Cedar Valley Gems

Cedar Valley Rocks & Minerals Society
Cedar Rapids, Iowa

HTTP://WWW.CEDARVALLEYROCKCLUB.ORG/

CEDAR VALLEY GEMS | MAY 2016 | VOL. 42, ISSUE 05

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

Next CVRMS Meeting Tues. May 17

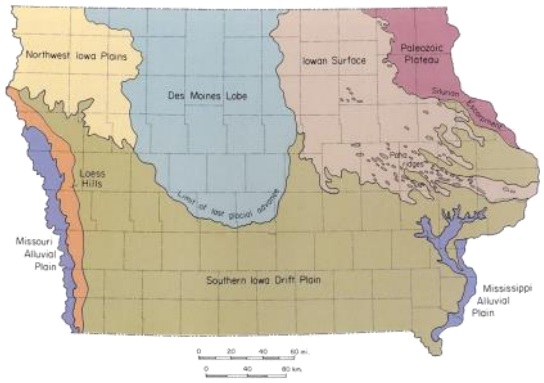
NEW MEETING SITE

Guaranty Bank
300 80th Street Court
Fairfax, IA 52228
(just SW of Cedar Rapids on Hwy 30)

7:00 pm
Featured speaker
Ray Anderson

"Iowa's Landscapes"

Iowa is blessed with a variety of interesting landscapes, from the rolling hills of southern Iowa to the steep loess hills along the Missouri River to the flat farmlands of north-central Iowa to the rocky bluffs of the northeast. In her book, "*Landforms of Iowa",* former Iowa Geological Survey geologist Jean Prior identified seven Iowa landscape regions, each with their own characteristics and geologic history. This presentation focuses on the key aspects of Iowa's geologic history that led to the development of each of these landform regions and discusses new developments.



2016 Rock Show Big Success

The 2016 CVRMS Rock Minerals, and Fossils Show at Hawkeye Downs in Cedar Rapids was a big success, despite the late date and good weather which kept the attendance below record levels. Actual attendance and other show information is being compiled and will be reported in next month's newsletter.

CVRMS March Meeting

March15, 2016

Meeting held at Guaranty Bank Community Room, Fairfax, IA
Hosts-Kim Kleckner and Judy Suman

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

Introduction of new members or guests- none present

Minutes: Minutes of previous meeting reviewed. Motion to approve made by Julie, 2nd by Terry. Motion passed.

Treasurer's report: by Dale- Checking balance $17,242.74. Dale passed out a compilation of show incomes and expenses. There are still some outstanding and some not yet paid. A fair estimate of income received from the show is $9800.00. A successful show.

Monthly Program: Sea Monsters: A prehistoric Adventure from National Geographic

Door Prize Winner: Sharon Sonnleitner None available at this meeting. The club owes Sharon a door prize.

Show Report:

Overall compliments to volunteers for all the hard work. Julie thanked Dell and her crew for food preparation. Dolores thanked the young lady, Kaylee, for front desk help. Suggestion made to develop jobs for young people to do for next year's show in order to get them involved.

There was a large geode left over from the raffle. Motion made by Anne to give the left over geode to the largest purchaser of raffle tickets who was Paul Crof. A.J. seconded. Discussion followed and motion passed. Tom will see him and bring it to him.

The Geology Club from U of I monitored the bone dig. A total of $236 was earned and usually we split the profits with the club. This year since intake was lower, Sharon made a motion that the total amount be given to the geology club. Terry 2nd. Motion passed.

Terry suggested that we have duty signup sheets with times listed. The board will discuss and work up something for next year. Dolores volunteered to call people and work on this so that people will know when and where they are expected.

Various comments regarding the show included the fact that the show was held in a different month. The weather was warm and many student activities going on-baseball, soccer etc. Also complaints about the building being too warm. No air conditioning.

No scout troops were in attendance this year which was un usual. Show will be back to the third weekend in March in 2017. March 18-19.

Field trips-

Marv called to set up for Klein Quarry on May 8. He has not heard from them yet but Dale will send out notice when he finds out more into.

Marv will talk with Glenn at Waterloo for a possible joint geode dig.

New Business

Next month's meeting will be here at Guaranty Bank. The Rockwell Collins site may not be available until September.

Picnics

Marv will check with Ellis Park or Thomas Park for June. Dale will check for Squaw Creek Geode Cracking in July and Morgan Creek for bingo in August. Watch the newsletter and the web page for more info.

Other business

Thank you to Judy and Kim for the treats. The cake was delicious by popular vote.

Adjournment

Motion made to adjourn by Jeff and 2nd by Bill. **Meeting adjourned at 8:50 p.m.**

the hosts for May will be Dennis Schlicht and Jeff Kohl

Respectfully submitted,
Dell James, Secretary

Rock Calendar

2016

May 15 - CVRMS Field Trip
Conklin Quarry, Coralville
8:45 am - 4 pm.
Meet at main entrance (1st Ave)

see Page 11 for more information

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

2017

March 25-26 - CVRMS Gem, Mineral, and Fossil Show
Hawkeye Downs, Cedar Rapids

Can Gemstones Really Come from Space?

Rocks that fall from the sky have frightened and fascinated people throughout history. They immediately generate curiosity and have a scientific significance. They are extremely rare and of interest scientists, collectors, and curious people alike. Many meteorites and impactites are small enough and attractive enough to be used as gems in the same condition in which they fell from the sky. ***Iron meteorites*** are alloys of iron and nickel that can be cut and polished into beautiful gems or fashioned into the metal parts of jewelry, highlighting their characteristic *Widmanstatten lines*. **Pallasites** are stony-iron meteorites that contain colorful peridot (olivine) crystals that can be cut into gems. **Impactites** (materials created by the impact) can include colorful glasses that can be faceted, cut into cabochons, or carved into small sculptures. Two such glasses are Moldavite and Libyan Glass. Moldavite (also called Bouteille Stone) is a glassy material that is usually olive green in color. It formed during the asteroid impact that formed the Ries Crater in Germany about 15 million years ago. The impact melted the target rock and splattered the molten material across an area that includes portions of what is now the Czech Republic, Austria, and Germany, where it is found today in sediments of Middle to Upper Miocene age as droplet-shaped particles of green glassy material a few centimeters in diameter or smaller. Moldavite is faceted. cut into cabochons, or wire-wrapped as rough.

Iron meteorite pendant with Widmanstatten lines.

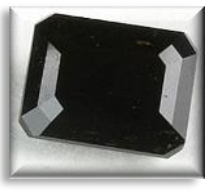
Peridot and iron in a Palestite meteorite and faceted meteoritic peridot.

Moldavite tektite and faceted stone.

Libyan Glass was probably created by the air burst (explosion) of a meteorite over the Libyan desert about 26 million years ago, near what is now the border between Egypt and Libya. The air burst flash-melted sand and other material on Earth's surface below.

The ancient Egyptians of 3300 years ago held Libyan Desert Glass in high regard. The pendant (on the right) was one of several buried with King Tutankhamun (King Tut) in about 1323 BC. The yellow center stone is a superb piece of Libyan Desert Glass, used as the dominant gem in this pendant. Even though these materials are extremely rare, they can typically be purchased at a lower price than some of the most popular gemstones. Why are they so inexpensive? Most people are not familiar with them, so they are not being requested in jewelry stores. In addition, the supply of these materials is so small and unreliable that they do not have a place with wholesale or mass-market jewelers.

Libyan glass and carved stone in King Tut pendant



black tektite and faceted stone.

for more see http://geology.com/gemstones/gems-from-space/

CVRMS Board Meeting

CVRMS BOARD MEETING – APRIL 26, 2016
7:20-9:20 at the home of Marv & Sue Houg
Members Present: Marv Houg, Dell James, Sharon Sonnleitner, Jay Vavra, Bill Desmarais, Dale Stout

Show General review and discussion of last show. Attendance was down from previous years and most likely due to the change of dates and the gorgeous Midwest spring weather. Not all receipts are in and not all bills paid but about $9800 total. More concise information will be available at the next monthly meeting. All around a successful show.

One member suggested that we sell large garden rocks (leaverites?) since there were some inquiries made at the show. Board consensus too much work to haul, lift and obtain a supply. If someone donates, hauls and handles, we could sell. Club will not promote this however.

Hawkeye Downs contract for next year has not yet been signed. Bill has been paid for this completed show.

Next year's dealers will remain the same except will ask if the pearl lady and Phil Oliver will be back as they were replacement vendors for ZRS. Sharon will contact.

Sharon paid for the club screen that is used to present the programs. Dale made the motion to reimburse Sharon, Bill second. Discussion followed regarding the fact that MAPS also uses the screen. The reimbursement to Sharon will be half ($70) from the club. Motion passed.

Auction-September 17-18 at Amana. Need lists from sellers so a flyer can be composed and distributed. About 1150 lots and the auction is full for a two day sale.

Programs/field trips Marv has planned a dig to Conklin Quarry on May 15. There is a strong need to reemphasize the importance of the safety requirements and what they are. Dale will email with an announcement.

Marv also working with Glenn for a geode dig.

Some discussion regarding a day trip via bus to Fields Museum in Chicago. Bill will get some info together and try again. Members are encouraged togive input to Bill.

Misc. The May 17 meeting will be held at the Fairfax Guaranty Bank .

Picnics not yet reserved but Marv and Dale working on it.

Potential classes for members was discussed. Some interest was shown in flint napping and Jay knows Toby Morrow and will contact him for info and the possibility of holding classes.

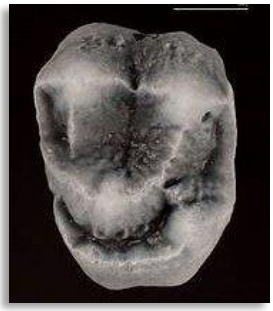
Jay has archived the old newsletters and pictures etc. onto a computer file. Lots of work and many thanks to him for stepping up and volunteering.

Motion to adjourn by Dale, second by Dell. Meeting adjourned 9:35 pm.

Respectfully Submitted, ***Dell James***, Sec.

First-Ever Fossil Monkey Found in North America

Paleontologists working in Panama have discovered the first -ever fossil evidence of monkeys from the North American landmass: a 21-million-year-old specimen that changes our understanding of the biological history of the continent. The fossil monkey is closely related to living South American monkeys, such as capuchins. The animal somehow made the journey from South America to North America 18 million years before there was a land bridge to travel across. The discovery adds a layer of complexity to established theories about the past movement of animals on the continents. After it was disconnect from Antarctica during the breakup of the supercontinent Pangea, South America was thought of as an island continent. It wasn't until the rise of the Isthmus of Panama, about 3 million years ago that North and South America were connected and animals could freely migrate between the continents -- a major event known as the Great American Biotic Interchange (GABI). The new discovery also raises questions about why monkeys never ventured farther into North America. One theory is that the monkeys weren't used to eating the continent's food: They were unwilling to trade South America's tropical fruits for northern acorns.



Photograph of the upper molar of 21 million-year-old *Panamacebus*.

The researchers actually discovered seven tiny fossil teeth from the early monkey in Panama: They were uncovered thanks to a once-in-a-century research opportunity created by the expansion of the Panama Canal. The massive construction project, that included the widening, deepening and adding new locks to the 100-year-old canal, required digging directly through the fossil deposits. The fossil monkey, a new genus and species, was given the name *Panamacebus transitus*, is the latest addition to a growing understanding of the ancient biodiversity of the tropics of the Americas . It's an ancient species that could help answer questions about what might happen to current species in the wake of a changing climate and increased habitat loss.

These findings were published in the April volume of the journal *Nature*.

more information at: http://www.nsf.gov/news/news_summ.jsp?cntn_id=138353&org=NSF&from=news

Spotlight Gemstone: Emerald

May's Birth Stone

Emerald (May's birthstone) is a variety of the cyclosilicate mineral beryl ($Be_3Al_2(SiO_3)_6$). To be an emerald, a specimen must have a rich, distinctly green color that falls in the range from bluish green to green to slightly yellowish green. Stones with weak saturation or light tone should be called "***green beryl.***" If the beryl's color is greenish blue then it is an "***aquamarine***." If it is greenish yellow it is "***heliodor***." Emerald has a hardness of 7.5–8 on the Mohs scale, however most emeralds are highly included, so their toughness (resistance to breakage) is classified as generally poor.

Innumerable fantastic stories have grown up around this magnificent gem. The Incas and Aztecs of South America regarded the emerald as a holy gemstone. Egyptian pharaohs treasured these stones, which they produced from 'Cleopatra's Mines'.

Although it takes unusual geologic conditions for emeralds to form, the gem has been found in a diversity of rock types. In Colombia, the country that has supplied most of the world's emeralds, black organic shale and carbonaceous limestone, both sedimentary rocks, are the ores for many emerald deposits. The shale is thought to be the source of chromium, and the beryllium is thought to have been delivered by ascending hydrothermal fluids. Many of the world's emerald deposits have formed by contact metamorphism. A granitic magma can serve as a source of beryllium, and nearby carbonaceous schist or gneiss can serve as a source of chromium or vanadium. The emeralds usually form in the schist or gneiss or in the margins of a nearby pegmatite. Mafic and ultramafic rocks can also serve as sources for chromium or vanadium. Today, most emerald production originates in four source countries: Colombia, Zambia, Brazil, and Zimbabwe. These countries reliably produce commercial amounts of emeralds. Minor and irregular production comes from Madagascar, Nigeria, Afghanistan, Pakistan, Canada, Russia.

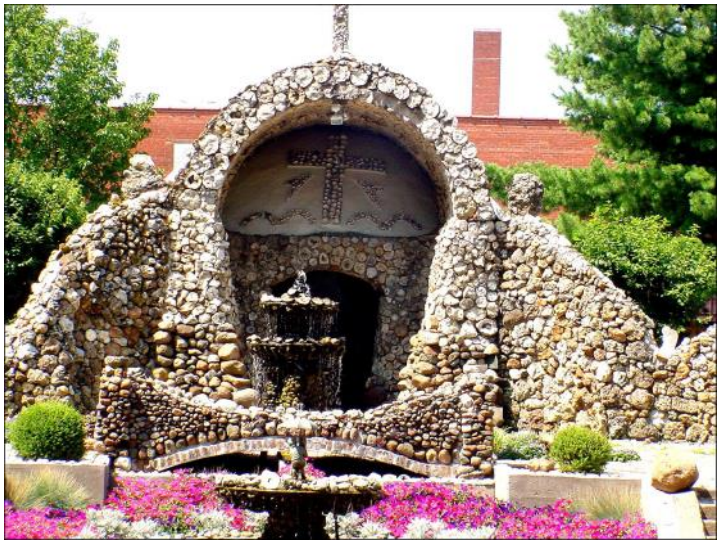
Emeralds, like all colored gemstones, are graded using four basic parameters–the four Cs of Connoisseurship: *Color*, *Cut*, *Clarity* and *Carat weight*. Fine emeralds, which are even more valuable than diamonds, must possess not only a pure verdant green hue, but also a high degree of transparency to be considered a top gem.

Mars Sedimentary Rocks

Martian impact craters are a great place to observe rocks because the impact blasted a hole in the planet's surface with outcrops exposed in the crater walls. The rocks visible in the image above, taken by NASA's Mars Rover Curiosity in 2012, are very similar to the shales found on Earth. They are fine-grained, thinly layered and fissile (meaning they easily break into thin sheets). Rocks on Earth that break this way are usually made up of clay minerals or mica grains that settled out of an aqueous suspension. Their plate-shaped grains deposited on the bottom in a parallel orientation. This gives the rock the ability to be split into thin layers. Clay minerals are known to be abundant on Mars, so it is likely that these rocks are composed of clay minerals. Sediments on the surface of Mars are a product of millions of years of asteroid impacts and mechanical weathering. They are reworked by the wind today, and in the past, they were moved, deposited, and reworked by flowing water The presence of conglomerate and sandstones on Mars is evidence of moving water. Wind is not strong enough to pick up pebbles over one centimeter in diameter and carry them along in the current. The pebbles in this rock show a high level of rounding which implies a significant distance of transport. The red color is thought to be iron staining, which is nearly ubiquitous on Mars and gives it the name "Red Planet." The "cement" that binds the particles in these rocks could be a sulfate mineral.

This **photograph on the left**, was taken on Mars, shows a portion of an outcrop of a rock similar to the conglomerates found on Earth. The pebbles below the rock are clasts weathered from the rock. The **photo on the right** is a similar conglomerate outcrop from Earth.

What in the World?



What in the World is this?? Where is it??

April Photo

The "What in the World?" photo for April was an image of Iowa's first producing oil well. The W.F. Flynn P-1 was drilled in 1963 on a geologic feature known as the Keota Dome in Washington County just east of Keota. A total of about 370 barrels of oil was produced from the well. The well was actually drilled as a part of the development of the Keota Dome as an underground natural gas storage structure, so the oil was more of a nuisance than a treasure. Some of the oil was sent to a refinery in Minneapolis and the rest was used on the county's gravel roads. Iowa's only additional producing oil well, the CST #1 Bombei, was drilled in 1989 about 4 miles south of the W.F. Flynn well. It produced only 71 barrels of oil.

The three men pictured beside the W.F. Flynn pump jack are the land owner, the driller, and in the white shirt a very young Iowa Geological Survey geologist, Don Koch.

Oldest-Known Rocks On Earth

Researchers calculate the age of the Earth by dating both the oldest rocks on the planet and meteorites that have been discovered on Earth (meteorites and Earth formed at the same time). Meteorites tell us that the Earth formed about 4.54 billion years ago. Recently what may be the oldest known rocks on Earth have been identified on the coast of the Hudson Bay in Northern Quebec. Called the Nuvvuagittuq Greensyone Belt, the rocks date back to 4.28 billion years ago, based on the quantity of the isotope neodymium-142 found in the rock. The rocks formed "just" 250 million years after a Mars-sized body collided with the Earth (4.53 billion years ago), transforming our planet's surface layers into an ocean of magma and ejecting the debris that eventually formed our moon. This finding may provide evidence to help geologists answer one of the most problematic geological question: how did the surface of the planet shapeshift from a magma ocean to the modern floating tectonic plates?

Rocks of the Nuvvuagittuq Greensyone Belt in Quebec that date to 4.28 billion years ago.

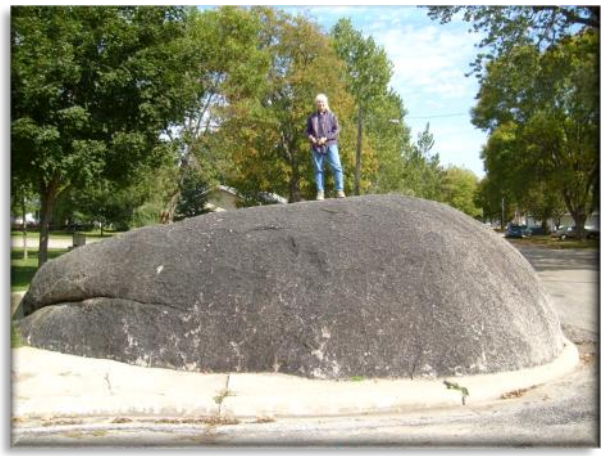
Ask a Geologist

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.

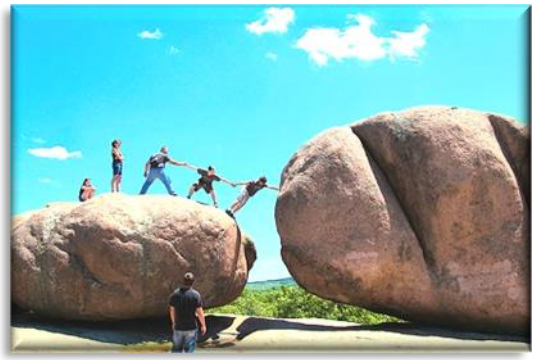
***Rona Bradshaw asked**: "Why are all of the largest glacial erratic boulders in Iowa roundish?? Does that mean that they were tumbled and rounded in glacial rivers?? Even big floods couldn't tumble those giant rocks."*

***Rock Doc replied**:* Good observation, Rona. The glaciers carried lots and lots of boulders into Iowa. Most are round"ish" because they have spent some time in glacial melt streams being tumbled and banged against other rocks, getting edges knocked off and rounded as if they were in a rock tumbler. But, the giant ones are just too large to have been tumbled around in rivers, and yet most are highly rounded. It's true that there have been a number of huge floods in Iowa's glacial past that were capable of moving those giant boulders. These glacial outburst occurred when large ice-dammed lakes drained catastrophically, but even they were not capable of tumbling the huge erratics enough to round them. So why are they rounded? The answer is a geologic process called *spheroidal exfoliation*.



Rona on a giant rounded granite erratic in Nora Springs.

Spheroidal exfoliation is the result of chemical weathering of systematically jointed, massive rocks, including granite, dolerite, basalt and sedimentary rocks such as silicified sandstone. It occurs as the result of the chemical alteration of such rocks along intersecting joints (fractures). The chemical alteration of the rock results in the formation of abundant secondary minerals such as kaolinite, sericite, serpentine, montmorillonite, and chlorite and a corresponding increase in the volume of the altered rock. When the joints within bedrock form a 3-dimensional network, they subdivided it into separated blocks, often in the form of cubes or rectangles that are bounded by these joints. Because water can penetrate the bedrock along the joints, the near-surface bedrock will be altered by weathering progressively inward along the faces of these blocks. The alteration by weathering of the bedrock will be greatest along the corners of each block, followed by the edges, and finally the faces of the cube. The differences in weathering rates between the corners, edges, and faces of a bedrock block will result in the formation of spheroidal layers of altered rock that surround an unaltered rounded boulder -size core of relatively unaltered rock known as a *corestone* or *woolsack*. When these blocks of bedrock end up on the land surface, they continue to be spheroidally weathered. They are rounded by formation of concentric shells of rock which spalls off, similar to the way shells may be removed from an onion. The shells are formed by the same type of chemical weathering of minerals to a product with a greater volume than the original material. Igneous rocks are especially susceptible to this mechanical weathering. So it is reasonable to assume that the largest erratics were naturally rounded where they were exposed before the glaciers moved in, picked them up, and carried them into Iowa. Most of Iowa's largest erratics were weathered to spherical shape in the St. Cloud, Minnesota, area where they were picked up by glacial ice. We can see many modern examples of granite rocks being spherically weathered in place. Elephant Rocks State Park in Missouri (far south of the maximum glacier advance) provides excellent examples (see photo on left).



Visitors play among the giant rounded boulders at Elephant Rocks State Park in Missouri.

Sea-Level Rise from Melting Antarctic Ice Sheet Could Be Double Previous Estimates

An ice sheet model that includes previously underappreciated processes indicates that sea level may rise almost 50 feet by 2500 due to Antarctic ice sheet melting if greenhouse gas emissions continue unabated, according to researchers from Penn State and University of Massachusetts, Amherst.

The last remaining section of Antarctica's Larsen B Ice Shelf, which partially collapsed in 2002, is quickly weakening and likely to disintegrate completely before the end of the decade.

"In this case the atmospheric warming will soon become the dominant driver of ice loss, but prolonged ocean warming will delay the recovery for thousands of years," researchers report in March 31 issue of *Nature*.

Antarctica was the primary contributor to sea level rise in the past and may be the primary contributor in the future because much of its ice sits on ground. Floating ice, like that of the Arctic Ocean, is already in the water and if it melts, does not raise sea level. The Antarctic contribution will also probably dominate melt from the smaller Greenland Ice Sheet. While only parts of Antarctica will melt in the worst case scenario, the melting suggested by the model would be sufficient to double the recent estimates by the Intergovernmental Panel on Climate Change for future sea-level rise over the next 100 years.

"Recently we looked at the long-standing problem posed by geological evidence that suggests sea level rose dramatically in the past, possibly up to 10 to 20 meters around 3 million years ago in the Pliocene," said David Pollard, senior scientist in Earth and Environmental Systems Institute, Penn State. "Existing models couldn't simulate enough ice sheet melting to explain that."

Ocean warming has previously been identified as the main cause of ice retreat occurring today. Warmer water quickly erodes the underside of floating ice sheet portions. Floating ice shelves act as buttresses for the grounded ice inland, whose base is below sea level. Once the shelves are gone, the grounded ice can move faster. However, in previous models, this process did not simulate enough melting to explain the past sea levels, with only West Antarctica collapsing even though similar areas in East Antarctica with huge amounts of ice could collapse in the same manner.

Pollard and Robert M. DeConto, professor of geosciences, Univ. of Massachusetts, Amherst, looked at two further mechanisms that could account for greater melting. The first is fracturing and deepening of crevasses on the low-lying floating ice shelves by pooling of surface meltwater and rainfall caused by warming air temperatures. If emissions continue unabated, this process will dominate ocean warming within 100 years. It already caused the disintegration of the Larsen B Ice Shelf in 2002. The second mechanism comes into play once floating ice sheets disintegrate back to the grounding zone, leaving extremely high walls of ice. These walls are so high that simple physics says they cannot structurally support their weight, and then collapse into the sea, eroding the cliff further and further inland as long as the bedrock stays deep enough below sea level. Similar cliffs, with about 328 feet of ice above sea level and 2625 feet below, exist today at a few of the largest outlet glaciers in Greenland and the Antarctic Peninsula, where huge calving events occur regularly. Both of these mechanisms are known, but neither has been applied to this type of ice-sheet model before. The updated model reproduced ice-sheet retreat consistent with geologic sea-level data for the warm Pliocene and also for the last interglacial period around 125,000 years ago. Then they applied the model to the future, forcing it with various greenhouse-gas emission scenarios.

"Although the future sea-level contribution in our model is greater than previously thought, it is based on credible mechanisms and is consistent with geologic evidence of past sea-level rise," said Pollard. "We regard the results as worst-case envelopes of possible future behavior, and the mechanisms should be considered seriously in future work.

http://news.psu.edu/story/400758/2016/03/30/research/sea-level-rise-antarctic-ice-sheet-could-double

What Is a Tully Monster?

Illustration of a Tully monster

The worm-like creatures writhed in the dark waters, fins twitching and eyestalks roving. Each one sported a long, pincher-tipped proboscis lined with tiny, needle-like teeth. When paleontologists found fossils of these ancient horrors trapped in stone, they named them *Tullimonstrum gregarium*, or Tully monsters. For almost 60 years the prehistoric whatsit remained a frustrating enigma, and was so weird that it even skirted the edges of myth. Depending on who you asked, the Tully Monster could have been related to ribbon worms, snails, conodonts, or other ancient oddballs, like another nozzle-nosed creature, the Burgess Shale animal called *Opabinia*. Some cryptozoologists actually suggested that the legendary Loch Ness Monster was a supersized version of *Tullimonstrum*. But based on studies of more than 1,200 fossil specimens, the researchers led by Yale University paleontologist Victoria McCoy now say the Tully Monster was really a vertebrate, specifically, a type of fish akin to modern lampreys. If they're right, the fossil changes what we know about the history of these aquatic bloodsuckers.

Found by the dozens in the roughly 300-million-year-old rock of Mazon Creek, Illinois, the Tully Monster was a tiny terror (the largest specimens stretch a little more than a foot long). But they have an outsized appeal to paleontologists, and have even been named the Official State Fossil of Illinois.

As it happens, the key to identifying the animal was staring paleontologists in the face all along. Although the weird eyestalks and flexible snoot are the most obviously bizarre features of *Tullimonstrum*, paleontologists were puzzled by what they previously interpreted as the "gut trace." Other animals from the same rock have gut contents that are preserved as dark, mineralized sections, but the guts of the Tully Monster were different. It appeared as a lightly colored, flattened structure that ran from the eye stalks to the end of the tail. That was odd, because the gut should not continue past the end of the tail in both vertebrates and mollusks, McCoy noted. The pale line had to be something else. While McCoy was reading up on other Mazon Creek fossils, including fossil lampreys and hagfish, she realized that these vertebrates had the same structure: a notochord. This is what drew the mysterious creature into the vertebrate family tree. "Lampreys are vertebrates," McCoy says, "so the Tully was as well." From there, the stranger features of the Tully Monster started to fall into place. In addition to a notochord, "the Tully Monster also has large complex eyes, horny teeth, a tail fin with fin rays and a tri-lobed brain," McCoy says. These features aren't always unique to vertebrates, but they nevertheless fit with the new identification. Thanks to the efforts of McCoy and her colleagues, another oddball finds its place on the Tree of Life, matched to the greater vertebrate branch to which we also belong.

Fossil Tully monster from Mazon Creek, Illinois

http://www.smithsonianmag.com/science-nature/what-tully-monster-scientists-finally-think-they-know-180958422/?no-ist

What is Peanut Wood?

Peanut wood is an unusual petrified driftwood from Australia that has nothing to do with "peanuts." It is a variety of petrified wood that is usually dark brown to black in color and is recognized by its white-to-cream-color ovoid markings that are about the size of a peanut (why it received its name). It is a fossil gem with a very unusual history.

Much of the peanut wood being sold today began its life as a conifer tree on land in the area now known as Western Australia. When these trees died, rivers carried them into a shallow, salty sea that covered much of what is now the Australian continent. This was during the Cretaceous time period, when a species of marine clam that loved to eat wood lived in the Australian sea. The clam larvae were able to smell nearby wood and swim to it. When they arrived at a piece of driftwood, they would attach themselves to it and start eating. A tiny pair of valves soon developed on one end of their long body, and they used the sharp edges of their shell as a rasp. They shaved off tiny particles of wood - which they would promptly eat. In a few weeks they could excavate a deep tunnel into the soft, mushy wood. A few species of these wood-eating clams live in the oceans today. Sailors have cursed about them for hundreds of years as the enemy of wooden ships. Sailors began calling them "shipworms" because of their long bodies and their ability to tunnel into a ship much like a worm tunnels through an apple. In the 1700s, shipbuilders began lining the hulls of their ships with thin sheets of copper to protect them from the shipworm. Shipworms have been ruining ships, pilings, docks, retaining walls, and other wooden structures for as long as people have been placing them in salt water.

Peanut wood slab: A nice slab of peanut wood showing lots of "peanut" markings that were produced by the infilling of boreholes made by clams. This slab is about 12 inches in width and was cut from peanut wood mined in the Kennedy Ranges of Western Australia.

Back to the Cretaceous seafloor, where the waterlogged wood that has been heavily drilled by prehistoric shipworms is resting. Billions of tiny radiolarians (tiny plankton with siliceous shells) are living in the water above the wood. A river mouth is a great place for radiolarians to live because the river delivers a continuous supply of nutrients to the sea. When the radiolarians die, their tiny siliceous shells sink to the bottom and accumulate as a white sediment known as radiolarian ooze.

Shipworm clam: A modern clam similar to those that bored the holes in peanut wood. Shipworms still exist and are busy eating any wood that man places in sea water.

Layer after layer of radiolarian ooze accumulated over the wood, entered the bore holes, and some of it dissolved to form a supersaturated silica solution. This dissolved silica precipitated in the cavities of the wood and replaced the woody tissues, converting the waterlogged wood into a fossil.

Peanut wood cabochons: Three nice peanut wood cabochons show boreholes infilled with white radiolarian sediments in brown-to-black petrified woody material.

Today, if a piece of the wood is broken, the petrified wood is a brown-to-black color. Contrasting with the wood is the white radiolarian ooze that filled the boreholes. Since the boreholes are filled, they appear on the broken surface of the wood as white oval-shaped markings about the size and shape of a peanut. That is how the peanut wood obtained its distinctive appearance and its name.

http://geology.com/gemstones/peanut-wood/

Field Trips

SUNDAY, MAY 15

CVRMS FIELD TRIP, CONKLIN QUARRY, CORALVILLE

As last year -there is an attendance limit !!! - A limit on the number of people going into the quarry is being imposed by the quarry management. While the number is fairly large - please let Marv know if you plan to attend. First come - first served! m_houg@yahoo.com

Meet at the main entrance to Conklin at 8:45 to sign in and get safety instructions. Enter the quarry at 9:00. This is a lock-in quarry; that is, the gate is locked behind us and no one can enter or leave (except in an emergency) until noon, when a group will be let out. Others can come in at that time if they are waiting at the gate. The rest of the group will leave at about 4:00.Requirements are that you must be a member of the Cedar Valley Rock and Mineral Society and sign a waiver. Also we are going to be enforcing strict safety requirements such as everyone must have a hard hat on, a bright safety vest, and hard shoes (steel toed is preferred). No open toed sandals or tennis shoes will be allowed. Also long pants will be required, no shorts will be allowed. Some type of safety glasses and gloves are recommended.

NO EXCEPTIONS TO THESE RULES.

Please stay away from the walls at all times as loose rocks and boulders do fall and walls spontaneously collapse. This is a "hard-rock" working quarry. All field trippers must have the appropriate safety equipment. All children should be closely supervised. Possible finds include: millerite, coral heads, horn corals, brachiopods, bryozoans, trilobites, crinoids and maybe cephalopods, fish parts, and blastoids. Useful tools include: rock hammers, cold chisels, sledges and pry bars. Bring your own water and lunch.

To save time, download and fill out the club liability waiver at www.cedarvalleyrockclub.org, or if you have not filled out the CVRMS Waiver form yet this year and are going to participate, please go to the website, print off the form and fill it out in advance: http://www.cedarvalleyrockclub.org/Downloads/FieldTrips/Waiver.pdf

Travel to I-80 in Iowa City/Coralville. The quarry entrance is just north of I-80 at exit #242 (1st Ave), across the street from the Hampton Inn parking lot. Contact Marv with any questions: m_houg@yahoo.com.

NOTE: If you do not have the safety equipment - you DO NOT go in. All safety equipment to be worn at all times while in the quarry!

Trilobite found at Conklin Quarry by a CVRMS member in 2009.

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.

ZRS FOSSILS and GIFTS

Officers, Directors, and Committee Chairs

CEDAR VALLEY ROCKS & MINERAL SOCIETY

President	Marv Houg (m_houg@yahoo.com)	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	Joy Cummings (joybelle28@live.com)	981-2482
Imm. Past Pres.	Sharon Sonnleitner (sonnb@aol.com)	396-4016
Director '16	Dave Roush (daroush1@gmail.com)	363-7842
Director '17	Jay Vavra (vavrajj@gmail.com)	447-9288
Director '18	Bill Desmarais (desmarais_3@msn.com)	365-0612
Sunshine	Dolores Slade (doloresdslade@aol.com)	351-5559
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.

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
812 Dewey Street
Iowa City, Iowa 52245