A publication of the Rochester Academy of Science FOSSIL SECTION

The FOSSILETTER

VOL. 37 Number 1 October 2019

October Meeting

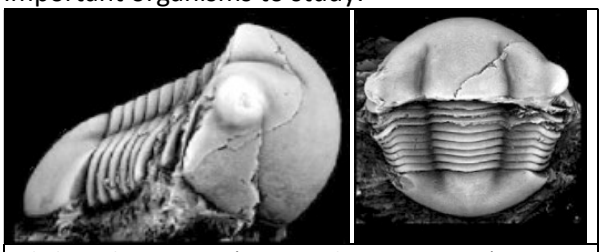
The October section meeting is on Tuesday, October 1, at 7:30 PM at the Brighton Town Hall.

Our speaker this month is Dr. Lisa Amati, the New York State Paleontologist and Ordovician trilobite specialist. Dr. Amati grew up in the suburbs of Detroit, Michigan. She reports that she always wanted to be a paleontologist and found her first trilobite at the age of four.

Dr. Lisa Amati sampling through the Ordovician at City Brook near Middleville, NY

After going to college in Michigan for two years, she transferred to the University of Wyoming and graduated with a B.S. in Geology in 1997. For her M.S., she attended Kent State University where she studied Triassic lobsters from British Columbia. She then spent five years at the University of Oklahoma working on Late Ordovician trilobites from Oklahoma, Missouri, and New York. After graduation in 2004, she worked as a professor at SUNY Potsdam teaching a broad range of undergraduate courses from paleontology to planetary geology. Her research focuses on the ecology and evolutionary relationships of Late Ordovician trilobites from New York, Ontario, and Quebec. Dr. Amati was appointed as the New York State Paleontologist in June 2015, and continues to conduct research and educate the public on fossils and evolution.

Dr. Amati will speak on, ***"Trilobites – The Lost Empire."*** She notes that, **"**Trilobites are extinct arthropods that first appear in rocks that are about 520 million years old. They were important components of marine ecosystems, especially in the Cambrian, and lived for about 270 million years. They lived and died before dinosaurs even existed and, in fact, were on the Earth for longer than the dinosaurs. Then, approximately 250 million years ago, at the end of the Paleozoic, they went extinct. Trilobites employed a number of different lifestyles, from predators to scavengers, and lived in almost every marine environment. This talk explains what trilobites are, when, where and how they lived, as well as why they are important organisms to study."



Thaleops laurentiana *(Amati and Westrop, 2004) holotype, from the Trenton Group at Trenton Falls, NY*

Dr. Amati's Special Children's Program

This program will be open to the public, but RAS members have the first opportunity to reserve

spaces for children, grand-children, nieces & nephews, et cetera. This program is limited to 60 people and MUST be reserved in advance. This program will be held from 4PM to 5PM on October 1st in the Brighton Town Hall Downstairs Meeting Room at 2300 Elmwood Avenue. Write to paleo@frontier.com ***immediately*** to reserve spaces for your family members, or call Michael Grenier at (585) 671-8738.

Fossil Fun with the State Paleontologist

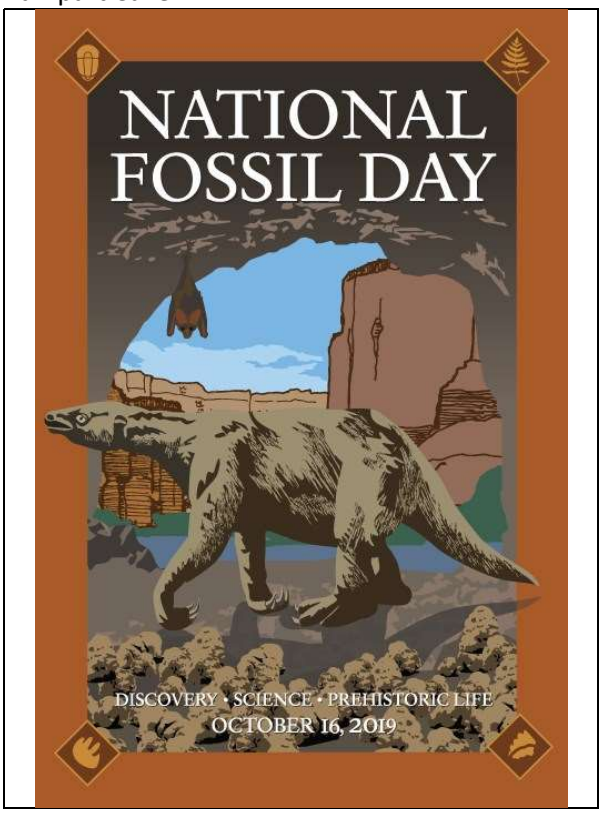
Program Description: New York State looked very different millions of years in the past. In fact, there were times when most of the state was covered with sea water. Many of the rocks exposed in New York State are full of fossilized creatures that lived in these oceans. Learn how to recognize and identify some of these ancient remains at this event by handling real fossils and answering some questions about them. Kids will work in groups of 3-4, each group with a "reader". Seating is limited to 60 participants. The exercise is appropriate for children aged 5 and over.

National Fossil Day

We celebrate the tenth annual National Fossil Day on Wednesday October 16, 2019.

The 2019 National Fossil Day artwork depicts the entrance of Rampart Cave in Grand Canyon National Park 11,000 years ago. A Shasta Ground Sloth, *Nothrotheriops shastensis*, is entering the cave and the ground is carpeted with its large droppings. A vampire bat, *Desmodus stocki*, roosts in the cave ceiling while it awaits nighttime to forage for food.

Rampart Cave is a dry cave formed in the Redwall Limestone and was discovered in 1936. It is located at the far western end of Grand Canyon National Park, near its border with Lake Mead National Recreation Area. The first collection from 1936 included the skin, hair, and bones of the Shasta Ground Sloth, the extinct Harrington's mountain goat (*Oreamnos harringtoni*), big horn sheep (*Ovis canadensis*), an extinct horse, and a large extinct cat. The continuous dry environment of the cave allowed for the preservation of hair and skin. In 1942, a field team from the Smithsonian Institution did a more extensive excavation of Rampart Cave which led to the discovery of the extinct vampire bat and many other fossils. At present, fossils of 37 species of reptiles, birds, and mammals have been found at Rampart Cave.



Fossil plant evidence from sloth dung and packrat middens from inside the cave showed a rich fossil flora occurred outside. Many of the fossil plants are still found alive in modern times but the fossils show that the distribution of these plant species differed to their modern counterparts. 11,000 years ago the area around Rampart Cave had a higher distribution of pinyon juniper woodlands and some desert adapted vegetation. Today, the pinyon juniper woodlands have retreated to higher elevations and the area around the cave is dominated by desert plants. The number of plant and animal species found at Rampart Cave make it one of the richest Late Pleistocene fossil sites in North America

For more information, go to **www.nps.gov/subjects/fossilday/index.htm**

President's Report by Dan Krisher

On May 17 and 18 the Section participated in the annual Science Exploration Days at St. John

Fisher. Section members Brian Bade, Michael Grenier and Dan Krisher staffed the display tables for the Section.

On June 4 the Section held its annual picnic at the Ionia Observatory. This meeting was a joint meeting with the Mineral Section and about 18 people attended. The meeting featured a tour of the facilities and, after dinner, a short talk by Section member Fred Haynes, who gave an overview of recent Fossil and Mineral collecting trips. The Section participated in the ADK Expo at Mendon Ponds on June 8. The attendance was good, and tables were staffed by John Handley, George Wonder, and Dan Krisher. On June 26 the Section participated in the Family Nature Night at Burroughs Audubon. This was the 4th year the Section has participated in this event.

The Fossil Section did not meet in July or August, but did have several field trips and events.

Field Trips Report by Dan Krisher

6/15/19 Little Beard's Creek: Nine members and guests visited the lovely Little Beard's Creek Moscow Formation Windom Member shale exposure near Geneseo. Good corals and snails were collected, among other types.

A highly productive, little visited private site, we filled containers with fossil specimens at Little Beard's Creek.

6/29/19 Long Hill and Moonshine Falls: Three Section members took a fieldtrip to the Long Hill Road Cut near Owasco Lake and to Moonshine Falls on the east side of Cayuga Lake. We explored the Geneseo and Tully Formations, the Windom Member of the Moscow Formation, and the Centerfield and Ledyard Members of the Ludlowville Formation. We collected a lot of brachiopods, bivalves, and corals.

7/13/19: Jaycox Run: Seven Section members made the annual fieldtrip to the Jaycox Run site between Avon and Geneseo to collect in the Middle Devonian Ludlowville and Moscow Formations with the normal haul including some large rugose and tabulate corals.

The Fossil Section held its annual visit to Jaycox Run on July 13th. The creek was flowing, but much less so than the year before. (photo by Fred Haynes)

Several very large horn corals were dug from Jaycox Run including these found by Fred Haynes. (photo by Fred Haynes)

7/27/19 The Gulf at Lockport: This site is a railroad cut which exposes the Silurian Rochester Shale Formation. We found brachiopods, some trilobites, corals, and cystoid plates. Notably, one hyolith was also found.

8/24/19 Green's Landing: Six of our members made a joint trip with the Wayne County Gem, Mineral and Fossil Club to this site on the east side of Canandaigua Lake. The Middle Devonian Ludlowville and Moscow formations are exposed and lots of different specimens were collected.

The best find at Jaycox Run was likely this cute little Heliophyllum halli confluens *that Michael Mcelwee unearthed. They show top and bottom sides after cleaning (photo by Michael Mcelwee)*

On August 24th, the RAS Fossil section combined with the Wayne County Gem and Mineral Club for a trek up Green's Landing, a privately owned property on the east side of Canandaigua Lake. With 16 avid collectors, this was the best-attended trip of the collecting season. (photo by Fred Haynes)

The Green's Landing trip afforded a unique opportunity to view two large brachiopod species side by side. On the left - Megastrophia sp. *On the right* - Mesoleptostrophia sp. *(photo by Fred Haynes)*

November Meeting

The November section meeting is on Tuesday, November 12, at 7:30 PM at the Brighton Town Hall. The speaker will be Ashley Pollock who gave an exciting talk two years ago. She is returning to discuss the latest research findings on Precambrian life and extinction events. Ashley is Field Trip Director with the Niagara Peninsula Geological Society.

PRI Summer Symposium

by Dan Krisher

The Paleontological Research Institution in Ithaca held its 13th annual summer symposium on August 10 and 11 this year. Since its inception in 2006, the symposium has been a two-day event with the first day focused on short presentations by graduate students and other regional paleontologists. This year the 20-minute presentations covered such diverse topics as the Eocene diversification of Caribbean reef corals, conodont biostratigraphy, dinosaur paleoart, 2D and 3D photogrammetry and a philosophical discussion of what constitutes a species. The day's presentation ended with a keynote talk entitled "Judgment Day: Mass Extinction and Predictability in the History of Life".

Day two consisted of a day long field trip to various sites located in the east-central Finger Lakes area. The sites visited included returns to Moonshine Falls, and the Hubbard farm and was capped by a visit to a new site located at Portland Point. As in the past these trips were led by Dr. Carl Brett of the University of Cincinnati. The attendance at this year's symposium was about 50 with 4 Section members (John Handley, Joe Sullivan, George McIntosh and Dan Krisher) attending at least one day of the symposium.

NYSGA Field Conference

The 91st Annual New York State Geological Association Field Conference will be held on October 4-6, 2019 jointly with the New York State Council of Professional Geologists (NYSCPG) and The conference is hosted by Hobart-William Smith Colleges, in Geneva, NY (contact Cheryl Neary: cheryln@islandpumpandtank.com). There are field trips on Saturday and Sunday (www.nysga-online.net/meeting-information/planned-trips-2019) and a banquet Saturday night. It will be held

at the Microtel Inn & Suites by Wyndham, 550 Hamilton St., Geneva, NY.

RAS Fall Scientific Paper Session

Don't forget to save the date of **Saturday, November 9, 2019** from 8:30AM to 2PM to attend the 46th Annual Rochester Academy of Science Fall Scientific Papers Session at Monroe Community College. The latest update is in your upcoming RAS Bulletin, so we will not repeat it.

Fossil News

***Atreipus* footprints endangered**

USA TODAY newspapers across New York carried an article on September 10 entitled, *Will dinosaur footprints be trampled by condos?* by Robert Brum. The story originated with the Rockland/Westchester Journal News and can be read at (copy link to your browser) www.lohud.com/story/news/local/rockland/blauvelt/2019/09/09/blauvelt-dinosaur-footprints-trampled-condos/2208746001/

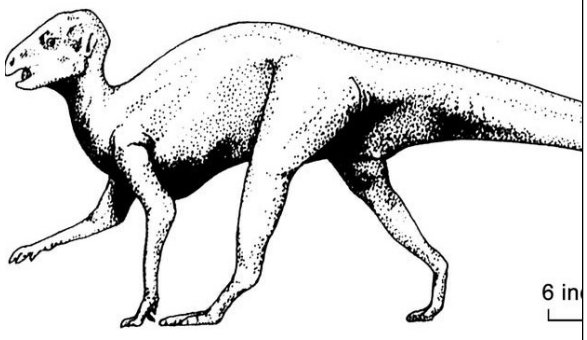
In 1972, then 19-year-old paleontology student Paul Olsen found in Blauvelt, NY what remains the only dinosaur fossil evidence ever found in New York, a series of footprints. The New York State Museum acquired a set of these and Paul helped set up the exhibit which remains on display. Paul got his Ph.D. from Yale in 1983 and is currently a notable and extensively published paleontologist and Professor of Earth and Environmental Sciences at Columbia University.

Now a developer is proposing to develop the site with condominiums, threatening the footprints which remain there, and triggering the afore-mentioned news article. There is more back-story, however. The footprints were formally reported in Olsen, P. E., Baird, D. (1986), *The ichnogenus* Atreipus *and its significance for Triassic biostratigraphy* (copy available upon request).

Dinosaur tracks are trace fossils. The study of trace fossils is called ichnology. Since we cannot prove that a given track was produced by a known species of dinosaur, they are given their own names. For example, the ichnospecies *Grallator cuneatus*, found in Dinosaur Footprints in Holyoke, Massachusetts and named by John Ostrom (1972), is attributed to a small theropod (footprint is 3" to 5" long). At the same site are medium sized and large sized (11" to 13" long) theropod footprints named *Anchisauripus sillimani* and *Eubrontes giganteus*, respectively (Ostrom, 1972, also available upon request).

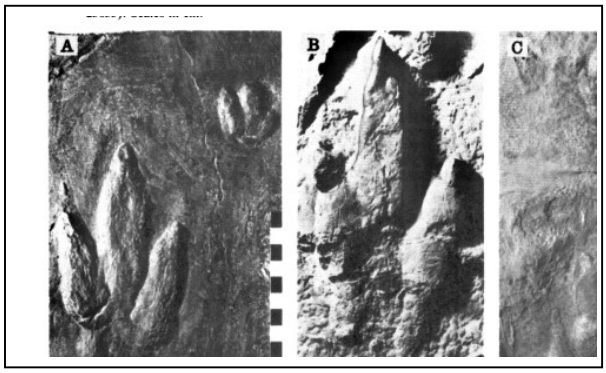
The only way to be certain of the identity of a track maker is to find the body fossil at the end of the trackway. In the Buffalo Museum of Science, they have a spiraling trackway from the Late Jurassic Solnhofen Limestone which ends with the body fossil of a horseshoe crab, which may have wandered into an anoxic area which killed it. As far as I know, there is no equivalent dinosaur fossil. Dinosaurs found in the same layers as tracks are often suggested as the track makers, with reasonable likelihood. Any other inferred attribution of footprints to specific fossil species is speculative to a greater or lesser degree.

The Museum of the Earth has the small theropod *Coelophysis* as its mascot. This is based on the attribution of the Blauvelt footprints to ichnogenera *Grallator*, which was made by a small theropod dinosaur of about the size of *Coelophysis*, to which it has been referred (Fisher, 1981). However, this referral of the poorly preserved trackways from Blauvelt was noted by Olsen and Baird (1986) as probably incorrect. The nearest *Coelophysis* fossil is found over 2000 miles away in unrelated strata, and the tracks are believed by Olsen and Baird to belong to ichnospecies *Atreipus*, most likely made by a small ornithischian dinosaur, not a theropod. The prints have a matching hand (manus) print with each foot (pes) print, showing that the dinosaur was



Hypothesized ornithischian dinosaur that made the Atreipus *footprints.*

obligated to walk on all fours, whereas theropods are strictly two-legged. Both “A” and “C” below from Olsen and Baird (1986) show the manus print.

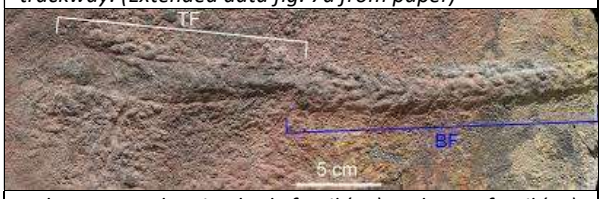


Fossils dating back 550 million years among first animal trails
(www.sciencedaily.com/releases/2019/09/190904130617.htm)

In this remarkable paper, scientists describe trackways from the late Ediacaran (about 550 million years ago) which end in the body fossils of the track makers, and which are a convincing sign of earliest animal mobility.

Abstract: The origin of motility in bilaterian animals represents an evolutionary innovation that transformed the Earth system. This innovation probably occurred in the late Ediacaran period-as evidenced by an abundance of trace fossils (ichnofossils) dating to this time, which include trails, trackways and burrows. However, with few exceptions, the producers of most of the late Ediacaran ichnofossils are unknown, which has resulted in a disconnection between the body- and trace-fossil records. Here we describe the fossil of a bilaterian of the terminal Ediacaran period (dating to 551-539 million years ago), which we name *Yilingia spiciformis* (gen. et sp. nov). This body fossil is preserved along with the trail that the animal produced during a death march. *Yilingia* is an elongate and segmented bilaterian with repetitive and trilobate body units, each of which consists of a central lobe and two posteriorly pointing lateral lobes, indicating body and segment polarity. *Yilingia* is possibly related to panarthropods or annelids, and sheds light on the origin of segmentation in bilaterians. As one of the few Ediacaran animals demonstrated to have produced long and continuous trails, *Yilingia* provides insights into the identity of the animals that were responsible for Ediacaran trace fossils.

A slab collected in the Three Gorges of the Yangtze River, China showing a Yilingia spiciformis *body fossil (specimen NIGP-166253) preserved as convex relief on bed sole (thus preserving ventral features) and associated with a trackway. (Extended data fig. 7a from paper)*



Enlargement showing body fossil (BF) and trace fossil (TF). (Extended data fig. 7b from paper)

Story from Science Daily: In a remarkable evolutionary discovery, a team of scientists co-led by a Virginia Tech geoscientist has discovered what could be among the first trails made by animals on the surface of the Earth roughly a half-billion years ago.

Shuhai Xiao, a professor of geosciences with the Virginia Tech College of Science, calls the unearthed fossils, including the bodies and trails left by an ancient animal species, the most convincing sign of ancient animal mobility, dating back about 550 million years. Named *Yilingia spiciformis* -- that translates to spiky Yiling bug, Yiling being the Chinese city near the discovery site -- the animal was found in multiple layers of rock by Xiao and Zhe Chen, Chuanming Zhou, and Xunlai Yuan from the Chinese Academy of Sciences' Nanjing Institute of Geology and Palaeontology.

The findings are published in the latest issue of Nature. The trails are from the same rock unit and are roughly the same age as bug-like footprints found by Xiao and his team in a series of digs from

2013 to 2018 in the Yangtze Gorges area of southern China, and date back to the Ediacaran Period, well before the age of dinosaurs or even the Pangea supercontinent. What sets this find apart: The preserved fossil of the animal that made the trail versus the unknowable guesswork where the body has not been preserved.

"This discovery shows that segmented and mobile animals evolved by 550 million years ago," Xiao said. "Mobility made it possible for animals to make an unmistakable footprint on Earth, both literally and metaphorically. Those are the kind of features you find in a group of animals called bilaterans. This group includes us humans and most animals. Animals and particularly humans are movers and shakers on Earth. Their ability to shape the face of the planet is ultimately tied to the origin of animal motility."

The animal was a millipede-like creature a quarter-inch to an inch wide and up to 4 inches long that alternately dragged its body across the muddy ocean floor and rested along the way, leaving trails as long as 23 inches. The animal was an elongated narrow creature, with 50 or so body segments, a left and right side, a back and belly, and a head and a tail.

The origin of bilaterally symmetric animals -- known as bilaterians -- with segmented bodies and directional mobility is a monumental event in early animal evolution, and is estimated to have occurred the Ediacaran Period, between 635 and 539 million years ago. But until this finding by Xiao and his team, there was no convincing fossil evidence to substantiate those estimates. One of the recovered specimens is particularly vital because the animal and the trail it produced just before its death are preserved together.

Remarkably, the find also marks what may be the first sign of decision making among animals -- the trails suggest an effort to move toward or away from something, perhaps under the direction of a sophisticated central nerve system, Xiao said. The mobility of animals led to environmental and ecological impacts on the Earth surface system and ultimately led to the Cambrian substrate and agronomic revolutions.

Rachel Wood, a professor in the School of GeoSciences at University of Edinburgh in Scotland, who was not involved with the study, said, "This is a remarkable finding of highly significant fossils. We now have evidence that segmented animals were present and had gained an ability to move across the sea floor before the Cambrian, and more notably we can tie the actual trace-maker to the trace. Such preservation is unusual and provides considerable insight into a major step in the evolution of animals."

The study was supported by the Chinese Academy of Sciences, the National Natural Science Foundation of China, the U.S. National Science Foundation, and the National Geographic Society.

(Zhe Chen, Chuanming Zhou, Xunlai Yuan, Shuhai Xiao. Death march of a segmented and trilobate bilaterian elucidates early animal evolution. Nature, 2019; DOI: 10.1038/s41586-019-1522-7)

Oldest completely preserved lily discovered from 115 million years ago

(www.sciencedaily.com/releases/2019/07/190711105615.htm)

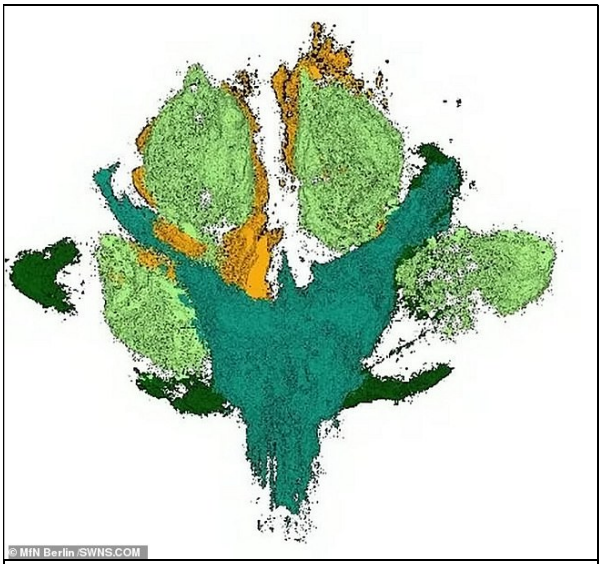
Holotype and paratype of Cratolirion bognerianum *gen. et sp. nov a, Holotype two inflorescences (a1 and a2) and one elongate scape (b). b, Paratype showing two leaf rosettes (a1 and a2) and the root system (b). The fossil of the ancient lily is exceptionally well-preserved — and includes the plant's roots, a flower and even individual cells. Scale in cm. (from Coiffard et al. 2019)*

Botanist Dr. Clement Coiffard of the Museum für Naturkunde Berlin discovered the oldest, completely preserved lily in the research collection: *Cratolirion bognerianum* was found in calcareous sediments of a former freshwater lake

in Crato in northeastern Brazil. With an age of about 115 million years, *Cratolirion* is one of the oldest known monocotyledonous plants. These include orchids, sweet grasses, lilies and lilies of the valley.

Cratolirion is extraordinarily well preserved, with all roots, the flower and even the individual cells are fossilized. With a length of almost 40 centimeters, the specimen is not only large, but also shows almost all the typical characteristics of monocotyledonous plants, including parallel-veined, narrow leaves with a leaf sheath, a fibrous root system and triple flowers.

However, it was not trivial to examine the fossilized object, as it consisted of iron oxides associated with the stone. In order to see details here, Coiffard collaborated with the HZB physicist Dr. Nikolay Kardjilov, who is an expert in 3D analysis with X-rays and neutrons. At the HZB he also built up a 3D computed x-ray tomography and refined the data analysis in such a way that hardly any disturbing artefacts arise during the investigation of large, flat objects. This made it possible to analyze the details of the inflorescence hidden in the stone.



A color coding in the CT scan makes these details visible: the main axis is marked in turquoise, the supporting leaves in dark green, the pistils in light green and the remains of the actual petals can still be seen in orange.

Many early dicotyledonous flowering plants have already been described from the same sediments of the former freshwater lake in Crato. These include water lilies, aron rods, drought-resistant magnolias and relatives of pepper and laurel. In contrast to other flowering plants of the same age from the USA, Portugal, China and Argentina, the flowering plants of the Crato-Flora are unusually diverse. This could be due to the fact that Lake Crato was in the lower latitudes, but all other fossils of early flowering plants come from the middle latitudes.

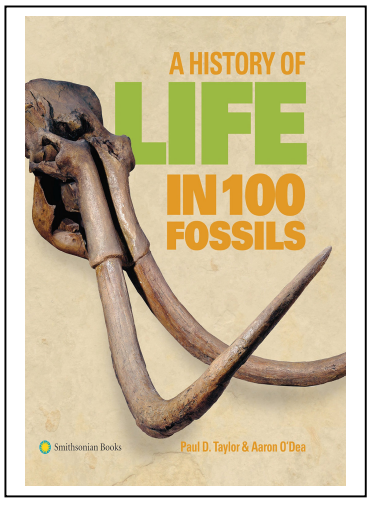
From this newly described plant *Cratolirion bognerianum* and the species of Crato flora mentioned above, it can be deduced that the tropical flowering plants were already very diverse. "It is probable that flowering plants originated in the tropics, but only very few fossils have been described to date," explains Coiffard. This study thus provides new insights into the role of the tropics in the development of early flowering plants and their rise to global supremacy.

Clément Coiffard, Nikolay Kardjilov, Ingo Manke, Mary E. C. Bernardes-de-Oliveira. Fossil evidence of core monocots in the Early Cretaceous. Nature Plants, 2019; 5 (7): 691 DOI: 10.1038/s41477-019-0468-y

Book Review

Paul D. Taylor, Aaron O'Dea (2015). A History of Life in 100 Fossils. NewSouth Publishing.

(*This description is provided by the publisher*) In this book the epic story of life on Earth is retold through some of the most significant fossils ever found. The book travels through 3.5 billion years of Earth's history and across seven continents, showcasing the unusual and wonderful creatures that have played an important role in our evolutionary past. Ancient Australian microbes reveal the very first signs of life on Earth, tiny Triassic snails demonstrate the



effects of past mass extinctions, and the remains of our own ancestors tell us where we came from. Epic tales of survival and migration, evolution and destruction are hidden in the buried remains of animals and plants that lived long ago. This book brings together remarkable fossil discoveries to illustrate how life on Earth evolved. Paleontologists Paul D. Taylor and Aaron O'Dea explain the importance of each fossil and tell the engaging stories of the sharp-eyed and sharp-witted people who discovered them.

Discover Cambrian worms from China that provide a window on early animal life in the sea, ancient insects encapsulated by amber, the first fossil bird *Archaeopteryx* and the last ancestor of humankind. The fossils have been selected from the renowned collections of the two premier natural history museums in the world, London's Natural History Museum and the Smithsonian Institution, Washington. Each fossil is beautifully illustrated with photographs to bring this unique story to life.

Erbenochile erbeni *(Alberti). Devonian (Emsian) Timrahrhart Formation, southern Morocco. The compass of the eyes shows that they commanded a 360-degree sweep in the horizontal plane. The high elevation of the eyes meant that the animal could even see backward over its thorax. (Ref. Fortey, R., & Chatterton, B. (2003).* A Devonian trilobite with an eyeshade. *Science, 301(5640), 1689-1689.)*

Consider the section on early vision and trilobites on page 44 and 45. “Most of us take vision for granted. When did eyes first evolve? This is not a straightforward question because eyes appeared progressively, starting from microorganisms with simple receptors that could distinguish only between light and dark. However, the oldest fossils and complex eyes possessing lenses for focusing an image date from about 540 million years ago. Evolutionary biologists interpret the advent of complex eyes as a driving force in the early proliferation of multicellular animals in the sea, the so-called Cambrian Explosion. The basic argument is that active predation became possible only after eyes had evolved, forcing prey species to find new ways of not being detected and triggering a cascade of evolutionary responses between predators and prey.

“Fortunately, the eyes of one particular group involved in the Cambrian explosion had lenses made of calcite, a resistant mineral that fossilizes extremely well. Trilobites, an extinct group of arthropods, possess compound eyes composed of numerous – up to 15,000 – small polygonal lenses. In three dimensions these lenses have the form of short cylinders, each capable of focusing a beam of light onto a photoreceptor surface at the back of the eye.

“There are few finer examples of trilobite eyes than those of *Erbenochile*, a distinctive genus from the Devonian of Morocco and Algeria that lived about 400 million years. This trilobite is unusual in that the two eyes are like small towers. About 500 lenses cover the surface of each eye, and a projecting ledge caps the eye itself. The ledge may have functioned as a kind of sunshield, reducing glare for this animal, which inhabited shallow seas. *Erbenochile* is effectively a trilobite wearing a sun hat. Taken together, the two eyes give *Erbenochile* 360° vision. Individuals were apparently capable of detecting very small movements, which would have had great value in detecting prey and predators alike. One possibility is that *Erbenochile* lived partly buried with only the eyes protruding above the sediment, much the same way as some modern flatfish do today.”

This book and others recently reviewed will be at the October meeting and are available to be borrowed.

CALENDAR OF EVENTS

October

Tuesday October 1, FOSSIL MEETING 7:30 PM Brighton Town Hall Downstairs Meeting Room 2300 Elmwood Ave. Speaker Dr. Lisa Amati (New York State Museum)**, *"Trilobites – The Lost Empire."*** Visitors welcome.

Tuesday October 1, CHILDREN'S EVENT 4-5 PM Brighton Town Hall Downstairs Meeting Room 2300 Elmwood Ave. Speaker Dr. Lisa Amati (New York State Museum)**, *"Fossil Fun with the State Paleontologist."*** Open to public.

November

Tuesday November 12 (NOTE 2nd Tuesday, not 1st Tuesday, due to election), FOSSIL MEETING 7:30 PM Brighton Town Hall Downstairs Meeting Room 2300 Elmwood Ave. Speaker Ashley Pollock, "***Precambrian Life and Extinction Events***". Visitors welcome.

Visitors are welcome to all Fossil Section meetings! Refreshments are served. For more information and the latest updates check the RAS Website (**www.RASNY.org**). You can also contact Dan Krisher at DLKFossil@gmail.com or John Handley at jhandley@rochester.rr.com for further information.

ROCHESTER ACADEMY OF SCIENCE FOSSIL SECTION

Monthly meetings are held the first Tuesday of each month from October to December and from February to May at 7:30 pm at the Brighton Town Hall, Community Meeting Room, 2300 Elmwood Avenue, Rochester, NY unless otherwise listed.

OFFICERS	PHONE	E-MAIL
President: Dan Krisher	585-698-3147	DLKFossil@gmail.com
Vice President/Program Chair: ***Open***		
Secretary: Dan Krisher	585-698-3147	DLKFossil@gmail.com
Treasurer: John Handley	585-802-8567	jhandley@rochester.rr.com
Director (three-year-term): Fred Haynes	585-203-1733	fred.patty.haynes@gmail.com
Director (two-year-term): ***Open***		
Director (one-year-term): Michael Grenier	585-671-8738	mgrenier@frontiernet.net
APPOINTED POSITIONS		
Field Trip Coordinator: Dan Krisher	585-293-9033	DLKFossil@gmail.com
FossiLetter Editor: Michael Grenier	585-671-8738	mgrenier@frontiernet.net

---

The FossiLetter is published before each meeting month of the year. Please send submissions to **mgrenier@frontiernet.net,** or by U.S. Postal Service mail to 692 Maple Drive, Webster, NY 14580. Deadline for submissions to the Fossiletter is the 15th of the month.

For scheduling changes and the latest updates please check the RAS Website (www.rasny.org) and click on the Fossil Section link. Last minute updates can also be found on the *General Announcements* page of the Academy Website.

The early Jurassic Gryphaea *is a genus of extinct oysters, marine bivalve mollusks in the family Gryphaeidae. These shells are sometimes found in fossil plates along with* Turritella, *clams, sharks' teeth, and fossilized fish scales. (from A History of Life in 100 Fossils)*