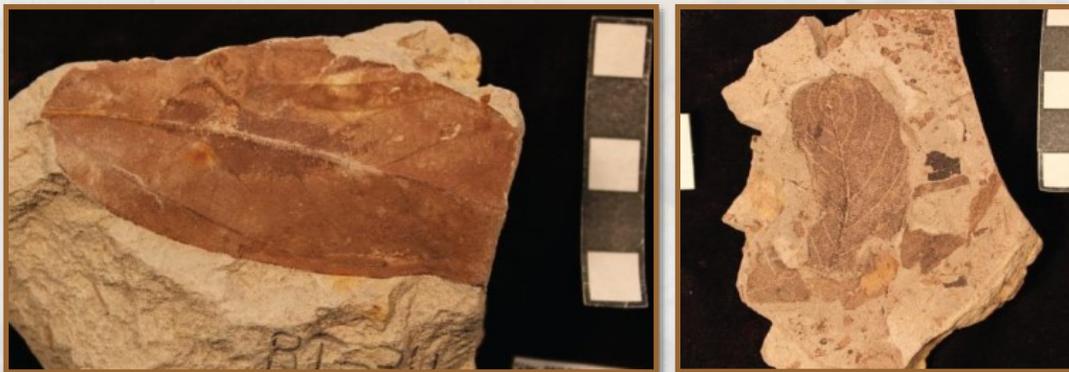


THE FOSSIL RECORD



NEXT MEETING: WEDNESDAY, FEBRUARY 9TH... ONLINE!

PARATROPICAL TEXAS



The next meeting of the DPS will be **Wednesday, February 10th**, online on Zoom. We will begin at **6:30pm** Central Time for informal chat and show-and-tell of fossils, with the formal meeting starting at **7:00pm**. The main presentation will be given by **Jennifer Wagner**, formerly of Baylor University, on “**Plant community change across the Paleocene-Eocene Boundary in the Gulf Coastal Plain, central Texas.**”

Jenn received a scholarship from the DPS for this research to earn her Masters Degree from Baylor University under Dr. Dan Peppe, after getting her BS in Biology from the U of Central Arkansas. Now, she is studying for her Ph.D. under Dr. Cindy Looy at the University of California Berkeley Department of Integrative Biology. We are delighted to be able to have her back via Zoom. The Paleocene and Eocene Wilcox and Claiborne Groups of East Texas and the Gulf Coast contain abundant sandstones that form oak-covered hills, the Post Oak Belt, across East and Central Texas. The sandstones and interbedded shales contain plant fossils, including coal and petrified wood. Jenn studied pollen, leaves, and wood from the Calvert Bluff, Sabinetown, and Carrizo Sands around the Bastrop area, to show that warming during the Paleogene helped create a paratropical climate belt that extended north into the mid-latitudes. This culminated in the Paleocene-Eocene Thermal Maximum, one of the most dramatic and rapid climate change events, before the current human-caused global warming.

Please continue to the next page (page 2) for instructions on how to register on Zoom and join the meeting live online...

FEBRUARY DPS MEETING (LIVE ONLINE): HOW TO JOIN US

by Tom Dill

We recommended creating a free **Zoom** account at <https://zoom.us> before the meeting (and you will receive a confirmation email), and then installing the Zoom application on your computer (Mac, PC, or Linux). You can also get the app for tablets and phones from the Apple or Android app stores, then click on this link to join the meeting on **Wednesday, February 9th at 6:30pm** Central Time for informal chat and show-and-tell of fossils, with the formal meeting starting at **7:00pm** Central Time:

<http://zoom.us/j/94396423736?pwd=UkZHQ3JDbIZIZGFheVEwRXcvL1ZFZz09>

If you haven't used Zoom before, join early so you can test your audio and video; and if you cannot install the application, you can also use a web browser (they recommend Google Chrome). Or start the Zoom app and join the **meeting ID of 943 9642 3736** and **passcode is 456521**.

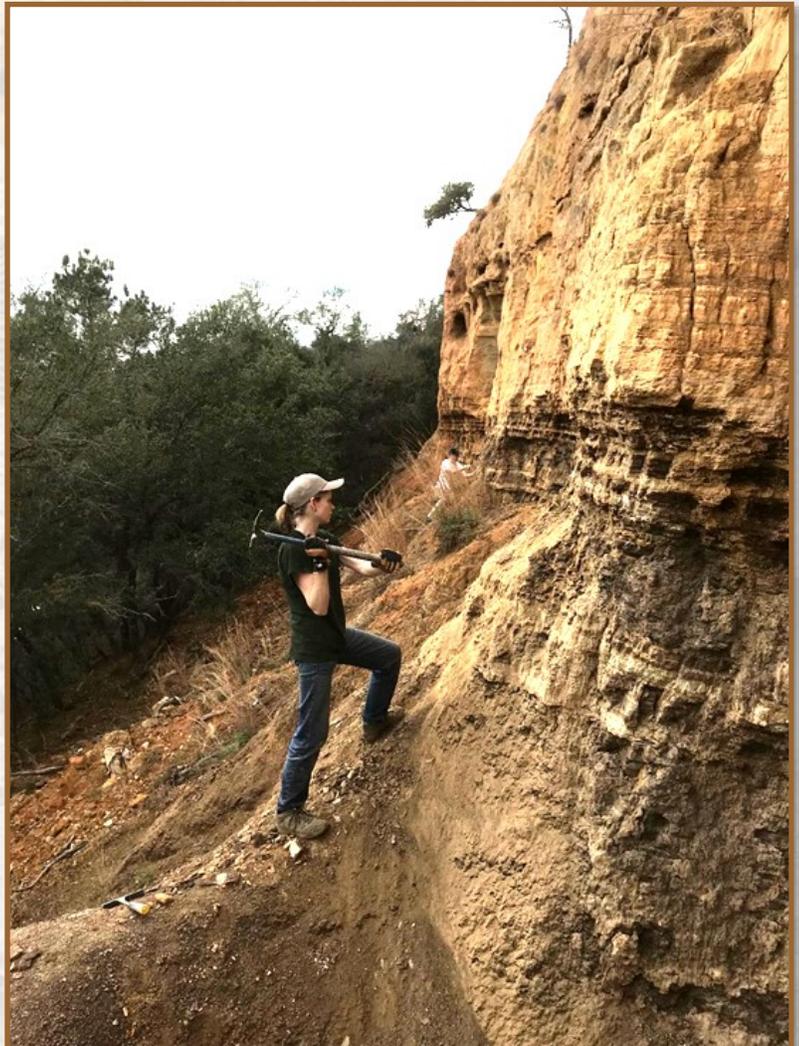
If you move your mouse over the Zoom window, controls will appear where you can turn on and off your audio and video "feeds" to the meeting. Remember that you are on camera to the world and, if your audio feed is on when you cough or the dog barks, Zoom will switch the focus to you. So, please be respectful and mute your audio until you want to talk. Make yourself familiar with the Zoom controls, which appear when you move the mouse over the window, and learn where and how to turn on and off (mute) your audio, and your video feed. Be aware that your spacebar also mutes and unmutes your microphone (you can change that setting also).

During the presentations, we will mute everyone's audio, but if you come in late, be sure to mute yourself. You can submit questions for the speaker in the chat box, typing "QUESTION" to make them stand out. We will read them at the end in the order received. We would love to see you (appropriately dressed) and hear you (at the appropriate times) at our next meeting!

We hope to see you there!

Montage of Paleogene leaf fossils from Central Texas, with scale is in centimeters (previous page).

Jennifer Wagner doing field work at an outcrop near Bastrop, Texas (right).



OUTSIDE AND IN WITH THE DPS PRESIDENT

by Estée Easley

Saying goodbye to the North Sulphur River is important to me, as I'm sure it is to most of our members! I remember exploring the NSR with my parents when I was a child. Daddy walked up and down the river picking up mosasaur bones he found with his eagle eye. Mom found some great pieces, too! I sat in the gravel picking up *Eohippus* tooth fragments and *Hamulus* worm tubes. Mom and I went to say goodbye and almost didn't get to leave. First I fell, and as she was coming to give me a hand, she fell (sorry, Mom, but I'm sharing the picture I snapped while my phone was safely in a zip bag). The suction of the river and our doubled laughter prevented us from moving for quite a while! I didn't find exciting fossils, but I did have a nice final adventure



Reah Easley (Mom) at North Sulphur River.

Brachiosaurus animatronic at the Heard Museum.

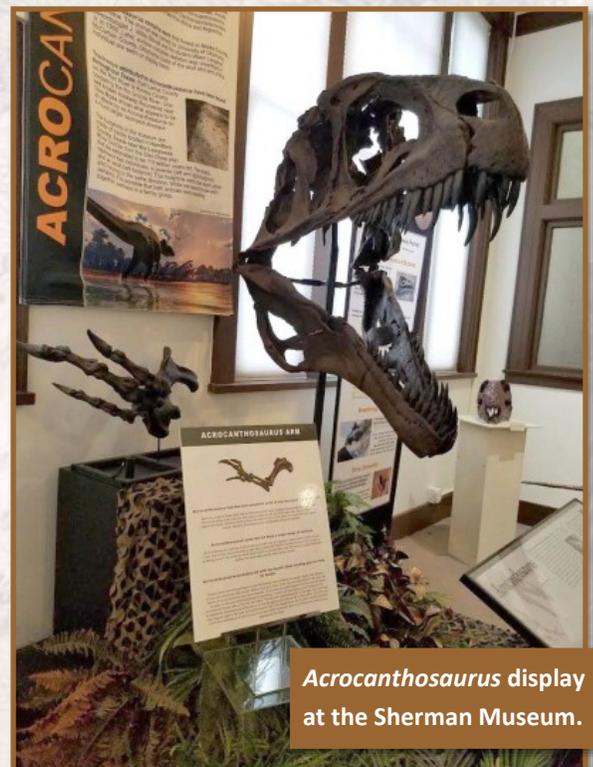


getting silly with Mom and sharing fond memories of Daddy. To keep in the habit, we had a trash bag along with our fossil collection bag. I'm delighted to say there wasn't much trash, and what trash we did collect was probably there for decades! (For those new to DPS, a very popular fossil spot in north Texas, the NSR, will be closed, dammed, and turned into a lake. See LakeRalphHall.com for the current timeline.)

I was delighted to go back to the Heard Natural Science Museum and Wildlife Sanctuary (heardmuseum.org) and take my Girl Scout troop on the dino trail. Billings, as usual, did a great job with their animatronic dinosaurs, and the weather was perfect. True to form, I had trash bags for each girl. While on the hike, we all kept our eyes out for any little scraps of litter. Inside, I enjoyed seeing the new DPS "Collect It Yourself" display as well as the rest of the paleontology room. The girls loved the mosasaur!

The Sherman Museum (theshermanmuseum.org) is historic, and I'm surprised I haven't been there before. It's just a stone's throw from the creek full of shark teeth, so it's no surprise they include local fossils in their long display case. They also share a love of all things Acro. Their *Acrocantnosaurus* display, as well as the mosasaur, are wonderful additions to this small but important museum. If you haven't been, make a point to stop in sometime! (Yes, I did pick up the only piece of litter from their parking lot. I have a theme to maintain.)

As you explore museums and fossil sites, please remember to maintain social distancing, and keep your masks properly covering your nose and mouth. In addition, I would like to encourage each of you to be thoughtful fossil collectors and carry an extra bag with you to help keep our fossil hunting grounds free of litter.



Acrocantnosaurus display at the Sherman Museum.

FEBRUARY 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10  DPS Monthly Meeting	11	12 Lunar New Year	13
14 Valentine's Day	15 President's Day	16	17  DPS Monthly Executive Meeting	18	19	20
21	22	23	24	25	26	27
28			Visit dallaspaleo.org for most up-to-date information and further details.			

ATTENTION: THE DPS NEEDS YOU!

by Estée Easley

As we wave goodbye to Talban Kantala and wish him well as he leaves, we are now in need of a Field Trip Chair and Field Trip Committee members. The Field Trip Committee might be the most exciting volunteer opportunity DPS offers! It's what we do best — fossil hunting — but even better, you get the inside scoop!

Field Trip Chair and Committee members:

- Help plan DPS fossil hunts.
- Help coordinate water and other items for the trip.
- Help identify fossils during field trips (or identify the right person to identify fossils).
- Help write the field trip summary for the newsletter.

Field Trip Chair:

- Ensures all the moving parts above run smoothly.
- Attends the monthly leadership meetings (currently on Zoom).



Email president@dallaspaleo.org for more details or to show your interest in being on the team!

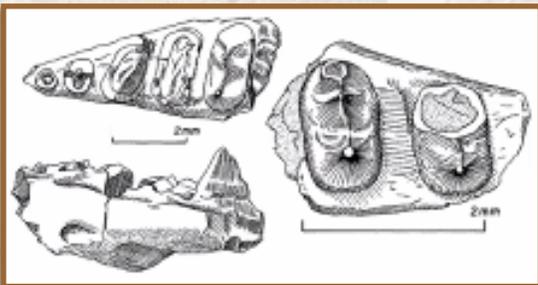
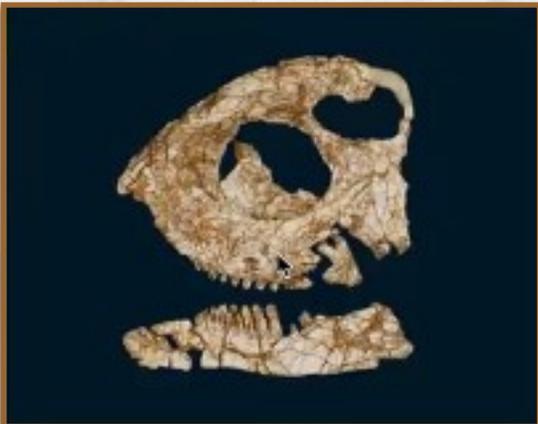
DPS JANUARY MEETING: “NAMING THE BEASTS”

Lecture Overview and Art by Fernando Juan Antonio Correa-Corchado

Having a new species named after you is not something a lot of people have bragging rights about, but people who have nine species named after them are super rare. Dr. Louis Jacobs is one of those people, and to start off the new year, he told us at the DPS the story of these nine species at January's monthly meeting.

In 1977, Dr. Jacobs published his master's thesis on Pliocene rodents in the Frick Old Cabin Quarry, located in San Pedro Valley, Arizona. While screening this quarry, six new taxa, three new genera, six new species were discovered. One of the new genera, *Paronychonmys*, had a new species in Smith Valley, Nevada named in 2013 by paleontologist Dr. Thomas Kelly. Not only did the Frick Old Cabin Quarry yield a goldmine of rodent fossils, but it was the holy grail for geologic time. Dr.

Jacobs' professor, Dr. Everett Lindsay, was captivated by this subject. It was known that the magnetic field of the Earth changed in the direction that it was pointing to at the time. Professor Lindsay worked with geophysicists Dr. Noye Johnson and Dr. Neil Opdyke to determine how these changes could be used to tell time, and they decided to start at the San Pedro Valley, which was why Professor Lindsay convinced Dr. Jacobs to work at that site. This important research initiated a quest from Mexico to China to Pakistan in the search for fossil rodents that could determine paleomagnetic polarity.



Skull and jaw of
Trilophosaurus jacobsi.

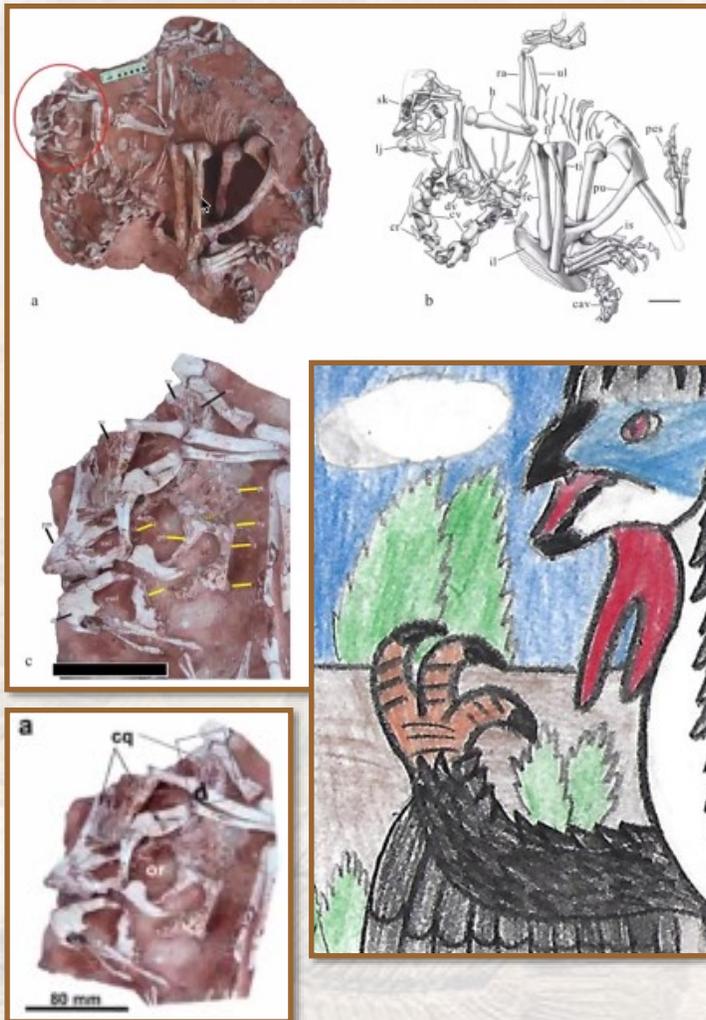


Reconstruction of a male *Trilophosaurus jacobsi* by Fernando Juan Antonio Correa-Corchado.

The only reptile currently named after Dr. Jacobs is the *Trilophosaurus jacobsi*, which was recovered from the *Placerias* Quarry in the Triassic rocks of Arizona back in 1977. A skull of this lizard-like creature was found in Triassic aged Texas, which is now displayed in the New Mexico Museum of Natural History. But *Trilophosaurus* was not alone as a close relative, *Palacrodon*, was reported in 2018. The significance of this creature is that it was rediscovered when paleontologists looked back at the 1977 collections. In addition, this was the first time *Palacrodon* was identified in North America as it was only known from South Africa and Antarctica before.

Continued next page

DPS JANUARY MEETING CON'T



Fossil of *Corythoraptor jacobsi* (top left), closeup of its skull (bottom left), and reconstruction of a male *Corythoraptor jacobsi* by Fernando Juan Antonio Correa-Corchado (right).

Paleontologists Drs. Young-Nam Lee, Junchang Lu, and Yoshi Kobayashi, all three of which were Dr. Jacobs' students, discovered the only dinosaur currently named after Dr. Jacobs, *Corythoraptor jacobsi*. This cassowary-like oviraptorid was significant because it added to the diversity of the oviraptorids of Ganzhou, China. What distinguishes this creature from the rodents named after Dr. Jacobs is the fact that the skeleton was well preserved and almost complete, in contrast to the isolated rat teeth of the species of rodents named after Dr. Jacobs. This allowed for a detailed examination of the head structure, which resembles the structure seen in today's cassowaries.

The journey of these nine eponyms revealed the lost world of rodents that helped us understand magnetic polarity, a Triassic pioneer from South Africa and Antarctica, and an oviraptorid with the resemblance (and probably attitude) of a cassowary. Dr. Louis Jacobs is a giant star in paleontology who loved to work on tiny fuzzy animals. They may not be viewed as exciting as the dinosaurs that overshadowed their ancestors, but Dr. Jacobs' work on them and other creatures helped to unravel many mysteries of the prehistoric world, and he deserves the credit as reflected in these nine remarkable species.

DPS “SOCIAL DISTANCING VIA FOSSIL HUNTING” SCRAPBOOK

Complied by Diane N. Tran

The best way to fight the spread of COVID-19 pandemic is to practice “social distancing” and, while many have opted to spend their time at home, others have spent the time fossil hunting: There’s no better way to social distance than be in the middle of nowhere in a creek bed or picking a hammer into an outcrop! So, here are some wonderful finds our fellow members generously shared on the [DPS Facebook Group](#). Stay safe, everyone!



V.L.R: *Plioplatecarpus* skull, NSR (top left).

Vincent H: *Cretodus simplicatus* tooth,, Eagleford formation, Dennison (top right).

Vincent H: *Xiphactinus* tooth, Mountain Creek area, Dallas (bottom right).



Charlie S: Plesiosaur vertebra, Denton County.



Continued next page

DPS "SOCIAL DISTANCING" SCRAPBOOK CON'T



Vincent H: *Tylosaurus* jaw section, NSR.



V.L.R: *Globidens* jaw section, NSR.



Jarrod B: *Xiphactinus* vertebra. NSR (top left).

Vincent H: *Petalodus* tooth, Pennsylvanian formation, Brownwood (middle left).

Joe W: *Tylosaurus proriger* premaxilla, Ozan formation, NSR (bottom left).

Continued next page

DPS "SOCIAL DISTANCING" SCRAPBOOK CON'T 2

Michael L. Z: Ammonite, NSR.



David M: Coral, NSR
(bottom left).

David M: Echinoid,
near Ozan formation,
NSR (top right).

Joe W: *Platecarpus*
premaxilla, Ozan for-
mation, NSR (middle
right).

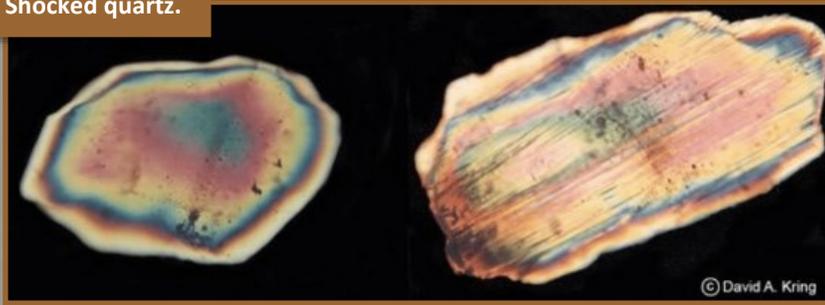
Joe W: *Russellsaurus*
premaxilla, Eagleford/
Austin Chalk formation,
Dallas County (bottom
right).



FORT WORTH GEM AND MINERAL CLUB MEETING: “THE IMPACT AT CHICXULUB IN MEXICO DID NOT KILL THE DINOSAURS”

Lecture Review by Kate Fenton

Shocked quartz.



Theory is not fact; it is a logical hypothesis. We seek known or observed facts to support a theory. Theories are never proven with finality. Rather, the theory, as posited, stands until new data point toward a revision or different theory. This is the story of scientific advancement with theories often battling against each other until one drops into disfavor due to new data or information that has come to light.

Dr. Neil Immega, a retired Shell geologist with a doctorate in Paleontology, presented such a story, one that is still in process. His presentation on “The Impact at Chicxulub in Mexico Did Not Kill the Dinosaurs” to the Fort Worth Gem and Mineral Club on Tuesday, January 19th, 2021, featured a data-supported attack on the prevailing theory that a large meteoric impact caused the mass extinction of dinosaurs. The meteor impact theory was first espoused by the father and son team of Luis and Walter Alvarez, and scientists jumped on board when the massive crater was found on the edge of the Yucatan Peninsula known as Chicxulub. The impact threw up a dust cloud that circled the globe at least as far away as Tunisia and Italy, based on a distinctive clay sedimentary layer investigated by many scientists. The dust cloud is theorized to have obscured sunlight, disrupted the environment, and caused oceanic and atmospheric chemical changes believed to have led to the mass extinction of all non-avian dinosaurs and 60% of all other life forms on earth. So far, so good.

However, data published by Dr. Gerta Keller from Princeton University in 2007 to 2017 corroborates geologic and paleo findings by paleontologists in Texas and Mexico that suggest that the Chicxulub impact theory is not correct. The Keller data show that the Cretaceous-Tertiary boundary, aka the K-T boundary, associated with the mass extinction event is 100,000 years later in geophysical time than meteor impact layer of clay sediment. Almost nothing goes extinct after the meteor’s impact. Shocked quartz is also not associated with Chicxulub. It is, however, found above the K-T boundary as expected from a volcanic event. How did the scientists miss the gap of 100,000 years? They worked on distant outcroppings in Tunisia and Italy, and they used K-ar (measurement of radioactive decay of potassium into argon) dating. Looking closer to home in the area around Bryan, Texas and in northeast Mexico, paleontologists found no species extinctions across the Chicxulub impact (with spherules) layer.



Spherules.

They conclude that the evidence shows the extinction occurred slowly as a result of a stressed environment, but too late to have been the sole result of the Chicxulub meteor. Instead, they look toward the major volcanic event at Deccan Traps (i.e. steppes) in west central India. There have been five notable extinction events and, according to Dr. Keller, all five are associated with volcanic eruptions. Dr. Immega discussed two of these extinction events, along with known corresponding volcanic events, closely associated with the geologic and paleontological data. However, scientists are still mulling the data and potential implications for the theory of dinosaur extinction.

DINOSAUR DRIVE-THRU (SIX FLAGS HURRICANE HARBOR, ARLINGTON)

by Diane N. Tran

While I have in the past attended and reviewed a number of audio-animatronic dinosaur attractions, from the globally-famous Dinosaur Company (also known as Billings Productions) at the Dallas Zoo and the Heard Museum, to the national touring Jurassic Quest at Fair Park and its post-pandemic re-brand, Jurassic Quest Drive-Thru, to the local, independently-owned Jurassic Land at Denton's Golden Triangle Mall, the newest addition to these prehistoric theme parks is Dinosaur Drive-Thru, located at Six Flags Hurricane Harbor, from December 17th, 2020, to January 10th, 2021.

A COVID-safe option for the entire family, Dinosaur Drive-Thru is a 45-minute "safari" experience, with over sixty dinosaurs, with the occasional marine and flying reptile, displayed in, *mostly*, chronological order, starting from the Triassic to the Cretaceous, as an interactive audio tour guide narrates with interesting facts, jokes, trivia questions (with a score card), and warnings of an escaped predator on the property, spoken in both English and Spanish, to keep visitors engaged with the show. Similar to Jurassic Quest Drive-Thru, you have to pause the tour if the line gets backed up; however, unlike its contemporary, it is separated into (labeled) tracks, so if one loses their place, one can easily return with little to no fuss.



"Frilled" *Dilophosaurus*.

"Mohawk" *Spinosaurus*.



Unfortunately, while they advertise themselves as "museum quality," the builds of the robotic marvels themselves are not terribly impressive. Their audio-animatronics were shotty at best. Majority of them were not in sync, if they even moved at all — and, anatomically, they are just all over the place: Pronated wrists and shrink-wrapping were the standard. *Centrosaurus* was mislabeled with the *Styracosaurus*; *Carnotaurus* had five fingers rather than four (only two of the four had bones); *Iguanodon* lacked its signature thumb spikes; *Giganotosaurus*, while its



Styracosaurus and *Centrosaurus*.

Mamenchisaurus.



genus was correctly pronounced, was half its size; *Camarasaurus* at the third of its size; the *Spinosaurus* is straight out of *Jurassic Park III*, thus fifteen years out-of-date and, for some reason, had a spiked mohawk atop of its head; the turkey-sized *Velociraptor* was ENORMOUS, about three times larger than it should be, without a single feather in sight; *Dilophosaurus* had the unfortunate neck frill; and perhaps the weirdest anomaly of all was that the tour ended with a "tiny" five-foot tall reconstruction of the fictionalized mutant hybrid known as "Indomnius rex" from the *Jurassic World* franchise. Clearly, Dinosaur Drive-Thru has more to do with the pop culture mass media than actual science and research, ho-hum...

Continued next page

DINOSAUR DRIVE-THRU CON'T

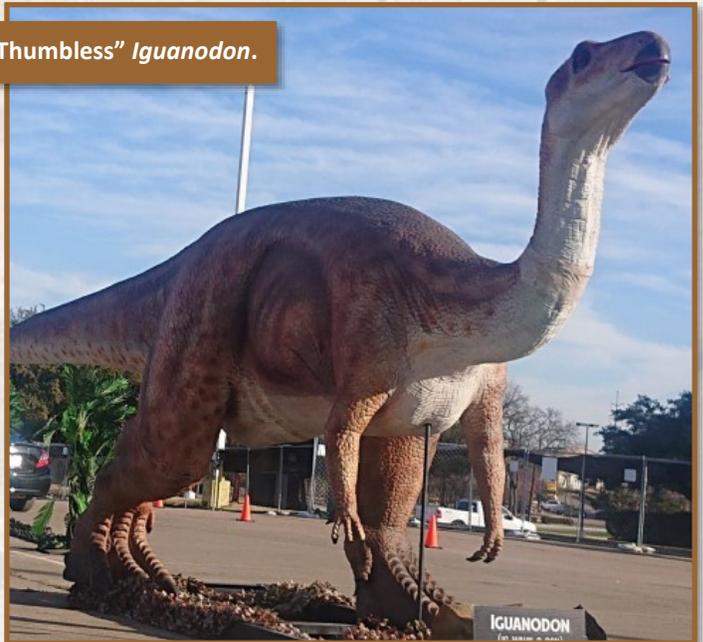
Yet, on the upside, there were some genera displayed that I don't usually see, such as *Wuerhosaurus*, which had a lovely dynamic (bipedal) action pose; *Omeisaurus*, the longest neck of any sauropod, next to the *Mamenchisaurus*; and sauropodomorph (or "prosauropod") *Lufengosaurus*.

Its cost of admission is \$55 per vehicle, with a limit of eight occupants — but is it worth it? If it was split at maximum eight ways, perhaps; but in reality, please save your money! Admittedly, I have previously been very, *veerry* critical the technological and anatomical mishaps associated with the audio-animatronics and reconstructive builds of Jurassic Quest, the Dinosaur Company, and Jurassic Land in the past, but these — oh, boy — are among the WORST I've seen! Nevertheless, there is always room for improvement and advancement, without a doubt; but they have to make the *effort* to achieve that and, as long as it's more about money than science, it unfortunately won't get any better...

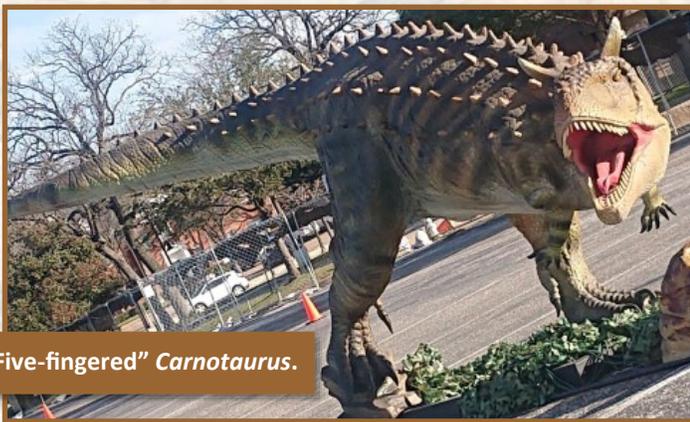
"Featherless" *Velociraptor*.



"Thumbless" *Iguanodon*.



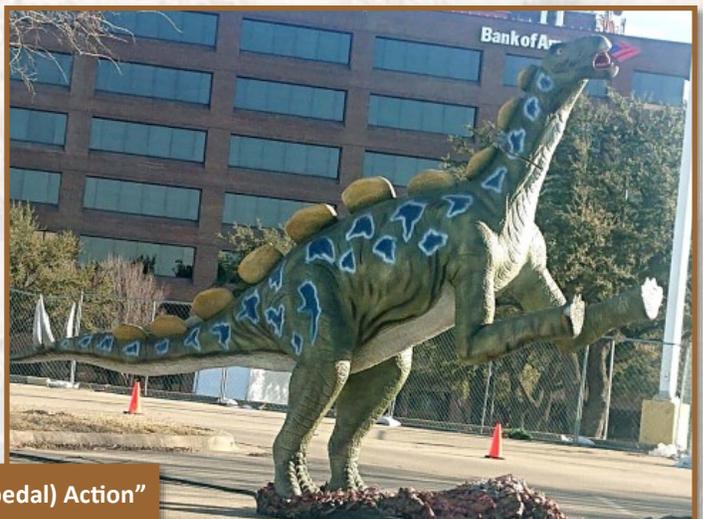
"Five-fingered" *Carnotaurus*.



Fictionalized "Indomnius rex."
(Just whhhhhhhyyyy???)



"(Bipedal) Action"
Wuerhosaurus.



ARTIST SPOTLIGHT: SAM DE LA ROSA

by Mike McGee

As the Marvel Studios movie machine continued to roll out hit after hit pre-COVID-19, Dallas-Fort Worth resident Sam de la Rosa has had a hand in that growth for the past few decades, all thanks to his talent as a commercial artist. During a 2020 appearance at Beckett Media headquarters in Farmers Branch, de la Rosa took a break to discuss his life in comics, which includes his artistic flirtations with “terrible lizards.”

Born and raised in San Antonio, the artist said he found joy in drawing wildlife and dinosaurs in grade school. He was described in an September 2015 issue of *The San Antonio Current* thusly, “An elder statesman of the comic book world, de la Rosa remembers always drawing dinosaurs and undersea life when he was in elementary school in the 1960s,” according to writer Kiko Martinez. “Then I saw a relative that collected comic books, so man — that was pretty cool stuff,” De la Rosa commented back at the Beckett HQ. “And I just transitioned to just drawing comic book characters. Still drawing.”

And what characters he (still) draws; in a career that began in the 1970s with artwork for independent publications, he made the big-time in 1982 when he began working for both DC Comics and Marvel Comics.

De la Rosa has since done the ink or pencil art on some of the biggest heroes and villains in comics history. Most notably, the creator found acclaim for his Spider-Man art, as well as that of Spidey’s modern nemesis, Venom. When the 2018 Sony/Marvel/Columbia film *Venom* grossed more than \$800 million worldwide, it featured a look and storyline taken from some of the artist’s source material.



“I’m really looking forward to *Venom 2*,” he said as he spoke about the upcoming sequel, *Venom: Let There Be Carnage*, and a new villain, played by Woody Harrelson, who clashes with Tom Hardy’s Venom persona. It’s got Carnage; I worked on several storylines with Carnage, both in *Amazing Spider-Man* and the storyline called *Maximum Carnage*,” a narrative arc that ran through fourteen different Marvel publications in 1993. In terms of his professional comic book work involving dinosaurs, de la Rosa was the cover inker for *The Thing* #31 (1986), which prominently features the fantasy character Devil Dinosaur — connecting the professional artist to his childhood roots.

Other dinosaur work inked by the artist includes primordial images for a sequence in “The Savage Land” — a Marvel Comics fantasy world where bizarre beasts, jungle heroes, dinosaurs and early large mammals all roam — in *The Uncanny X-Men Annual* #7 (1983).

The Thing #31 (Marvel Comics, 1986), featuring the *Tyrannosaurus*-like Devil Dinosaur.



Comic book artist Sam de la Rosa.

Continued next page

ARTIST SPOTLIGHT CON'T

He also lent his talent to the dino-covers of *The Scavengers* #6 and #7 by Quality Comics in 1988. Even the Image Comics human/reptilian hero *The Savage Dragon* got the de la Rosa treatment in 2012's issue #182. There may yet be more dinosaur-oriented art waiting to be found.

De la Rosa currently lives in Fort Worth and, pre-COVID19, could be found at numerous comic book conventions around Texas and the U.S. throughout the year, selling art, signing comics, and enthusiastically engaging in fans. *Venom: Let There Be Carnage* will not be the only Marvel film property released soon bearing de la Rosa's creative mark. Another Marvel/Spider-Man character, Morbius, the Living Vampire, will appear in his own movie. That feature, which focuses on a more obscure vampire anti-hero played by Academy Award winner Jared Leto, will again lean upon de la Rosa's past work.

"I enjoy it," he said of his ongoing career. "I really enjoy talking to people; I enjoy selling - I do make money... I'm able to pay my bills. But it's afforded me just a lot of perks. I go to other countries as a guest to that event," he added.

Canada, Mexico, Ireland, and Dubai have been some of his most recent international destinations, "...as a guest because of the work I had a hand in."

He can be found on Facebook at [@ArtistSamDeLaRosa](https://www.facebook.com/ArtistSamDeLaRosa). More information is on his website, SamDeLaRosa.com. He takes commissions; possibly something to take note of for dinosaur enthusiasts craving original, professional art.



From left to right: *Scavengers* #6 and #7 (Quality Comics, 1988), featuring *Triceratops*, *Allosaurus*, and a "reverse" *Kentrosaurus*; and *Savage Dragon* #182 (Image Comics, 2012).

WOMEN IN PALEONTOLOGY: WINIFRED GOLDRING

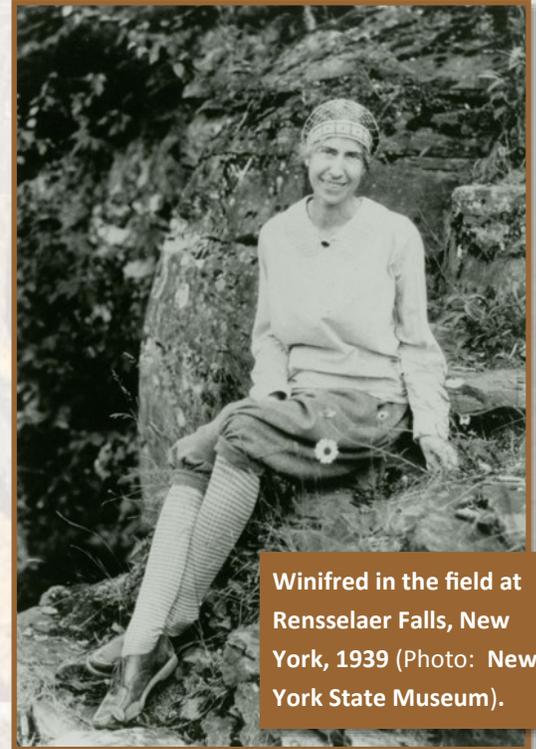
Series by Reah Easley

Winifred Goldring (1888-1971) was the first woman in America to be appointed as a State Paleontologist (Albany, New York) and served in that position from 1939 to 1955. She had been with the New York State Museum since joining as a temporary “scientific expert” in 1914. Goldring strongly believed that museums should be places to educate the public instead of just rooms full of glass cases with fossils and rocks. She created what are still considered models of museum education, “What is a Fossil?” and “What is a Geological Formation?” exhibits which helped visitors form questions about what they were seeing.

She designed an unprecedented exhibit researching and collecting in the Gilboa Fossil Forest after well-preserved Mid-Devonian layers were uncovered during the building of the Schoharé Reservoir Dam in the 1920s. In 1925, the display opened. It was overall 35 feet wide, up to 30 feet tall, and 18 feet deep. It had a painted backdrop of Devonian era trees and other life forms with a waterfall and running stream among large fossilized trunks and stones. The Museum became a “go to” destination for many decades to follow. It was taken down in the 1970s when the museum moved to a new location.

Goldring named the fossilized stumps *Eospermatopteris*, based on her current documentation that they were seed fern trees. She realized that this forest was highly significant but did not determine that they represented afforestation or the original “greening” of the Earth. Plants of their size and abundant distribution had major climate impact including reduction of CO₂ in the atmosphere, carbon cycling, cooling and seasonal flux, and the evolution of land animals.

She also made sure that the town of Gilboa retained and exhibited their share of petrified trees. There is still a fine roadside display designed by engineer Sidney Clapp with a large board of interpretive materials written by Goldring. In 2010, exhibits were updated to include new findings, the museum of the town of Gilboa is near these fossils. Branches and stems of *Eospermatopteris* have been discovered in recent years, showing that they looked similar to modern-day tree-ferns; however, they were part of the extinct cladoxylopsid group and only distantly related to modern ferns. Though the fossil stumps are still generally called *Eospermatopteris*, the entire extinct plant — stump, branches, and leaves — is officially named *Wattieza*.



Winifred in the field at Rensselaer Falls, New York, 1939 (Photo: New York State Museum).



Gilboa Museum, exterior sign (left) and interior (right).

HEARD MUSEUM'S "COLLECT IT YOURSELF" EXHIBIT

by Rocky Manning

The next installment of the ongoing "Collect It Yourself" exhibit at the Heard Museum is by Don and Jane Fagerstrom. Those of you who know them are aware they are prolific collectors of the North Sulphur River (NSR). They have been collecting for over forty years. Only a small portion of their collection is on display, but it includes mosasaur, plesiosaur, fish, mammoth, and more.

The display is in place now and will remain for another four months. Come see what you can find by collecting the NSR.

More information on the Heard Natural Science Museum and Wildlife Sanctuary at:

<http://heardmuseum.org>

Besides nature and paleontology displays, there are miles of hiking trails, including the "Dinosaurs Live!" exhibition.

Assorted fossils donated by the Fagerstroms for the "Collect It Yourself" exhibit at the Heard Museum, 2020.



DINO BO BULLETIN

Series by Beau "Dino Bo" McDaniel

For this month's "Dino Bo Bulletin," I thought I would follow up on the theme of the first article that I wrote several months back. For those of you who don't know, *Camp Cretaceous* season two premiered on Netflix. I highly recommend it.

For my first article I talked about a dinosaur that featured heavily in season one, *Carnotaurus*. In season two, a dinosaur that makes frequent appearances is *Baryonyx*. *Baryonyx* is a theropod that lived in the early Cretaceous. *Baryonyx* belongs to the family Spinosauridae, and its fossilized remains are found in England. For those of you unfamiliar with *Baryonyx*, imagine a smaller *Spinosaurus* with no sail.

Baryonyx was the first dinosaur discovered to be confidently identified as a piscivore, meaning its diet consisted mainly of fish. Evidence of this was found in the holotype specimen, when fish scales were found near the stomach region. We also see evidence of this in its conical shaped teeth, which are almost always found in animals with a fish diet. *Baryonyx* was also equipped with a 12-inch long claw on its first finger! Paleontologists believe that this was used to possibly help catch its slippery prey. I've thoroughly enjoyed seeing lesser known dinosaurs pop up in this Netflix series. Dinosaurs, like *Baryonyx* and *Ceratosaurus*, deserve the spotlight too and are finally getting it. And they are far more accurate than what the *Jurassic Park* franchise normally depicts. It's no longer just a *T. rex* that's way too skinny and a dramatically oversized *Velociraptor*. So, move over you unscientifically accurate depictions, some real dinos are coming through.

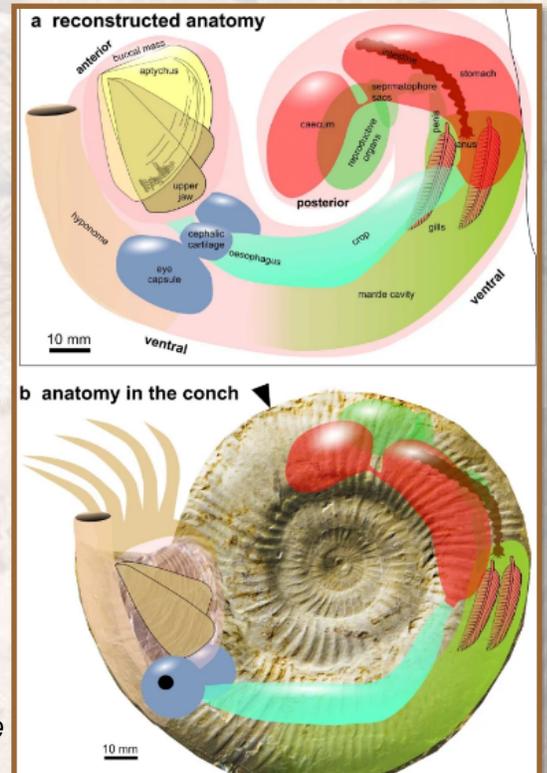
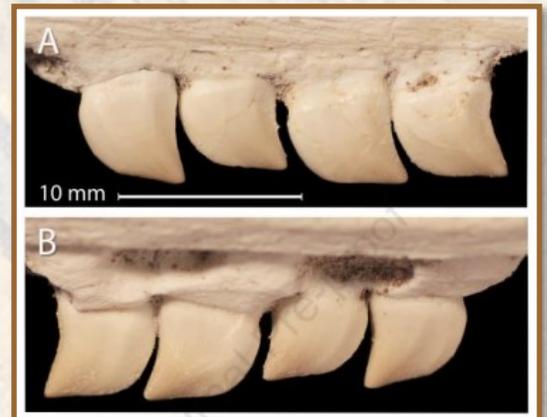


Baryonyx tooth.

PALEONTOLOGY IN THE NEWS

Compiled by Andrew “Dino Dad” Stück

1. [Dire Wolves Were Not Wolves](#) ([Nature](#)) — While genetic material for Dire Wolves has been scarce in the past, recent finds allowed for a genomic study, which upended their assumed relationship to other canids. Dire Wolves are not closely related to Gray Wolves as previously thought, but in fact lie outside the group that includes wolves, dholes, and jackals. Their extreme similarity to Gray Wolves appears to be a case of convergent evolution, and their presumed inability to interbreed with Gray Wolves may have contributed to their eventual disappearance.
2. [“Razor Wire” Mosasaur](#) ([Science Direct](#), [Google Drive](#)) — A small-bodied mosasaur with bizarre dentition has been described from the Maastrichtian of Morocco. Named *Xenodens* for its strange dentition, its teeth formed a slicing battery that some have compared to razor wire. The researchers note that this particular arrangement seems to be unique not only among mosasaurs, but squamates and even tetrapods in general. It possibly used these teeth to shear off large bites either from larger prey or from carcasses.
3. [Ammonite Soft Body Preservation](#) ([Taylor & Francis Online](#)) — An amazing discovery from the Jurassic Solnhofen Formation of Germany has revealed the best ever look into ammonite soft tissues. While a few previous fossils have provided small hints at their anatomy, this find preserves multiple organs, including the siphuncle and male reproductive organs. Oddly, the ammonite was preserved entirely without a shell, which initially obscured its identity until researchers took a closer look. The authors speculate the ammonite was either the victim of a mostly-failed attack that shucked it straight out of its shell, or that it was afflicted with a disease that caused the shell to fall away.
4. [First Jurassic Stegosaur from South America](#) ([Taylor & Francis Online](#)) — The first known stegosaur from the Jurassic of Argentina has been published, strengthening the similarities between this area and other Late Jurassic formations such as the Morrison and Lourinhã. The discovery consists of a single femur, which preserves enough detail to identify it as a derived stegosaur, relatively close to *Kentrosaurus* and *Stegosaurus*. A single stegosaur vertebra has previously been reported from the Early Cretaceous of Argentina, which appears to fit into a similar taxonomic position, hinting at an otherwise hidden lineage of stegosaurs in this region.

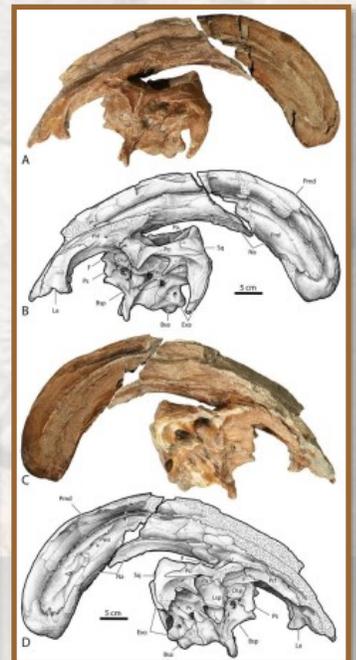


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Reconstruction of (red) Dire Wolves fighting off Gray Wolves for a bison kill by Mauricio Antón (top right); “razor wire” teeth of new mosasaur *Xenodens* (middle right); and reconstruction of the internal anatomy of ammonite *Subplanites* (bottom right).

PALEONTOLOGY IN THE NEWS CON'T

5. [Study Casts Doubt on Placoderm Phylogeny](#) ([Current Biology](#)) — A new study in *Current Biology* examines a braincase endocasts of *Brindabellaspis*, previously interpreted as a basal placoderm with strong similarities to previous jawless fish, has cast doubt on its phylogenetic position. It turns out to share many features exclusive to more derived jawed fish, which thus creates strong uncertainty about whether placoderms as a whole even represent a natural group or not. The authors state they did not have enough data to reconstruct a new phylogenetic tree, only that our current understanding of placoderm relationships is almost certainly wrong.
6. [Parasaurolophus Skull](#) ([PeerJ](#)) — An exquisitely preserved rear portion of skull from *Parasaurolophus cyrtocristatus* provides the best view yet of the crest morphology of this species, allowing for greater understanding of its relationship to the other two species of *Parasaurolophus*. While this species has previously been defined as possessing a shorter, curvier crest compared to more familiar specimens of *Parasaurolophus*, the high variability in skull shape as hadrosaurs aged cast some doubt on this assumption. The new fossil confirms this crest morphology as a distinct feature of this species, and provides additional diagnostic skull characteristics that should better aid in identifying future specimens with immature or poorly preserved crests.
7. [Not Another Spinosaurus Paper!](#) ([Palaeontologia Electronica](#)) — A comprehensive study by Dave Hone and Thomas Holtz examines the known features of *Spinosaurus* and concludes that *Spinosaurus* likely was not a specialist swimmer. It appears to not actually deviate all that much from other spinosaurs, and displays similar heron-like adaptations that would have been most useful to a shoreline predator. Among other things, the authors determined that the pneumatized bones which would likely have made the animal unstable underwater, that the recently described, supposedly “eel-like” tail does not actually match other creatures that rely on tail propulsion, and that the sail would have created unreasonably high drag unless fully submerged in water at least twice as deep as the animal’s height.
8. [Tyrannosaur Embryos](#) ([Canadian Science Publishing](#)) — Additional work has been done on the first known tyrannosaur embryos that were recently revealed. The new study managed to narrow down the likely identity of the two specimens, with one from Two Medicine likely belonging to *Daspletosaurus*, and another from Horseshoe Canyon likely belonging to *Albertosaurus*. While the shells were not found, the size of the embryos suggests the intact eggs would likely have been about 17 inches long. The finds also confirm that the diagnostic features of tyrannosaurids were clearly identifiable early in life, which the authors hope will make it easier to identify any future finds.



Reconstruction of *Brindabellaspis* in the foreground with other Devonian fishes by Yang Hongyu and Zheng Qiuyang (top right); *Parasaurolophus cyrtocristatus* skull (middle right); a baby tyrannosaur by Julius Csotonyi (bottom right); and a “wading” *Spinosaurus* by Robert Nicholls (bottom left).



THE STORY OF EVOLUTION IN 25 DISCOVERIES,

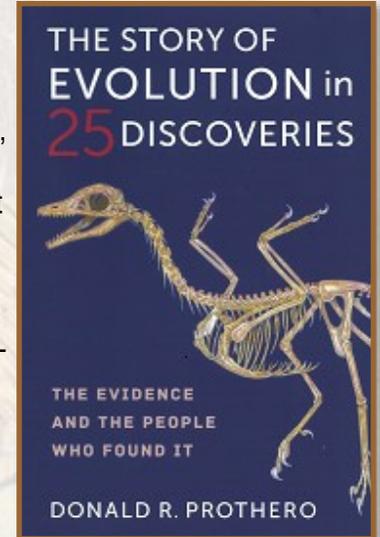
BY DONALD R. PROTHERO

Book Review by Jim Flis

One year after 1859 publication of Darwin's *On the Origin of Species*, the transitional fossil between reptiles and birds, *Archaeopteryx*, a bird with teeth and claws on its wings, was found in Germany. About the same time, P.T. Barnum was promoting his circus of hoaxes and human curiosities, such as Tom Thumb and the Bearded Lady. Surprisingly, Barnum missed promoting that "freak of nature," bird-reptile. Discovered later were turtles with teeth, climbing catfish, snakes with hip bones, whales with ankle bones, and that humans have tailbones — not "freaks of nature," but evidence of evolution!

Fully titled *The Story of Evolution in 25 Discoveries: The Evidence and the People Who Found It*, Prothero takes us on that biological evidence of evolution before us. This up-to-date summer reveals that evolution is not linear, but ore bushy and messy. Furthermore, DNA and molecular biology support the evolutionary human fossil record. A fossil record spanning over 7 million years and asks, "Are humans still evolving?"

Dr. D.R. Prothero is the author of the popular 25 Series of geology books. He is adjunct professor at California State Polytechnic University and research associate at the Natural History Museum of Los Angeles County. I enthusiastically recommend all of Don R. Prothero's books for DPS members!



OBITUARY TO ROGER FRY

by Diane N. Tran

It is with a heavy heart that we mourn the passing of a fellow DPS member, Roger Fry, who had been instrumental in mapping several of our projects.

Rarely seen without his signature white cowboy hat and handlebar moustache, he was a larger-than-life engineer type that had a great love for all things paleo. He has been a fixture on many digs, including the *Mosasaurus* Tex site, the Ellie May (Ellis County Mammoth) site, and the Arlington Archosaur site. It is a great loss to the paleo community and you will be missed!



PIN ON THE EDITOR'S HAT

Series by Diane N. Tran



Since joining the DPS, my hat, which is covered with paleo-related enamel pins, has garnered much attention and every month will spotlight a different pin:

One of the most recognizable pterosaurs, *Pteranodon longiceps*, with a wingspan over 23 feet (7 meters), was first discovered in western Kansas, near a chalk formation called Monument Rocks, which was then part of the Western Interior Seaway during the Cretaceous, thus spending its days flying over the ocean and dining on fish, rarely returning to land. Its genus name means "winged and toothless, long-headed." Most reconstructions I've seen of this non-dinosaur are almost always in flight, yet I found this pin unique because it was in a quadrupedal stance.

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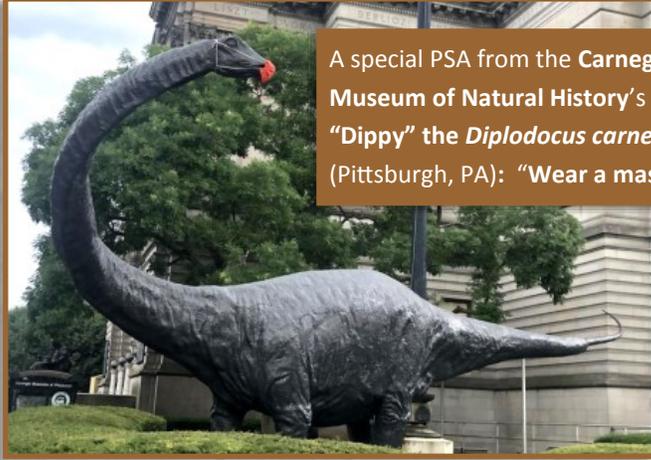
The Dallas Paleontological Society was founded in 1984 for the purpose of promoting interest in and knowledge of the science of paleontology. It was intended by the founding members that the Society would be a network for the exchange of data between professionals and serious amateurs in this field.

dallaspaleo.org

The Dallas Paleontological Society meets the second Wednesday of every month at 7:00pm at Brookhaven College, unless we have something special happening that month. Please [check our calendar](#) for exact dates. Original versions of minutes and treasury reports will be available upon requests. Come meet with us, hear a speaker, learn about paleontology, and bring your unidentified fossils and unique finds to share with the group. You will be welcome, and we will enjoy meeting you. For a map of our meeting location visit dallaspaleo.org/contact.

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A special PSA from the Carnegie Museum of Natural History's "Dippy" the *Diplodocus carnegii* (Pittsburgh, PA): "Wear a mask!"

- Livestreaming the DPS February meeting online!
- DPS openings for Field Trip Chair and Committee members!
- Overviews of DPS January meeting, Fort Worth Gem & Mineral Club January meeting on Chicxulub, Six Flags Hurricane Harbor's Dinosaur Drive-Thru (Arlington, TX), Heard Museum's "Collect-It-Yourself" exhibit (McKinney, TX); and artist/illustrator Sam de la Rosa and paleo-art in comics!
- DPS scrapbook, "Women in Paleontology," "Dino Bo Bulletin," "Pin in the Editor's Hat," reviews, updates, news, and more!



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