BURPEE

MEMBER MAGAZINE
SPRING 2025

Out of the Rock

No PLAIN JANE!

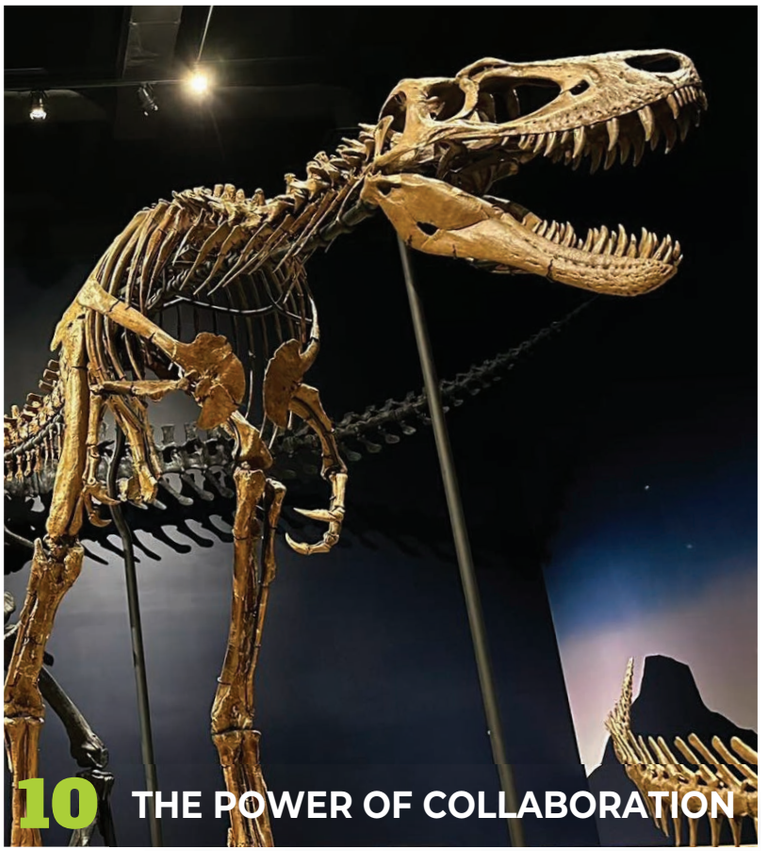
"How Burpee Museum's teenage Tyrannosaur became a part of the ongoing Nanotyrannus debate"

– Scott Williams

A Lean, Mean
Killing Machine
Ready For Her Close-Up!

BURPEE

table of contents



10 THE POWER OF COLLABORATION

SCIENCE + TECH + COLLABORATION

03 DIRECTOR'S MESSAGE
A note from our Executive Director, Anne Weerda

04 WHO IS BURPEE?
More than just fossils! Burpee offers hands-on learning, research, and community events that bring natural history to life!

06 OUR HISTORY
Learn about how Burpee got it's start - serving Rockford and the world!

12 WHO SURVIVED THE ICE AGE?
Step into the Ice Age at Burpee Museum's second-floor exhibit, where the mighty survivors and towering lost giants of evolution clash!

14 DINOSAURS OF APPALACHIA

16 BURPEE IN 3D!

19 NO PLAIN JANE

Spring 2025 Member Magazine

INSPIRING A LIFETIME OF DISCOVERY

A Letter from the Executive Director

Our mission is simple yet profound: **to inspire all people to engage in a lifetime of discovery and learning about the natural world through preservation and interpretation.** This is more than words on paper - it is the driving force behind everything we do. From hands-on educational programming to paleontological research, every exhibit, class, and field trip is designed to spark curiosity and deepen understanding. Bringing this mission to life is no small task. It requires vision, dedication, and the unwavering support of a community that values science, education, and discovery. Thank You for your support.

A Legacy of Curiosity

While searching through Burpee's historical documents, I came across something remarkable: an old copy of the will that gifted the founding endowment to the museum. In the margins, written in what I believe to be **Della Burpee's own handwriting**, were three simple but powerful words: **"to inspire curiosity."**

It was a fleeting note, perhaps written as a reminder or an emphasis on what mattered most. It touched me profoundly, leaving an unforgettable imprint on my heart. I feel an undeniable connection to the woman whose vision made this museum possible. I believe Della and I would be kindred spirits if we had ever met. Her passion for curiosity is something I, too, hold dear - and something I take seriously in leading Burpee Museum today

Growing Our Impact

Today, we build on the Burpees' legacy in meaningful ways - **revitalizing exhibits, expanding programming, and deepening our commitment to conservation education**. One of the most exciting transformations is happening on our third floor, where we are creating **"Conservation Corridor"** - a dynamic space dedicated to **preserving and protecting endangered species.**

This new exhibit will not only educate visitors on conservation efforts but will feature **live endangered species**, offering an up-close look at wildlife in need of protection. Among the residents will be a **River Cooter**, an Illinois-endangered turtle currently receiving medical care for severe shell rot. She is responding well to treatment, and we hope to introduce her to the exhibit this spring. She will be joined by an **alligator snapping turtle**, another endangered species in Illinois, currently in the care of the state herpetologist until our enclosure is completed - **pending additional fundraising.**

The **Polar Bear exhibit** will remain a powerful reminder of climate change's impact on northern species, while our **American Crocodile - threatened in Florida and endangered worldwide** - will continue to educate visitors on delicate ecosystems. We are also introducing **axolotls**, a species virtually extinct in the wild, to highlight pressing conservation challenges. And this is just the beginning.

Let the adventure continue!

Anne Weerda

Anne Weerda | Executive Director

The Many Faces of Burpee

MORE THAN DINOSAURS: BURPEE

As the home of **Jane the T. rex** we are known for our dinosaurs, but did you know Burpee Museum of Natural History is so much more? We deliver **education, discovery, and science joy** in Rockford and beyond. Let's explore the many ways Burpee brings natural history to life!

WE DO... Education & Outreach

At our core, Burpee is an educational institution, dedicated to sparking curiosity and a love of learning for all ages. We believe in taking science beyond our walls and bring natural history on site at schools or in forests!

- **Themed Event Days –** Museum-wide events like Haunted Burpee and Holocene Holiday, featuring pop up exhibits, interactive games and puzzles, and educational surprises.
- **Collaborative Learning** – We partner with *many public schools, Scouts, libraries, and other institutions* to provide enriching experiences through guided tours, outreach programs, and hands-on labs.
- **Workshops & Classes** – Learn through hands-on programs like Art of the Earth, where art and paleontology combine to inspire creativity.
- **Backpacking with Burpee** – Explore Winnebago County Forest Preserve (WCFP) and learn *bird calls, map reading, and local fauna & flora.*
- **Bringing Science to You** – Through mobile programs and partnerships, we bring *hands-on learning experiences* directly to schools, libraries, and community centers.

WE DO... Research

While our paleontology program engages in ongoing research in the field and the lab, we continue to expand collections and exhibits in biology, anthropology, geology and more.

- **Relevant, Current Research –** Through studies on current specimens, as well as ongoing work in our two dinosaur locations, Burpee contributes to academic publications and citizen science initiatives.
- **Collaborative Research –** Visiting researchers study our collections, lending fresh perspectives and uncovering new insights.
- **Collaboration with Experts –** We partner with *scientists and scholars* to further knowledge of our fossil, plant, and animal specimens.

WE DO... Preservation

At Burpee, we safeguard fossils and artifacts so that future generations can continue to learn from them. From the excavation site to the exhibit floor, research drives everything we do.

- **Jay & Barbara Brost Paleo Lab –** Watch through the viewing windows as fossils are cleaned, repaired, and restored by our expert team.
- **Collections for the Future –** Once exposed, fossils are cataloged, protected, and made available for research and education.

WE DO... Volunteering

Our dedicated volunteers play an essential role in everything we do. We are excited to bring you into our adventure through volunteering.

- **Educational Support –** Help create materials for workshops, assist with classes, and engage with museum visitors.
- **Public Interaction –** Serve as a docent, guiding guests through exhibits and special events.
- **Behind-the-Scenes Work** – Join our Paleo Lab team to uncover fossils, help with animal care, or assist with museum operations.

WE DO... Fun!

Forget the stereotype of a quiet, stuffy museum—Burpee is a place for adventure, creativity, and excitement!

- **Carl's Critter Corner –** Meet live animals and learn about their unique adaptations.
- **Music on the Rock–** Free summer concerts featuring well known blues/jazz musicians on the banks of the Rock River.
- **PaleoFest –** Attend our flagship dinosaur event, where leading scientists present their latest paleontology discoveries!
- **Host Your Own Event –** From weddings and birthdays to corporate gatherings, Burpee is a premier venue for unforgettable celebrations.

So Much More!

At Burpee Museum of Natural History, we are **more than the sum of our parts.** We are an institution dedicated to **education, research, preservation, and community engagement** and YOU! Come see for yourself **what makes Burpee so much more than just a museum!**



The Story of BURPEE: Our Museum History

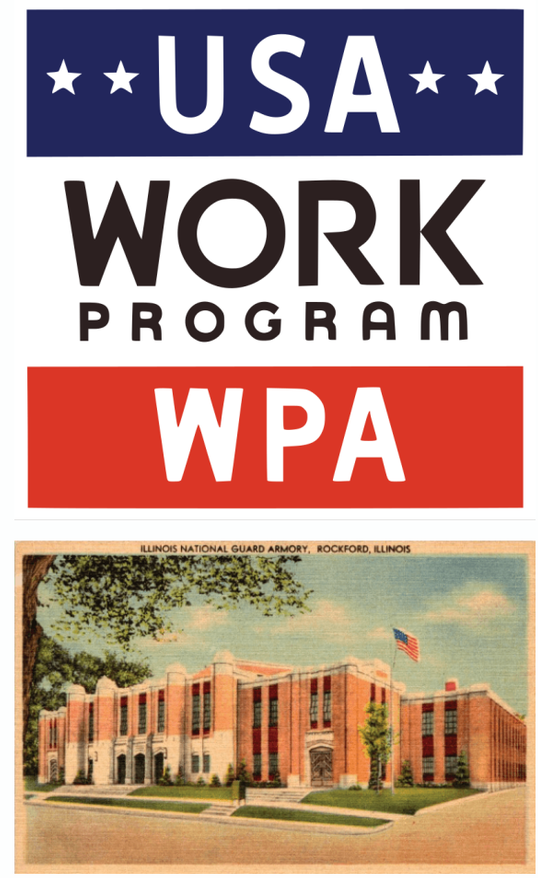
The Burpee Museum of Natural History wasn't always located at 737 North Main, nor was it originally called the Burpee Museum...

WPA: THE MUSEUM PROJECT

Burpee's story begins during the U.S. Depression era, with a 1935 federal initiative known as the Works Progress Administration (WPA). A New Deal agency, it was established to provide jobs during the economic downturn of the 1930s, the WPA launched two key projects in Rockford in 1939 that would shape the museum's future. The WPA created a "museum project" to establish a natural history museum in Rockford, IL. Milton Mahlburg was appointed as the project supervisor. The Rockford Park District offered the top two floors of their administration building, located in the old Barnes Mansion at 813 North Main Street, for this new museum. This property was adjacent to the site that would later become Burpee Museum's permanent home at 737 North Main Street.

WPA: THE ROCKFORD ARMORY PROJECT

Around the same time, the WPA also offered to assist the Illinois National Guard in building an armory at 737 North Main Street. However, local residents strongly opposed the armory being built in their neighborhood, despite the Rockford City Council voting in favor of the location. To resolve the conflict, several residents urged Harry Burpee to purchase the property, which he did with plans to establish a funeral home. This decision again upset the community, prompting Mr. Burpee to relocate his funeral home elsewhere. Instead, he repurposed the site to showcase art, while the Illinois National Guard moved their armory project to 605 North Main Street.



SHAPING BURPEE'S FUTURE

By the 1940s, two key properties would become central to Burpee Museum's history: the old Manny Mansion at 737 North Main Street, owned by the Burpee family, and the old Barnes Mansion at 813 North Main Street, owned by the Rockford Park District. These locations laid the groundwork for what would eventually become the Burpee Museum of Natural History. Today Burpee's main museum is located in the Solemn Wing, an addition made to the 737 Mansion in the 1990s. The building at 813 N. Main is used for rentals, and is being rehabbed to showcase the Burpee Museum of Natural History in its 1950-1960s era.

813 N. Main as photographed prior to 1930. The house was built on the Rock River in 1893 by W.F. Barnes for his wife Julia and their family. When W.F. Barnes passed in 1930, the home was left to daughter Amy Barnes who sold the home to the Park District in 1937.

737 N. Main as photographed and printed in Register-Republic Newspaper on May 26, 1935. Newspaper caption states: "Members of the City Council last night voted to spend $25,000 for the purchase of the Nelson property, 737 North Main street as a site for the proposed Rockford armory..."

ROCKFORD'S FIRST MUSEUMS

Burpee Museum was founded on the shoulders of smaller Rockford museums, and today respectfully houses those collections.

In March of 1904, in the Rockford Public Library the Velie Museum opened its doors showcasing a "fine collection of Birds, Mammals, and Shells" (Rockford Daily Republic, March 9, 1904). Curated by Dr. Velie who traveled to Rockford for this task, the collection was purchased by an unknown donor. The museum was praised in the newspapers as: "remarkably complete for its size. It contains almost every bird in North America and in some species it is without an equal." (RDR, 1904)

The Beattie Memorial Museum. Public Library Building

Photo from the 1904 City of Rockford Annual Report

Main Hall and Delivery Room Public Library Building

Photo from the 1904 City of Rockford Annual Report

THE DONOR OF THE VELIE MUSEUM: BEATTIE

According to the Rockford Daily Republic (5/14/1904), it had been "whispered about some days that donors of the Velie natural history specimens in the public library were soon to be revealed by the placing of a tablet on the wall." Hundreds of birds and natural curiosities were installed by Dr. Velie. Unfortunately the naming of the donor was delayed due to "site wars" about where to place the new public library.

In May of 1904, the Beattie family was announced as the donors, and a memorial to Mr. John Beattie was created at the library with this collection now known at the Beattie Museum of Natural History at the Rockford Public Library. This entire collection was moved to the new WPA project museum in the 1930s, today's Burpee Museum Collections.

A Nature Study Society Museum

In 1917, the Rockford Nature Study Society established a museum collection. Their first location was in Mandeville house in Montague Park. Their entire collection is now in the Burpee Museum of Natural History.

MAHLBURG AT THE HELM

Starting in late 1930's, Milton Mahlburg was hired as the sole employee of the museum project. Mr. Mahlburg grew up on the west side of Rockford in the Central and Oakwood Avenues area. Milt described himself as a "Daniel Boone type, preferring trapping to sports and the outdoors to any indoor activity. I stuffed my first animal, a gopher, at age 12–it wasn't a very good job." (Milton Mahlburg, 1969, Rockford Register Republic).

Combining donated collections, Milt pushed ahead to create a museum in the top two floors of the Park District's 813 N. Main Street facility. Unfortunately WPA funding ran out in 1940, and the museum was not complete. Milt Mahlburg pushed ahead as a pro-bono director, and opened the museum, free to the public, in 1941. During the first years of the Museum, Milt Mahlburg was busy "completing exhibits at the museum, which has become a place of interest and scientific value not only to science students in Rockford schools, but to club groups and the city's many out-of-town visitors." (Rockford Morning Star, May 18, 1943). The Rockford Natural History Museum was a tenant, for free, in this building.

Minerals Essential To War Effort Shown At Natural History Museum Which Is Having Open House Today

BY LOU JOHNSON

5/23/43

If you are one of our town's citizens or neighbors who somehow hasn't taken time to make a trip to the Rockford Museum of Natural History yet, why not choose this afternoon to investigate this new addition to our list of laudable civic institutions?

Today the museum is celebrating its first anniversary in its new location in the Park district building, 813 North Main street (just north of Burpee gallery) with open house from 2 to 5 p. m.

You'll be as pleased as I was with the progress made by Curator-Director Milton Mahlburg and his associates during the Museum's initial year, and you'll be able to assure visitors to Rockford that our Natural History museum is definitely not a musty suite of rooms filled with dull things.

Milton Mahlburg

A particularly timely exhibit being featured currently at the museum is a display of minerals essential to the war effort. Chromite, niccolite, cinnabar, and magnesite are some of the ores shown both in their original form and as they appear when combined with other minerals for industrial purposes and each has an accompanying explanation.

case are interesting and there's also a tortoise shell turtle to give you a first hand view of where the rims of your glasses came from.

Squirrels, foxes, opossums, skunks and other animals formerly or at present native to this part of the country are featured in typical surroundings in various cases throughout the building.

Other exhibits include a wide variety of delicately colored and fantastically shaped shells(the museum owns 3,500 different types), and a collection of large sponges that would be the envy of any housewife.

You may be surprised to discover in a display of elephant teeth that one set from the jaws of a mastodon was found near Kilbuck creek. An interesting group of dioramas prepared at the University of Illinois shows in miniature typical Illinois mines from which we obtain minerals such as coal, oil, limestone and flurospar.

Many of the museum's treasures are from the Rockford Public library and Mandeville house. Rockford college has also contributed a number of displays and from time to time the museum features exhibits loaned from other organizations. Although the display in the museum proper seems pretty extensive, the entire floor above it houses case after case of neatly placed objects that give promise of a great many more interesting displays to be drawn from their shelves in years to come.

Although, the original museum was considered “basic” in the words of Milton Mahlburg himself, Milt was full of ideas to grow his museum. In the 1940's-1950's, “numerous gifts and collections have been received,” (Milton Mahlburg, General History and Information Letter, 1956). These gifts included residents bringing migratory birds that perished by crashing into windows that soon became part of bird displays and part of that family and the museum's lore.

The original museum was considered “basic” in the words of Milton Mahlburg himself, but Milt was full of ideas to grow his museum. In the first years, “numerous gifts and collections have been received”, (Milton Mahlburg, General History and Information Letter, 1956).

The museum not only encouraged visitors to view exhibits, it welcomed inquiries pertaining to identification and explanation of objects of nature, and opened the collection for students to reference. Mr. Mahlburg created all the exhibits and dioramas himself, painting backgrounds in closets and turning them into beautiful dioramas.

A CRITICAL RELATIONSHIP

In 1883 Harry Burpee, who entered business with his father as a furniture seller and undertaker, married Della Trufant, his world traveling partner and a great influence in their purchasing 737 N. Main for their Art Collection.

As Mr. Burpee’s art collection museum was next to the growing natural history collection, Mr. Burpee spent a lot of time at the Natural History Museum talking with Milt Mahlburg. The two became close friends. According to Milt, Harry told him on one visit: “Now THIS is the kind of Museum I had in mind!” Mr. Burpee’s current occupation was an undertaker, he was the first certified embalmer in the Rockford region, and the 45th licensed, professional embalmer in the United States.

One might speculate that Mr. Burpee’s embalming and Mr. Mahlburg’s taxidermy allowed for a lot of interesting conversations!

When the WPA project money ran out in 1940, Milton Mahlburg continued to work at the natural history museum, unpaid. When Harry Burpee found out, he paid Mr. Mahlburg's salary in arrears as well as continued to personally support the operating costs of the natural history museum.

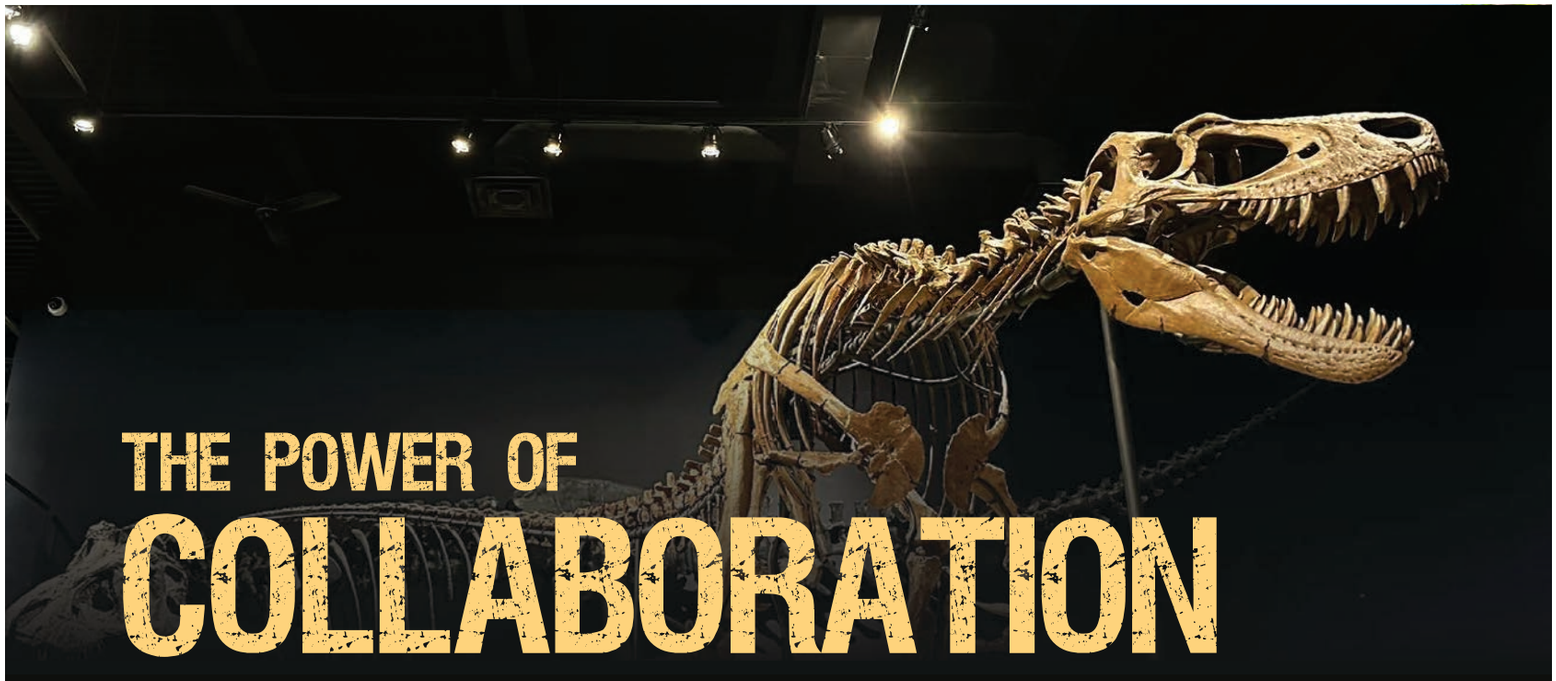
It was Della Burpee, Harry B. Burpee’s wife, that was most convinced Rockford needed museums. After a trip to Europe in 1922, full of visits to art galleries and museums, the Burpees decided Rockford needed something similar.

A Photo of Harry Burpee
(source, Milton Mahlburg Collection)

Museum, Gallery Bear Family Name . . .

Burpee Family Associated With Rockford for Century

Rockford Morning Star Article,
January 1, 1967.



THE POWER OF COLLABORATION IN MUSEUMS

Just as no person is an island, no museum stands alone. Collaboration is essential to a thriving museum, enabling it to broaden its reach, enhance its collections, and provide richer educational experiences.

Imagine a Burpee Museum without partnerships with other museums and governmental institutions—our renowned dinosaur exhibits wouldn't exist. Sadly, no dinosaur fossils are naturally found in Illinois. Long ago, glaciers from the last ice age swept them away. While Illinois is rich in other types of fossils, to showcase the full diversity of Earth's history, Burpee Museum must work closely with other institutions.

Take, for example, the famous Jane skeleton, a rare juvenile T. rex that has brought national recognition to Burpee. Jane was unearthed over 900 miles away, and bringing her to Illinois required extensive communication and collaboration with multiple organizations.

BEHIND THE SCENES OF MUSEUM OPERATIONS

Running a museum involves much more than what visitors see. Behind the scenes, museum staff carefully catalog and preserve artifacts in vast storage spaces. Countless decisions go into creating an exhibit—determining the lighting, selecting the right colors for the walls, and crafting engaging interpretive signage. Additionally, ongoing discussions between museums help to enhance visitor experiences through shared knowledge and resources.

COLLABORATION IN ACTION:

Inter-museum collaboration takes many forms: sharing fossils, producing and distributing replicas, and brainstorming new ways to interpret science. Museums frequently partner on exhibits—just as a neighbor might borrow a cup of sugar, one museum might provide a crucial artifact to another. These exchanges enrich displays and create more dynamic visitor experiences.

The benefits of collaboration extend beyond temporary exhibits. When the Little Big Horn Battlefield National Monument in Montana hosted a traveling collection of rare Custer and Native American artifacts, museum attendance continued to rise even after the exhibit left, as visitors discovered the permanent collection's impressive offerings.

In St. Louis, Missouri, the Aquarium at Union Station collaborated with the American Museum of Natural History to introduce a diverse collection of sharks. This summer, visitors can marvel at species like the Australian Marbled Catshark and the Tasselled Wobbegong, offering an exciting new experience complete with feeding opportunities and a rope bridge over the shark tank.

For residents of Fruita, Colorado, seeing an extinct Dodo bird might have once required a trip to New York City's American Museum of Natural History or even to London. However, in 2021, the Museum of Western Colorado hosted a traveling Dodo exhibition, bringing this rare sight directly to local audiences.

A SHARED MISSION:

If the ultimate goal is to advance scientific knowledge and share it with the public, then partnerships between museums, government agencies, and other not for profits are not just beneficial—they are essential. By working together, museums can provide unparalleled educational opportunities and foster a deeper appreciation of our shared history.

SOME OF BURPEE MUSEUM'S COLLABORATING PARTNERS:

NATIONAL SYSTEM OF PUBLIC LANDS
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Illinois Department of Natural Resources

forest preserves of winnebago county

CARTER COUNTY MUSEUM
EKALAKA, MONTANA

WHO SURVIVED THE ICE AGE?

By Carl Deaton

The end of the last Ice Age, approximately 12,000 to 10,000 years ago, marked a turning point for wildlife. As the climate changed, species faced increasing pressure from shifting ecosystems, competition, and human hunting. Some animals adapted and thrived, shaping the environments of the future. Others were not so fortunate.

At the Burpee Museum, our Ice Age mammals exhibit on the second floor highlights both survivors and those that disappeared. Some are displayed in pairs, allowing for direct comparisons that reveal how key differences influenced survival.

BATTLE OF THE BEARS: GIANT VS. ADAPTABLE

One of the most striking comparisons is between two bears: the colossal short-faced bear and the familiar American black bear.

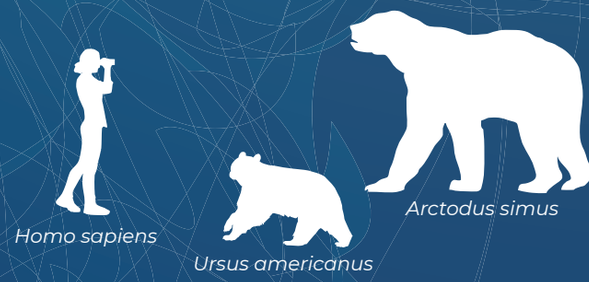
The short-faced bear (*Arctodus simus*) was a giant! Standing 6 to 7 feet tall on all fours and towering up to 14 feet when upright, it was one of the largest land carnivores of its time. Weighing over 2,000 pounds—a full ton—it dominated the Ice Age landscape.

By comparison, the American black bear is much smaller. It stands about 3 feet tall on all fours and reaches 6 feet when upright, weighing around 550 pounds. Despite this size difference, both bears had similar diets, primarily consuming plant material with occasional meat.

The Survivor wall in the Burpee Ice Age Exhibit

WHY DID THE BLACK BEAR SURVIVE?

Size alone doesn't guarantee survival. The short-faced bear competed for food with other bears, including brown bears, which were also present in the changing Ice Age environment. When food sources became scarcer, the black bear's smaller size and adaptability allowed it to persist, while the short-faced bear, requiring vast amounts of food, likely struggled. In this case, being the biggest was not an advantage—the black bear's flexibility and lower food demands gave it the edge.



FANGS AND FLEXIBILITY: THE FATE OF THE BIG CATS

Another dramatic contrast can be seen between the Smilodon, the famous saber-toothed cat, and the cougar, also known as the puma or mountain lion.

The Smilodon was a powerful predator, growing up to 3 ¼ feet tall at the shoulder and weighing as much as 620 pounds. Its most distinctive feature—massive 8-inch-long fangs—helped it take down large prey.

In contrast, the cougar is much smaller, reaching just under 3 feet at the shoulder and weighing up to 220 pounds. Its fangs, at about 2.25 inches long, are significantly shorter than those of Smilodon. However, the cougar's build is more balanced, with long legs and a long tail suited for agility and a wide range of movement.

Homo sapiens *Puma concolor* *Smilodon*

THE SPECIALIST VS. THE GENERALIST

The key difference between these two cats lies in their hunting strategies and adaptability.

- Smilodon was a specialist, built for wrestling large Ice Age megafauna before using its fangs to deliver a fatal bite. It thrived in a very specific environment—a mix of grasslands and woodlands—that allowed for ambush-style hunting.
- The cougar is a generalist, able to live in diverse habitats ranging from mountains and deserts to rainforests and coastlines. Unlike Smilodon, which relied on large prey, cougars can hunt a variety of animals, from llamas to rabbits.

When the Ice Age ended, large prey disappeared, and Smilodon's specialized hunting style no longer worked. Meanwhile, the adaptable cougar adjusted to new environments and prey sources, ensuring its survival.

SURVIVAL IN A CHANGING WORLD

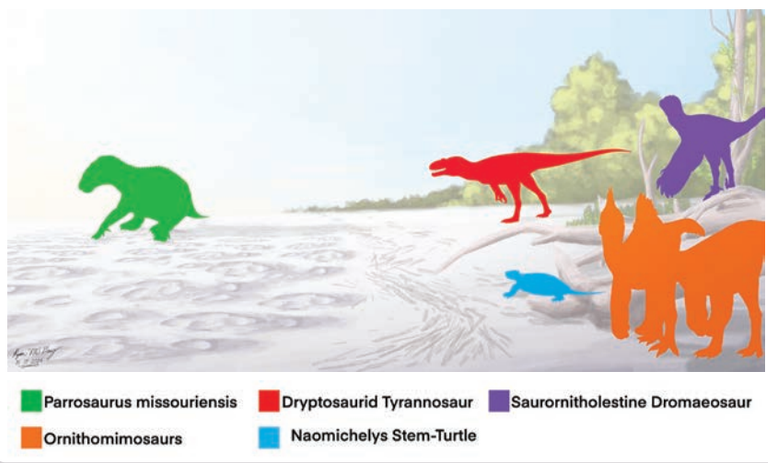
One of the greatest lessons from the Ice Age is that adaptability is key to survival. While specialists like the short-faced bear and Smilodon thrived in their niches for thousands of years, they struggled when the world changed. Generalists, like the black bear and cougar, had the flexibility to adjust to new conditions, giving them an evolutionary advantage.

Want to see more Ice Age matchups? Visit Burpee Museum to compare gray wolves vs. dire wolves and North American vs. giant beavers in our Ice Age mammals exhibit!

DINOSAURS OF APPALACHIA

By: Ryan Dewey

Most North American iconic dinosaurs such as Stegosaurus, Brontosaurus, Triceratops, and Tyrannosaurus are found primarily in Western states like Utah, Wyoming, and Montana. What about the other states?

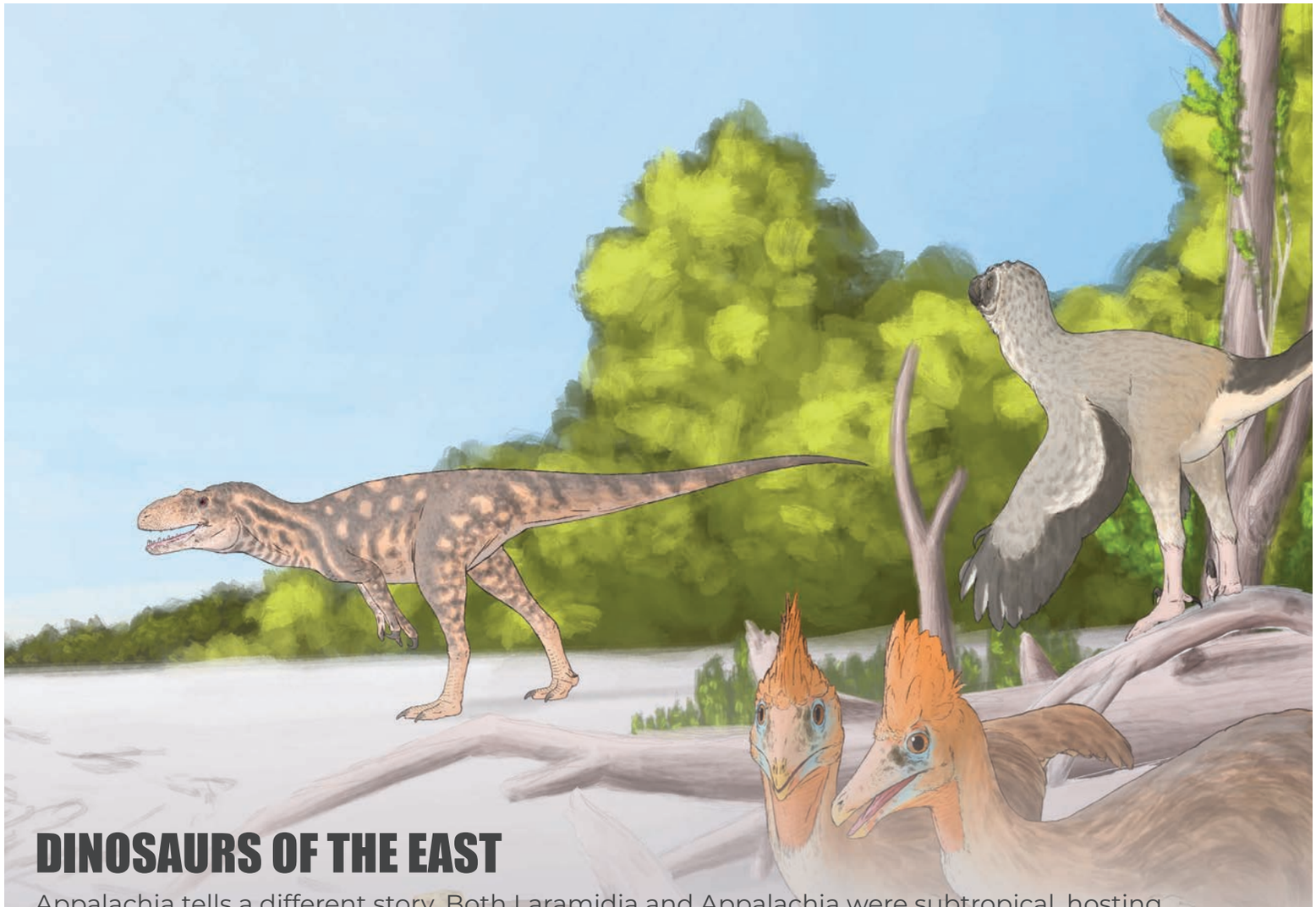


Dinosaurs existed in the Eastern United States, though due to dense forests, high population density, and less favorable fossil preservation conditions, fossil hunting is difficult.

Many Eastern U.S. fossils date to the Cretaceous period, between 90 and 68 million years ago, when North America was divided by an inland sea into separate continents: Laramidia (west) and Appalachia (east).

THE INLAND SEA

Midwestern states like Kansas have fossil-bearing marine sediments from this period, containing oceanic fish, marine reptiles like Mosasaurus, and flying pterosaurs like Pteranodon and Quetzalcoatlus. The remains of deinosuchus, a giant dinosaur-eating alligator, are also known.



DINOSAURS OF THE EAST

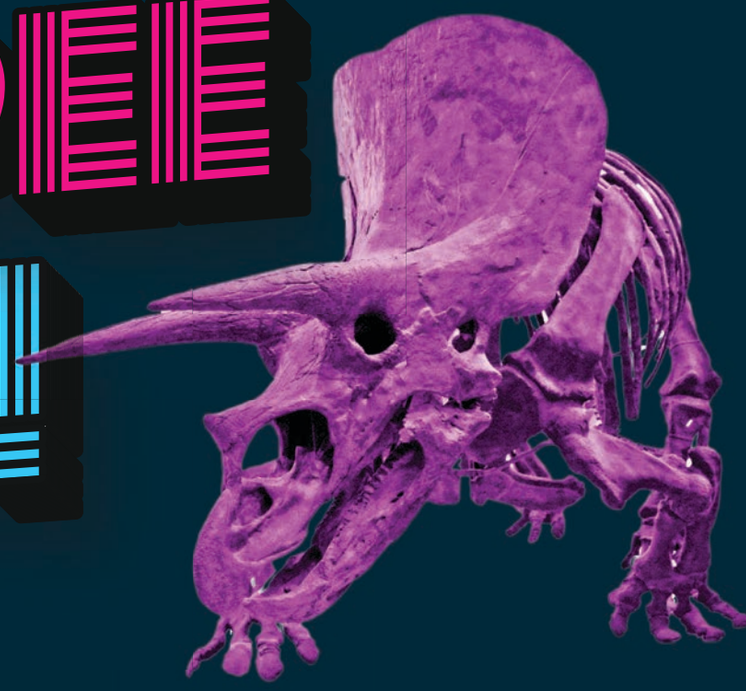
Appalachia tells a different story. Both Laramidia and Appalachia were subtropical, hosting dromaeosaurs, ornithomimosaurs, hadrosaurs, tyrannosaurs, and ankylosaurs. However, ankylosaurs, specifically nodosaurs, were more diverse in Appalachia than in Laramidia. Hadrosaurs and tyrannosaurs in Appalachia were also more basal, having fewer specialized traits. For example, Dryptosaurs, dominant tyrannosaurs in Appalachia, had slender builds and longer arms compared to their Laramidian counterparts. Several Appalachian hadrosaurs, such as Parrosaurus, retained ancestral features like thumb spikes. Sauropods and ceratopsians were absent in Appalachia, but smaller leptoceratopsids, lacking large horns and frills, were present. The animal communities of the two continents were similar yet distinct.

Our understanding of Appalachian dinosaurs is based on limited, often poorly preserved fossils, offering a broad view compared to Laramidia. Specific sites, however, provide clearer insights.

MIDWESTERN DINOSAURS?

Illinois has no discovered dinosaur fossils, despite some dinosaur-age rocks in the state's southern tip. In contrast, Missouri's Chronister Dinosaur Site in Bollinger County offers a glimpse into Illinois' ancient environment. This site reveals an ecosystem similar to today's southern Louisiana and Florida coasts, with sharks, rays, garfish, several turtle/stem-turtle species, and crocodiles. Tyrannosaurs, ornithomimosaurs, and dromaeosaurs are also known from this site. The most substantial find is Parrosaurus missouriensis, a giant hadrosaur up to 30 feet long, one of the most complete hadrosaurs from the Eastern United States.

BURPEE IN 3D!



Scaled-down 3D-printed bonebed from the Hanksville-Burpee Quarry. Not the massive femur bone in the middle: in reality, this femur is 6 feet long! This model was painted by educator Carl Deaton to better highlight the fossils in the model.

Scanning & 3D Printing in Natural History Museums

By Stew Cook

The future is now! A fun device some in science fiction movies, is three-dimensional processing technology, something that is increasingly commonplace in today's world! Although this technology isn't as miraculous as in Star Trek or the Marvel Universe, it has nearly endless applications for Natural History Museums!

3D scanning and printing technologies have a complex history of development. The modern technology we use today first started hitting its stride around the 1980s. Museums quickly jumped on board because of its useful applications in preservation and study! Natural History Museums often house and care for fragile, rare, or priceless objects: conserving these items for future generations is our utmost priority. Technologies such as 3D scanning allow museums to preserve nearly any object digitally! Digitally scanned items can be used to help construct housings and armature for objects as well as provide researchers easier access to collections, even if they are across the world! In some worst-case scenarios, 3d scans also provide a vital backup of data in case an object is damaged or destroyed.

Many museums today are working towards digitizing their collections but the process is time-consuming and high-quality 3D scanners are expensive! If you'd like to help the Burpee Museum digitize and better preserve our collection consider donating to our Nonprofit!

But probably the most common use of 3D scanning in museums is for education! Here at Burpee, we have always taken pride in our amazing EDU programming but as of 2023, we have gotten a huge upgrade with a PRUSA MK4 3D Printer! With this printer, we have expanded our EDU collection and enhanced programming like events and classes.

Classes like Art of the Earth have expanded into model painting, using 3D printed sculptures, teaching people new skills, and exposing them to new art mediums! Participants can now learn all about different prehistoric creatures and paint and take home their own scientifically accurate dinosaur sculptures!

Check out our website to see new classes utilizing objects, 3D-printed in-house.

A huge benefit of 3D printing to our education department is expanded access to replicas! Using online libraries we can effortlessly 3D print specimens, provided by museums from all over the world! This allows us educators to show visitors fossils and artifacts that we couldn't ever before.

A perfect example of this is bringing the Hanksville-Burpee Quarry to museum visitors, here at the museum! The HBQ, in Southeastern Utah, is one of the world's largest continuous dinosaur bonebeds and visitors can visit and dig with us in the summer months! You can see various fossils from the quarry here at the museum but for visitors unable to visit the quarry in person it is hard to describe and visualize the sheer size and grandeur of the site.

During the summer of 2023, we had the technology to help bring the site itself to the museum. Using a 3D scanning technique, called photogrammetry, the Burpee crew took hundreds of photos of a particular quarry and. with computer software, turned it into a digital 3D model! From there, a 3D-printed model of the dinosaur bonebed was created. That model is used during tours add another dimension to our River of Dinosaurs exhibit. These models are incredibly useful for educating about the site, but also offering an interactive element to better engage visitors especially those who may be visually impaired!

If you are interested in visiting us in Utah or joining us on the dig visit our website and check out our Paleo Expeditions!

3D printers and scanners have completely changed how museums engage in research and education! Replicas are invaluable to museum education and now with our 3D printer, we can bring even more awesome things to classes, tours, and more! Make sure to stop by, we'll likely have something new each time you visit!

3D printed dinosaur sculptures used in Burpee's Art of the Earth Classes.

Burpee's PRUSA MK4 3D Printer in action printing a scale replica of the state of Illinois, highlighting the state's topography.

BURPEE *thank you* DONORS!

We would like to thank the following special supports for their contribution to Burpee Museum through November 2023 - January 2025

Spotlight - $10,000+

- The Community Foundation of Northern Illinois
- The Kjellstrom Family Foundation
- The Harezlak Family
- Guy B Reno Family Foundation

SPARK - $5,000-$9,999

- Bergstrom, Inc
- Jean & John Frana
- Dr. Richard Miller
- Tedd Ross

Growth - $1,000-4,999

- Robert & Nancy Engelhardt-Moore
- Drs. Robert and Marianne Firlit
- Gloyd Family Foundation
- Wayne & Ginny Hatwich
- Jack & Colleen Holmbeck
- Melvin Jackovich
- Gerald & Diana Ogren
- Ross - Ironside Family Gift
- David & Rosalie Whitehouse

Sustaining - $100-999

- Candy Armstrong & Joe Starns
- Ben Harding Foundation
- Patrick & Kelly Klocek
- Steve Lorence
- ProChem Inc.
- Mike & Connie Spoden
- Ross Maker
- Deanna Wilner
- Colleen Magee
- Eli Nicolosi
- James Slezak
- Tabitha & Jeff Benson
- Anne & Dave Boccignone
- Alexandra & Dustin Koch
- Laurie Kristoff
- Mike Scheurich
- Crystal & Colin Toenjes
- Gregory & Mary Georgis
- Wallace Harper
- James Marshall
- Kelly Day
- Krysta Wasilewski
- Jim & Kathy O'Brien
- John & Karen Messley
- Barbara McNamara
- Mark & Julie Seger
- Richard Leighton
- Donald & Sherrilyn Martin
- John Phalen
- Susan Reichensperger
- Tom Scheider
- Chris and Wrate
- Linda O'Shita
- Tom McNamara
- Lynn Stainbrook
- Ramon Benedictoriancho
- Dawn Monge
- Charleen Boudreau
- Timothy Keaveny
- Melinda Keck
- Rebecca Rundquist
- Critical Supporters
- William & Susan Seidel
- Klopher Memorial
- Pam Ohman
- Jenifer Listrud
- Myneco Ramirez
- Diana Wiemer
- Juiris Family
- Nathan Dombeck
- Adam Popp

No PLAIN JANE!

PaleoFest
MEMBER NIGHT

"Accessibility is important. Over the last 20 years dozens of researchers across the world have accessed Jane for their research,"
– Scott Williams

Even after 20 years, Jane remains the most complete, best preserved, Juvenile T. rex in a museum.

T. REX OR NANOTYRANNUS?

- Jane died at a young
- Jane was growing fast when she died
- Jane was in a growth spurt, much like a human teenager
- Thus, Jane was a mature, full grown adult
- The Nanotyrannus was described as an adult.
- Jane's skull is about ⅓ longer than the Cleveland Nanotyrannus skull
- So, as a juvenile Jane's skull was larger than the holotype Nanotyrannus skull.

HOW DO WE KNOW THIS?

- Osteohistology is a technique used to study the internal structure of bones; Jane's bones are preserved well enough to do this
- Studies of Jane's bones can look at microscopic growth rings to determine age
- Multiple labs independently concluded Jab was around 11 or 12 years old and exhibiting rapid growth (if you need more...)
- In younger animals with rapid growth rates, growth rings will be widely spaced.
- As the growth slows with age, the space between rings become smaller.

WHAT ABOUT PRIVATE SPECIMENS?

- When fossils are discovered, sometimes they are purchased by an individual
- Some of these individuals do not let scientists study their private dinosaurs
- Privately owned specimens may include other juvenile T. rex
- More specimens for scientist to study will allow better data sets

We asked Scott Willimans about a claimed, privately owned juvenile T. rex specimens that might influence opinions about Jane. "Who cares? If only a select few can see a private specimen, then scientifically it basically doesn't exist." Scott said. "Science doesn't work in a vacuum."

WHY DON'T WE FIND MANY JUVENILE T. REX LIKE JANE?

- Preservation Bias
- Small Animals tend to break & not preserve

There is a preservation bias against smaller animals. Where we work, it was a high energy system so smaller and more delicate animals would be crushed, washed away, or not preserved. Rarely do we get nice preserved skeletons of smaller animals like we do the larger ones.

Scott is presenting the evidence for these cases and more at his PaleoFest Members Night Talk.

BURPEE
museum of natural history

737 North Main Street
Rockford, IL 61103
(815) 965-3433
www.burpee.org
Follow Us:

Thank You!

PaleoFest™ '25

SPONSORS:

ESCONI

Riverview Inn and Suites

Larson & Darby Group
Architecture Engineering Interiors

Mel Jackovich

ESTWING

Dr. Dennis Harezlak

Eli Nicolosi

Robert & Nancy Engelhart-Moore

GEOSTAR

ROCKFORD UNIVERSITY 1847

T-Shirt Company

@stuteWebGroup.com Think Better...

Miller Eye Center
YOUR VISION. OUR FOCUS.

ABC CATERING
A BETTER CHOICE

Greater ROCKFORD Chamber of Commerce

ROCKFORD ILLINOIS

goodDAY Stateline

Coming Soon!
MUSIC ON THE ROCK
SUMMER 2025

Also...
GET READY!
For SUMMER FUN @
BURPEE