

# Alberta

*Palæontological Society Bulletin*

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DECEMBER 2019



# ALBERTA PALAEOLOGICAL SOCIETY

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## THE SOCIETY WAS INCORPORATED IN 1986

### as a non-profit organization formed to:

1. Promote the science of palaeontology through study and education.
2. Make contributions to the science by: discovery; responsible collection; curation and display; education of the general public; preservation of palaeontological material for study and future generations.
3. Work with the professional and academic communities to aid in the preservation and understanding of Alberta's heritage.

**MEMBERSHIP:** Any person with a sincere interest in palaeontology is eligible to present their application for membership in the Society. Please enclose membership dues with your request for application.

**Single membership    \$20.00 annually**

**Family or Institution    \$25.00 annually**

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NOTICE: Readers are advised that opinions expressed in the articles are those of the authors and do not necessarily reflect the viewpoint of the Society. Except for articles marked "Copyright ©," reprinting of articles by exchange newsletters is permitted, as long as credit is given.

## Upcoming APS Meetings

Meetings take place at 7:30 P.M. in **Room B108,**  
**Mount Royal University, 4825 Mount Royal Gate SW, Calgary, Alberta.**

**Friday, December 13, 2019—APS Christmas Social**

***Bring fossils for show-and-tell, and finger food snacks to share!***

**Friday, January 17, 2020—Kristina M. Barclay, University of Alberta:**

***Exploring the past, present and future of predator-prey interactions between crabs and their gastropod prey***

Also a brief presentation by **Dr. Leslie Eliuk** (See Page 4).

**Friday, February 21, 2020—S. Amber Whitebone, University of Calgary:**

***Puzzling the past together: Microfossils and palaeoenvironmental reconstruction***

Also a brief presentation by **Cory Gross** (See Page 6).

**Saturday and Sunday, March 21 and 22, 2020—*Paleo 2020* (see Pages 12–14).**

**Watch the APS website for updates!**

**ON THE COVER:** The famous giant ammonite, *Titanites occidentalis*, exposed in the upper Fernie Formation (Jurassic) near Fernie, British Columbia. APS members **Alexandre Vincent** and his dad **Pierre** hiked to the locality in August, 2019. Photo courtesy of **Pierre Vincent**.

# Program Summary

November

## Daegan Kovacs

Student, Calgary, Alberta

### *Discovering Mary Anning's Jurassic Coast*

**Friday, November 15, 2019, 7:30 P.M.**  
Mount Royal University, Room B108

[This 15-minute presentation preceded our main speakers, **Mark Powers and Matthew Rhodes.**]

I travelled to England in the spring of 2018 and while on vacation I went to the Jurassic Coast, a UNESCO World Heritage Site. It was designated under UNESCO because, despite being called the Jurassic Coast, it contains a mostly continuous rock succession spanning 185 million years of the Mesozoic, and shows how the environment changed over that time. It spans a distance of 154 km from East Devon to East Dorset along England's southern shores. It is well known for its incredible cliffs and equally amazing fossils. I focussed on the two fossil sites that I visited, one at Charmouth and the most famous one at Lyme Regis, where none other than Mary Anning lived. I visited museums at each site including a museum named after Anning. I also spoke about just who Ms. Anning actually was and some of the challenges she faced. Finally I talked about how different the fossils of the Jurassic Coast are compared to most of Alberta's fossils, as was the world these animals inhabited almost 200 million years ago.

### Biography

Daegan Kovacs is a home schooled student partnered with Willow Home Education. He is working towards a diploma, finishing off his core Grade 11 courses such as Physics 20, Math 20-1, and English 20-1. His learning has taken him to natural history

museums in Drumheller, Bozeman, San Diego, Nebraska and London, England, as well as to sites in Western North America and, as mentioned above, the Jurassic Coast in England. His interests include vertebrate palaeontology, entomology and zoology. □

## Mark Powers and Matthew Rhodes

University of Alberta

### *The first unequivocal dinosaur trackway from the Horseshoe Canyon Formation near Morrin, Alberta*

**Friday, November 15, 2019, 7:30 P.M.**  
Mount Royal University, Room B108

Animal behaviour can be inferred from the traces they leave behind. This is true for modern and extinct animals as their traces can be captured in the fossil record. These trace fossils are referred to as ichnofossils, and a variety of behaviours can be represented by ichnofossils including, feeding, mating, burrowing, and movement.

Ichnofossils representing dinosaur behaviour are most commonly represented by footprints which give us indicators for locomotion and social behaviours. Footprints are preserved when extinct animals step into soft substrates that morph around the track maker's foot. When this substrate hardens quickly and is subsequently buried, it can become lithified in the rock record to be discovered later. The most common form of preservation is depressions, that are moulds of the track makers' feet, preserved on large, concreted slabs of rock. An alternative preservation, less commonly reported on, are natural casts of the track maker's feet. These occur when the animal leaves the impression of its foot and this mould is then infilled with a sediment. During lithification it is the infills which become more concreted than their surrounding rocks and therefore are more resistant to the effects of weathering.

The Horseshoe Canyon Formation of Alberta, Canada, has produced a number of footprints of various dinosaur groups. However, these footprints are often isolated, too incomplete to identify possible track makers, or restricted to a pair of footprints. In 2017 a University of Alberta team discovered the first unequivocal dinosaur trackway in the Morrin Member of the Horseshoe Canyon Formation, near

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Morrin Alberta.

The trackway is comprised of concretionary casts of large tridactyl footprints. The preservation of the footprints is so detailed that skin impressions are preserved on several of them. The underside of one collected footprint even shows evidence of invertebrate burrows through the cast of the heel. Three footprints are in series with alternating morphologies indicative of a left-right relationship, suggesting a single track maker. Other footprints were found at the site but cannot be confidently identified as belonging to the same track maker, or a different individual. Many of the footprints identified at the site are small, arcuate casts which are similar to the footprints of the forefoot previously described for hadrosaurs. This, in combination with large tridactyl pedal footprints, strongly suggests the track maker was a large hadrosaur dinosaur.

Given our knowledge of the hadrosaurs which lived during this time the track maker is most likely one of three hadrosaur genera: *Edmontosaurus*, *Hypacrosaurus*, or *Saurolophus*. The spacing and orientation of the footprints suggests the animal was walking in a palaeo north direction which may have implications for migration hypotheses previously proposed for hadrosaurs.

### Biographies

**Mark Powers** was born in Calgary and grew up in Eckville, Alberta. His passion for palaeontology came with conquering his fear of dinosaurs at a young age after his mother took him to see *Jurassic Park* in a theatre at the tender age of two. Despite a general interest in animals, he has always come back to dinosaurs as the centre of his infatuation. His particular interests focus around predator-prey relationships, with an emphasis on the predator side of the equation. Mark took a few years off from his education after high school, working and raising his son Adam, before going back to pursue his dream of palaeontology. While working on his undergraduate degree, he served as an executive member of the University of Alberta Palaeontological Society for a year and then two more during his Master's degree. He completed his B.Sc. with distinction, specializing in palaeontology, at the University of Alberta and started a Master's degree in 2017 with **Dr. Philip Currie**, studying the snouts of dromaeosaurid "raptor" dinosaurs and their biogeographical significance.

**Matthew Rhodes** was born in Calgary and grew up in Nanton, Alberta. Matthew has always had a

sharp mind and an interest in pursuing knowledge. Like many children, dinosaurs offered a world of fascination that enticed his imagination and inspired him to pursue science. He was involved in Scouts, where he developed his wilderness skills as well as an appreciation for the natural world. He worked for several years at the Aviation Museum in Nanton as an interpreter and even appeared in a short film depicting World War II pilots in action. After high school Matthew began his undergraduate degree at the University of Alberta where he spent several years in the University of Alberta Palaeontological Society as an executive member, joined a dodgeball team at Lister Residence and acted as a residence assistant throughout most of his four years there, all while still graduating with an Honours B.Sc. in palaeontology in 2016. He then went on to complete a Master's in systematics and evolution with **Dr. Philip Currie**. His thesis focused on hindlimb reconstruction of coelurosaurian theropods and inferences on locomotion. □

## Upcoming Events

January

### Leslie Eliuk

Semi-retired exploration geologist

### *Museum of the Rockies, Bozeman Montana—A Palaeobiological Dinosaur Emporium*

**Friday, January 17, 2020, 7:30 P.M.**  
**Mount Royal University, Room B108**

[This 15-minute presentation will precede our main speaker, **Kristina Barclay**.]

**M**useum of the Rockies (MOR), in the university city of Bozeman, Montana, was visited in the spring of 2019 and greatly enjoyed for a wonderful display of meat-eating *Tyrannosaurus rex* and plant-eating *Triceratops* sp. of the Late Cretaceous, ranging from egg to oldster—or at least BIG.

Reportedly MOR contains the greatest number of dinosaur specimens in one archive, mainly from the area's badlands, and supposedly the world's largest *T. rex* (maybe just surpassed by the new Saskatchewan

recovery just put on display in Regina). There are also sections on local culture, especially plains natives and pioneers, and a planetarium ([www.museumoftherockies.org](http://www.museumoftherockies.org)). But what will be discussed and illustrated are the displays on dinosaurs that made use of a fascinating technique of half life-size display of the bones of the beasts on one side and on the other side of the display an interpretation of the flesh and colourful feathers (or not) in its habitat. The history and ecology of many ages and types of dinosaurs are there to be enjoyed. This was the museum where the legendary **Jack Horner** (model for vertebrate palaeontologist-hero of *Jurassic Park* movies) hailed from and where he encouraged **Mary Schweitzer** to search for dinosaurian blood DNA.

### Biography

A reporter-visitor, Dr. Leslie Eliuk is a GeoTours Consultant and semi-retired former Shell Canada exploration geologist, 1969–1999. After nearly a decade at Dalhousie University, he graduated with a PhD in 2016 on the Jurassic-Cretaceous carbonate platform by the major Sable Delta. □

### Kristina M. Barclay

University of Alberta

## *Exploring the past, present and future of predator-prey interactions between crabs and their gastropod prey*

**Friday, January 17, 2020, 7:30 P.M.**  
**Mount Royal University, Room B108**

**I**nteractions between predators and prey play an important role in structuring their communities and shaping evolution. However, human-induced climate change has the potential to influence both predators and prey and disrupt their interactions. The fossil record provides an enormous resource to investigate how both past and current climate change has affected organisms, their interactions, and ecosystems.

In particular, scars left on prey by failed predatory attacks provide an excellent record, and often the only evidence, of predator-prey interactions in both modern and fossil ecosystems. However, as these wounds, known as repair scars, are records of failed rather than successful attacks, with successful attacks resulting in the destruction of the prey, it can be dif-

ficult to interpret whether repair scars signal overall attack rates, or the success/failure rate of the predator. Furthermore, the appearance of a repair scar can be affected by the structural integrity of the prey's defenses, such as a gastropod shell, as well as prey selection by the predator.

Here, shell-crushing crabs and their gastropod prey were used as a model system for exploring potential relationships between prey defenses, prey selection, and repair scars in the past, present and possible future. Specifically, the goals were to use modern experiments to understand how prey defenses are affected by ocean acidification, a major by-product of carbon dioxide emissions, and to test patterns of prey selection by crabs, and then examine how patterns of repair scars in gastropods manifest through both space and time.

First, I tested how shells were affected by both ocean acidification and predation cues in gastropods *Tegula funebris* and *Nucella ostrina*. After exposure to decreased seawater pH and/or predation cues for six months, in low pH treatments, both shell growth and strength in *T. funebris* was drastically reduced. However only shell strength, and not growth of *N. ostrina* was impacted by low pH, and not as severely as *T. funebris*.

Examination of shell composition and microstructure of both species using microCT scans, XRD analysis, and SEM imaging indicated that the loss of shell strength was from dissolution of the outermost shell layer in both species, with the microstructural arrangement in *T. funebris* likely causing more severe dissolution than observed in *N. ostrina*.

Patterns of crab prey selection between three species of the gastropod *Nucella* were then examined to understand how crabs attack and select prey. The experiment revealed that crabs are most likely to attack the first gastropod they detect, with a preference for the larger species most likely driven by their inability to always recognize smaller prey. I then explored patterns of repair scars in *T. funebris* both geographically along the modern west coast of Canada and the U.S., as well as temporally between the Late Pleistocene and modern of southern California. By measuring the size at which repair scars occur, we are better able to distinguish between the number of attacks and potential differences in failure rates of crabs. Crab predation in the modern also showed strong regional variation along the west coast, with the lowest number of attacks in southern California. Furthermore, comparisons of modern and fossil repair scars in southern California indicated that there

are fewer crab attacks today, suggesting that crab populations may already be affected by human activity. By studying how prey defenses, prey selection, and repair scar systems manifest, we can explore how predator-prey relationships have changed both in the past and present, and how they may continue to change due to our current climate crisis.

### Biography

Kristina Barclay grew up in Saskatchewan, completing both her B.Sc. and M.Sc. in palaeontology at the University of Alberta, studying the functional morphology and palaeoecology of Devonian brachiopods and their encrusting organisms. She is currently finishing her Ph.D., studying predator-prey relationships between crabs and gastropods at the University of Alberta under Dr. Lindsey Leighton, and will be defending her dissertation in early January, 2020. She also held a Vanier Canadian Graduate Scholarship that allowed her to spend a year working with Dr. Brian Gaylord (UC Davis) at Bodega Marine Laboratory in California studying ocean acidification and biomechanics in modern marine invertebrates. In addition to her research interests in marine invertebrates, palaeoecology, predation, and ocean acidification, Kristina is a strong advocate for science outreach and education, and has spent several years working in museums and science centres in Saskatchewan and Alberta. □

## February

### Cory Gross

President, Alberta Palaeontological Society

### *Northern Arizona: The world's greatest science field trip*

**Friday, February 21, 2020, 7:30 P.M.**  
**Mount Royal University, Room B108**

[*This 15-minute presentation will precede our main speaker, S. Amber Whitebone.*]

**P**etrified Forest, Meteor Crater, Sunset Crater Volcano, the Grand Canyon, and more. Perhaps no other region on Earth has so rich a concentration of geological, palaeontological, archaeological, and astronomical sites as northern Arizona. APS President Cory Gross takes you on a virtual tour of his trip through the area in the summer of 2019,

including a hike through the depths of the Grand Canyon itself!

### Biography

An Alberta native, Cory Gross obtained his BA in Museum and Heritage Studies from the University of Calgary and a graduate degree in theology from Lutheran Theological Seminary, Saskatoon. He currently works as a full-time educator at the Glenbow Museum, part-time interpreter at the Calgary Zoo, and does Earth Science-based tours, programs, and consulting through his own company, Sandstone Prehistoric Safaris. Cory also serves as the President and Public Outreach Coordinator of the Alberta Palaeontological Society. □

### S. Amber Whitebone

University of Calgary

### *Puzzling the past together: Microfossils and palaeoenvironmental reconstruction*

**Friday, February 21, 2020, 7:30 P.M.**  
**Mount Royal University, Room B108**

**M**icrosites are locations where fossils from small organisms or smaller elements from larger organisms are concentrated. These types of fossil localities typically form in one of two ways: either by the slow accumulation of sediment over a long period of time in a floodplain environment, or more commonly in deposits of sediment that have been secondarily reworked by fluvial systems. A newly described microfossil locality from the Horseshoe Canyon Formation of southern Alberta (Felber Toodontid Site 2 or FTS-2) is interpreted as an example of a floodplain deposit and yields fossils from over ten taxa including troodontid, tyrannosaurid, and various ornithomimid material. FTS-2 is characterized by its unusual abundance of anuran (frog) material, rare elements from juvenile (potentially fetal) hadrosaurids, and the first reported dinosaur eggshell from the Horseshoe Canyon Formation. Due to the heterogeneous nature of microsites, they provide a unique opportunity to evaluate prehistoric floral and faunal communities. Given that FTS-2 is a floodplain deposit and does not appear to have been secondarily reworked, we can infer that the flora and fauna found here represent true biological association. This allows

for the interpretation of potential palaeoecological interactions between organisms. It is interpreted that FTS-2 represents a troodontid nesting site where frogs and small hadrosaurids were potentially preferentially preyed upon.

### Biography

**A**mber Whitebone grew up all over Canada: as the daughter of a Canadian Armed Forces veteran she had the distinct privilege to have seen and lived in nearly every province of the country. She first completed an arts diploma from Red Deer College then moved to the University of Alberta to earn her B.Sc. (Distinction, First Class) with a specialization in palaeontology. During her time at the U of A, Amber worked with **Dr. Alison Murray**, **Dr. Phil Currie**, **Dr. Corwin Sullivan**, as well as **Dr. Greg Funston** for multiple honours theses focusing on palaeoecology of Late Cretaceous southern Alberta, lungfish diversity of Morocco and Egypt, and feeding biomechanics of placoderm fish. She is currently pursuing a Master's degree at the University of Calgary with **Dr. Jason Anderson** studying the microstructure morphology of entheses (soft tissue attachment to bone) as a means of informing muscular reconstructions for fossil organisms. □

## Winter 2020 Microfossil Sorting

By Risa Kawchuk

**O**nce again we will be searching for tiny fossils in sediment samples to aid scientific research. Come and join us at our microfossil sorting sessions this January and February. We will be using microscopes to find fossils from the matrix provided by **Dr. Donald Brinkman**, of the Royal Tyrrell Museum of Palaeontology (RTMP), on the following Saturdays:

**January 18, 2020**

**February 1**

**February 22**

Join us on these dates in Room B213 at Mount Royal University, from 1:00 until 3:30 P.M. All of the fossils we find will be kept by the RTMP and used in their research.

Registration is not required, but if you let me, **Risa**

**Kawchuk**, know that you are planning to attend, then I can inform you if we need to cancel a session. Phone or text (587) 969-1440 or email **rkawchuk@yahoo.com**. Bring tweezers to pick the tiny fossils from the matrix and a pen to label your finds. No experience is required; everyone is welcome.

These sessions are made possible by **Mount Royal University** (especially **Mike Clark**) who allow us to use their microscopes and lab. □

## Field Trip Planning for 2020

By Keith Mychaluk

**W**hat was old is new again! I am back as your field trip coordinator after almost a decade hiatus and am looking forward to injecting new energy into our trips. A big thanks to my friend **Wayne Braunberger** for working hard as my predecessor and leading us to many amazing localities over the past few years.

### Wyoming teaser

Plans for the 2020 field trip season are well under way. Watch for final details to be published in the March issue of the *Bulletin*. One big idea I would like membership input on, is taking an excursion farther afield, into Wyoming, to visit the fossil fish beds of the Green River Formation. After discussing with the Society's executive we felt it was prudent to ask members if they would be interested in an ambitious trip this far from home base. Please contact me at **fieldtrips@albertapaleo.org** by **January 31** if you are interested in attending. At this stage there is no commitment. Rather we are just trying to estimate a rough head count. Again, formal details, including the required sign-up sheet, will not be published until March. Here is the rough plan:

Proposed trip, APS 2020-1, **Green River fossil beds, Kemmerer, Wyoming**. June 27-28, 2020. Participants would have to find their own way to and from Kemmerer, Wyoming, where the town has ample motel, camping and restaurant facilities only a few hours away from Yellowstone Park. On Day 1, we would visit the Fossil Butte National Monument and learn about the fossils and geology of the Green River Formation. Later that day we would visit a commercial fossil quarry where we will be excavating our own fossils to keep. Day 2 would be dedicated

to visiting a second commercial quarry. In addition to the APS field trip fee, both quarries will charge an entrance fee that varies depending on the length of time spent quarrying (typically US\$50 – \$125 per quarry). You will be allowed to keep most of the material you collect, with certain restrictions. Both quarries provide ALL necessary equipment and cater to families and groups of all sizes. The quarries are very rich in fossils and it's safe to say all participants will find plenty of material so just ensure you have room in your vehicle for the return trip!

# Book Review

By Mona Marsovsky

*Now There Was a Lady! Hope Johnson, LL.D. 1916–2010.* By Darren H. Tanke. Alberta Palaeontological Society, 2019. ISBN 978-0-9811101-1-0. CAD\$30.00 (APS members), \$35.00 (non-members).

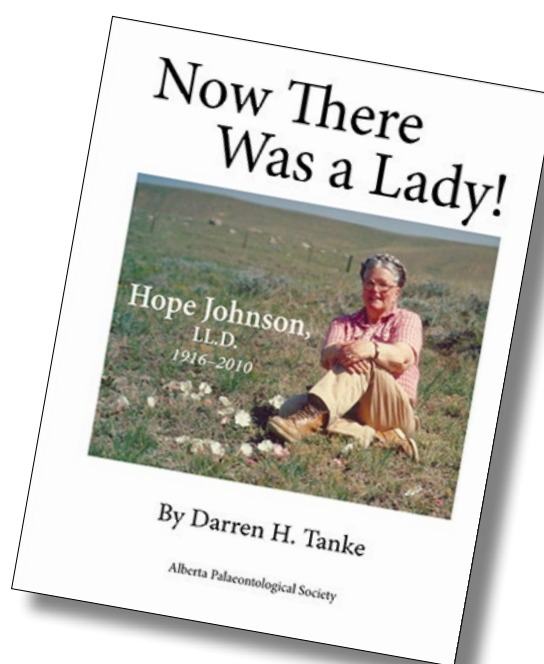
You have seen the fossil drawings in our book, *Guide to Common Vertebrate Fossils from the Cretaceous of Alberta* (published by APS in 2009). Now, meet the person who drew them! **Darren H. Tanke's** new book has just (October 1 of this year) been published by the Alberta Palaeontological Society. Darren's labour of love, requiring more than ten years of exhaustive research, is finally born!

Darren Tanke is a 40-year Senior Technician at the Royal Tyrrell Museum of Palaeontology with a strong interest in the human history of Alberta's palaeontological heritage. In his spare time he created this book. This fascinating book documents in detail the life of Hope Johnson, from birth to death, including her amateur palaeontology career, her art, contributions to prairie botany and natural history, World War II service, volunteer work, and family life.

Hope Johnson's accomplishments in palaeontology are remarkable given that she was largely self-trained and a female in a male-dominated profession. This is one of the few books written about amateur palaeontologists. It features forewords by **Dr. Philip J. Currie** of the University of Alberta (palaeontologist), **Allan Jensen** (artist from Medicine Hat) and **David A.E. Spalding** (geologist, museologist, naturalist and writer now in Pender Island, British Columbia).

In the process of documenting Hope's palaeontological career, the book describes Alberta's palaeontology scene from 1947 until her death in

2010, an era much less known than Alberta's "Great Dinosaur Rush" of 1910–1929. The reader will learn about the development of Dinosaur Provincial Park, the history of the Royal Alberta Museum, from its founding in 1967 (then named the Provincial Museum of Alberta) and the creation of the Royal Tyrrell Museum of Palaeontology. The book details a "who's who" of the Alberta palaeontology scene from 1947 to 2010, discussing the relationships and interactions between amateur and professional palaeontologists. The narrative touches on the slow increase in female participation in the "man's world" of palaeontology. Also described are the little-known Suffield (Alberta) Experimental Station and its work during World War II and the Cold War.



*Now There Was a Lady!* provides a unique opportunity to view a wide selection of Hope's artwork; the originals are currently hidden in private and museum collections. The handy "Map of Hope Johnson country" allows the reader to follow Hope's adventures in Alberta, Saskatchewan and Montana. I appreciated the section defining the acronyms used in the text, and the index is useful to quickly navigate to particular sections of the book.

The soft-cover, coil-bound book contains 283 pages, including thirty pages of colour illustrations. Copies can be purchased at APS meetings or events, or ordered (shipping fees apply) from [giftshop@albertapaleo.org](mailto:giftshop@albertapaleo.org), using personal cheque or E-transfer (Canadian banks only). An order form with details is included with this issue of the *Bulletin*. □



# Dinotour 2020

Excavate dinosaurs in the Pipestone Creek Bonebed while supporting dinosaur research!

By Mona Marsovsky

**H**ave you ever dreamed of exploring and discovering a dinosaur fossil with some of the world's greatest dinosaur hunters? This is your opportunity to register for Dinotour 2020 Grande Prairie to be held August 7 to August 10, 2020, inclusive. During this four-day family-oriented event you will:

- Learn about the dinosaurs of northern Alberta from world-renowned scientists **Dr. Philip Currie** and **Dr. Eva Koppelhus** (both from the University of Alberta), **Darren Tanke** (Royal Tyrrell Museum of Palaeontology) and experienced amateurs **Sheldon Graber** and **Mona Marsovsky**.
- Tour the Philip J. Currie Dinosaur Museum galleries, collections and preparation areas. Create a cast of a fossil to keep. Enjoy a National Geographic movie. Enjoy free time to explore the museum on your own.
- Excavate dinosaur fossils from the Pipestone

Creek Bonebed under the supervision of staff from the Philip J. Currie Dinosaur Museum.

- Via jet boat, search for fossils along the shores of the Wapiti River with experts from the Philip J. Currie Dinosaur Museum. Travel via jet boat to different fossil localities along the river.
- Search for microfossils such as teeth, vertebrae and scales from dinosaurs, fish and reptiles, using microscopes at the Philip J. Currie Dinosaur Museum.
- Hike and explore the Kleskun Hill Natural Area.
- Enjoy evening lectures on Friday, Saturday and Sunday and a farewell dinner on Monday night.

## Tour includes

- Guided tour including bus transportation to and from Grande Prairie, Alberta.
- Five nights accommodation (double occupancy), including the night before the tour (August 6) and each night of the tour (August 7, 8, 9 and 10).
- All meals over the four days of the tour (August 7 to August 10).
- Admission to the Philip J. Currie Dinosaur Museum for all four days.
- Fees for Pipestone Creek Bonebed excavation and for the excursion via jet boat on the Wapiti River.
- Guidebook, T-shirt and goodie bag.
- Canadian charitable tax donation receipt for a portion of the fees.



Explore the Kleskun Hills. Photo by Dr. Eva Koppelhus.



**Tour the Philip J. Currie Dinosaur Museum.** Photo by Dr. Philip J. Currie.

The tour costs (including GST):  
 CDN\$2195 per person (minimum age 12).  
 CDN\$335 single supplement.

For more details, contact Mona Marsovsky at  
[dinotour@DinosaurResearch.com](mailto:dinotour@DinosaurResearch.com) □

Get a registration form from Mona Marsovsky at  
[dinotour@DinosaurResearch.com](mailto:dinotour@DinosaurResearch.com). Your spot will be reserved once we receive your deposit of CDN\$500 for each registration (by cheque, money order or Visa or MasterCard credit card). The balance of the tour cost is due by June 4, 2020. Note that registration is limited and the tour is already 25% full.

Proceeds generated from this tour support the work of the Dinosaur Research Institute (DRI), a non-profit charitable organization which finances dinosaur research in western Canada by graduate students and scientists.

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**Dig in the Pipestone Creek Bonebed.** Photo by Dr. Eva Koppelhus.

# Rock 'n' Fossil Road Show 2019



**Shoulder-to-shoulder** at the ID table. Photo by Dan Quinsey.

By Dan Quinsey  
APS Public Outreach Committee Member

The 21st annual Rock 'n' Fossil Road Show was held Saturday, October 19 from 11:00 A.M. to 3:00 P.M. at the Country Hills Public Library in northeast Calgary. The event was very well received as an estimated 350 to 400 visitors of all ages attended. Participants were shoulder-to-shoulder the entire time, enjoying the displays and testing the knowledge of the many volunteers in attendance.

The Rock 'n' Fossil Road Show is a collaboration of the Alberta Science Network, Natural Resources Canada, Geological Survey of Canada (GSC), Nature Calgary, APS and the Calgary Public Library.

This year, APS member **Tako Koning** assisted at our table for the entire event. Tako was a hit with the crowd and was a welcome addition to the APS contingent. Volunteers from Natural Resources Canada, the Geological Survey and Nature Calgary were also on hand to identify specimens and answer questions.

On display were posters, specimens of rocks, minerals, fossils, and a microscope to see microfossils provided by the GSC; several interactive displays provided by Nature Calgary; a display of trace fossils and a fossil fish provided by the APS. To help with advertising, the GSC installed a showcase of specimens in the library for a few weeks prior to the event.

Thanks to everyone who made this event an annual success. See you again next year! □



**Dan (L) and Tako** manned the APS table. Photo: Dan Quinsey.

# Paleo 2020

## Alberta Palaeontological Society's 24th Annual Symposium

### The Symposium

Paleo 2020 is a two day event with talks, posters and displays on Saturday, March 21 and a workshop on Sunday, March 22. Saturday programs are free and open to the public. Sunday workshop participants must register and pay a fee for manuals and materials. Main events will be centred in the lower level corridor at Mount Royal University. Lectures will be held in the Jenkins Theatre.

### Call for posters and abstracts

You are invited to present a poster at Paleo 2020. The symposium will feature presentations from avocational, student and professional palaeontologists from all over western Canada. We welcome posters or displays associated with palaeontology. Our aim is to showcase palaeontology to the general public. There is no fee to submit a poster and abstract.

A table and stand with a 4 x 8-foot poster board will be supplied to each presenter. You should bring push pins or tape for attaching posters, but we will try to have some on hand for those who forget. Special requirements such as electricity to operate a display or a larger display area should be identified when you request a space. Presenters are requested to provide an abstract (see below). We request that poster presenters be set up by 8:30 A.M. Saturday, March 21. During the day a poster session period will be specified; please be available at least during this time for discussion of your exhibit. **Deadline for submitting requests for poster space is February 15, 2020.**

### Paleo 2020 abstracts volume

A symposium abstracts volume will be published and sold at a price to cover costs. We request all speakers and poster presenters to submit abstracts or short papers for publication. **Submissions may be any length:** less than a full page is fine, multi-page abstracts or short papers will be accepted. **Contributors are encouraged to include photos and other illustrations**, but note that colour images will be converted to black and white. Documents are not edited for content but will be formatted for publication. The author's mailing and email addresses should be included. **Submission deadline is February 15, 2020.** Download guidelines for authors (PDF) from our website, [www.albertapaleo.org](http://www.albertapaleo.org) or contact the Editor (see contact information, next page).

### Sunday Workshop—March 22, 2020

A workshop will be offered at Mount Royal University, Room B213. Attendance is limited, so register early! To register, contact **Harold Whittaker** (see next page). Please indicate your preference for the morning or afternoon session, or indicate if you have no preference. **Registration fee is \$10.00 and the deadline is March 15, 2020.** Make cheques payable to Alberta Palaeontological Society. Payment may be handed to Harold or mailed to the Society's mailing address at P.O. Box 68024 Crowfoot PO, Calgary, AB T3G 3N8.

***Curation of fossil collections, with Wayne Braunberger, Past President of the Alberta Palaeontological Society and retired oil and gas geologist. A morning session from 9:00 A.M. to 12:00 P.M. and an afternoon session from 1:00 P.M. to 4:00 P.M. will be offered.***

Participants will be immersed in the basics of curating a fossil collection

#### **Part 1: Collecting and recording locality data**

#### **Part 2: Curation topics**

- a) Accession numbers, numbering and applying numbers to specimens
- b) Display and storage labels
- c) Cataloguing specimens
- d) Specimen storage

#### **Part 3: Cataloguing your fossil collection by computer**

Participants are recommended to bring a notepad and pen.

## Contact Information

**Paleo 2020 Committee Chairperson:** Mona Marsovsky, (403) 547-0182, [giftshop@albertapaleo.org](mailto:giftshop@albertapaleo.org)

**Posters & displays:** Howard Allen (403) 862-3330, [posters@albertapaleo.org](mailto:posters@albertapaleo.org)

**Presentations and Workshops:** Harold Whittaker (403) 286-0349, [programs1@albertapaleo.org](mailto:programs1@albertapaleo.org)

**Abstract submissions:** Howard Allen (403) 862-3330, [editor2@albertapaleo.org](mailto:editor2@albertapaleo.org)

**Advertising:** Mona Marsovsky, (403) 547-0182, [giftshop@albertapaleo.org](mailto:giftshop@albertapaleo.org)

Visit the APS website for confirmation of lecture and workshop times and speakers: [www.albertapaleo.org](http://www.albertapaleo.org)

# Helpful Hints for Poster Presenters

## What is a poster?

A poster is a visual medium to express results or an overview of one's research work on a topic they have chosen to study. It is something that you pin up on a board. The dimensions of a poster can vary. It can be anywhere from 2' × 3' to 4' × 8'. It contains text and images relevant to your work.

## Who should do a poster?

Anyone who has an interest in sharing their work and who likes feedback from the audience (symposium attendees) should consider doing a poster.

## What should be considered for a poster?

Any topic that ties in with palaeontology can be considered for a poster.

## Why posters?

Written and illustrated presentations convey developments in a field of study that interests the investigator. Posters are an effective form of presentation.

### A typical poster format:

- Title, Author(s), Affiliation
- Summary—sum up the study in one paragraph
- Introduction—reasons behind the work
- General information, location (study area)
- Description and interpretation
- Conclusions
- References

Dedicate a box to each one of the sections listed above. Within the box, include the text and figures relevant to that section. Number the boxes in such a way that the reader can follow from one box to the

next in your intended sequence. The structure of the framework will vary from topic to topic.

## How does one make a poster?

Today, with powerful graphics and word processing software, a poster can be made entirely using a computer. The final poster image can be printed on a large-format colour printer. But you don't need a computer to do a poster! Carefully hand-lettered or typewritten text can be combined with drawings, photos or enlarged photocopies to make an effective presentation. These days it should be easy to find someone with a computer who could print out some titles or captions to add to your text.

## What about the visual presentation?

Whatever the size of the poster, when one views it from one or two metres away, the type (or font) size must be large enough that the text can be easily read. Also, figures should be reasonably large. Think about when the eye doctor wants you to read off her chart of alphabets and numbers from a distance. Don't be tempted to crowd too much information onto a poster—you can overwhelm your audience. Adding colours makes a difference to the poster, and can lure viewers to your poster or even drive them away!

A great blog article with tips for poster presenters is available here: <http://blogs.lse.ac.uk/impactofsocialsciences/2018/05/11/how-to-design-an-award-winning-conference-poster/>

## What's an abstract?

An abstract is just a summary of your work, from introduction to conclusion, boiled down to one or a few paragraphs. We'd like to have an abstract from each of our poster presenters and speakers, to include in the Symposium Abstracts Volume. Illustrations are encouraged (they will be converted to black-and-white).

*Most of all, have fun!*

# APS Paleo 2020

## Mount Royal University

4825 Mount Royal Gate SW, Calgary, Alberta

Presented in conjunction with the CSPG Palaeontological Division  
and Mount Royal University Department of Earth and Environmental Sciences

Lectures and poster displays—Saturday, March 21, 2020, 9:00 AM to 4:30 PM

Workshops—Sunday, March 22, 2020, 9:00 AM to 4:00 PM

### Saturday events are free to the public

There will be fossil displays and activities of interest to a wide audience including families.

The Sunday workshop requires pre-registration and a fee.

### Saturday, March 21 speaker schedule

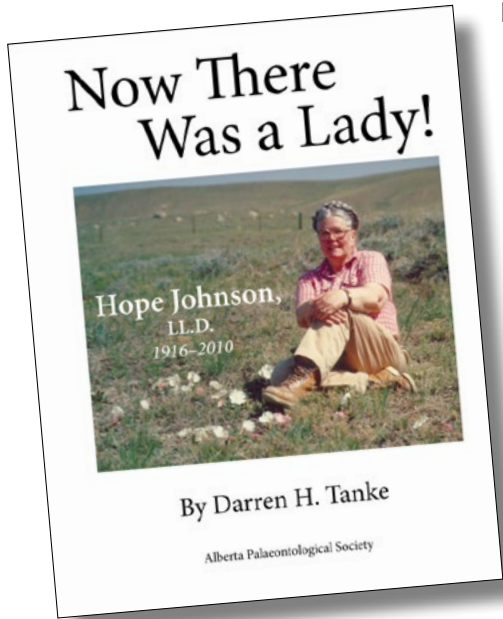
All talks will be held in Jenkins Theatre, lower level of Mount Royal University

- 9:00 AM** *Opening statement by APS President Cory Gross  
and symposium instructions by APS Programs Coordinator Harold Whittaker*
- 9:15 AM** *History of waste and how it has changed the world over the past 3.5 billion years.*  
**Dr. Stan Stancliffe, Geoscientist**
- 10:15 AM** Coffee Break.
- 10:30 AM** *Adapting to life in the soup: The fauna of the Cretaceous Upper Chalk.*  
**Dr. Jon Noad, Gran Tierra Energy**
- 11:00 AM** *Using new fossil data to solve old stratigraphic problems around the Ediacaran-Cambrian  
boundary, Mackenzie Mountains, NWT.*  
**Dr. Robert MacNaughton, Geological Survey of Canada**
- 11:30 AM** *Upper Cretaceous Wapiti Formation of northern Alberta, Canada, as a unique window  
into the continental vertebrate fauna of boreal Laramidia during Bearpaw times.*  
**Dr. Corwin Sullivan, University of Alberta**
- 12:00 PM** Lunch Break and Poster Displays.
- 1:00 PM** *Histopathology of a pachycephalosaur frontoparietal dome.*  
**Aaron Dyer, University of Alberta**
- 1:30 PM** *Late Pleistocene vertebrate faunas along ever-changing ice fronts on the Canadian plains:  
mixed messages about the past.*  
**Dr. Michael C. Wilson, Douglas College, New Westminster, British Columbia**
- 2:00 PM** Poster session, coffee break. Poster presenters are requested to be with their posters.
- 3:00 PM** *Relocation of a 1913 – 1914 American Museum of Natural History ankylosaur quarry  
and retrieval of new bones found therein.*  
**Darren Tanke, Royal Tyrrell Museum of Palaeontology**
- 3:30 PM** *Integrated Palaeoecological and Palaeoenvironmental records from a new exceptional  
fossil deposit in Alberta: the Early Jurassic Ya Ha Tinda Lagerstätte.*  
**Dr. Rowan C. Martindale, University of Texas, Austin**
- 4:30 PM** *Closing remarks for Paleo 2020.*  
**Harold Whittaker, APS Programs Coordinator**

# Now There Was a Lady!

Hope Johnson, LL.D. 1916–2010

By Darren H. Tanke



Edited and published by the **Alberta Palaeontological Society** with forewords by palaeontologist Dr. Philip J. Currie, artist Allan C.J. Jensen and geologist, museologist, naturalist and writer, David A.E. Spalding.

The 2010 passing of Hope Johnson marked the end of an era for Alberta's vertebrate palaeontology communities. Her death affected other disciplines, too, as she travelled in many circles within the province for 65 years. How many among us can truly say they never knew her personally, saw her art work, or learned to identify Alberta prairie plants, or Late Cretaceous bones and teeth through her fossil identification books? During much of her middle and later life, and especially during the late 1950s to 1980s, Hope was a well-known and respected powerhouse in the Albertan amateur and professional vertebrate palaeontological communities. She was also heavily involved in the naturalist and visual arts communities as well as charitable organizations. This book focuses on her extensive activities in Alberta vertebrate palaeontology and provides examples of some of her fossil and botanical drawings and paintings.

Coil bound, 283 pages; extensively illustrated in black and white, with 30-page colour section showcasing Hope Johnson's art. Includes index. ISBN 978-0-9811101-1-0

**APS Members: \$30.00 Non-Members: \$35.00**

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## Now There Was a Lady! Hope Johnson, LL.D. 1916–2010

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