

CATALYST

DENVER MUSEUM OF NATURE & SCIENCE MAGAZINE
FEBRUARY | MARCH 2013

INSIDE /// MAMMOTHS AND MASTODONS
TITANS OF THE ICE AGE 3D IN IMAX
SUMMER DAY CAMPS 2013





TITANS OF THE ICE AGE 3D

Opening February 15 in Phipps IMAX Theater

MEMBERS SAVE 30% ON TICKETS EVERY DAY
SHOWTIMES @ WWW.DMNS.ORG/IMAX

Dear Members,

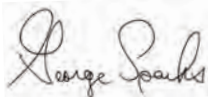
When the Museum opened its first "blockbuster" temporary exhibition in 1987, the reception by Coloradans was overwhelming. More than 900,000 visitors attended Ramses II: The Great Pharaoh and His Time. It was a clear mandate that the Museum could stage world-class exhibitions and the Denver community was fully prepared to enjoy them.

For more than 25 years, we have been "bringing the world to Denver" by hosting exhibitions that showcase some of the greatest natural treasures known, explore the intricacies of the human body, or delve into the fascinating lives of legendary historical figures, such as Genghis Khan and Benjamin Franklin. These exhibitions have brought science, nature, and human culture to life for millions of visitors in the Rocky Mountain Region.

The Museum's commitment to providing these dynamic experiences will increase when the new Education and Collections Facility opens in 2014. The Anschutz Foundation has awarded generous support for the new wing that includes funds for a new exhibition hall. The new Anschutz Gallery will adjoin the existing Phipps Gallery, allowing an expansive space that will greatly enhance the Museum's ability to present the world's leading exhibitions. The Anschutz Gallery will also be used independently to stage exhibitions specifically for family audiences, a new opportunity to engage our youngest fans.

I am very pleased to announce that the Anschutz Gallery will open its doors in early 2014 with Maya: Hidden Worlds Revealed. Because of the size of the exhibition, this will be the first opportunity to use the Anschutz and Phipps Galleries together. The exhibition explores what archaeologists have discovered about the ancient Maya and the unresolved questions researchers continue to investigate. Our Museum has been collaborating with three other natural history museums to develop this brand-new exhibition. It will feature immersive environments, hands-on activities, and authentic artifacts, some of which are being exhibited in the United States for the first time.

Construction on the new Education and Collections Facility continues to progress on time and on budget. Thanks to support from the community, our members, and numerous donors such as the Anschutz Foundation, the Museum looks forward to opening our new wing in 2014 and continuing to provide "blockbuster" experiences for years to come.



George Sparks
President & CEO

You may contact George Sparks at president@dmns.org.



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ON THE COVER

From the anthropology collections

Silver box and lid for
betel storage

DMNS AN-2001-102.1A

Burma

ca. 1955-78

4.5 inches diameter



Rick Wicker

RARE KONOVALENKO CARVING ON DISPLAY

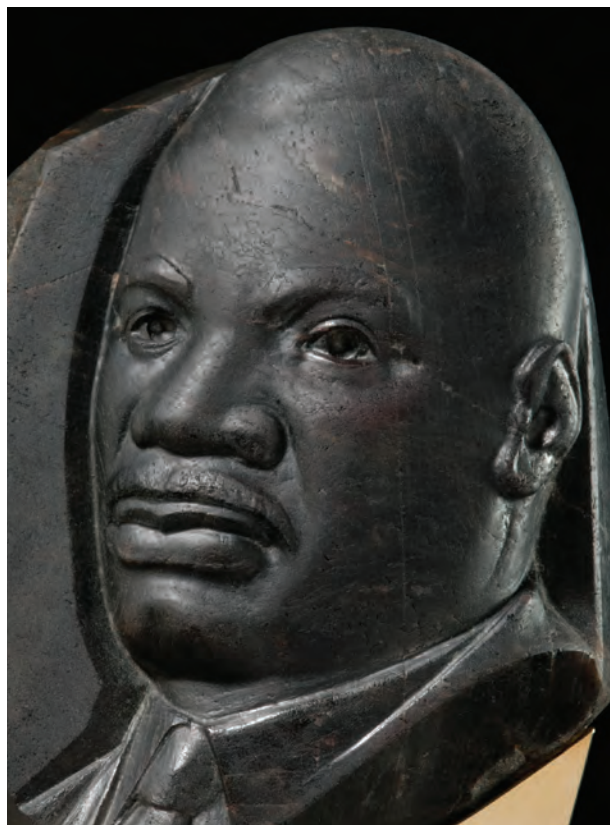
The collection of Vasily Konovalenko's wonderfully charismatic and whimsical gem carvings on permanent display at the Museum are a favorite among members and visitors. For a limited time, the Museum is exhibiting *Martin Luther King in Sapphire*, a highly unusual sculpture that further makes the case that Konovalenko was one of the best gem carvers the world has known.

Carved in 1984, *Martin Luther King in Sapphire* is a regal rendition of the great civil rights leader's bust carved into a 4,180-carat black sapphire, the largest such stone known. (After carving, it weighs 3,294 carats.) This carving is particularly extraordinary for two reasons. First, it is the only instance in which Konovalenko carved the image of a real person in a gemstone. His other sculptures are caricatures, and only a few of these are modeled after people he knew.

The second notable feature is that Konovalenko rendered the likeness from a single piece of sapphire, a variety of the mineral corundum that is second only to diamond in hardness. This was a significantly challenging task, making *Martin Luther King in Sapphire* arguably the most difficult piece Konovalenko carved and nothing short of a masterpiece.

Martin Luther King in Sapphire is on loan to the Museum from Kazanjian Brothers, a jewelry dealership in Beverly Hills, California. (Michael Kazanjian is among the three men who sponsored Konovalenko upon his arrival in the United States in 1981.) The Konovalenko Project, the Museum's effort to systematically photograph and publish all of the artist's sculptures, continues. Steve Nash, curator of archaeology, and Rick Wicker, Museum photographer, will soon return to Europe for the project, this time to Moscow to photograph and document nearly two dozen sculptures held in museum and private collections there.

Martin Luther King in Sapphire is on display in the Konovalenko gallery on Level 3. The carving will be displayed until fall 2013. Find out more @ www.dmns.org/exhibitions/current-exhibitions/konovalenko-gem-carvings.



TEENS EXPERIENCE SCIENCE FIRSTHAND

It's going to be another exciting year for the Museum's Teen Science Scholars. Each summer, these scholars receive an opportunity to explore their passion for science and their potential for a scientific career by working side by side with the Museum's professional scientists on authentic research projects.

These are the Teen Science Scholars opportunities for summer 2013.

Anthropology: Discover and excavate early Native American mammoth hunter sites in the western United States, or work with an archaeologist in New Mexico on early human sites.

Health sciences: Study how genetics effects an individual's taste. In the community-based health lab, extract and purify DNA, and analyze genotypes and phenotypes.

Paleontology: Search for evidence of ancient plants and animals at a field site in the western United States. After collecting data and fossils, return to the lab to prepare and analyze specimens.

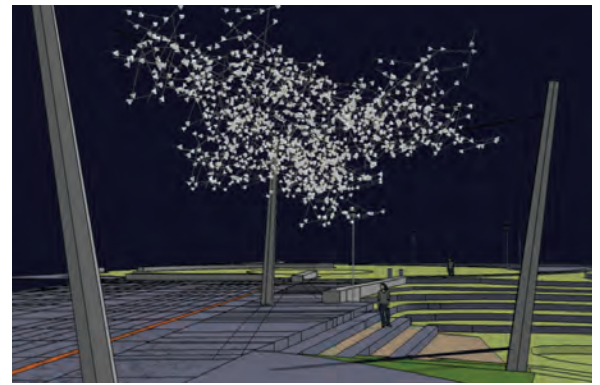
Zoology: Participate in the study of arachnids, insects, and mammals by collecting specimens at field sites in the western United States and preparing and analyzing specimens in the lab.

This program began in 2007 with six students and has grown to more than 20 students participating each year. Former teen scholars have gone on to college, majoring in a science or engineering field. The program is open to teens aged 15 to 18 years, entering grades 10–12 in fall 2013, who demonstrate an interest in science through their application, essay, and interview as well as a recommendation from a teacher or mentor.

Applications are due by Friday, March 29. Find out more @ www.dmns.org/sciencescholars.

CONSTRUCTION UPDATE

Steel beams are being installed to support Level 2 of the Education and Collections Facility, including the new Discovery Zone, which will be located above the Learning Studios and Science Atrium on Level 1. The framework for all three above-ground floors is scheduled to be completed in early February.



WELCOMING ART

The new school entrance will be on the Nature Plaza located outside the Education and Collections Facility. As students approach the Museum, they will encounter public art to pique their interest in what awaits them inside.

A sculpture of faceted "crystals" suspended overhead and a wide arc of glass lithocrete in the pavement will work with light refraction and shadow patterning to create an interactive prismatic experience. The light and color will be an attraction for schoolchildren, Museum visitors, and City Park users. The conceptual artwork is based on the minerals and gems in the Museum's exhibition hall. Artists Laura Haddad and Tom Drugan are creating the sculpture and other components for the artwork, which was commissioned by Denver's Public Art Program.

Find out more about the Education and Collections Facility @ www.dmns.org/futureplans.



HEAVENS ABOVE

There are two equinoxes every year, the vernal equinox in March and autumnal equinox in September. On the day of an equinox the sun rises due east and sets due west, and the length of day and night are nearly equal but vary depending on geographic location.

Equinox (Latin meaning "equal night") occurs when the geometric center of the sun crosses the plane of Earth's equator. This solar point is above the horizon for 12 hours everywhere on Earth. However, the sun is not simply a geometric point.

Sunrise is defined as the instant when the edge of the sun appears on the horizon, and sunset is the instant when the sun disappears below the horizon. These are the moments of first and last direct sunlight. At both of these times the geometric center of the sun is below the horizon. When sunlight passes through Earth's atmosphere it refracts, causing the sun to appear higher in the sky than it would if Earth had no

atmosphere. So in the morning the edge of the sun appears to be visible for several minutes before it actually reaches the horizon. A similar thing occurs in the evening as it sets. Thus, the length of daylight on the two equinoxes is actually longer by several minutes.

Equinoxes have long been observed and celebrated in cultures throughout the world. Even today, thousands of visitors flock to Chichén Itzá, Mexico, (pictured above) to see the "serpent" descend the pyramid at El Castillo during the solar equinox. On the afternoon of the equinox, a play of light and shadow creates the appearance of a serpent that gradually slithers down the stairway until it joins the huge serpent head carved in stone at the bottom of the pyramid.

Find out more about what's happening in the skies in February and March @ www.dmns.org/heavensabove.



MAMMOTHS AND MASTODONS: TITANS OF THE ICE AGE

Walk among the giants of the Ice Age in the dynamic new exhibition *Mammoths and Mastodons: Titans of the Ice Age*, opening Friday, February 15, at the Museum. Life-size models of awe-inspiring Ice Age animals, fossil tusks and skulls, fun videos, and hands-on activities bring this fascinating time in Earth history back to life. You and your family will examine the differences between mammoths—which weighed up to eight tons, bearing tusks up to 16 feet long—and mastodons, their shorter, stockier cousins. Rare and evocative objects and images—such as spear points, cave paintings, and other prehistoric art—show how the beasts provided ancient peoples with food, tools, decorative objects, artistic inspiration—even shelter! The exhibition also examines what factors may have played a role in the eventual extinction of these giants.

MEMBERS TICKETS NOW ON SALE!

Members will be the **FIRST** to see *Mammoths and Mastodons*! Members receive first access to tickets before they go on sale to the general public on February 1 and receive up to 75% off admission prices. Find members events on the back cover or @ www.dmns.org/memberevents. Find tickets, information for planning your visit, exhibition highlights, educational resources, and events and programs @ www.dmns.org/mammoths.



The experience includes a replica of Lyuba, a 42,000-year-old baby mammoth that is by far the best preserved mammoth ever discovered. A Siberian reindeer herder and his sons stumbled across the mammoth's remains in 2007. Her amazing state of preservation—including eyelashes, ears, and internal organs—has enhanced our understanding of the evolution of mammoths and their modern-day elephant relatives, which are facing their own struggle for survival today.

You will enjoy a point of pride for Coloradans as you relive the story of the Snowmastodon Project®, the exceptional Ice Age fossil site unearthed near Snowmass Village. Visitors will see a selection of fossils on display for the first time, watch a new educational video about the discovery, and hear about the science that is emerging from the study of this historic site. In addition, exhibition visitors can watch as Museum volunteers clean and prepare fossils from various Colorado dig sites.

Mysterious and massive, mammoths and mastodons made the world their stomping grounds for millennia and never fail to fascinate people of all ages.

DON'T MISS!

- Trace the ancestral trail of elephants, mammoths, and mastodons to discover their origins in Africa with a family tree with touchable scale models.
- Learn all about tusks and trunks as you try your hand at picking up objects by manipulating a mechanical trunk and balancing the weight of a mammoth's tusks.
- Discover how mammoth males fought to establish dominance and win a mate.
- Explore how animal tracks and dung left behind and preserved in caves tell us more about Ice Age animals.
- Look into a "cave" to view digital reproductions of prehistoric cave paintings and determine their possible meanings through a series of interactive games.
- Experience an elephant's rumble—a form of long-range communication at a frequency so low that humans "feel" it more than they hear it.
- See and touch real and cast fossils from Snowmass Village, and learn more about the diversity of animals discovered at the site.

VISITING TIPS FOR MEMBERS

Mammoths and Mastodons will be open daily from 9 a.m. to 5 p.m. beginning February 15, with some extended hours during spring break. Timed tickets are required. Find ticket availability @ www.dmns.org/mammoths.

Advance tickets are recommended. Weekday late afternoons and weekend early mornings tend to be less busy. School groups generally visit during weekday mornings.

Members receive a deep discount of up to 75% off admission: \$7 adult, \$6 senior (65+), and \$3 student (with ID) or junior (3–18). There is a \$2 handling fee per ticket by phone or online. Purchase tickets @ www.dmns.org/mammoths or 303.370.6000 (M–F, 9–5). Afternoon is the best time to call.

Please allow extra time for parking and ticketing, and plan to spend about an hour in the exhibition.

Complimentary "pink" members guest vouchers are valid only for general Museum admission and cannot be used for this exhibition.

Enhance your Mammoths and Mastodons experience with the IMAX 3D film *Titans of the Ice Age*. Members save 30% on IMAX tickets every day. Find showtimes @ www.dmns.org/imax.

Presented in Denver by



This exhibition was created by The Field Museum, Chicago.



INSIDE THE RUSSIAN SPACE PROGRAM

BY STEVEN LEE, PhD

On October 4, 1957, the world's first intercontinental ballistic missile (ICBM) lifted off from the top-secret Scientific-Research Test Range No. 5 on the steppes of Kazakhstan. Rather than a warhead, this rocket carried Object PS-1. Within hours, the world was buzzing with the news that the first artificial Earth satellite, renamed Sputnik 1, had been launched by the Soviet Union. This was the first act in the Space Race—a chapter in the Cold War between the United States and the Soviets that played out over more than two decades. Many historic missions—the first human to orbit Earth, the first payload to fly past the moon, and the first module of the International Space Station (ISS)—were launched from this facility, known today as the Baikonur Cosmodrome. Baikonur is still making history, this time as the sole location where international crews are launched to the ISS, following the retirement of the NASA space shuttles in 2011.



Photos: Steve Lee

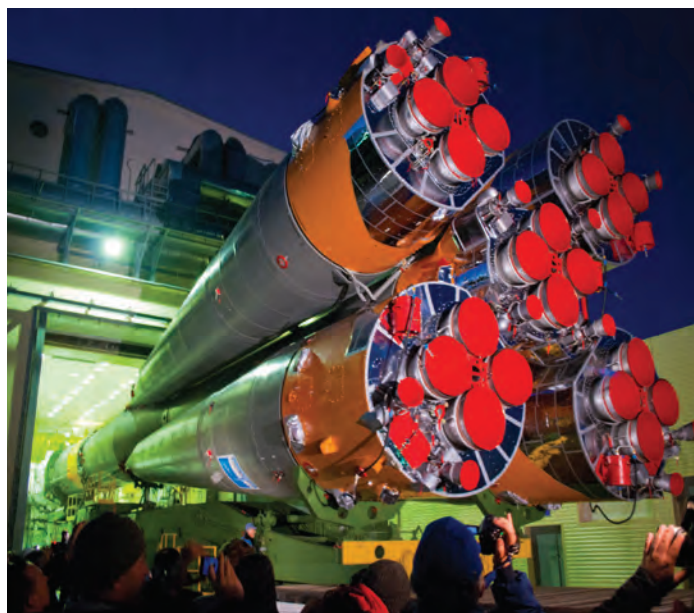


In mid-October 2012, I had the opportunity to lead a small group from our Museum on an extraordinary trip inside the Russian space program. Our adventure was capped by the launch of the Expedition 33 crew to the ISS from Baikonur. These are just some of the highlights:

- We spent a full day on the outskirts of Moscow at the Yuri Gagarin Cosmonaut Training Center, or Star City. This once top-secret facility is where all cosmonauts have trained. Many American astronauts have trained here as well since the late 1990s, to prepare to be ferried to the ISS on Russian Soyuz rockets and spacecraft.
- Baikonur is about 1,400 miles southeast of Moscow. We flew aboard a chartered Russian airliner, along with families of the Expedition 33 crew, several astronauts and cosmonauts, and officials from NASA and the Russian Space Agency (RSA). Baikonur itself is a small city of about 70,000 people, devoted to operating and supporting the Cosmodrome. Until joint NASA-RSA flights began in the mid-1990s, it was very rare for Westerners to receive access to Baikonur.
- Two days before the launch, our group was waved through a gate near the Soyuz rocket assembly building. We were astounded to find ourselves standing by a barrier about 20 feet from where the Soyuz launch vehicle and spacecraft would pass on their short trek to Pad 31. We were among a crowd of about 100, including the group we had flown with to Baikonur. Within a few minutes, floodlights came on, a massive door pulled aside, and the “Soyuz train” slowly rolled by in front of us! I’ve followed many, many launches of this workhorse of the Russian space program since it first flew in 1966—and now I could almost touch it! We then made our way to the launch pad and watched the meticulous process of positioning the Soyuz over the flame trench, raising it until vertical, and positioning all of the supports and work platforms. Less than four hours elapsed from start to finish. After more than 1,700 launches of the Soyuz rocket, the Russians definitely have this process down pat.
- To say that launch day, October 23, was memorable is an understatement! That morning, we were within an arm’s reach

of the crew as they left their sleeping quarters and again, a few hours later, as they walked by in their space suits to board their bus to the launch pad. It was incredible to watch their emotional goodbyes to their families up close. That afternoon, we were bused to a viewing site a mere one and a half miles away from the launch pad. This is the closest I’ve ever been for a launch, and it was stunning! The ground certainly shook as the Soyuz clawed its way skyward on a 500-foot-long pillar of flame. We easily followed it for the first several minutes. Seeing the relief of the families when the Soyuz was safely in orbit (about nine minutes after liftoff) brought home the human side of space exploration: The men of Expedition 33 may be heroes, but they are also husbands, fathers, sons, and brothers.

Several other lasting impressions stand out. We stood on hallowed ground where humans first left our planet. Many of the facilities where we were welcomed were once hidden behind veils of Cold War secrecy. Today, the United States, Russia, and many other members of the international community are closely cooperating in the peaceful exploration of outer space. I have few doubts that when the first human footprints are finally left on Mars, we will look back to these early years of the 21st century and see the foundations that led to routinely living and working together in space.



Facing page: Liftoff! The Soyuz rocket launches for a journey to the International Space Station.
Top of this page: The Expedition 33 crew (Kevin Ford, Oleg Novitskiy, and Evgeny Tarelkin) prepares to board their bus to the launch pad. Above: The Soyuz slowly rolls out of its assembly facility two days before launch.

FIND IT @ DMNS.ORG



Dr. Steven Lee is curator of planetary science. Find his blog about his trip @ www.dmns.org/science/museum-blog. Dr. Lee will present a talk about his trip on February 19. Find it @ www.dmns.org/afterhours or on p. 4 of the magazine insert.

MINIATURE SOUTHWESTERN INDIAN ARTS

BY JOYCE HEROLD

An extraordinary group of miniature objects created by Native American artisans over the past century are now on display in a refurbished exhibit in Crane North American Indian Cultures Hall. New cases in front of the Navajo weaver exhibit include arrays of pottery and baskets measuring from four inches high to not larger than a dime. These small objects show exceptional skill and imagination in a different scale but still within the realm of traditional Southwestern Indian crafts and designs. While children may focus on these playful creations in their own diminutive size, adults will also note that these tiny objects model full-size containers from Indian homes. An evolution from useful arts to things simply small and delightful becomes clear in the exhibit.

Favorites of collectors for more than 100 years, some Indian people have used miniature pots and baskets as gifts and presentations. For example, Hopi women of Arizona weave basketry plaques about three inches in diameter for new babes given by benevolent katsina spirits. They make similar baskets for ceremonial eagles that are fed and raised like children.



The miniature baskets from the Museum collections pictured on these two pages range in size from a quarter-inch to about three inches in diameter. These baskets are Akimel O'odham (Pima), created for sale in the mid-20th century. Their various materials include grass, split willows, devil's claw, and horsehair.

However, the miniatures on exhibit were not intended as ceremonial offerings or as toys for Indian children but as commercial objects traders sold to tourists as early as the late 19th century. When factory-made household containers reached Indian people, the need for traditional, labor-intensive pottery and basket production diminished, and women found a market for more portable and decorative versions of their arts.

Southwestern craftswomen have also learned that visitors want variety in the arts they buy to take home. In the modern period from the mid-20th century to today, an astonishing array of forms and decorative styles have been in small scale. For collectors, miniatures may stand in for large pieces they would like to own, representing the arts of southwestern Indians but in a smaller perhaps more affordable scale.

Six of the most amazing miniature baskets on exhibit were made by the Akimel O'odham (Pima) near Phoenix. In the early 1900s they began to create miniatures by coiling finely split willow around grass stems and adding decorative stitches using filaments from the black covering of a devil's claw seed pod. The most characteristic design is the fret, a four-line meander that starts at the black center of the basket and climbs in steps to the rim, as seen in a small open bowl on exhibit that is one inch high and not three inches in diameter.

Another favorite of the Akimel O'odham is the "dancing figures" design with humans holding hands and circling around a basket. The tiny example on exhibit is an inch in diameter. Some of these Arizona baskets might be better called "micro baskets" for they are under a half inch in size and stored in medicine vials. Still, however, they are made of willow, grass, and devil's claw, like the large baskets, and even have individual lids with center handles.

The exhibit also features a pottery "nature preserve" from the New Mexico pueblos, with a black-and-white owl from Zuni, a shiny black rabbit from Santa Clara, and a multicolored mama frog and babies from Cochiti. From Isleta Pueblo comes an exquisitely painted ear of corn, the staff of life to Southwestern Indian farmers, that circles the mouth of a bowl about one and a half inches in diameter.

Small people are also fashioned by Southwestern Indian artisans. The Tohono O'odham (Papago) maiden in coiled golden yucca leaf basketry, made by Lolita Manuel in 1955, is doll-like but actually has a removable head that turns it into a very special container. Most complex is the pottery "storyteller" figurine made by Linda Lucero Fragua in 2005, which shows winter storytelling at Jemez Pueblo in New Mexico. As children look closely at this realistic painted pottery sculpture, they may discover that two children at mom's feet are holding a drum made in the old way, from a tree trunk with buckskin covers, and may imagine this little family actually singing their story.

These examples are tiny, but they help tell a generations-long story of the artistry of basket and pottery making throughout the Southwest.

SEE IT

The refurbished weaver exhibit in North American Indian Cultures on Level 2 features two new artifact cases displaying 21 objects from the Museum collections, and a new touch-screen monitor with informative videos and an interactive rug-weaving activity. You will notice additional miniatures as you explore other exhibits in the hall.



FIND IT @ DMNS.ORG

Joyce Herold is curator of ethnology emeritus in the Anthropology Department. She has researched and written about North American Indian collections for more than 35 years. Find out more about the Anthropology Department's research and collections @ www.dmns.org/science/research/anthropology.

Editor's note: In the December 2012/January 2013 *Catalyst*, the Museum Treasures article included incorrect information. The Zentmayer Centennial microscope is actually one of 19 of the original 44 known to exist. The Leitz Mineralogical Stand was donated to the Museum by Paul and Hilde Seel, not Dan Kile as published. We regret the errors.



Photos: Chris Schneider

President and CEO George Sparks and Museum Trustee Henry Gordon get in the spirit for a night in Pompeii.

MUSEUM AFTER DARK SUPPORTS SCIENCE EDUCATION

"A Night in Pompeii: Carpe Noctem!" was the theme of the Museum After Dark gala held on November 2. The event grossed more than \$900,000—the most successful Museum fundraising event to date. These funds will support educational programs at the Museum such as scholarships, field trips, bus fuel stipends, onsite classes, labs and tours, and teacher professional development.

A sell-out crowd of more than 600 guests celebrated the magic of Pompeii. The Museum was transformed into a scene of grandeur with living statues, opera singers, live music, and a spectacular stage complete with pillars wrapped in festive laurel. The guests wined and dined like Romans, danced, and took home unique items from the silent auction.

The party went on well into the night as more than 200 revelers attended the third annual Young Professionals After Dark Soiree. The "YPs" explored exhibits after hours, mingled, and enjoyed cocktails to the sounds of Funkiphino and a live DJ.

Museum After Dark 2012 was sponsored by the Gordon Family, Carol and George Solich, CH2M Hill, Monty Cleworth, Land Title Guarantee Company/John & Ginny Freyer, and Michael & Kathryn Johnson. The event was chaired by Trustee Henry Gordon and his wife, Lorie.

Mark your calendars now! Museum After Dark 2013 will be held on Friday, November 8.



GIVING CLUB MEMBERS RECEIVE EXCLUSIVE ACCESS TO MAMMOTHS AND MASTODONS

Upgrade your membership to the Giving Club today and receive an exclusive invitation to see Mammoths and Mastodons: Titans of the Ice Age before it opens to the public. Giving Club members at the Curator level (\$300) and Explorer level (\$750) will receive two complimentary tickets to VIP Night on Thursday, February 14, to enjoy hors d'oeuvres, a cash bar, and an evening in this feature exhibition. If you are a member at the Naturalist level (\$1,500) or above, you will receive an invitation to a special evening with Museum scientists and a tour of the exhibition.

Giving Club members enjoy unique access to the Museum, with new opportunities for discovery and learning. These members receive free tickets to our temporary exhibitions and invitations to Behind-the-Scenes Night and, depending on the level of support, other specially planned programs, such as breakfast with the curators. In addition, you'll get first notification about special events, including a program with Dr. Scott of *Dinosaur Train*, returning to the Museum in 2013!

When you join the Giving Club, you become a part of a family of contributors who help ensure the Museum's record of success. Take advantage of this special offer today by contacting the manager of donor relations @ 303.370.6373 or givingclubs@dmns.org.



Volunteer Fund Committee pictured from left: George Evans, Peg O'Connor, Fred Hobbs, Liz Tokheim, Ted Stump, Christine Powers, and Clay Powers. Not pictured: Peg McKechnie

VOLUNTEER FUND REACHES MILESTONE

When the Volunteer Fund was introduced in October 2010, President and CEO George Sparks issued a challenge: if \$50,000 was raised, the Museum would match this amount dollar for dollar. Last October, contributions to the Volunteer Fund hit \$50,000, qualifying it for the match and reaching the goal. With \$100,000 in hand, it officially became an endowed fund. In December, Volunteer Fund donors celebrated this milestone during high tea with Sparks.

"The energy the volunteers bring to the Museum is infectious," said Maureen McDonald, director of major gifts and donor relations. "These special people give not only of their time and talent but of their treasure as well."

The Volunteer Fund Committee played an integral role in reaching this goal by encouraging fellow volunteers, staff, members, families, and friends to contribute to the fund and by composing hand-written thank-you notes to every contributor. This new endowment will accept contributions on an ongoing basis, with annual distributions from its investment to be used for the ongoing efforts and scholarship of volunteers. The committee will soon map out a process through which they will receive proposals and decide on how the funds will be used. All fund donors who are also volunteers will be eligible to determine which projects and activities will receive funding.

"The team is thrilled about the permanent establishment of the fund," said George Evans, chair of the committee. "It will provide an opportunity to recognize current volunteers or remember volunteers who served the Museum over the years."

We invite you to support the Volunteer Fund today with a memorial, tribute, or gift that simply supports the Museum and its volunteers @ www.dmns.org/volunteerfund or by mailing a check to the Museum and noting Volunteer Fund in the memo line.

Thank you for your support!





THE ANCIENT ELEPHANTS OF COLORADO

BY RICHARD STUCKY, PhD

Colorado is a paleontological and geological treasure trove. Each year, discoveries provide us with new fossil specimens that help us piece together the evolutionary history of our planet's dynamically changing ecosystems. As if 2011 wasn't already exciting enough with the excavation of the Snowmastodon Project® site in the Rocky Mountains, yet another site on Colorado's eastern plains also proved spectacular.

Don Marr is a large man who knows how to handle a large excavator. With the precision of a watch maker, Don began to find large tusks and bones of an elephant-like animal in June 2011 at a gravel pit in Phillips County, Colorado, about two miles from the Nebraska border. Don was working for the Yuma County Road and Bridge Department on land leased from Darlene Weis and her son Randy. After consulting with Don's boss, Mark Shaw, Randy and Don called the Museum to see if they had found anything significant. Museum scientists determined that Don had stumbled upon a *Stegomastodon*, an elephant remotely related to the mastodon. At first the bones seemed isolated across the gravel pit, and several tusks and bones were excavated. Upon further examination, however, it was determined that it was worth digging deeper.

The real prize came in August when Don found the bare traces of three vertebrae of the *Stegomastodon*. We began excavating the vertebrae, and within a day it was apparent that an entire articulated backbone and pelvis of a *Stegomastodon* had been resting in the sands of the gravel pit for more than 1.2 million years. Excavations around the string of vertebrae revealed the skull of the animal; only a few meters away were its huge tusks and one scapula. Don's delicate work with the large excavator had not damaged the skeleton of the *Stegomastodon*.

As our work progressed, bones of other animals began to emerge: a camel toe and scapula, a large dog's thumb bone, teeth of an antelope-size animal, a kangaroo rat, a gopher, and a young *Stegomastodon*. Randy Weis and his wife, Renee, came out to give us a hand. Renee was a keen fossil collector, and she found additional bones in the cut banks of the gravel pit, including a fragment of a condor-size bird bone and horse tooth.

The odd thing about the *Stegomastodon* skeleton is that it is far from complete. Although the skull, tusks, vertebrae, and ribs were found, the only other bones of the skeleton included one toe bone, both knee caps, and the scapula. It remains a mystery why the lower jaws and the leg bones have not been found despite our excavating large amounts of barren sand surrounding the original discovery.

The skeleton was found on an extensive gray clay layer that may have been deposited in a small lake. The clay was surrounded by gravel and sand deposits all derived from a river or stream that flowed toward the Nebraska border to the east as part of the ancient Platte River system. The clay deposit seems to represent an old oxbow lake, and the clay surface has pits and grooves that almost appear like the remnants of footprints of deer and antelope that may have traversed the edge of the lake more than 1.2 million years ago.

The *Stegomastodon* is an extinct genus of elephant in a family called gomphotheres. It first appeared in North America about 4 million years ago and went extinct about 1.2 million years ago. *Stegomastodon* stood nine to 10 feet tall and had an overall bulldog-like appearance with huge tusks. It weighed six to seven tons. The teeth of *Stegomastodon* had thick enamel surrounding dentine and a complicated appearance of folds and ridges on the crowns, suggesting a diet of course leaf matter and twigs. *Stegomastodon* immigrated from North to South America, where it became a relatively common animal in the Pleistocene.

Only about 15 percent of the gravel pit has been excavated in eastern Colorado, leaving the prospects bright for adding a new chapter to our understanding of Colorado's ancient history.

SEE IT

Stegomastodon from the Weis Gravel Pit and other specimens will be prepared in a special section of the new exhibition *Mammoths and Mastodons: Titans of the Ice Age*. You'll be able to talk with technicians and see the original bones from Colorado fossils.

Pictured above: Richard Stucky and Museum volunteers excavate the *Stegomastodon* vertebrae.



FIND IT @ DMNS.ORG

Dr. Richard Stucky is curator of paleoecology and evolution. Find out more about his research @ www.dmns.org/science/museum-scientists/richard-stucky.

See more photos from the *Stegomastodon* site on the digital version of the February/March 2013 *Catalyst* @ www.dmns.org/catalyst.

SAMPLING OF EVENTS | JANUARY–JUNE 2013

JANUARY	19	Children's Workshops
	22	After Hours: Digital Earth
	24	After Hours: Babylon and Beyond
	26	Children's Workshops
	28	SCFD Community Free Day
	TBA	Giving Club Members: Circle of Science*
FEBRUARY	2	Children's Workshops
	10	Family Program: Meet Charles Darwin!
	11	SCFD Community Free Day
	12	Parent-Child Workshop
	14	Members Preview: Mammoths and Mastodons
	15	Exhibit opens: Mammoths and Mastodons
	15	IMAX film opens: Titans of the Ice Age 3D
	15	IMAX film opens: Flight of the Butterflies 3D
	19	After Hours: Inside the Russian Space Program
	20	Members Premiere: Mammoths and Mastodons
MARCH	21	Science Lounge
	24	Children's Workshops
	26	Parent-Child Workshop
	1	Members Premiere: Mammoths and Mastodons (ages 21+)
	2	Children's Workshops
	7	Members Premiere: Mammoths and Mastodons
	8	Ice Age Social (ages 21+)
	9	Children's Workshops
	12	Parent-Child Workshop
	14	New Members Night
	19	Parent-Child Workshop
	21	Science Lounge
	25–29	Spring Break Day Camps
	27	After Hours: Near-Earth Objects
	TBA	Giving Club Members: Science at Work Breakfast*
APRIL	6	Children's Workshops
	7	Members Appreciation Day
	9	Parent-Child Workshop
	11	Bird Walk: Early Migrants
	16	Parent-Child Workshop
	18	Science Lounge
	21	SCFD Community Free Day: Earth Day
	28	Children's Workshops
MAY	4	Parent-Child Workshop
	11	Children's Workshops
	12	SCFD Community Free Day
	16	Science Lounge
	25–27	Geology by Canoe on the White River
JUNE	3	SCFD Community Free Day
	10	Summer Day Camps begin
	13	Members Open House Night
	20	Science Lounge
	27	Members Open House Night
	TBA	Giving Club Members: KT Challenge Trip*

*Dates to be announced. Join the Giving Club, which includes Young Professionals levels, and gain even more VIP access to the Museum.

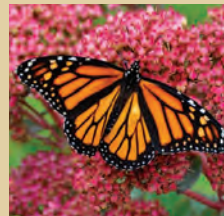
PLEASE ENJOY YOUR BENEFITS!

EARLY REGISTRATION FOR SUMMER DAY CAMPS



Registration for summer day camps is **open to members only** until February 1. Find it @ www.dmns.org/summercamps or in the magazine insert.

FLIGHT OF THE BUTTERFLIES 3D Opening February 15



Follow the story of a scientist whose determination solved the scientific mystery of the migration of the beautiful monarch butterfly. Members **save 30% on IMAX tickets** every day!

MEMBERS APPRECIATION DAYS April 7, July 14, November 15–17



Enjoy **special discounts and rewards** just for you!

- 20% off in T-Rex Cafe
- 20% off in the Museum Shop
- 10% off on gift memberships
- 50% off Planetarium & IMAX tickets

MYTHBUSTERS: THE EXPLOSIVE EXHIBITION Opening this October

Let your curiosity run wild as you separate truth from legend! Members will receive **deep discounts** and will be the **FIRST** to experience this exhibition.



Thank you for your membership support!

Questions about membership?

303.370.6306 (daily, 9–5)
members@dmns.org
www.dmns.org/members

Dates are subject to change.
Confirm dates before coming to the Museum
by calling 303.370.6000 (M–F, 9–5)
or @ www.dmns.org.

MAMMOTHS AND MASTODONS

TITANS OF THE ICE AGE

MEMBERS
WILL BE THE FIRST
to experience our newest exhibition at one
of our exclusive members-only events.



Return to the Ice Age at one of these special events!

MEMBERS-ONLY PREVIEW

Be the FIRST to see
Mammoths and Mastodons
before it opens to the public!
Thursday, February 14, 9 a.m.–5 p.m.
\$7 adult member, \$6 senior
member, \$3 junior member
Enjoy a 20% discount for
members in the T-Rex Cafe on
this day only.

RSVP required

MEMBERS-ONLY PREMIERES

Explore Mammoths and
Mastodons after hours!
Wednesday, February 20, 6–9 p.m.
Thursday, March 7, 6–9 p.m.
\$7 adult member, \$6 senior
member, \$3 junior member
Optional dinner, 6–8 p.m.
Additional fee: \$15 adult, \$8 child
(ages 3–12), See full menu at
www.dmns.org/memberevents.

RSVP required

MEMBERS-ONLY ADULT PREMIERE (ages 21+)

Enjoy dinner, entertainment,
and the exhibition!
Friday, March 1, 6–9 p.m.
\$50 member, \$60 nonmember
Seated three-course dinner
served at 6 p.m. Cash bar. See
full menu at www.dmns.org/memberevents.

RSVP required, limited seating

ICE AGE SOCIAL (ages 21+)

A party for the Ice Age!
Friday, March 8, 7:30–11 p.m.
\$27 member, \$33 nonmember
Don't miss the chilliest event in
10,000 years. Savor glimmering
cocktails at the ice bar, try your
hand at cave painting, and learn
to throw an atlatl during this
party for the ages. Your ticket
includes live entertainment,
exhibition admission, and one
drink at the bar.

ADVANCE RESERVATIONS REQUIRED FOR ALL EVENTS at 303.370.6000 (M–F, 9–5) or www.dmns.org/memberevents.

Space is limited; no walk-up tickets. Dinner reservations due one week prior to each event. Exhibition entry by timed ticket only.
We regret that nonmember guests cannot be accommodated on February 14, 20, and March 7.