A publication of the Rochester Academy of Science
FOSSIL SECTION

The FOSSILETTER

VOL. 44 Number 3 December 2025

December Meeting

The December section meeting will be on Tuesday, December 9th at the Pittsford Community Center, 35 Lincoln Ave, Pittsford, NY 14534 at 7:00 PM. The meeting is in Room 018, which is downstairs from the entrance and across the hall from 019 where we often meet. Park behind the building. We will not be broadcasting this meeting on Zoom.

The meeting will feature our traditional "Show-n-Tell" with pizza and drinks being provided by the section. We ask members to bring their interesting finds and any specimens in need of identification. This is a wonderful opportunity to show off your finds from the past year, or a part of your collection. Do not worry if what you have is not flashy, fossils rarely are. Whatever you have will be interesting to the rest of us. Many specimens which appear, at first glance, to be bland may be something rare or unusual.

Bring children. We will have a table set up where they can pick fossils. We will also have a kid's raffle for those 17 and younger in which every one of them will win a prize. These are donated toys, games, and books. **You MUST let Michael Grenier <mgrenier@frontiernet.net> know if you are bringing children and youth so we can have their raffle tickets ready for them.**

You can renew your membership at this meeting if you haven't already. We'll have membership forms and take cash or checks.

If you have nothing to show, come anyway for the joy of being with friends and seeing what kinds of interesting fossils can be found locally. If you have specimens which are defying identification, bring them along. Between us we usually have enough knowledge to put a name to something. Tables will be set up around the room, and you can lay out your interesting specimens for us to enjoy and discuss.

Bring a friend, visitors are welcome.

Membership Renewal Time

Unless you are a Life Member, note that your membership will expire on December 31, 2025. Please renew your membership now. A membership form is sent with this newsletter, and we will have some at the meeting, or you can get one or even complete the renewal at **rasny.org/mbform.pdf**. Remember, on the form, you must add the Rochester Academy of Science membership ($10 individual, $5 student) and Fossil Section membership (also $10 individual or family, $5 student).

Upcoming Meetings

January

Unlike most years, the Section **WILL** hold a January meeting on the 13th. Our guest speaker is Matt Lamanna, Curator of Vertebrate Paleontology at Carnegie Museum of Natural History, Pittsburgh.

Although the fossil record of non-avian dinosaurs from the Cretaceous of Antarctica is the poorest of any continent, fossils representing at least five major taxonomic groups—ankylosaurs, ornithopods, hadrosaurs, titanosaurs, and theropods have been recovered. All come from Late Cretaceous marine and nearshore deposits at the northern tip of the Antarctic Peninsula. Early modern (crown) birds such as *Polarornis gregorii* and *Vegavis iaai* have also been found in the Late Cretaceous there and Matt will cover these as well. Meeting is on Zoom only.

February

The February meeting will be on the 3rd and will feature speaker Ashley Nicole Prow-Fleischer on "Effects of Cooling and Deoxygenation on Extinction During the Devonian Kellwasser Events." She is a post-doctoral researcher at Stanford University having earned her Ph.D. in Earth Science with a focus in paleoclimatology from Syracuse University, where her research focused on reconstructing past environmental change and

biotic responses using microfossils and geochemical proxies. Her work integrates stratigraphy, paleobiology, geochemistry, and climate modeling to better understand Earth's climate dynamics during the intervals of rapid change, like the Late Devonian and end Triassic mass extinctions. Meeting is on Zoom only.

March

On March 3rd, we will hold our fourth annual "Samuel J. Ciurca, Jr. Memorial Lecture." It will feature two speakers with different talks. First, we will again have Dr. Derek Briggs, the G. Evelyn Hutchinson Professor of Earth and Planetary Sciences at Yale University and Curator-in-Charge of Invertebrate Fossils at the Yale Peabody Museum. Yale is the repository for most of Sam's collection and there will be years of ongoing research there on his specimens. Our second speaker will be Dr. Roy E. Plotnick, Professor Emeritus, Department of Earth and Environmental Sciences at the University of Illinois, Chicago. Dr. Plotnik is a renowned paleontologist known for his research on eurypterids, fossil anemones (like those from Mazon Creek), mass extinctions, and the history of paleontology. He is also recognized for improving science education and authoring books like *Explorers of Deep Time*. He will speak on "Enigmatic Endostomas, Mysterious Metastomas, Terrifying Pterygotids: New Insights from the Ciurca Collection." Meeting is on Zoom only.

Volunteers Needed at Rochester Museum & Science Center on December 27 & 28

Fossil Section will have its outreach display tables set up at the RMSC Winter Break Programming on 12/27 (Sat) and 12/28 (Sun) from 11 a.m. to 3 p.m. We need a few members to help us with that.

We will be there together with the Life Sciences and Astronomy Sections. We will have two tables in the Expedition Earth Gallery on the First Floor. When you arrive at the museum there will be someone at the entrance available to direct you to our tables.

No special knowledge is needed, just a willingness to work with kids, especially in helping them select a fossil from our gift bin. Please contact Dan Krisher at dlkfossil@gmail.com or Michael Grenier at paleo@frontier.com. OK to spend a couple hours with us, then go see some exhibits. Dan notes that it is always a good learning experience for both the Section members and the public. We hope to see you there.

Fossil Section always has a crowd.

Fossil Section table with part of the collection exhibited.

President's Report by Dan Krisher

On 10/26 the Section participated in the Rochester Museum and Science Center Family Fun: Tricks and Treats event.

Fossil Section table at the RMSC Tricks and Treats event. Right to left: Matt Bouffard, Dan Krisher, John Handley, and Dave Bishop with ASRAS table. Photo: M. Grenier

On 11/1 the Section assisted at the Rochester Academy of Science Annual Paper Session and set up and staffed a Fossil outreach table during the poster session portions of the meeting.

The Section held its November meeting on 11/4 and after a short business portion Section Vice-president Michael Grenier introduced Dr. Linda Ivany, Professor and Associate Chair Department of Earth and Environmental Sciences, Syracuse University who was our speaker for the evening. Dr. Ivany's talk was on heteromorph ammonites from Antarctica. Section members took Dr. Ivany out to dinner before the meeting.

The December 9th meeting of the Fossil Section will feature its annual Show-n-Tell pizza party. On December 27th and 28th the Section will participate in a two-day outreach event at the Rochester Museum and Science Center.

November Meeting Recap

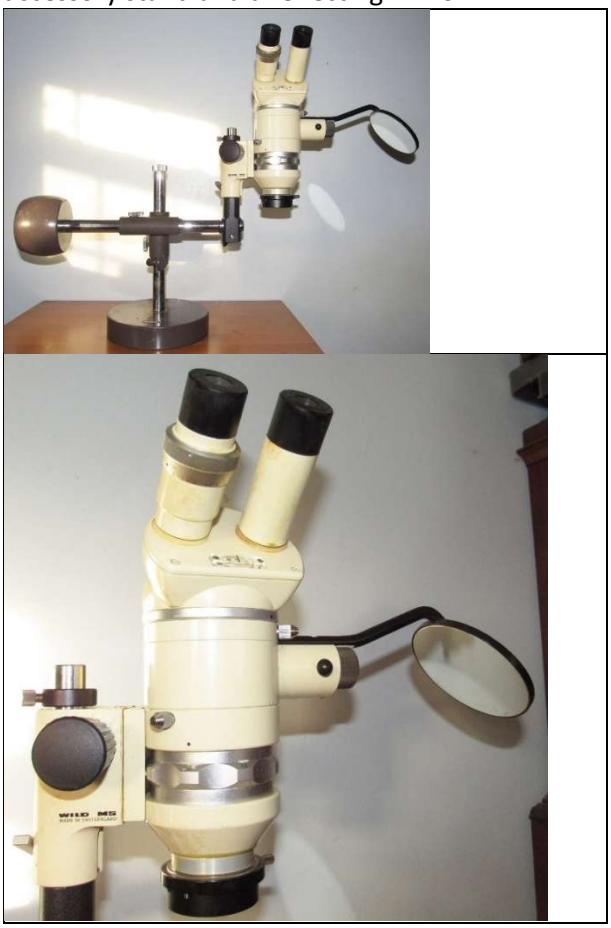
by Michael Grenier

As noted by Dan Krisher in the **President's Report**, we had Dr. Linda Ivany at our meeting on November 9th. Rather than tell you all about it, if you were not there, I invite you to view the video of the lecture on our private YouTube channel at Video link https://youtu.be/tYv69UYdhfs .

Here Is What You Really Need – For Sale

This is Samuel Ciurca's microscope, but now it can be yours. The sale price will go half to the Fossil Section and half to the Rochester Academy of Science Student Grants Program.

This is a professional Wild Heerbrugg M5 Stereo transmitted light microscope #M5-101749 with a common main objective (CMO). It is a highly regarded, durable stereo microscope known for its excellent optics and Swiss construction. It features a four-step magnification changer rather than a continuous zoom, a design praised for its reliability and the ability to take repeatable measurements. It has a counter-balanced Swift swing arm accessory stand and a reflecting mirror.



Its magnification changer is a built-in four-step drum that provides fixed magnification factors of 6x, 12x, 25x, and 50x with the standard 10x eyepieces, included. (The range can be extended from 1.4x to 200x with different eyepieces (e.g., 8x, 15x, 20x) and auxiliary objectives.) This model was made from 1958 to 1989 and—based on the high serial number—this is likely a late 80s version.

The M5 is extremely versatile and can be used in paleontology, petrography, mineralogy, botany, medicine, zoology, metallurgy, electronics, arts & crafts, teaching, horology, materials science, textiles, numismatics, philately, and other pursuits.

With the stereomicroscope you get a three-dimensional image of the specimen. This is done with two separate objective-eyepiece systems, which give images from two different viewpoints. Because the field of view is wide, and the large working distance stays the same when you turn the

magnification changer or change the eyepieces, you can work on the specimen while you are looking at it. Because the binocular tubes are inclined and nearly parallel, and the interpupillary distance can be adjusted, the microscope is very comfortable to use.

So, tell your dear one that THIS is what you really want under the tree. Free US delivery will be made within 100 miles of Rochester, or it can be packed and shipped at the new owner's expense. Price for this is $500 (or best offer). Non-members may purchase. Contact mgrenier@frontiernet.net.

Fossil News *edited by Michael Grenier*

Controversial *Nanotyrannus* Reevaluated (again)

Nanotyrannus ("small tyrant") is a genus of tyrannosauroid dinosaur that lived in what is now western North America during the Maastrichtian age of the Late Cretaceous, 67 to 66 million years ago. Its fossils are known from the Hell Creek Formation. The first named species, *N. lancensis*, was described as a new species of Gorgosaurus in 1946 by Charles W. Gilmore based on a single skull. Re-examination of the specimen in 1988 by Robert T. Bakker, Michael Williams, and Philip J. Currie moved the species to a new genus of tyrannosaurid, named *Nanotyrannus* in reference to its small body size.

Subsequent research indicated that the skull belonged to an immature animal, leading many researchers to favor its identification as a juvenile *Tyrannosaurus rex*. Its taxonomic status has since been a subject of intense scientific debate. Following is a newly published exhaustive revision of *Nanotyrannus* by Lindsay Zanno and James Napoli based on an adult specimen dissimilar to *T. rex* among other material. I respect Dr. Zanno and hope this holds up but I expect more bitter debate. Still, the first two papers out after this one both supported it.

Nanotyrannus* Confirmed: Dueling Dinosaurs Fossil Rewrites the Story of *T. rex.

North Carolina State University press release issued October 30, 2025. Author: Tracey Peake.
https://news.ncsu.edu/2025/10/nanotyrannus-confirmed-dueling-dinosaurs-fossil-rewrites-the-story-of-t-rex/

What if everything we know about *T. rex* growth is wrong? A complete tyrannosaur skeleton has just ended one of paleontology's longest-running debates – whether *Nanotyrannus* is a distinct species, or just a teenage version of *Tyrannosaurus rex*.

A pack of Nanotyrannus *brazenly attacks a juvenile* T. rex. *Illustration by Anthony Hutchings.*

The fossil, part of the legendary "Dueling Dinosaurs" specimen unearthed in Montana, contains two dinosaurs locked in prehistoric combat: a *Triceratops* and a small-bodied tyrannosaur. That tyrannosaur is now confirmed to be a fully grown *Nanotyrannus lancensis* – not a teenage *T. rex*, as many scientists once believed.

"This fossil doesn't just settle the debate. It flips decades of *T. rex* research on its head," says Lindsay Zanno, associate research professor at North Carolina State University, head of paleontology at the North Carolina Museum of Natural Sciences and co-author of the study published in *Nature*.

Using growth rings, spinal fusion data and developmental anatomy, the researchers demonstrated that the specimen was around 20 years old and physically mature when it died. Its skeletal features – including larger forelimbs, more teeth, fewer tail vertebrae, and distinct skull nerve patterns – are features fixed early in development and biologically incompatible with *T. rex*.

The implications are profound. For years, paleontologists used *Nanotyrannus* fossils to model *T. rex* growth and behavior. This new evidence reveals that those studies were based on two entirely different animals – and that multiple tyrannosaur species inhabited the same ecosystems in the final million years before the asteroid impact.

In their research, Zanno and Napoli examined over 200 tyrannosaur fossils. They discovered

that one skeleton, formerly thought to represent a teenage *T. rex*, was slightly different than the Dueling Dinosaurs' *Nanotyrannus lancensis*. They named this fossil a new species of *Nanotyrannus*, dubbed *N. lethaeus*.

Confirmation of the validity of *Nanotyrannus* means that predator diversity in the last million years of the Cretaceous was much higher than previously thought, and hints that other small-bodied dinosaur species might also be victims of mistaken identity.

"This discovery paints a richer, more competitive picture of the last days of the dinosaurs," Zanno says. "With enormous size, a powerful bite force and stereoscopic vision, *T. rex* was a formidable predator, but it did not reign uncontested. Darting alongside was *Nanotyrannus* – a leaner, swifter and more agile hunter."

This paper (Zanno, L.E. and Napoli, J.G., 2025. *Nanotyrannus* and *Tyrannosaurus* coexisted at the close of the Cretaceous. *Nature*, pp.1-3.) can be purchased at https://www.nature.com/articles/s41586-025-09801-6

A skeleton and a shell? Ancient fossil finally finds home on the tree of life Virginia Tech press release issued 13 Oct 2025, by Kelly Izlar https://news.vt.edu/content/news_vt_edu/en/articles/2025/10/science-salterella.html

In the early Cambrian Period, about 538 million to 506 million years ago, most major animal groups independently evolved methods to build mineral skeletons or shells, usually in one of two ways: They either built up mineral tissues using an organic scaffolding, like how we grow our bones and teeth, or they gathered materials from their environment and "glued" them together in a protective coating.

One notable exception can be found in the fossilized remains of *Salterella*, a tiny creature that thrived in the early Cambrian and is so common in rocks from that time that paleontologists use it as an index fossil to orient themselves in time.

Salterella was different by growing a conical shell around its body and then packing the shell's cavity full of carefully selected minerals to form a snug inner lining. Scientists have rarely observed this type of doubling up in any other animal group.

It makes *Salterella* difficult to place on the tree of life. Scientists have classified *Salterella* with squids and octopuses, sea slugs, jellyfish, worms, and most recently in their own phyla, Agmata, with the slightly older fossil with similar construction called *Volborthella*.

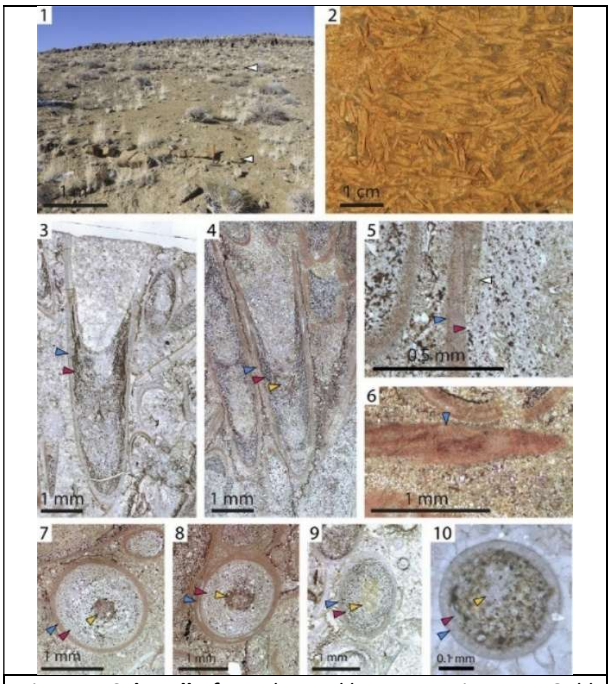


Figure 4. **Salterella** *from the Harkless Formation near Gold Point, Nevada. (1) Field photo showing shales of the Harkless Formation with limestone beds containing Salterella (white arrows) and archaeocyath reefs at the top of the section. (2) VMNH 211623, hand sample showing abundance of Salterella in a fossiliferous layer. (3–10) Thin-section photomicrographs of Salterella in longitudinal (3–6) and transverse (7–10) sections, showing biomineralized shell (blue arrows), agglutinated material (red arrows), and central tube (yellow arrows); white arrow in (5) marks intergrowth between the biomineralized shell and the agglutinated material. (6) A micritized shell; note the lack of distinction between the layers of the shell. (10) Transverse section showing the grain size and sorting of the agglutinated layer.*

After careful study, these researchers place both with the cnidarians, a group made up of more than 9,000 living species, including corals, jellyfish, and sea anemones.

This paper (Vayda, Prescott J., et al. "A Cnidarian affinity for Salterella and Volborthella: implications for the evolution of shells." *Journal of Paleontology* (2025): 1-24.) can be downloaded at 10.1017/jpa.2025.10164.

CALENDAR OF EVENTS

December

Tuesday December 9, FOSSIL MEETING 7:00 PM, Pittsford Community Center, Room 019, 35 Lincoln Ave, Pittsford, NY 14534. Our traditional Show-n-Tell with pizza and drinks provided by the section. This is a great opportunity to show off your finds from the past year. Visitors welcome.

Sat & Sun December 27-28, OUTREACH EVENT 11 AM to 3 PM. Rochester Museum & Science Center.

January

Tuesday January 13, FOSSIL MEETING 7:00 PM. Virtual Meeting on Zoom. Featured speaker is Matt Lamanna, Curator of Vertebrate Paleontology at Carnegie Museum of Natural History, Pittsburgh on Antarctic Late Cretaceous dinosaurs and birds. Visitors welcome.

February

Tuesday February 3, FOSSIL MEETING 7:00 PM. Virtual Meeting on Zoom. Featured speaker is Ashley Nicole Prow-Fleischer, post-doctoral researcher at Stanford University on "Effects of Cooling and Deoxygenation on Extinction During the Devonian Kellwasser Events." Visitors welcome.

Visitors are welcome to all Fossil Section meetings! 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 as hybrid meetings, live but also broadcast on Zoom. Meetings are held the first Tuesday of each month from October to December and from February to May at 7:00 pm. In person meetings are now held at the Pittsford Community Center, Room 019, 35 Lincoln Ave, Pittsford, NY 14534 unless otherwise listed.

OFFICERS	**PHONE**	**E MAIL**
President: Dan Krisher	585 698 3147	DLKFossil@gmail.com
Vice President/Program Chair: Michael Grenier	585 671 8738	paleo@frontier.com
Secretary: Dan Krisher	585 698 3147	DLKFossil@gmail.com
Treasurer: John Handley	585 802 8567	jhandley@rochester.rr.com
Director (three-year term): Sonia Lopez	585 743 7179	slaeec@rit.edu
Director (two-year term): John Boufford	585 743 7179	rochesterville@gmail.com
Director (one-year term): Fred Haynes	585 203 1733	fred.patty.haynes@gmail.com
APPOINTED POSITIONS		
Field Trip Coordinator: Dan Krisher	585 293 9033	DLKFossil@gmail.com
FossiLetter Editor: Michael Grenier	585 671 8738	paleo@frontier.com

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.

Another from Hugh Murphy's *T-Rex Trying* charming collection of drawings on the limitations of short arms. One issue with *Nano-tyrannus* is that it has longer arms than *T. rex* and proponents of the juvenile *T. rex* theory had to accept that the arms literally shrank in size as it grew. Huh?