the major areas of astronomy; one in which astronomy depends on geology to help us understand what we are seeing. There are 8 major planets in our solar system, and they differ significantly from each other. A dream of astronomers for centuries has been to discover planets around other stars. That dream has been abundantly fulfilled in the last 2 decades. From 0 known extra-solar-system planets in 1995, we have gone to over 5000 confirmed and strong candidate planets today. Although our knowledge of these planets is too limited to allow field geology type information at present, that does lie in the future. In this talk, I will describe how we discovered these planets, what we know about them, and what it tells us about the early history of our own solar system.

Blue diamonds, like the world-famous Hope Diamond at the National Museum of Natural History, formed up to four times deeper in the Earth's mantle than most other diamonds, according to new work published on the cover of *Nature*. Called type IIb diamonds they are tremendously valuable, making them hard to get access to for scientific research. Blue diamonds rarely contain tiny inclusions of minerals from the rock in which the diamond crystallized, but when discovered they can tell scientists about the conditions under which they formed. Type IIb diamonds owe their blue color to the element boron, an element that is mostly found on the Earth's surface. But analysis of the inclusions in 46 blue diamonds examined over two years indicates that they crystallized in rocks that only exist under the extreme pressure and temperature conditions of the Earth's lower mantle, at least as deep as the transition zone between the upper and lower mantle (250 - 400 miles below the surface), some even deeper. By contrast, most other gem diamonds come up from 100 and 150 miles. So how did the boron get down there if it is an element known for residing predominately in the shallow crust? The research group proposed it came from seafloor in water-rich minerals like serpentine that were conveyed down into the mantle by the plate tectonics process of subduction. This discovery shows that the water-bearing minerals travel far deeper into the mantle than previously thought, which suggests the possibility of a super-deep hydrological cycle. A 2016 study found that the world's biggest and most-valuable colorless diamonds formed deep in the Earth's mantle. With this new discovery that blue diamonds also have super-deep origins, we now know that the finest gem-quality diamonds come from the farthest down in our planet.

http://www.geologypage.com/2018/08/what-makes-diamonds-blue.html

What is the most abundant mineral in our planet?

Wisconsin geologist Steve Dutch recently posted an answer to the question, "*What is the most abundant mineral in our planet?"* He says it is something you may never have heard of. The Earth's mantle is mostly made of **olivine** (M_2SiO_4) and **pyroxene** ($MSiO_3$). The **M** stands for iron and magnesium in variable proportions. The *spinel* family of minerals has the formula AB_2O_4, where A is

Olivine (left) is compressed to form Spinel (right)

something like magnesium and B is something like aluminum. The Earth's internal pressure crunches olivine to a denser form analogous to spinel and rearranges the formula to SiM_2O_4. There's also a mineral called *perovskite*, with the formula $CaTiO_3$. You can crunch pyroxene into this form as well.

Pyroxene (left) is compressed to form Perovskite (right)

Once you get more than a few hundred kilometers deep in the mantle, those two minerals, olivine with spinel structure and pyroxene with perovskite structure, probably make up most of the lower mantle. That means there's far more of them than quartz or feldspars, or even solid nickel-iron in the inner core

CVRMS Board Minutes Aug. 30

Called at 7:05 at the home of Marv Houg
Present: President Marv Houg, Dale Stout, Ray Anderson, Bill Desmarais, Jay Vavra, Sharon Sonnleitner, Rick Austin

AUCTION: Marv handed out the final list of auction lots. On September 6, several Board members will go through the donated boxes Marv has stored to sort for auction, show silent auction, pebble pit, etc. Dale will check to see if we can drop items off on Thursday before the auction. Sharon asked about requesting the MWF email out flyers for member clubs' Shows and special events such as the auction since they already have email lists. We will request emails from auction people to use to notify them of future shows and auctions instead of mailing. We will use the sign-in list from last year to set up a list for this year to simplify sign-in. Sharon has sent out flyers to individuals and will email flyers to clubs.

SHOW: Ray reported no changes to AFMS/MWF show planning. Marv passed out a list of possible displays and posters to spotlight our geode theme. Ray asked if we could get a really tall amethyst. It was decided we would hold a design contest for the show t-shirt. Possible new places to advertise are: *Mature Focus*, *City Revealed* (both monthly), *Explorer* (2x per year) and the DNR magazine *Iowa Outdoors*. There was some discussion about table favors for the AFMS/MWF banquet, with a budget of about $50 set.

FIELD TRIPS: Marv will check on Conklin for September 9 and a trip in October.

BUS TRIP: Bill announced 42 have signed up and that tickets must be prepaid by October 1 to get the group discount. Those who do not pay in advance can pay the regular admission price at the door. **Non-members can now sign up to join the bus trip, at a cost of $25.**

Dale made a motion to adjourn, and Ray seconded. Adjourned at 9:30.

Respectfully submitted,
Sharon Sonnleitner, Acting Secretary

How Is Orbicular Granite Formed?

Orbicular granite (also known as orbicular rock or orbiculite) is an uncommon plutonic rock type which is usually granitic in composition. These rocks have a unique appearance due to orbicules - concentrically layered, spheroidal structures, probably formed through nucleation around a grain in a cooling magma chamber. Almost one third of known orbicular rock occurrences are from Finland. The occurrences are usually very small. The orbicules are formed by crystallization from a fluid-rich supercooled dioritic magma nucleated on seed crystals. The orbicules appear to have settled under gravity while each was still a skeletal mesh of crystals, since the orbicules are frequently deformed or molded against one another. The accumulation of orbicules depletes the magma in mafic elements, and increases the silica and fluid content, and the granite nature of the matrix. Biotite flakes cut primary crystals and are thought to be secondary.
http://www.geologyin.com/2014/02/orbicular-granite.html?m=1#OMQ9FoqxyEG8aFgj.32

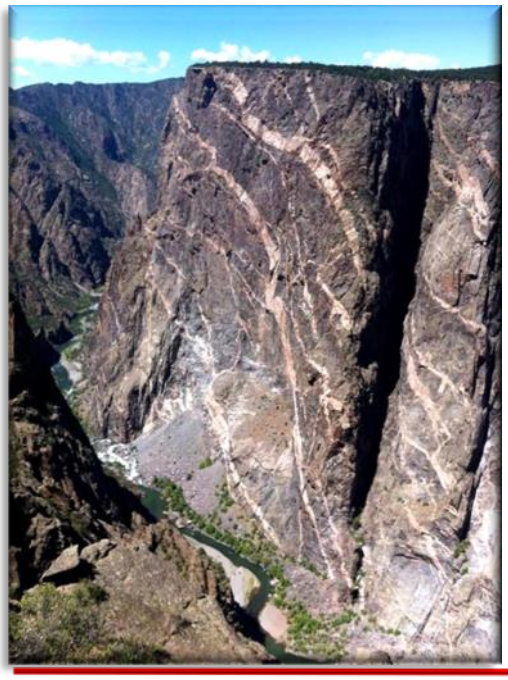
Spotlight Gemstone: Sapphire

September's Birth Stone

Sapphire, the birthstone for September and the gem of the 5th and 45th anniversaries, is a gemstone variety of the mineral corundum, an aluminium oxide (Al_2O_3) typically containing traces of iron, titanium, chromium, copper, or magnesium. Typically associated with the color blue, sapphires can also naturally occur in a wide variety of colors such as blue, yellow, purple, orange, green colors (which are also called "*fancy sapphires*"). "*Parti sapphires*" are those sapphires which show two or more colors in a single stone. The only color which sapphire cannot be is red (red colored corundum is called ruby). Commonly, natural sapphires are cut and polished into gemstones and worn in jewelry. They also may be created synthetically in laboratories for industrial or decorative purposes in large crystal boules. Because of the remarkable hardness of sapphires, 9 on the Mohs scale (the third hardest mineral, after diamond at 10 and moissanite at 9.5), sapphires are also used in some non-ornamental applications, including infrared optical components, wristwatch crystals and movement bearings, and very thin electronic wafers used as insulating substrates in special-purpose solid-state electronics.

The sapphire is one of the three gem-varieties of corundum, the other two being *ruby* (defined as corundum in a shade of red) and *padparadscha* (a pinkish orange variety). Although blue is their most well-known color, sapphires may also be colorless or shades of gray and black. Significant sapphire deposits are found in Eastern Australia, Thailand, Sri Lanka, China (Shandong), Madagascar, East Africa, and in North America in a few locations, mostly in Montana. Blue sapphires are evaluated based upon the purity of their primary hue. Purple, violet, and green are the most common secondary hues found in blue sapphires. Blue sapphires with up to 15% violet or purple are generally said to be of fine quality. Blue sapphires with any amount of green as a secondary hue are not considered to be fine quality. The 423-carat (84.6 g) Logan sapphire in the National Museum of Natural History, in Washington, D.C., is one of the largest faceted gem-quality blue sapphires in existence.

What in the World?



What in the World is this spectacular cliff and where can it be seen ??

June's **What in the World?** Sarychev volcano (Russia's Kuril Islands, northeast of Japan) in an early stage of eruption on June 12, 2009, as photographed from the International Space Station.

June's Photo

Rock Calendar 2018
CVRMS EVENTS OF INTEREST

Sept. 18 - CVRMS Monthly Meeting
Feature Program
Dr. Steve Spangler,
"A SKY FULL OF PLANETS: the amazing discovery of 5000 planets around other stars"
Hiawatha Community Center 7:15 pm

Sept. 15-16—CVRMS Rock Auction
Amana RV Park and Event Center
Amana, Iowa
http://www.cedarvalleyrockclub.org/auction.html
see page 10 for auction flyer

Sept. 28-30 — Geode Fest
Chaney Creek Boat Access
1404 IL-96
Hamilton Illinois
http://www.keokukiowatourism.org/event_calendar/geode_fest/index.php

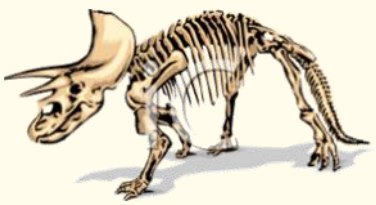
Oct. 7– BMC Sunday at a Quarry
"Everyone's a Minor
Raymond Quarry
"Raymond, IA
10 am—4 pm

Oct. 16 - CVRMS Monthly Meeting
Feature Program
University of Iowa Geology Students
Hiawatha Community Center 7:15 pm

Nov. 4—CVRMS Fall Field Trip
Milwaukee Public Museum
Milwaukee, Wisconsin
see p. 11 for details

Nov. 20 - CVRMS Monthly Meeting
Feature Program
Phil Kerr
"Pleistocene History of Iowa
Hiawatha Community Center 7:15 pm

Dec. 11 - CVRMS Monthly Meeting
Feature Program
"CHRISTMAS PARTY"
Hiawatha Community Center 6:30 pm



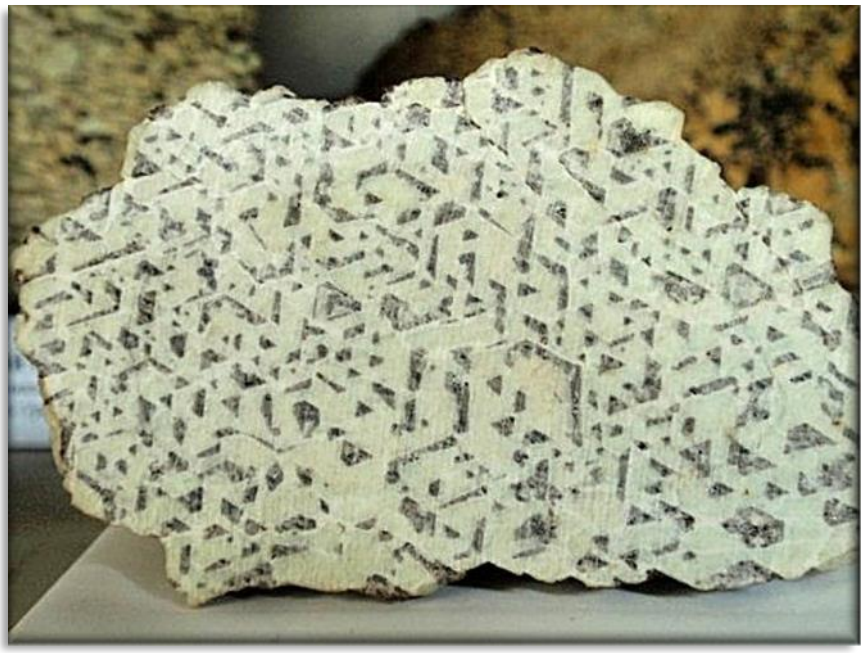
Ask a Geologist

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.

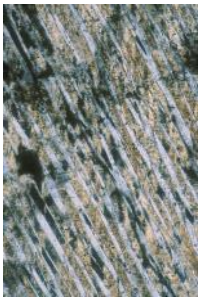
***Rona asked*:** I've heard you talking about "graphic granite." What is graphic granite??

Rock Doc replied: *Graphic granite* is a fascinating looking type of igneous rock containing intergrowths of quartz and pale or white colored feldspar minerals. The pattern of intergrowths is so distinctive and reminiscent of cuneiform writing that the texture is called *graphic*, after the Latin word *Graphus* (or Greek *Graphos*) meaning "*to write*". The texture (see photo below) is defined by quartz grains grown throughout the feldspar, with the shape of the quartz defined by the crystal structure of the feldspar. The two crystal types would have been growing together, during the last stages of cooling of a large magma body. As the feldspar grains grew, they took components like aluminum and alkali elements out of the magma, enriching the magma right next to it in silica enough to cause quartz crystallization. The quartz crystals would start forming or "nucleate" along the edges of the feldspar grain because they crystallize at a lower temperature than feldspar and it is easier for new crystals to form at a place where there is a boundary for them to lock onto. The crystals kept growing outward until this pattern was locked in and preserved. This pattern is most common in pegmatite rocks (silicic intrusive rocks displaying exceptionally large and well developed crystals), which form fairly quickly in magmas with high water content. The high water enables the minerals to grow quickly enough for the crystal structure to lock into this repetitive pattern.



A beautiful example of graphic granite from a Paleoproterozoic granite pegmatite intrusion from near the town of Enskoye, east of Kovdor, ~257 km west of the town of Apatity in the southwestern Kola Peninsula of far-northwestern Russia.

We have identified several fragments of graphic granite in exploration drill core from the Manson Impact Structure in northcentral Iowa. These igneous rock fragments were ripped from deep in the Iowa basement and thrust to the land surface on the uplifted central peak of the Manson Crater. Although they have not been dated, these granites are interpreted as belonging to a wide swath of granite plutons and lavas, stretching across America from Michigan to California, that were erupted during an extended period of lower crust melting from about 1.5 to 1.35 billion years ago. Several granitic plutons in Iowa have been age dated and confirmed to be a part of this belt. Graphic granite has been mined in the Black Hills, in North Carolina, and in Colorado.



Left: Graphic Granite in the Manson M-07 core (215'). Feldspar is orange and quartz is milky white. ***Right:*** Photomicrograph of a thin-section of the graphic granite on the left. The light-colored bands are feldspar and the mottled-yellowish bands are quartz showing internal impact deformation.

What Caused World's Greatest Extinction ?

A skull from the 10-foot long predator *Dinogorgon,* lies in Upper Permian strata in the heart of today's South Africa.

A study by a researcher in the Syracuse University College of Arts and Sciences offers new clues to what may have triggered the world's most catastrophic extinction, nearly 252 million years ago. James Muirhead, a research associate in the Department of Earth Sciences, is the co-author of an article in *Nature Communications* titled "*Initial Pulse of Siberian Traps Sills as the Trigger of the End-Permian Mass Extinction.*" Their findings suggest that the formation of intrusive igneous rock, known as sills, sparked a chain of events that brought the Permian geological period to a close. In the End of Permian extinction more than 95 percent of marine species and 70 percent of land species vanished. There have been five major mass extinctions, since life originated on Earth more than 600 million years ago. Most of these events have been blamed, at various times, on volcanic eruptions and asteroids impacts. By reexamining the timing and connection between magmatism (the eruption of molten rock), climate change, and extinction, they created a model that explains what triggered the end-Permian mass extinction. Central to their study is a large igneous province (LIP) in Russia called the Siberian Traps. Spanning more than 500,000 square miles, this rocky outpost was the site of nearly a million years of epic volcanic activity. Broad, flat volcanoes likely dispelled significant volumes of lava, ashes and gas, while pushing sulfur dioxide, carbon dioxide and methane to dangerous levels in the environment. Until recently, the relative timing and duration of mass extinctions and LIP volcanism was obscured by the lack of precise age dates. Their model was based on new, high-resolution age data that suggests surface lava flows erupted too early to drive mass extinction. Instead, there was a subinterval of magmatism -- a shorter, particular part of the LIP -- that triggered a cascade of events causing mass extinction. There are two ways that magma forms igneous rock. One way is extrusion, in which magma erupts through volcanic craters and cracks on to the Earth's surface; the other is intrusion, whereby magma forces itself between or through existing formations of rock, without reaching the surface. Common types of intrusion are sills, dykes and batholiths. During this period magma pushed its way into a thick package of sedimentary rocks (including limestone, coal, clastic rocks and evaporates) in Siberia's Tunguska Basin. The mixture of hot, molten rock and hydrocarbon-bearing coals is thought to have set the stage for massive release of greenhouse gases (methane and CO_2) resulting in global-scale climate change. This model links the onset of extinction with the initial pulse of sill emplacement, and it may apply to other extinction events coinciding with LIPs. Mass extinction can take 10,000 years or less -- the blink of an eye, by geological standards -- but its effects on the evolutionary trajectory of life are still observable today.

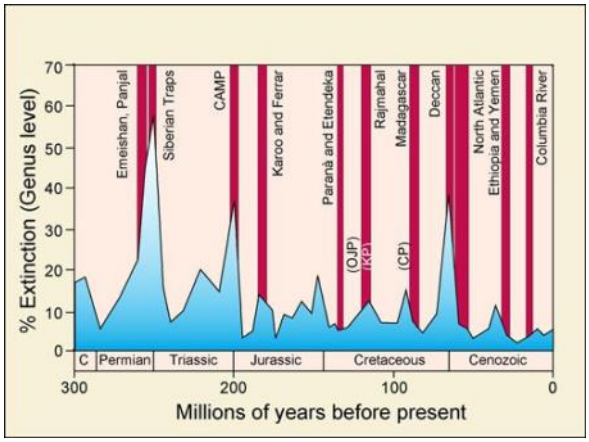
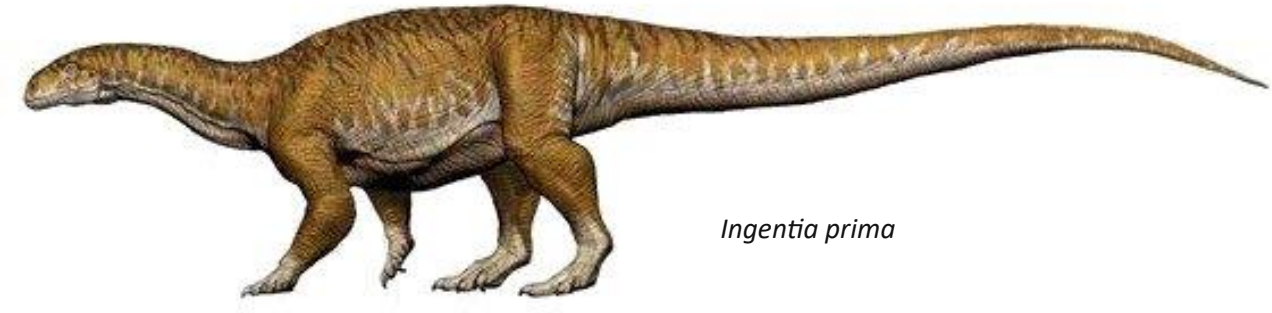


Chart showing timing of major extinction events (blue) and major large igneous provinces (red).

http://www.geologyin.com/2017/07/what-caused-worlds-greatest-extinction.html

New Clues to How the Biggest Dinosaurs Got So Big



Ingentia prima

No creatures ever stomped across the planet quite like the creatures scientists call sauropodomorphs. These long-necked plant eaters were the largest dinosaurs, and they included the mighty 70-ton titanosaurs, as well as the Brachiosaurus and Diplodocus. Paleontologists have long wondered how these lumbering 100-foot-long behemoths got so big. Now a group of researchers has uncovered a new, early sauropodomorph. It differed from later species in its group, with seasonal growth spurts leading to its giant proportions, rather than continuous, gradual growth. The finding, published Monday in the journal *Nature Ecology & Evolution,* provides insight into how certain dinosaurs became the biggest of the big. "*This new dinosaur changes our understanding of how dinosaurs became giants*," said Cecilia Apaldetti, a paleontologist from the Museo de Ciencias Naturales, Universidad Nacional de San Juan, in Argentina. In 2015, Dr. Apaldetti and her colleagues discovered the new species while looking for Triassic Period fossils in northwest Argentina. They called it *Ingentia prima*, meaning "the first giant." "*We didn't expect a big dinosaur in the Triassic rocks, because we know that at that moment dinosaurs were in general small, no more than 3 tons*," Dr. Apaldetti said. But the prehistoric beast they found weighed an estimated seven to 10 tons — more than an African elephant — and measured about 33 feet long. It lived from 201 million to 237 million years ago, which was about 47 million years before its colossal cousins, the Brachiosaurus and Diplodocus, and 30 million years before the titanosaurs. "*Until now it was believed that the first giants to inhabit the Earth had originated during the Jurassic period*," Dr. Apaldetti said. That sauropod was known as *Vulcanodon* and it walked the Earth around 180 million years ago and measured about 20 to 35 feet long. Back at the lab, they spent months cleaning the fossil and comparing it with other dinosaur species. Dr. Apaldetti and her colleagues studied the Ingentia prima fossils along with remains from a previously known and closely related species called *Lessemsaurus sauropoides*. Together the two species belong to a group known as "*lessemsaurids*." In studying the dinosaurs' anatomies, she found that like the later Jurassic period giants, *Ingentia prima* had an avian-like respiratory system, meaning it had air sacs in its neck. But she also found differences. "Just as growth seasons can be observed in a tree, the bony cuts in *lessemsaurids* show that it had cyclical, seasonal growth," said Dr. Apaldetti. "But the style of the bone deposition during these periods of growth is different from the other sauropods or eusauropods we knew so far." The *lessemsaurids* grew through quick bursts that occurred seasonally, she said, while their later counterparts grew at a consistent rate until they became adults. "The giant sauropods like the titanosaurs of the Jurassic or Cretaceous acquired big bodies through a slow and more complex way," said Dr. Apaldetti. That included developing extremely elongated necks and forelimbs, smaller skulls and thick, trunk-like limbs. In contrast, *Ingentia prima* did not have a greatly elongated neck and its legs were more flexible and bent rather than straight and pillar-like. These early giants showed that there was more than one way to climb to the top of the dinosaur world.

https://www.nytimes.com/2018/07/11/science/giant-dinosaurs-evolution.html?rref=collection%2Ftimestopic%2FFossils&action=click&contentCollection=timestopics&region=stream&module=stream_unit&version=latest&contentPlacement=4&pgtype=collection

What's New In Iowa Geology ??

Iowa Geological Survey Continues Tradition of Publishing RAGBRAI Geology Brochures

RAGBRAI (the Register's Annual Great Bicycle Ride Across Iowa) is an annual seven-day bicycle ride across the state of Iowa. This is the ride's 46th year, and it is the oldest, largest, and longest bicycle touring event in the world. Continuing the tradition, the Iowa Geological Survey, with support from the Iowa Limestone Producers Association, has created a series of informational brochures to help the RAGBRAI participants learn about Iowa's geological, cultural, and natural characteristics as they ride across the state. Each of the 7 brochures describe geology along one day's route and include a map showing topographic relief, and descriptions of geological features that can be seen or visited.
The content was developed by staff from the Iowa Geological Survey, IIHR, and the U.S. Geological Survey

Day 1 RAGBRAI brochure

Click below to view the PDF copy of each 2018 RAGBRAI brochure

Day 1 – July 22

Day 2 – July 23

Day 3 – July 24

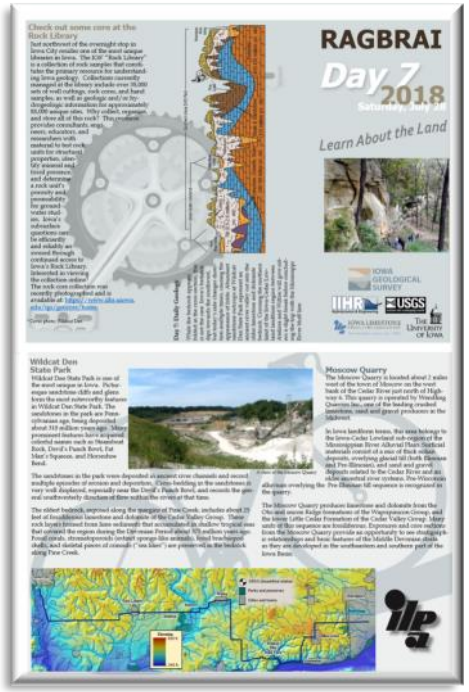
Day 4 – July 25

Day 5 – July 26

Day 6 – July 27

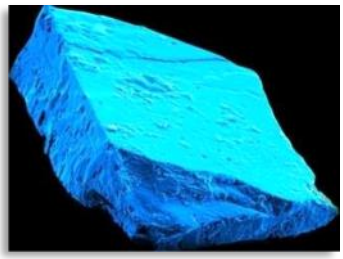
Day 7 – July 28

Day 7 RAGBRAI brochure



Ancient Space Crystals May Prove the Sun Was Unstable in Its Early Period

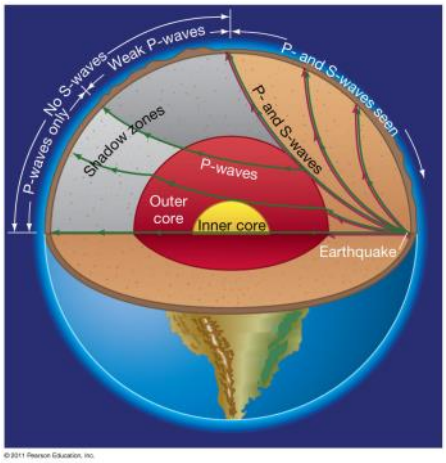
It seems that our 4.6 billion-year-old sun was somewhat unstable during its formative years. New data, focused around a peculiar set of ancient blue crystals from space, seems to suggest the sun emitted a much higher flux of cosmic rays in its early history. Those blue crystals are called hibonite, and they've arrived here on Earth by way of meteorite impacts. Hibonite $(Ca,Ce)(Al,Ti,Mg)_{12}O_{19}$ was effectively one of the first minerals formed in the solar system, created by the cooling gas derived from the sun. The new study, published in *Nature Astronomy*, focuses on the Murchison meteorite, which fell in Australia in 1969, likely originating from an asteroid in the asteroid belt and possessing pieces of hibonite barely larger than the width of human hair.



A tiny hibonite crystal from the Murchison meteorite

Hibonites like those in Murchison apparently formed close to the young sun, because that is where temperatures were high enough to form such minerals. Hibonites from Murchison are famous for showing large isotope anomalies that tell us about the types of stars that contributed material to the molecular cloud that the sun formed from. The team doesn't have an exact date on the hibonite grains, but based on the age of refractory elements in the meteorite, it pegs the crystals to be a little over 4.5 billion years old. If hibonite really was produced by an early active sun, the answer would be found in analyzing the crystals' helium and neon isotopes. High energy particles being ejected by a volatile young sun would have hit calcium and aluminum deposits in the crystals and split these atoms into neon and helium, and been irrevocably trapped for billions of years. The hibonite crystals were studied using a highly sensitive mass spectrometer, melting the grains of hibonite down with a laser while the spectrometer measured and confirmed the presence of helium and neon concentrations. Beyond simply illustrating that the young sun went through a phase of high activity, the new results also show how some meteorite materials from the solar nebula are directly affected by young sun irradiation. The team also noticed helium and neon were absent from younger crystals, indicating that something changed later in the irradiation conditions created by the sun, and raising the question of what happened. The minuscule size of the hibonite grains limits the accuracy of helium and neon trace measurements, as well as an analysis of the absolute age of the hibonite itself. Moreover, the analyses also involve destruction of the grains. This sort of insight might augur later into a better understanding of how the roles star evolution plays in the creation of elements and materials that later on assemble into planets and other celestial bodies. https://www.popsci.com/space-crystal-meteorite-early-sun?CMPID=ene080518

About a Quadrillion Tons of Diamonds May Be Hiding in Earth



Sound waves may have detected huge numbers of diamonds lying beneath Earth's surface. An international team of scientists said that diamonds might be scattered in Earth's crust and mantle, according to a study published in the June 19 journal *Geochemistry, Geophysics, Geosystems*. The scientists set out to research a seismic anomaly and found something surprising and shiny. The U.S. Geological Survey and other agencies keep global records of seismic data from sound waves that travel through the planet from tsunamis, earthquakes, explosions and other events that cause parts of Earth to shake. They use this data to track many things, including where an earthquake originated. In some spots of Earth's crust, called cratons, the sound waves traveled much faster than expected. Cratons are stable parts of Earth's crust and mantle that are usually found in the interiors of tectonic plates, and are not part of the more active, unstable parts of the crust. Cratons are typically denser and colder than the parts of Earth that surround them, so sound waves should travel through them slightly faster but not as fast as the seismic data showed. To test which material causes the sound waves to travel that quickly through the cratons, the scientists created virtual rock models. Only one virtual rock showed the same velocity as the abnormal seismic waves that were traveling through the cratons. The rock contained a surprising 1 percent to 2 percent diamond, in addition to the more common rock peridotite and small amounts of eclogite, from subducted oceanic crust. The diamonds are beneficial to cratons, as they help them stay stable and keep them from sinking, preserving the planet's oldest rocks. MIT researcher Ulrich Faul said in a statement, "*This shows that diamond is not perhaps this exotic mineral, but on the [geological] scale of things, it's relatively common.*" In fact, the scientists have estimated that there are 1,000 times more diamonds in Earth's surface than previously thought. Volcanic eruptions bring diamonds to Earth's surface in kimberlite pipes. The scientists say it makes sense that diamonds are found in cratons, because that is where the kimberlite pipes are found. The diamonds are estimated to be about 90 to 150 miles beneath Earth's surface, much farther than any mining expedition has ever gone. Faul says: "*We can't get at them, but still, there is much more diamond there than we have ever thought before*." https://www.newsweek.com/diamond-found-earth-1026382?utm_source=quora&utm_medium=referral

2018 Auction Venue - Amana, Iowa

The CEDAR VALLEY ROCKS & MINERALS SOCIETY Presents

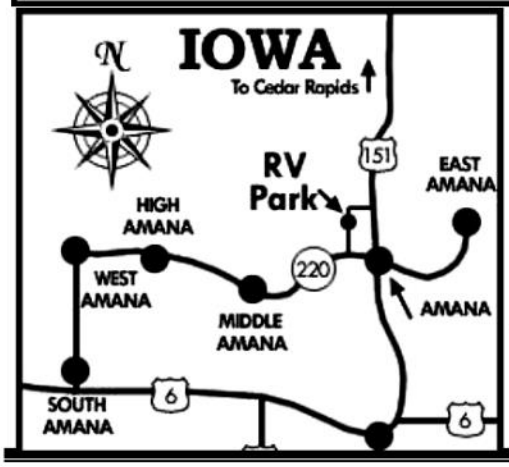
A TWO-DAY ROCK and MINERAL AUCTION

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

Saturday, September 15 – 9:00 a.m. - 7 p.m.?

Sunday, September 16 – 9:00 a.m. – 3 p.m.?

Viewing Hours: Fri., Sept. 15, from 5:00 to 7:30 p.m.; Sat. at 7:30 a.m.; Sun at 8:00



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

HOT FOOD AVAILABLE

THE FOLLOWING IS A PARTIAL LIST OF ITEMS TO BE AUCTIONED

EQUIPMENT WILL SELL AT 2:00 ON SATURDAY

ROCKS & MINERALS SPECIMENS
Binghamite & Silkstone
Calcite: High quality Oskaloosa
Chinese dendritic picture jasper
Chinese jade slab
Clear Tabular Barite on Calcite with Anhydrite Casts, Danville KY
FLUORESCENTS: Franklin/Sterling Hill NJ; Brilliant Green opal, St. David AZ; Green chalcedony, Baker Ranch,NM
Geodes from 2013 Roadcut Project, Woodbury TN
Hickoryite (Wonderstone)
Keswick tumbled pieces
Lake Superior Agates
Mineral specimens, incl Kelly Mine Smithsonite
Natural copper specimens
Natural Silver specimens
Owyhee jasper
Polished Slabs for Display
Quartz Crystals, AR
Shu Fa stone
Septarian Nodules
Spodumene, 11 lb
Thompsonite in basalt, Keweenaw MI
Thundereggs, Baker Ranch, NM

JEWELRY
Faceted gemstones
Lake Superior Agate cabochons
Stone beads, jewelry findings & beading misc.
Stone cabochons
Wire wrapped jewelry/pendants

ROCKS & MINERALS ROUGH
AGATE: Brazil; Bubble gum; Cathedral Crazy lace; India Green Moss; Kentucky; Keswick; Lake Superior; Maury Mountain moss; Mexican; Missouri Lace; Montana Moss; Nebraska chalcedony vein; Prairie; Rooster Tail; Teepee Canyon; Yellow Cat Flats red
Azurite-Malachite-Chrysocolla, AZ
Biggs slices
Decorah shale Cannon Falls, MN
Green Fluorite vein specimen/carving rough – Mexico, LW UV Fluorescent Purple
Hachita NM cutting/tumbling rough
JASPER: Brenda, AZ; Idaho Picture; Mary Ellen
Kensington copper conglomerate
Labradorite
Mahogany & snowflake obsidian
Mariposite
Mozarkite
Onyx Pieces
Opalite (cutting Rough) Pink w/ White/Grey, Baker Ranch NM
Peridot bombs
Pipestone, 24" long
Prehnite cut & uncut
Red & Yellow Jasper moss
Rhodonite & Silver
Rock slabs
Tiger eye
Tufa
Wyoming jade
Yellow Onyx Flowstone/Aragonite: Cutting rough, Sabula, IA

EQUIPMENT (will sell at 2:00 on Sat.)
Badge-a-Minit 2 ¼" Button Press
Display Case w/ sliding glass doors: 36 1/2w x 17 1/2h x 17 1/2d
Frampton 10" saw
Highland Park B50 Sander, Grinder, Polisher
Highland Park cabbing machine, 8" wheels
Star Diamond GP-8 Grinder/Polisher
Tumbling grits

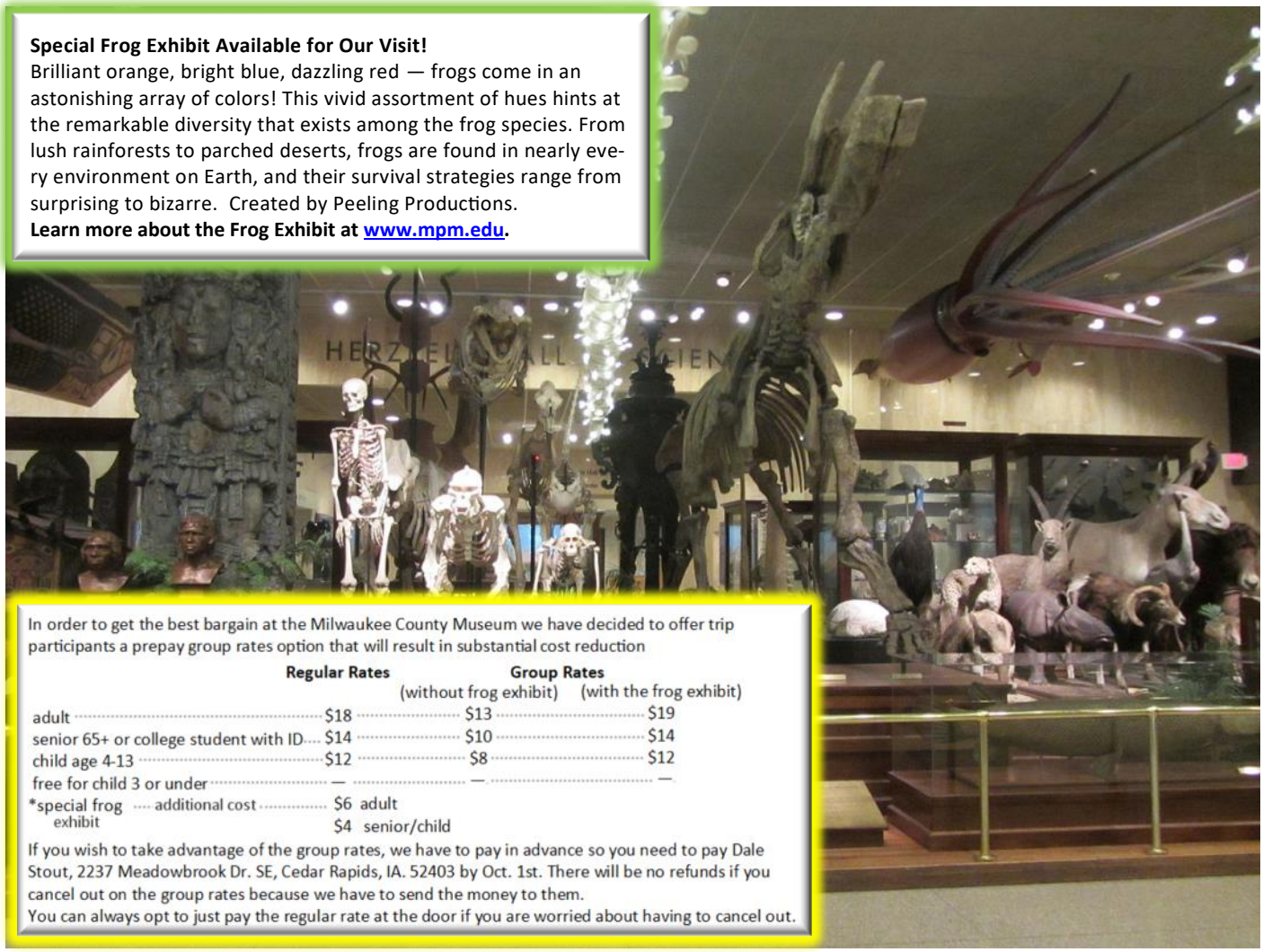
FOSSILS
Ammolite ammonite
Bone fossils
Coprolite
Coral heads Edgemont, SD
Dinosaur bone for tumbling
Dinosaur bone, good-sized pieces
Fossil algae WY
Opalized petrified wood
Palm Wood, good-sized pieces
Petrified Wood (Western US - ex-Robinder Collection)
Petrified Wood + Turritella Agate, WY – (Western US - ex-Robinder Collection)
Platte River petrified wood
Stromatolite, MN

MISC.
Paintings on Slabs
Rock spheres
Stone bowls
Sand Bottles

I.D. will be required to obtain buying number. Cash or good check. Two forms of I.D. required for all checks.
No items removed until settled for on day of sale. Not responsible for accidents, theft or damage.
Announcements day of sale take precedence over advertising.
CONTACTS: Marvin Houg 319-364-2868, m_houg@yahoo.com or Sharon Sonnleitner 319-396-4016, sonnb@aol.com; www.cedarvalleyrockclub.org

"Bill's Big Bus Boogie" 2018
Milwaukee County Museum

Special Frog Exhibit Available for Our Visit!
Brilliant orange, bright blue, dazzling red — frogs come in an astonishing array of colors! This vivid assortment of hues hints at the remarkable diversity that exists among the frog species. From lush rainforests to parched deserts, frogs are found in nearly every environment on Earth, and their survival strategies range from surprising to bizarre. Created by Peeling Productions.
Learn more about the Frog Exhibit at www.mpm.edu.



In order to get the best bargain at the Milwaukee County Museum we have decided to offer trip participants a prepay group rates option that will result in substantial cost reduction

	Regular Rates	Group Rates (without frog exhibit)	Group Rates (with the frog exhibit)
adult	$18	$13	$19
senior 65+ or college student with ID	$14	$10	$14
child age 4-13	$12	$8	$12
free for child 3 or under	—	—	—
*special frog exhibit	additional cost	$6 adult $4 senior/child	

If you wish to take advantage of the group rates, we have to pay in advance so you need to pay Dale Stout, 2237 Meadowbrook Dr. SE, Cedar Rapids, IA. 52403 by Oct. 1st. There will be no refunds if you cancel out on the group rates because we have to send the money to them.
You can always opt to just pay the regular rate at the door if you are worried about having to cancel out.

The 2018 incarnation of **"Bill's Big Bus Boogie"** will take CVMRS members on a field trip to the **Milwaukee County Museum** on Sunday, **November 4, 2018**. The museum features the **Hebior Mammoth**, a fossil found less than 30 miles from the Museum on a farm in the small town of Paris in Kenosha County, that is among a group of important finds that help date the early presence of humans in North America. One popular display is "***Continents, Oceans and Life in Motion: A New View of the Third Planet***," the first museum display in North America to use plate tectonics as a central theme for the presentation of earth science to the public. The Museum's 150,000 square feet of exhibit space also includes an opportunity to visit ***Africa***, stroll through the bustling ***Streets of Old Milwaukee*** of a century past, witness a ***modern-day pow-wow***, stroll amid free-flying butterflies from around the world in the ***Puelicher Butterfly Wing***, and **more**! The temporary exhibit "***Maya: Hidden Worlds Revealed***" is open allowing visitors to rediscover this ancient civilization, view hundreds of authentic artifacts, and participate in hands-on activities such as exploring tombs or building an arch, & more. The club will pay for the bus, for those whose club membership dues were paid up as of May 1, 2018, and they need only pay museum admission. **Non-members may now also register for open seats on the trip, at a charge of $25/seat.** The seats are going fast so don't wait, contact **Bill Desmarais** at **319-365-0612** or desmarais_3@msn.com if you are interested in participating. It should be another great "**Bill's Big Bus Boogie**" field trip!

2018 Officers, Directors, and Committee Chairs

President ..... Marv Houg (m_houg@yahoo.com.....(319)364-2868
Vice President. ... Ray Anderson (rockdoc.anderson@gmail.com) 337-2798
Treasurer ..... Dale Stout (dhstout55@aol.com)..... 365-7798
Secretary ..... Dell James (cycladelics@msn.com) 446-7591
Editor..... Ray Anderson (rockdoc.anderson@gmail.com) 337-2798
Liaison……Bob Roper (roper7174@gmail.com) ….……..847-297-6472
Imm. Past Pres. .. Sharon Sonnleitner (sonnb@aol.com) 396-4016
Director '18 ..... Bill Desmarais (desmarais_3@msn.com) 365-0612
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Sunshine..... Dolores Slade (doloresdslade@aol.com) 351-5559
Hospitality ..... Jeff Kahl (jczskahl2012@yahoo.com) 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 7:15 p.m., at the Hiawatha Community Center in the Hiawatha City Hall, 101 Emmons St., Hiawatha IA. The December meeting is a potluck dinner held the 2nd Tuesday. 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
2155 Prairie du Chien Rd. NE
Iowa City, Iowa 52240-9620