

Cedar Valley Gems



Cedar Valley Rocks & Minerals Society

Cedar Rapids, Iowa

cedarvalleyrockclub.org

CEDAR VALLEY GEMS

FEBRUARY 2024

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

Next CVRMS Meeting
Tues. February 20
7:00 pm

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

featured presentation

**Undergraduate Field and
Research Experiences at the
University of Iowa in 2023**

by **Professor Bill McClelland**
U of IA Dept. of
Earth & Environmental Sciences
and **3 Geoscience Students**



Three University of Iowa geoscience students will present short summaries of their field and research projects in Earth & Environmental Sciences. The students completed their field camp education in June 2023 with generous support from the CVRMS and then went on to projects varying from hydrology to sedimentology and structural geology. Also, Professor Bill McClelland will give a short presentation on geological mapping with undergraduate students in Alaska.

'Giant' Predator Worm That Ruled Ancient Oceans Discovered in Greenland

Before life on our planet exploded in diversity, Earth was once a 'wormworld', dominated by wriggling tube-shaped creatures. One of the earliest rulers of this ancient animal kingdom, a giant carnivorous worm, has now been found in fossil form. More than 518 million years ago, the roughly 12-inch-long critter would have been one of the largest existing swimming animals. Its relatively gigantic jaws, long antennae, and rippling fins would have made it a formidable enemy. An international team of scientists, led by experts at the Korea Polar Research Institute (KPRI), have officially named the novel species *Timorebestia koprii* (the first part of which means 'terror beasts' in Latin). "Timorebestia were giants of their day and would have been close to the top of the food chain," says earth scientist Jakob Vinther from the University of



Artistic reconstruction of the giant worm.

Bristol. The discovery of this species is based on 13 fossils found in North Greenland. In the digestive system of some fossils, researchers found evidence of food. Specifically, bivalved arthropods, called *Isoxys*. Today, the living relatives of *Timorebestia* are known as arrow worms, and they are tiny compared to many other animals swimming in the ocean. Nevertheless, these worms are still important predators in the modern food web, picking on foundational prey like zooplankton. The fossils of arrow worm ancestors can be traced back as far as 538 million years. That's several million years older than known fossils of ancient arthropods, like insects, spiders, or crustaceans. "Both arrow worms, and the more primitive *Timorebestia*, were swimming predators," explains Vinther. "We can therefore surmise that in all likelihood they were the predators that dominated the oceans before arthropods took off. Perhaps they had a dynasty of about 10–15 million years before they got superseded by other, and more successful, groups." <https://www.sciencealert.com/giant-predator-worm-that-ruled-ancient-oceans-discovered-in-greenland>

CVRMS Meeting January 18 — Minutes —

CANCELLED!!
Due to weather

HELP!!

*We need some nice
specimens that we can
raffle off at the
March Rock Show*



Our Rock Show raffle is one of the principal sources of CVRMS funding. Specimens for raffle have been traditionally donated mostly by vendors at the show and Board members. But now, some of our vendor-donators have retired, and Board members' sources are scarce. So the Board is seeking donations from club members or others for this year's show. The specimens should be of high quality (probably retailing for \$100 or more) so that they will inspire raffle ticket sales. If you can help us, please contact President Marv Houg at m_houg@yahoo.com.



CVRMS Board Meeting Jan. 23 — Minutes —

MEETING CALLED TO ORDER: via Zoom by Marv. **Members present** Jay, Sharon, Kim, Dale, Ray, Bill, Marv, and Dell

MINUTES OF PREVIOUS MEETING reviewed. Motion to approve by Ray, seconded by Dale. Minutes approved.

TREASURER'S REPORT by Dale. Emailed copy reviewed. Checking account balance \$10,165.34. Motion to approve by Jay, seconded by Kim. All approved.

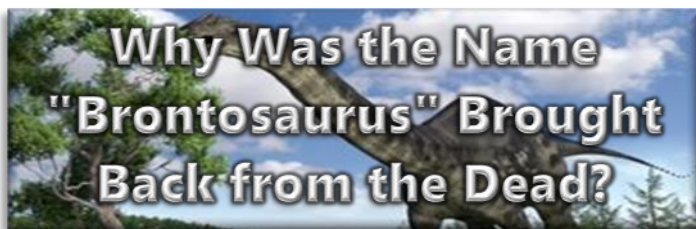
CVRMS ROCK SHOW March 23 and 24: Sharon announced that we have a **Flint Knapper** from Des Moines named Terry Carter. Welcome! **Raffle permit** Dale will take care of it. **Raffle prizes** still in a quandary. Ray will polish a coral head and see how it turns out. Recommend that Ray put an article in the newsletter pleading for a spectacular specimens they would be willing to donate to the club for a raffle prize. **Egg carton day**, when we fill egg cartons with rocks, fossils, and minerals for sale at the Pebble Pit, will be on February 18 at 2 pm at Sharon's house. Call Marv for further instructions. Marv will set up the **Saturday catered meal (March23)** from HyVee for vendors and CVRMS members: chicken and beef, party potatoes, almond green beans, fruit, roll. Marv will let us know the price. Please let Marv know for if you are going so he can get a count. The club is responsible for dessert. **The Friday evening pot luck (March22)** is to thank the vendors and our show workers. Everyone is welcome though. We are well-known for our good pot lucks.

CVRMS 2024 ROCK AUCTION: Dale shared a thank-you card received for our hard work for the auctioning off of her Maxsteds' collection. We reviewed the consigners and total lot counts but will wait to February to determine the number we can take from each consigner.

MISCELLANEOUS: Ray talked to **Deb at River Products** about preparing rocks for the display case that we donated to them. It looks like the case will still be in use after Deb's departure and we should proceed with preparing a display. **Freeze Fest** will be held on Sunday, February 4, at Terry Trueblood Park in Iowa City from 11:00 am—3:00 pm. Ray and Bill will be there with displays representing the club. A request was received for an **Earth day** program on April 20th. Bill responded to her but received no return response. **Kim reviewed her Field trip Guidelines** and Requirements for the club. All received a copy to review. Thanks Kim.

MOTION TO ADJOURN by Bill, seconded by Jay.
Meeting adjourned.

Respectfully submitted
Dell James, Secretary.

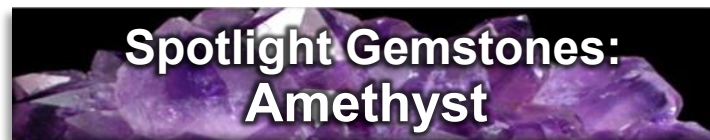


The biggest animals ever to have walked on Earth were the long-necked, long-tailed dinosaurs known as sauropods, and the most famous of these giants was likely *Brontosaurus*, the "thunder lizard." For more than a century, scientists stopped using the genus name *Brontosaurus*, but in 2015, researchers suggested it was time to "resurrect" it. So why was *Brontosaurus* brought back from the dead, so to speak? The skeleton of a long-necked, long-tailed dinosaur was unearthed in Wyoming by paleontologist Othniel Charles Marsh in 1879, according to the Natural History Museum in London. At the time, scientists dubbed the giant plant eater, which lived during the Jurassic period about 150 million years ago, *Brontosaurus excelsus*, according to Yale University. However, in 1903, paleontologist Elmer Riggs found that *B. excelsus* was very similar to another dinosaur, *Apatosaurus ajax*, which Marsh discovered in Colorado in 1877, the Natural History Museum noted. The differences between the dinosaurs appeared so minor that scientists decided it was better to place them both in the same genus, or group of species. Because *Apatosaurus* was named first, the rules of scientific naming kept its name, leading scientists to retire the name



Brontosaurus. More than 100 years later, researchers suggested reviving *Brontosaurus* as its own genus. A 2015 study of sauropods in the journal *PeerJ* found that the original *Apatosaurus* and *Brontosaurus* fossils may have been different enough to classify them as separate groups. The

nearly 300-page study examined 477 physical features of 81 sauropod specimens. The initial aim of the research was to analyze the relationships between the species making up the family of sauropods known as Diplodocidae, which includes *Diplodocus*, *Apatosaurus* and, now, *Brontosaurus*. All in all, the scientists found that *Brontosaurus'* neck was higher-set, narrower and smaller than *Apatosaurus'*, study lead author Emanuel Tschopp, a vertebrate paleontologist now at the University of Hamburg in Germany, told Live Science. They suggested three known species of *Brontosaurus*: *B. excelsus*, *B. parvus* and *B. yahnahpin*. Mike Taylor, a vertebrate paleontologist at the University of Bristol in England who did not take part in the 2015 study, noted that "you rarely get consensus from paleontologists on these matters, so the answer you get will depend on who you ask. There's been no pushback in the formal literature, but I've heard a bit of grumbling." Still, to Taylor, the call to "resurrect" *Brontosaurus* "just feels like a reasonable thing to do." He noted that the 2015 study "made a solid argument that most specialists found pretty persuasive and not especially surprising." <https://www.livescience.com/animals/dinosaurs/why-was-the-name-brontosaurus-brought-back-from-the-dead>



February's Birth Stone



February's birthstone, **amethyst**, is the purple variety of the mineral quartz, its most famous and valuable gem variety. Quartz in other colors include gemstones such as **citrine** (yellow), **rose quartz** (pink), and **smoky quartz** (gray). The purple of amethyst is most often caused by iron impurities, though it can also be colored by natural radiation exposure. Amethyst is sometimes heat treated to deepen the color, or to transform it into citrine. Some forms of amethyst may also change to a light green color upon heat treatment (called **prasiolite** or "**green amethyst**"). Amethyst is mined in many locations, some of which produce distinct color styles. For example, amethyst from Uruguay has a deep purplish-blue color, as does amethyst from Arizona. Amethyst from deposits that have since been exhausted in Russia, is known as "**Siberian amethyst**," a very deeply reddish and bluish colored stone which commands a high price. African amethyst is generally more deeply colored than the South American variety. Some amethyst from a few locations may slightly fade in color upon prolonged exposure to light. The color distribution of amethyst is sometimes uneven, and this is often taken into account when cutting a stone. Due to the abundance of amethyst, it is usually clean and free of flaws or inclusions. Because of this, amethyst with any visible flaws or inclusions should be avoided. Amethyst can occur in huge flawless crystals, and gems of all sizes have been faceted. Many rock hounds in this area have collected amethyst at the mines located just east of Thunder Bay, Canada. Amethyst from this locality is frequently found in fractures in granitic rocks. Although there are numerous natural sources of amethyst, synthetic amethyst gems are also produced, using the hydrothermal method. A natural mixture of purple amethyst and golden citrine has been coined with the trade name "**Ametrine**." Amethyst is faceted into many cuts, and is used in all forms of jewelry including rings, necklaces, earrings, bracelets, and pendants. Many large gems weighing several hundred carats have been cut from amethyst. Ornamental objects are also occasionally carved from large pieces. Lower quality amethyst is an important bead gem and can also be cut into cabochons. Tumbled beads of purple amethyst mixed with white quartz are also used as necklaces and bracelets.

http://www.minerals.net/gemstone/amethyst_gemstone.aspx

What in the World?



What in the World is this beautiful gemstone??
No, it's not emerald or tourmaline.

January's Photo



Last month's "What in the World?" image was **Kambaba Jasper**, a unique, green rhyolitic (volcanic) stone found in the west-central Bongolava region of Madagascar. It is full blackish, irregularly shaped orbs that cause it to closely resemble some types of stromatolite fossils. Stromatolites are microbial reefs created by cyanobacteria (also known as blue-green algae) and their fossils are the oldest traces of life on Earth

ROCK CALENDAR CVRMS EVENTS OF INTEREST

2024

Feb. 20 — CVRMS Monthly Meeting
Hiawatha Community Center 7:15 pm
**Undergraduate Field and Research Experiences
at the University of Iowa in 2023**
by Professor Bill McClelland and students

Mar. 19 — CVRMS Monthly Meeting
Hiawatha Community Center 7:15 pm
Program to be announced

Mar. 23-24 — CVRMS Rock Show
Hawkeye Downs, Cedar Rapids
Show Theme: FOSSIL CORALS

Apr. 16 — CVRMS Monthly Meeting
Hiawatha Community Center 7:15 pm
Program to be announced

May. 21 — CVRMS Monthly Meeting
Hiawatha Community Center 7:15 pm
Program to be announced

June. 18 — CVRMS Monthly Meeting
Picnic (location to be announced)
Rock Show and Tell and Polishing

July. 16 — CVRMS Monthly Meeting
Picnic at Wanatee Park, Marion
Rock Show and Tell and Geode Cracking

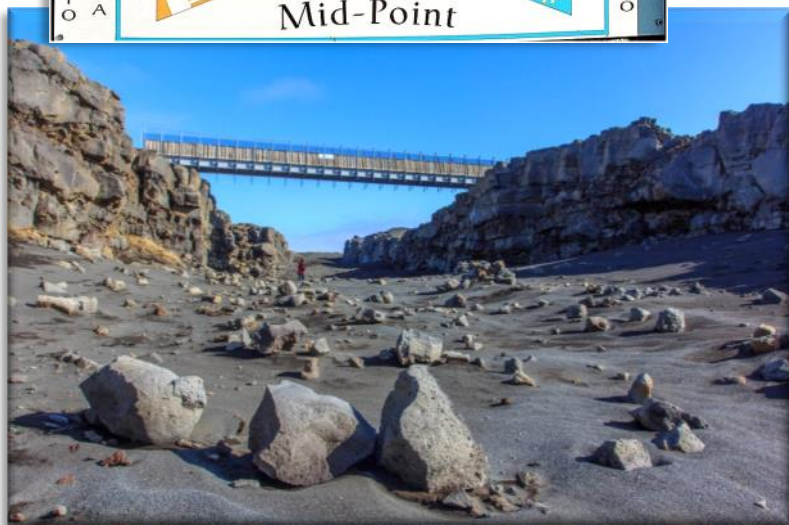
Ask a Geologist by Ray Anderson aka "Rock Doc", CVRMS Vice President

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.

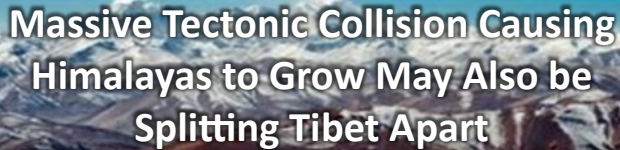
In 1983, when I was a geology student, I was fortunate to participate in a Fulbright Scholarship program that took me and a few fellow students to Iceland for two months as a part of a student exchange. Iceland is a spectacularly beautiful and geologically fascinating country. We visited Thingvellir (now Thingvellir National Park), a rift in the landscape that represents the spreading center of the Atlantic Ocean. The part of Iceland to the west of Thingvellir is a part of the North American Plate, to the east is part of the European plate. At that time we were able to walk across the rift zone; from North America to Europe and back. But now I see there is a bridge, and I thought you might like to read about it.

Iceland Is Slowly Being Pulled in Two.

At a rate of about 1 inch per year, the mid-Atlantic ridge is pulling apart the North American and Eurasian tectonic plates. While most of this happens deep on the ocean floor, in Iceland, the ridge, a major tectonic plate boundary that sits between the North



American and Eurasian plates, runs right through the middle of the island. A large fissure can be seen running across the land and splitting rock formations down the middle. In the eerie, otherworldly landscape of the vast lava fields on the Reykjanes Peninsula, the "The Bridge Between Continents" bridge crosses one of these rifts created by the mid-Atlantic ridge. It's also referred to as "Midlína." The bridge was previously called "Leif the Lucky" bridge, named after the famous explorer Leif Ericson, who was known for being the first Icelander to set foot in North America over 1,000 years ago. It also serves as a symbol for the connection between two continents, Europe and North America, new world and old. On the midway point of the bridge, a plaque reads, "The Bridge Between Continents," and it serves as a borderline between the Eurasian plate and North American plates. The two sides are marked: "Welcome to America" and "Welcome to Europe." Despite the epic feeling you may have jumping across ancient continental boundaries as old as the Earth, the border is entirely symbolic. After crossing the bridge, you can pick up a personalized certificate from the Reykjanes Information Center. It verifies that you did indeed walk all the way from Europe to America. (Or at least between the two tectonic plates). Beneath the bridge is a crevasse mostly filled with sand. You can also walk beneath the bridge, though we recommend that you stay on the path if you have walking difficulties. The view from the bridge is splendid. You can view the sea not far away, and on a clear day you can see Eldey island, which is just south of Reykjanes peninsula. Eldey Island is home to thousands of sea birds. South of Eldey is Geirfuglasker Island, where the last Great Auk was killed, making the species extinct. All around the Bridge is the Reykjanes lava field. In fact, this is actually layers upon layers of lava fields, the youngest one being from 1240.



Massive Tectonic Collision Causing Himalayas to Grow May Also be Splitting Tibet Apart

Tibet may be tearing in two beneath the rising Himalayas, with pieces of the continental plate peeling off like the lid off a tin of fish, researchers have discovered. According to new research the geology beneath the world's highest mountain range may be even more complex than previously believed. The Himalayas are growing because two continental tectonic plates, the Indian and Eurasian plates, are colliding beneath the colossal mountain range. In cases where oceanic and continental plates collide, the denser oceanic plate slides beneath the lighter continental plate in a process called subduction. When two similarly dense continental plates collide, however, as is the case below the Himalayas, it's not so simple to predict which plate will end up under the other, and geoscientists are still unsure exactly what's going on in Tibet. Some suggest that the bulk of the Indian plate may simply be sliding under the Eurasian plate without diving deeply into the mantle, a process called underplating; others believe that perhaps deeper parts of the Indian plate are subducting, while the upper parts are wedging themselves stubbornly against the bulk of Tibet. The new research suggests that the answer could be both these explanations. The researchers found evidence that the Indian plate is subducting, but it's warping and tearing as it does so, with the upper half delaminating, or peeling away. *"We didn't know continents could behave this way, and that is, for solid earth science, pretty fundamental,"* said Douwe van Hinsbergen, a geodynamicist at Utrecht University in the Netherlands. To get a clearer picture of what's happening below Tibet, the researchers investigated earthquake waves traveling through the crust at the region where the two plates collide. They reconstructed images from these waves showing what appear to be tears in the slab of the Indian plate's crust. In places, the bottom of the Indian plate is 124 miles deep, Science Magazine reported. In others, it is only 62 miles to the bottom of the plate, suggesting some of it has peeled away. Previous work also showed variations in the types of helium bubbling up from geothermal springs in the region. One variation of helium, known as helium-3, is found in mantle rocks, while helium with lower concentrations of helium-3 is likely to come from the crust. By mapping the variations in helium over multiple springs, the researchers found the boundary where the two plates currently meet just north of the Himalayas. The findings from these geochemical studies support the earthquake wave results in hinting at a splintering plate, the researchers wrote. The new research may also point to areas of increased earthquake risk along the plate boundary, according to Science, though researchers don't yet fully understand how tearing and warping deep within the crust translates to the buildup of stress at the surface. <https://www.livescience.com/planet-earth/geology/massive-tectonic-collision-causing-himalayas-to-grow-may-also-be-splitting-tibet-apart>



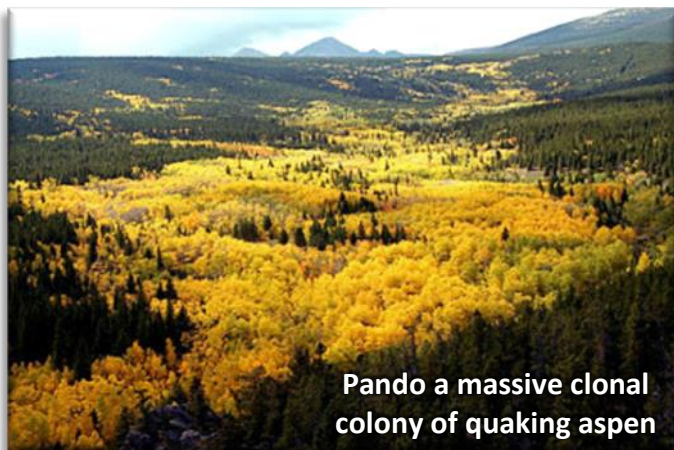
Newfound T. Rex Relative was an Even Bigger Apex Predator

Paleontologists have uncovered a never-before-seen tyrannosaur species in North America that has been masquerading as a *Tyrannosaurus rex* for decades. The newly identified species is the closest known relative of *T. rex* and could have been even larger than the dinosaur king, a new study shows. The newfound sister species, *Tyrannosaurus mcraeensis*, was identified from a partial fossilized skull that paleontologists unearthed in 1983 while exploring the Hall Lake Formation in New Mexico. The calcified cranium was originally classified as a *T. rex* skull and has been displayed at the New Mexico Museum of Natural History and Science ever since. But in 2013, a team of paleontologists decided to reevaluate the skull after noticing subtle yet suspicious anomalies in its shape. A new study revealed that the skull dates to between 73 million and 71 million years ago during the Cretaceous period. This makes *T. mcraeensis* between 3 million and 5 million years older than *T. rex*. The stark age difference was the main giveaway that they had discovered a new species. But there were also major morphological differences that stand *T. mcraeensis* apart from the infamous dinosaur king. The most striking difference is the shape of the lower jaw, which is more slender and curved than *T. rex*. It also lacks the prominent bosses or hornlets found over the top of the eyes in *T. rex*. *T. mcraeensis* also has fewer teeth than most other tyrannosaurs, which is one of the main reasons why the researchers believe it is *T. rex*'s closest relative (because *T. rex* also has fewer teeth). The size of the skull suggests this particular *T. mcraeensis* was around the same size as a typical adult *T. rex*, which grew to around 39 feet long, around the same size as a double-decker bus. But other individuals of the same species may have been even larger. *T. mcraeensis* was likely the apex predator of its time, just like *T. rex*. And if the pair had existed at the same time, they would have *"probably been pretty evenly matched"* in a fight. *T. rex* and most other tyrannosaurs lived exclusively on an ancient landmass known as Laramidia, which was made up of what is now the western coast of North America from Alaska down to Mexico. Until now, *T. rex*'s closest relatives were a pair of tyrannosaurs named *Tarbosaurus bataar* and *Zhuchengtyrannus magnus*, which are found in modern-day China and Mongolia. Both species dated back further than *T. rex*, which suggests tyrannosaurs may have first emerged in what is now Asia, although this has never been confirmed. The new findings suggest that Laramidia is a more likely origin of the tyrannosaur lineage, which would imply that these dinosaurs later spread to Asia. However, there is still uncertainty around this. The new findings are further evidence that New Mexico is one of the best places in the world to search for new dinosaur species. Many new dinosaurs remain to be discovered in the state, both in the rocks and in museum drawers. <https://www.livescience.com/animals/dinosaurs/newfound-t-rex-relative-was-an-even-bigger-apex-predator-remarkable-skull-discovery-suggests->

Oldest Living Organism on Earth



Great Basin bristlecone pine



Pando a massive clonal colony of quaking aspen



Posidonia oceanica or Neptune grass

The title "**Oldest Living Organism on Earth**" could easily be mistaken for something out of a high-budget, sci-fi epic. Yet, this isn't about cinematic fantasy—it's about a real-world marvel, one that stubbornly clings to life far beyond the span of any human empire. The oldest verified living organism on Earth was a **Great Basin bristlecone pine tree** found in the White Mountains of California. This majestic tree, dubbed Methuselah, is named after the biblical figure reputed to have lived for 969 years, which seems fitting given Methuselah-the-tree's incredible age of over 4,800 years. Just think about that for a second—it was already centuries old when the very foundations of the written word, the wheel, and the Bronze Age were laid down. But trees aren't the only geriatrics of the natural world. There are other organisms that make even Methuselah seem youthful. Let's not forget about the **Pando**, which is a massive clonal colony of quaking aspen located in Utah—also a contender. It's not a single tree but a whole forest system connected by a single root system. The entire colony is estimated to be at least 80,000 years old! Now, both of these ancient giants stand mightily on land, but the depths of the oceans hold their own ancient wonders. There's a type of seagrass called ***Posidonia oceanica***, or **Neptune grass**, which forms meadows in the Mediterranean Sea that could be up to 100,000 years old. Yet, only a few of these submerged meadows have been dated with any precision, making the exact oldest hard to pinpoint. For the final touch of obscurity, we have to mention microorganisms—those less visible to the naked eye but no less impressive. There are certain bacteria found deep within the Earth's crust that might be millions of years old. But these have yet to provide robust proof of their individual lifespan, as dating bacteria involve a different set of challenges. Our definition of "*oldest living organism*" depends heavily on how we categorize "*individual*" versus "*colony*" and how we measure "*living*." Nonetheless, these organisms stand as mind-boggling reminders of life's tenacity. They're also harbingers of history, having silently witnessed millennia come and go, a testament to the resilience of life on Earth. So, when you step outside your door in Portland—or wherever you may find yourself—and you catch a glimpse of a tree that looks particularly ancient, just ponder for a moment all that it has survived. And should you ever make your way to California or Utah, I highly recommend paying a respectful visit to these venerable sentinels. It's a unique kind of travel that doubles as a time machine, no fancy technology required. <https://www.quora.com/>

Gargantuan 'Star Lizard' Was One of the Last (and Largest) Dinosaurs of its Kind

Researchers have identified a newfound sauropod species that was the largest of its kind and one of the last living members of its family. Paleontologists first discovered fossils from the species, now named *Sidersaura marae*, in 2012 in the Huincul Formation in Argentina's Neuquén Province. It took researchers multiple excavations over several years to retrieve the giant dinosaur parts, which came from four individuals, according to a study published Jan. 3 in the journal *Historical Biology*. The newly discovered animals likely died in a muddy area near a river, and while scavengers and water displaced some of their bones, many were preserved. Researchers found one of the new sauropods lying next to a giant meat-eating dinosaur called *Meraxes gigas*, unveiled in 2022, while the other three were 65 feet away. *S. marae*'s fossils are around 93 million to 96 million years old and date from the early stages of the late Cretaceous period, which represents the last swansong of the dinosaurs before a devastating asteroid strike wiped out the non-avian dinosaurs. The newfound sauropods were up to 65 feet long and weighed 16.5 tons. There are much larger dinosaurs on record, but *S. marae* is a rebbachisaurid sauropod, which usually weighed up to 10 tons, raising questions about how these animals grew to be so large. Rebbachisaurids were a family of sauropods with duck-like faces that fed on vegetation close to the ground. Researchers began studying the bones in 2017 and found that many features separated them from other rebbachisaurids. Some of those differences were connected to the new species' massive size. The researchers named *S. marae* after the unusual stellar shape of its haemal arches, bony structures in the tail. *Sidersaura* combines "sider," the Latin word for star, with the Greek word "saura," meaning "lizard" or "reptile." The researchers also looked at the evolutionary relationship be-



Sidersaura marae with a human outline for scale.

tween the new species and other rebbachisaurids. The study noted that *S. marae* was more closely related to older members of the group from the early Cretaceous, rather than to other late Cretaceous rebbachisaurids. The discovery sheds new light on the evolution of the last form of the rebbachisaurid family just as their time was coming to an end.

<https://www.livescience.com/animals/dinosaurs/gargantuan-star-lizard-was-one-of-the-last-and-largest-dinosaurs-of-its-kind>

Rutilated Quartz

Rutilated quartz is a variety of quartz which contains needle-like inclusions of the titanium oxide (TiO₂) mineral rutile. These inclusions range in color from gold, to silver, copper-red, or black, and can be illuminated under the light to spectacular effect. Sometimes the inclusions are dark enough to make the quartz appear nearly opaque, and sometimes they are distributed much more sparsely. The inclusions range from thin, sparse, and parallel, to thick, dense, and criss-crossed. The pattern of rutile inclusions in each rutilated quartz stone makes it completely unique. Natural rutile may contain up to 10%



iron and significant amounts of niobium and tantalum, accounting for the reddish tone of some of the inclusions; indeed, rutile derives its name from the Latin "rutilus," meaning "red." When the iron content is lower, it may appear darker, or even black in color. While many gemstones, including most varieties of transparent quartz, are valued most when they show no inclusions, rutilated quartz is valued specifically for the lovely patterns the golden needles of rutile can form. Rutilated quartz often has striking patterns and colors, and this combined with its affordability and excellent durability makes it perfectly suitable for jewelry. Most rutilated quartz jewelry features cabochon gemstones, but faceted gems are available and are equally stunning. The main source of rutilated quartz is Brazil, with the other important source being India. It is encountered in other locations around the world but is much less common than in Brazil and India. Other names for rutilated quartz include "Goddess's Tresses," "Cupid's Net," and "Venus Hair," thanks to its hair-like golden inclusions. There is something almost supernatural about its glistening luster, which can be incorporated into jewelry for extra glamour and sparkle!

<https://gemstonesbrazil.com/en-us/blogs/news/our-rutile-quartz-collection>

Bizarre Fossils Are Neither Plant Nor Animal, But a 'Weird Fusion' of Life

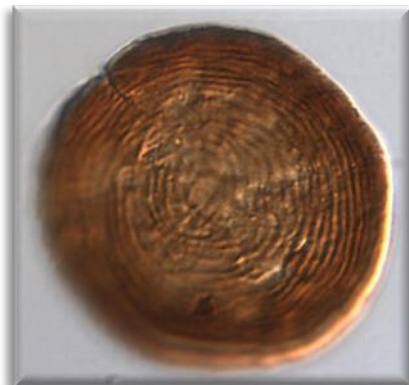
If you ever find yourself playing a game of twenty questions, there's a little-known life form you can pick that is sure to leave your opponent stumped. It is neither animal, vegetable, nor mineral. It's not even a bacterium or fungi. It's called a **Euglenid**, and it's a weird fusion of a bunch of different living things. Euglenids are a group of unicellular eukaryotes that gain energy through both photosynthesis, like a plant, and through consuming other beings, like an animal. These aquatic organisms split off from other eukaryotes roughly a billion years ago, and



Light microscope images of euglenid cysts from the Holocene. Note the fingerprint-like patterning that is a shared characteristic of all these fossil forms

yet their fossil record for all that time on Earth is scarce. Now, an international team of scientists argues that they have found ancient Euglenid fossils hiding in "an extensive paper trail" of already published scientific research. For years, the shell-like fossils were misidentified as possible worm eggs, algal cysts, or fern spores, partly because of their tiny circular "ribs" on the inside. The fossils didn't really fit into any taxonomical box, so in 1962, scientists called them *Pseudoschizaea* shells. Their similarities over the years have stumped experts, as these fossils span immense timelines, from almost half a billion years ago to the present. Andreas Koutsodendris studies microscopic fossils at Heidelberg University in Germany, and he says that while analyzing drill cores from lakes in Greece, he regularly encounters fossils of these thin-walled, oval lifeforms. "Their

biological affinity has never been cleared," says Koutsodendris, a co-author of the new study, "In fact, the cysts are commonly figured in publications by colleagues, but no one was able to really put a finger on it." Then came a breakthrough in 2012. Paleontologists Bas van de Schootbrugge and Paul Strother were working on identifying some confusing microfossils from sediments that date back to the Triassic-Jurassic boundary, around 200 million years ago. The circular, ridged cysts, they realized, could be Euglenids. Because here's the other wacky



Light microscope images of a 200 million years euglenid cysts from Germany

thing about Euglenids. In times of stress, these organisms wrap themselves up in a protective cyst, which looks sort of like a three-dimensional thumbprint, and enter a dormant state. "Some of the microfossils we encountered showed a canny similarity to cysts of *Euglena*, a modern representative that had been described by Slovakian colleagues," recalls Strother, who works at Boston College. "The problem was, there was only one publication in the world making this claim." To figure out if they were right, Strother and Van de Schootbrugge, who is now at Utrecht University, joined fellow paleontologists from the US and the UK to comb through nearly 500 literature sources on *Pseudoschizaea*-like fossils. These fossils have acquired various names over the years, so that's even harder than it sounds. Using advanced microscopic techniques, they then established the structure of these cysts. "We were much surprised by the ultrastructure of the cysts," says paleontologist Wilson Taylor from the University of Wisconsin-Eau-Claire. "The structure of the wall does not resemble anything that is known. The ribs are not ornaments, like in pollen and spores, but part of the wall structure. The layered structure of the walls is also clearly different from many other fresh-water green algae." Researchers struggle to get living Euglenids to encyst in the lab, but a YouTube video by microscopy enthusiast Fabian Weston from Australia made for a perfect comparison.

<https://youtu.be/wytez4cAjb8>

"Unwittingly, Fabian provided a key piece of evidence. He is probably the only person on the planet to have witnessed *Euglena* encyst under a microscope," says Strother. Now that the researchers have established a possible deep timeline of Euglenid life, Strother hopes it will make it easier for scientists to recognize even older examples, possibly even ones that "go back to the very root of the eukaryotic tree of life." "Perhaps related to their capabilities to encyst, these organisms have endured and survived every major extinction on the planet," suggests Van de Schootbrugge

<https://www.sciencealert.com/bizarre-fossils-are-neither-plant-nor-animal-but-a-weird-fusion-of-life>

2024 CVRMS Rock and Minerals Show

— Details for Club Members

Schedule for Rock Show

**** - workers needed for these functions**

Friday March 22

****Set up—9:00 am -???**

Lunch provided for workers—12:00 noon

Pot Luck Dinner for Dealers & CVRMS members—6:30 pm

Saturday March 23

**** Show hours—8:30 am - 6:00 pm**

Catered Dinner for Dealers & CVRMS members—6:15 pm

—Reservations Required—

Sunday March 24

**** Show Hours—9:30 am - 4:00 pm**

**** Show tear-down—4:00 pm -???**

We need workers for all of the functions that are highlighted by astrisks **. There is lots of work required to set up the the tables and related equipment prior to the show, and to tear down and clean up after the show. We also need people to assist during the show hours, we have a lot of jobs and will show you what to do. To help at the show or register for the catered dinner please fill out the forms on our web page at https://cedarvalleyrockclub.org/show_committeesDisplays.html, sign up at the February meeting, or email Sharon Sonnleitner at sonnb@aol.com.

Cedar Valley Rocks & Minerals Society
Presents its
**2024
GEM, MINERAL & FOSSIL
SHOW**

59th
Annual
Show

**Iowa's Largest Show
Among Midwest's Largest**



Saturday, Mar 23 - 8:30 a.m. to 6:00 p.m.
Sunday, Mar 24 - 9:30 a.m. to 4:00 p.m.

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



**CORAL: ONE OF IOWA'S
BEDROCK FOSSILS**

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Programs on
Theme-Related Topics
Call ahead or check our
website for Speakers & Times

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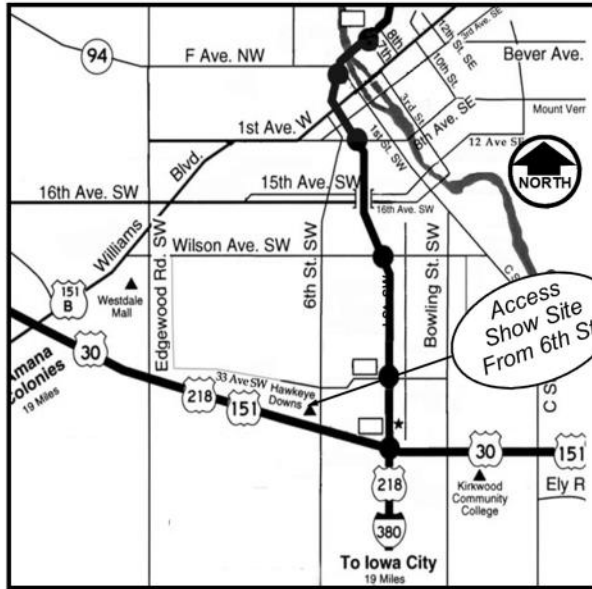
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Flint Knapping
Gold Panning
Wire Wrapping

ACTIVITIES

Pebble Pit for Kids:
1¢, 5¢, 10¢, 25¢, & 50¢ Items
\$1 Rock & Mineral Kits
Dinosaur Bones Interaction
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Gold Panning
Making Casts
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FOR ACCIDENTS**



DISPLAYS

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Minerals, Crystals
Amethyst, Fossils

SILENT AUCTION

Geodes, Minerals,
Crystals, Agates
Fossils, Shells

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POSTERS**

Posters on Various Aspects
of the Theme

ROCK IDENTIFICATION

Iowa Geological Survey

**DONATIONS
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MANY ITEMS FOR SALE, INCLUDING:

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Opal	Agates	Carvings	Seashells	Petrified Wood
Slabs	Geodes	Crystals	Tumblers	Lapidary Equip.
Gems	Beads	Spheres	Meteorites	Jewelry Findings

**CHILDREN MUST BE
ACCOMPANIED BY AN ADULT
ONLY SERVICE DOGS
ALLOWED**

For Additional Information, Contact:

Marvin Houg (319-350-9435; m_houg@yahoo.com);
Sharon Sonnleitner (319-310-0085, sonnbn@aol.com); Ray Anderson (rockdoc.anderson@gmail.com)
For program, dealer, and show updates, check: <https://www.cedarvalleyrockclub.org>

Ray Anderson, Editor
 2155 Prairie du Chien Rd. NE
 Iowa City, Iowa 52240-9620



Next Meeting:
TUESDAY, FEBRUARY 20
Hiawatha Community Center
Undergraduate Field and Research
Experiences at the University of Iowa
in 2023.
 by **Professor Bill McClelland and Students**
 U of IA Dept. of Earth & Environmental Sciences

CEDAR VALLEY GEMS

FEBRUARY 2024

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2024 & 2025 Officers, Directors, and Committee Chairs

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Webmaster.....	Sharon Sonnleitner (somb@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. Meetings are held at the Hiawatha Community Center in the Hiawatha City Hall, 101 Emmons St., Hiawatha IA. The December meeting is a potluck dinner held on the 1st Tuesday at 6:30. 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