

**THIS  
IS A TRUE  
STORY.**



**PHILANTHROPIC IMPACT REPORT**

JULY 1, 2012 - MARCH 31, 2014



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Thank you for your generous support of ROM Fossils & Evolution. Your investment in Canada's world museum helps connect people to their world and to each other. Since 1914, philanthropy has been at the cornerstone of the ROM. Donors like you make the Museum an indispensable resource for building community by nurturing discovery and inspiring wonder.

Your investment in ROM Fossils & Evolution has had a great impact on the Museum and has enabled many meaningful activities and powerful initiatives, including world-class exhibitions such as *Ultimate Dinosaurs: Giants from Gondwana*, the acquisition of a 225-million-year old fossilized tree trunk, educational programs that teach science through hip-hop, public fossil-finding tours and much more.

Thank you for playing an important role in shaping and growing ROM Fossils & Evolution, helping the ROM build community through its exciting public programs, engaging exhibitions and special events.

**"Our donors and sponsors have helped make cutting-edge research, stunning exhibitions and educational programs possible at the ROM. Your philanthropic gifts fuel the acquisition of new specimens and artifacts, which enable us to offer unforgettable experiences, share our collections with the public, and tell fascinating stories about nature and culture."**

– Dr. Mark Engstrom, Senior Curator and Deputy Director of Collections & Research, ROM

# ROM Fossils & Evolution

We are pleased to bring you some stories of the incredible community impact and rich life of the Centre during 2012-2014, made possible by your philanthropy.

The earliest beginnings of life and evolution on Earth provide important insights for how we live today and inform our current planetary crisis. ROM Fossils & Evolution shares the record of more than four billion years of life on Earth through groundbreaking research and expert interpretation on dinosaurs, fossils and specimens. Your gift enables us to unearth new dinosaur species, help a young boy be a palaeontologist for a day, and push the fossil record back by 200 million years.

Thank you for enabling cutting-edge research and for helping us share more stories through our world-class collections and exhibitions. Your investment in ROM Fossils & Evolution helps the Centre thrive with an abundance of meaningful activity.



Dr. David Evans, Curator of Vertebrate Palaeontology, ROM Fossils & Evolution.

# Engaging Exhibitions

## **ULTIMATE DINOSAURS: GIANTS FROM GONDWANA | June 23, 2012 - March 17, 2013**

The ROM launched the world premiere of *Ultimate Dinosaurs: Giants from Gondwana*. This exhibition was presented by Raymond James Ltd., and featured some of the largest and most unusual dinosaurs to have ever roamed the planet, on display in Garfield Weston Exhibition Hall. Special thanks to our generous Exhibit Patrons, James and Louise Temerty. This incredible show was curated, designed and produced by the ROM, making its first stop in Toronto before embarking on an international tour.

Based on groundbreaking research from scientists around the world, *Ultimate Dinosaurs* revealed bizarre, unusual looking dinosaurs virtually unknown to North Americans because they evolved in isolation in South America, Africa and Madagascar. The exhibition featured three cutting-edge Augmented Reality (AR) experiences, used in creative ways to bring these specimens to life and illustrate the story of how a dynamic Earth with drifting continents affected the evolution of dinosaurs, from a Southern perspective.

This scientifically rigorous, cutting-edge exhibition was supported by the strength of the Museum's in-house research and curatorial teams, led by Dr. David Evans, Curator, Vertebrate Palaeontology. Surrounded by life-like environmental murals, the exhibition featured real fossils, skeletons and 17 full-scale skeletal casts, many of which had never been seen before in Canada.

## **ULTIMATE DINOSAURS PROGRAMMING**

A wide range of dinosaur-inspired programming accompanied *Ultimate Dinosaurs*, offering unforgettable experiences and the chance to learn more about palaeontology. As part of the ROM's Dino Hunter Weekends, we offered lively meet-and-greets with well-known dinosaur experts followed by family-friendly talks during weekends in the fall of 2012.

**THE DINO HUNTERS LECTURE SERIES** brought six of the most renowned palaeontologists to Toronto to present engaging talks about the world of dinosaurs. Featuring the ROM's own David Evans, the series presented Catherine Forster, Paul Sereno, Phil Currie, Scott Sampson and David Krause. Dino Days featured special activities for families who could dig for dinosaur bones, make their own fossils and watch palaeontologists prepare real fossils for display. Visitors touched real dinosaur specimens from our vault and enjoyed crafts, film screenings and scavenger hunts.



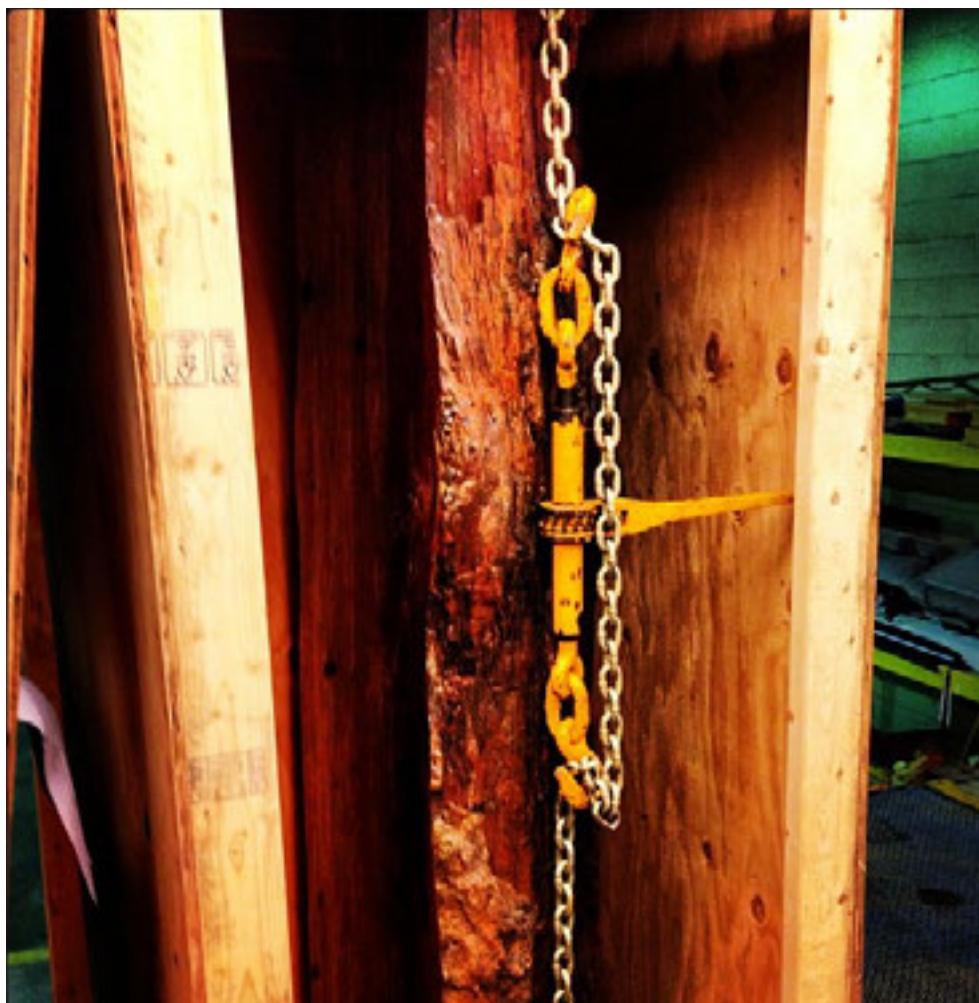
Scenes from the ROM's blockbuster exhibition *Ultimate Dinosaurs: Giants from Gondwana* presented by Raymond James Ltd.

# Amazing Acquisitions

## LATE TRIASSIC ARAUCARIAN CONIFER

In July of 2013, the ROM received a newly acquired Late Triassic Araucarian Conifer, purchased with the generous support of the Louise Hawley Stone Charitable Trust. This vertically-sectioned, polished fossil tree trunk stands nearly 2 metres in height and over one-half metre in diameter. It displays the brilliant red-orange hues that typify pervasively silicified araucarian conifer wood from the Late Triassic (about 225 million-years-old) Chinle Formation of Arizona.

The specimen retains textures of the outer bark surface, and patches of adhering conglomeratic sediment. The best-known examples of such logs are protected within the boundaries of Petrified Forest National Park—our specimen was legally collected from private lands on Milky Ranch in the Chinle Formation.



The Late Triassic Araucarian Conifer arrives at the ROM.

# Damien's Wish: A Day as a Palaeontologist



In August of 2013, the ROM and Make-A-Wish Canada teamed up to help grant Damien—who has been diagnosed with acute lymphoblastic leukemia—his wish to be a paleontologist for a day and work alongside curators behind the scenes. The ROM facilitated this by providing a gallery tour with McGill's Dr. Hans Larsson and our own Dr. David Evans, after which they moved into the private collections and the palaeobiology lab.

Since he was a little boy Damien has had a fascination with dragons, which transformed into a love of dinosaurs. This was extremely evident in the young dinosaur enthusiast as he toured the ROM's galleries and labs discussing fossils and discoveries with the experts. Damien shared his impressive knowledge of and passion for dinosaurs as he carried conversations with Evans and Larsson like a seasoned palaeontologist. His special day at the ROM was covered by several local media outlets.

**"I wanted to come here because I just like dinosaurs, period. I'm walking on cloud nine. I've just experienced the best day ever."** – Damien, 12, Make-A-Wish Canada participant

Immersed in the ROM's collections, Damien's eyes lit up with an eagerness to see and learn it all from two of his idols. It was truly inspiring. Damien showed himself to be a veritable "palaeo-wunderchild" and the ROM and Make-A-Wish, along with Drs. Larsson and Evans were all very pleased to help make his wish come true.

# Leading Research

Dr. Jean-Bernard Caron and Dr. David Evans continue to lead world-class research on new discoveries of extinct life, with both returning to the field this summer. Here's a look at some of their amazing research during 2012-2014.

## **DR. DAVID EVANS, ROM CURATOR OF VERTEBRATE PALAEONTOLOGY**

David first laid eyes on dinosaur skeletons in the galleries of the ROM and has been passionate about palaeontology and evolution ever since. One of the ROM's star curators, he oversees all dinosaur research at the Museum and is cross-appointed with the University of Toronto, recently promoted to Associate Professor.

### **DAVID NAMES NEW DINOSAUR SPECIES AFTER ROM DONORS**

In December of 2013, David and a team of scientists named a small, meat-eating dinosaur ('raptor') based on newly unearthed fossils from Montana, USA. *Acheroraptor temertyorum* is the youngest known dromaeosaurid, or "raptor" dinosaur, and a close cousin of *Velociraptor*. It lived in a community that included the famous mega-predator *Tyrannosaurus rex* and the three-horned plant-eater *Triceratops*. Research describing the new species was published in *Naturwissenschaften*.

The specific name (*temertyorum*) honours James and Louise Temerty for their outstanding service and contributions to the ROM and their enthusiastic support of its palaeontology projects. The newly discovered original fossils of *Acheroraptor* are on display in the James and Louise Temerty Galleries of the Age of Dinosaurs.



Dr. David Evans uncovers a complete skeleton of a new species of fossil crocodile in the Sahara desert in Sudan. Previously, no other fossils had been reported from this formation near the Egyptian-Libyan border.

## DAVID AND HIS TEAM MAKE A MAJOR DISCOVERY

On May 7, 2013, the scientific journal, *Nature Communications*, published the findings of a study led by David Evans about a new species of dinosaur that tells us the world's dinosaurs were much more diverse than originally thought. The dome-headed dinosaur, named *Acrotholus Audeti*, once roamed the plains of southern Alberta and was roughly the size of a large dog. This investigation and discovery has effectively changed how scientists understand the diversity of the dinosaur population.



Life reconstruction of *Acrotholus Audeti* by Julius T. Csotonyi.

## **DR. JEAN-BERNARD CARON, ROM CURATOR OF INVERTEBRATE PALAEONTOLOGY**

A profound curiosity about fossils during his childhood led Jean-Bernard Caron to collect and curate his own personal fossil collection in his native France. By age 10, he knew he wanted to be a palaeontologist. Today, he is widely recognized as the leading expert on the Burgess Shale. This 505-million-year-old fossil deposit in British Columbia's Yoho National Park is famed for its bizarre marine animal fossils, most of which are thought to be found nowhere else on the planet.

### **JEAN-BERNARD AND COLLEAGUES DISCOVER BURGESS SHALE CREATURE HAD GLOBAL RELATIVES**

It's hard to imagine a spiny, worm-like animal could have so many stories to tell. *Hallucigenia sparsa* is one of the most recognizable creatures to have emerged from the world-famous Burgess Shale fossil bed. It has long baffled scientists who have struggled to better understand how it lived and if it had any relatives. But on July 30, 2013, Jean-Bernard Caron and colleagues from the University of Toronto and the University of Cambridge published a study in *Proceedings of the Royal Society B*, suggesting that *Hallucigenia* had relatives spanning the globe.

After re-examining specimens using cutting-edge techniques, they noticed its defensive spines strongly resembled a group of small, isolated spiny elements found worldwide that had puzzled scientists for decades, with both groups of spines having subtle surface ornamentation and a structure resembling a stack of ice cream cones. These characteristics were enough to suggest that the small isolated spines were indeed related to *Hallucigenia*.

### **BURGESS SHALE WORM PROVIDES CRUCIAL MISSING LINK**

It's not every day a strange phallus-shaped creature is unearthed from the Burgess Shale, leading researchers to push the fossil record back by 200 million years. On March 13, 2013 Jean-Bernard was lead author on an important study published online in the journal *Nature*, which confirmed *Spartobranchus tenuis* is an acorn worm.

### **WHY IS THIS IMPORTANT?**

Acorn worms are closely related to today's sea stars and sea urchins. While *Spartobranchus tenuis* is long extinct, other species of acorn worms thrive in the fine sands and mud of deep and shallow waters in today's ecosystems.

"Our analysis of *Spartobranchus tenuis*, a creature previously unknown to science, pushes the fossil record of the enteropneusts back by 200 million years and fundamentally changes our understanding of evolution from this period," said Jean-Bernard.



Top: Dr. Jean-Bernard Caron, Curator of Invertebrate Palaeontology, ROM Fossils & Evolution.

## ROM RESEARCHERS DISCOVER 'EPIC' NEW BURGESS SHALE SITE

Yoho National Park's 505-million-year-old Burgess Shale is one of the world's most important fossil sites. More than a century after its discovery, a compelling sequel was unearthed on February 11, 2014. Just 42 kilometres away in Kootenay National Park, a new Burgess Shale fossil site was located that appears to equal the importance of the original discovery, and may one day even surpass it.

This massive deposit may be the world's most important animal fossil discovery in decades and was found by Jean-Bernard and a team from the ROM, Pomona College, the University of Toronto, the University of Saskatchewan and Uppsala University. A paper published in the prestigious scientific journal *Nature Communications* describes Kootenay National Park's new 'Marble Canyon' fossil beds for the first time.

### DID YOU KNOW?

In over 100 years of research, approximately 200 animal species have been identified at the original Burgess Shale discovery in Yoho National Park in over 600 field days. In just 15 days of field collecting, 50 animal species had already been unearthed at the new Kootenay National Park site, in British Columbia.



Jean-Bernard Caron with colleagues at the rich fossil site known as the *Burgess Shale* discovered a century ago.

# Lectures

Curatorial and research staff from ROM Fossils & Evolution regularly engage with the scientific community, schoolchildren and the general public as guest speakers. Below is just a snapshot of some of the talks given by Dr. David Evans in the past few months:

- Lecture at the Burpee Museum of Natural History's PaleoFest, March 8, 2014 (Rockford, Illinois).
- Keynote Speaker at Ontario Biology Day, March 22, 2014 (UTM, Mississauga).
- Keynote speaker at the Cleveland Museum of Natural History's inaugural DinoFest, April 26, 2014 (Cleveland, Ohio).

Dr. Jean-Bernard Caron gave several presentations on the Burgess Shale to groups in B.C. including:

- Kamloops Exploration Group, Kamloops-Thomson River University, March 27, 2014 on "In search of Grandma."
- Kamloops Exploration Group, Savona, March 26, 2014 on "New fossil paradise discovered."
- Grade 3/4/5 class: Lloyd George Elementary School, French Immersion class, and Stuart Wood Elementary School at the Kamloops Museum & Archives, Kamloops March 27, 2014.
- Grade 3/4/5 class: Savona Elementary School and Ashcroft Elementary School, Savona Public Library, Savona, March 26, 2014.

# Public Programs

## **ROM FOR THE HOLIDAYS: PALAEO WORLD** | December 26, 2012 – January 6, 2013

Museum staff and visitors got into the holiday spirit with ROM for the Holidays; two weeks of special programming. The ROM's extended hours were made possible through the generous support of Sun Life Financial. A special Palaeo World family programming delivered a first-hand exploration of the wonderful species that live-and have lived-on our planet. Palaeo World was filled with dinosaurs, fossils, and prehistoric mammals; volcanoes, massive meteorites, and more. Kids and families had fun with prehistoric activities and crafts, enjoyed hands-on experiences with remarkable fossils and met our dinosaur mascots.

## **EARLY LIFE WEEKEND** | May 4-5, 2013

Visitors had the chance to explore the world before the dinosaurs as part of Family Fun Weekends at the ROM. A special Early Life Weekend featured creatures including *Anomalocaris*, the original beast of the sea, to the thriving and diverse arthropods that broke to the surface. Kids and families learned how life first developed deep in our oceans and expanded to thrive in every environment on Earth. Visitors also got up close with stunning fossils from the Burgess Shale, one of the greatest fossil sites in the world, made Cambrian-inspired hand puppets, and had a first look at the future Dawn of Life on Earth Gallery.

## **FOSSIL-FINDING TOUR AT EVERGREEN BRICK WORKS** | July 31, 2013

There's nothing quite like exploring and discovering a hidden treasure in one's own backyard. ROM Assistant Curator Dr. Kevin Seymour offered an enthusiastic group of 25 ROM members a guided tour of the famous fossil site at Evergreen Brick Works in Toronto's Don Valley. Large mammal fossils representing extinct species such as the mammoth, mastodon, giant beaver and stag moose were recovered from this site many decades ago. These are very rare; all the material fits in one Museum drawer. The group found mostly modern snail shells and fossil crinoid, brachiopod and bryozoan fragments and succeeded in getting nice and muddy!

## **LEARNING SCIENCE THROUGH HIP HOP** | February 12, 2014

The Annual Darwin Lecture raises awareness of biological evolution and celebrates Darwin's achievements. This year's lecture, *Celebrating Evolution in the 21st Century*, was co-presented by ROM Fossils & Evolution and the University of Toronto's Ecology and Evolutionary Biology Department. Dr. Eugenie Scott, former Executive Director & Founder of the National Center for Science Education shared her thoughts on what Charles Darwin would think of today's creationist movement, more than 150 years after publishing *On the Origin of Species*.

Following Scott was a unique presentation by Canadian rap artist, Dirk "Baba" Brinkman, who styles himself as the first peer-reviewed rap artist. His *Rap Guide to Evolution* won the prestigious Scotsman Fringe First Award at the Edinburgh Fringe in 2009. Baba's cerebral rap lyrics introduced diversity, change and adaptation; the fundamentals of Darwin's theory of evolution and his musical performance celebrated the relevance of natural selection today.

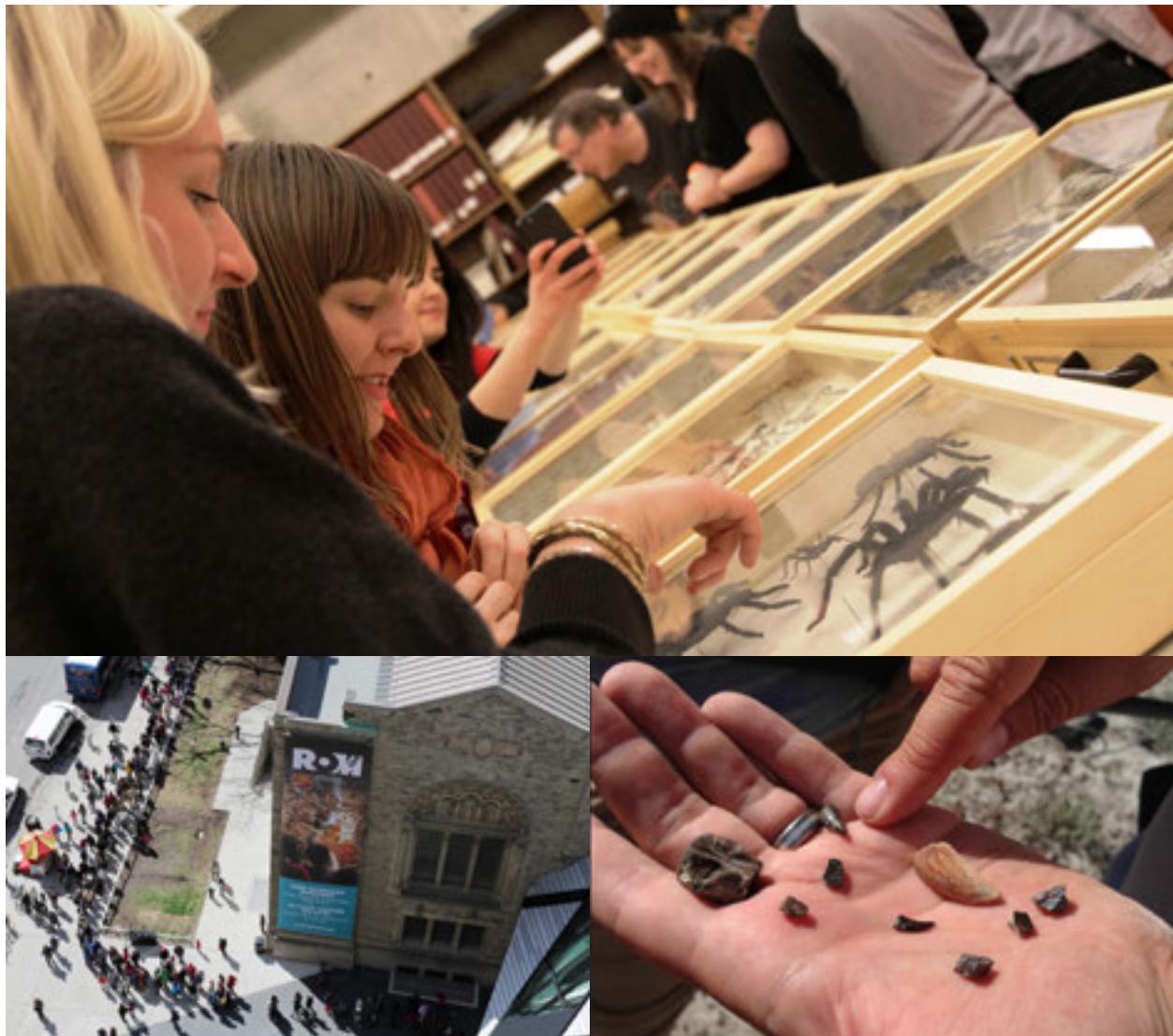


Top: ROM for the Holidays: Palaeo World. Bottom: Examining a newly exposed section of the Don Formation in Toronto.

## **ROM REVEALED WEEKEND | May 3-4, 2014**

The ROM offered free general admission, family activities and unique behind-the-scenes experiences in honour of our Centennial. ROM Fossils & Evolution curators and technicians in the "Wild Wonders" tour of the Louise Hawley Stone Curatorial Centre, with collection room highlights including our "Dinosaur Alley," our invertebrate, early life collections including the Burgess Shale. Our curators also contributed a session to ROM Ideas, the 2014 ROM Research Colloquium. Speakers included:

- Curator emeritus Chris McGowan: "Curiosity"
- Jean-Bernard Caron: "Canada's Hidden Treasures"
- Kevin Seymour: "The ROM's Ice Age Fossil Vertebrate Collections and What They Tell Us About Climate Change"
- David Rudkin: "Unlocking Ontario's Fossil Secrets"
- David Evans: "The ROM's Famous Dinosaur Collection"



Scenes from the ROM Revealed weekend.



Art projects for Early Life Weekend; trilobite puppets, *Anomalocaris* colouring sheets and more!

## MUSEUM DIARIES

TVO's newly commissioned series *Museum Diaries* is a family viewing adventure that offers unprecedented access to the ROM. Airing for six weeks beginning February 25, 2014, each episode mixed science, history and intrigue with educational segments led by the ROM's team of professional curators, technicians and other experts. ROM Fossils & Evolution participated in the *Dinos ReDiscovered* episode, which aired on March 18, 2014.

**DINOS REDISCOVERED** followed Dr. David Evans and his team on an exploration in the field to the Alberta badlands to discover treasures from 65 million years ago. The episode also featured ROM Project Manager Jason French, and his team as they carefully deconstructed *Ultimate Dinosaurs: Giants of Gondwana*, and prepared the exhibit to travel to other museums. *Museum Diaries* showed the media mayhem when David Evans unveiled to the world a new dinosaur species.



### BEN & BRUNO'S EXCELLENT TRILOBITE ADVENTURE

"From very junior geologists clutching handfuls of precious beach pebbles, to life-long learners with carefully wrapped family heirloom jewelry, we see them all," says Dave Rudkin, Assistant Curator, Invertebrate Palaeontology, speaking about the ROM's Rock, Fossil, Mineral, Meteorite and Gem ID Clinics. Friends Ben and Bruno gave Dave a wonderful surprise on April 17, 2013, when they showed up at an ID Clinic with a very large and almost complete specimen of a trilobite. It was, without doubt, the finest local specimen of *Isotelus maximus* that Dave had ever seen.

The friends found this amazing 445 million-year-old prize while exploring the creek in their neighbourhood. "I took the specimen home to keep it in a safe place," said Bruno. "I called several universities to see if the palaeontologists there would be interested in seeing the fossil and identifying it. When I said I was 14-years old, I was laughed at! They didn't call me back."

Said Ben, "We weren't aware that we had discovered one of the largest and one of the most well preserved fossils in Ontario. We didn't expect that type of reaction from the expert staff at the ROM. We were so glad we went there. This was a real big event for us."

Ben and Bruno decided on the spot to donate their splendid specimen to the ROM. Staff gave them a private tour of the invertebrate fossil collections, and they went home with some palaeontology books,

a ROM gift membership for a year, and the satisfaction of having their discovery housed in one of the world's leading museums. Their specimen is earmarked for display in the future Dawn of Life on Earth Gallery at the ROM. Thank you, Ben and Bruno!

### **ROM ROCK, FOSSIL, MINERAL, METEORITE AND GEM ID CLINICS**

Described by *Toronto Life Magazine* as one of the top "Reasons to Love Toronto," the Museum continues to offer these highly popular ID Clinics for the community. Visitors can bring their rock, mineral, gem, fossil or suspected meteorite specimens in for identification by ROM experts. Since 2009, 904 people have attended 30 Rock, Fossil, Mineral, Meteorite and Gem ID Clinics and ROM curators have identified 2,234 specimens.



Dave Rudkin, Assistant Curator of Invertebrate Palaeontology, looks at a trilobite specimen.

# Funds

**THE ACTIVITIES OF ROM FOSSILS & EVOLUTION ARE GENEROUSLY SUPPORTED BY A COMMUNITY OF DONORS WHO INVEST IN THE FOLLOWING FUNDS:**

- DMV Acquisitions & Research Fund and DMV Endowment Fund
- Gallery of Early Life Fund
- Gems and Minerals Fossils Fund
- Madeleine A. Fritz Invertebrate Palaeontology Fund
- Madeleine A. Fritz Vertebrate Palaeontology Fund
- Palaeobiology Fossils Fund
- Vertebrate Paleontology Technician Fund

Thank you again for your generous support. For more information about ROM Fossils & Evolution or this report, please contact:

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