

Alberta

Palæontological Society Bulletin

VOLUME 31 • NUMBER 2

www.albertapaleo.org

JUNE 2016



ALBERTA PALAEOLOGICAL SOCIETY

OFFICERS

President

Cory Gross president1@albertapaleo.org (403) 617-2079

Vice-President

Open: To volunteer contact the President

Treasurer

Mona Marsovsky giftshop@albertapaleo.org (403) 547-0182

Secretary

Vaclav Marsovsky (403) 547-0182

Past-President

Wayne Braunberger pastpres@albertapaleo.org (403) 278-5154

DIRECTORS

Editor

Howard Allen editor2@albertapaleo.org (403) 274-1858

Membership

Howard Allen membership@albertapaleo.org (403) 274-1858

Programs

Harold Whittaker programs1@albertapaleo.org (403) 286-0349

Field Trips

Wayne Braunberger fieldtrips@albertapaleo.org (403) 278-5154

COMMITTEES

Fossil Collection

Howard Allen editor2@albertapaleo.org (403) 274-1858

Library

Open: To volunteer contact the President

Public Outreach

Cory Gross president1@albertapaleo.org (403) 617-2079

Social

Michèle Mallinson (Pending Board appointment)

Symposium

Mona Marsovsky giftshop@albertapaleo.org (403) 547-0182

Website

Vaclav Marsovsky (403) 547-0182

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

SOCIETY MAILING ADDRESS:

Alberta Palaeontological Society
P.O. Box 35111, Sarcee Postal Outlet
Calgary, AB, Canada T3E 7C7
www.albertapaleo.org

THE BULLETIN WILL BE PUBLISHED QUARTERLY: March, June, September and December. Deadline for submissions is the 15th of the month prior to publication. Material for the *Bulletin* should be sent to:

Howard Allen, Editor, APS
7828 Hunterslea Crescent, NW
Calgary, AB, Canada T2K 4M2
editor2@albertapaleo.org

Requests for missing *Bulletin* issues should be directed to the Editor. Send changes of contact information to the Membership Director.

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, September 16, 2016—Clint Tippett, retired petroleum geologist.
Ten-minute talk: A visit to the La Brea Tar Pits, California. See Page 3.

Featured speaker: Wendy Sloboda.

Topic to be announced. Watch the APS website.

Friday, October 13, 2016—Chelsey Zurowski, University of Calgary.
Morphology and function of the tooththrow in a rodent knockout model and implications for mammalian tooth evolution. See Page 3.

Watch the APS website for updates.

ON THE COVER: Alberta fossils! Tooth from an ankylosaur dinosaur. Dinosaur Park Formation, Upper Cretaceous, southern Alberta. APS collection, donated by Don Sabo, catalogue no. APS.1986.46. Width of tooth is 12 mm. APS file photo.

Upcoming Events

September

Clint Tippett

Retired petroleum geologist

Ten-minute talk: A visit to the La Brea Tar Pits, California

Friday, September 16, 2016, 7:30 P.M.
Mount Royal University, Room B108

These famous tar pits are located in central downtown Los Angeles. They are an expression of the very petroleum-rich Tertiary basin that underlies that region. The tar or natural asphalt is the residue of oils that originate in the hot, deep part of the stratigraphic section and migrate to shallower depth where the light fractions evaporate and where the oil is finally altered by biodegradation. Due to buoyancy, some of this heavy crude reaches the surface where it has collected over thousands of years.

The pits are best known for their accumulations of mammalian skeletons and the remnants of other forms of life, right down to the microscopic. This fauna and flora was originally discovered during small scale open-pit mining done to exploit the asphalt resource. The remains were first thought to be modern in age but have since been dated to be as old as 38,000 years. Union Oil of California geologist W.W. Orcutt is credited with recognizing their prehistoric origins in 1901. Formal excavations began in 1913–1915 and reached a peak in the 1940s and 1950s as new skeletons were unearthed. Finds include



saber-toothed cats, dire wolves, bison, horses, a giant ground sloth, turtles, snails, clams, millipeds, fish, gophers, mammoth and lion. There is one major excavation in progress (Pit 91) although nearby construction projects are often the source of additional excavated asphalt and fossils contained therein.

This U.S. National Natural Landmark has been preserved at Hancock Park and the George C. Page Museum where they were visited by the speaker on a recent field trip. Tar can be seen to be actively oozing out of the ground and models of animals re-enact their entrapment and final demise. This talk will provide the audience with a snapshot of the many interesting things that can be seen at this location.

Biography

Dr. Clint Tippett is a retired petroleum geologist based in Calgary. He was employed by Shell for over 34 years. During that time he was able to attend many petroleum industry conventions and to participate in their associated field trip programs. This talk will focus on a 2012 excursion during the Long Beach meeting of the American Association of Petroleum Geologists.

October

Chelsey Zurowski

University of Calgary

Morphology and function of the tooththrow in a rodent knockout model and implications for mammalian tooth evolution

Friday, October 21, 2016, 7:30 P.M.
Mount Royal University, Room B108

Tooth morphology is the result of many complex tissue interactions within the developing tooth. Differences in cusp shape, size and orientation provide evidence of phylogeny, as well as alterations in feeding strategy and amount of intraoral processing. Regulatory genes are genes that pattern development, and many of them are active in the developing tooth. Determining and quantifying the effect of these regulatory genes on the morphology and function of mammalian dentition has implications for understanding the mechanisms that drove the amount of dental diversity that we see in both extinct and living mammals.

We tested the hypothesis that changes in regulatory gene expression can lead to changes in morphology and function of the toothrow using a rodent knockout model. These mice were genetically modified so that the regulatory gene bone morphogenetic protein 7 (BMP7) was not expressed in their neural crest cells, a cell type that contributes to elements of the teeth and skull, among many other structures. These BMP7 mutants have distinctive craniofacial morphology, which includes noticeably altered tooth morphology. Mutant molars have extra cusps, mostly on the first upper and lower molars, along with shorter and blunter cusps that are oriented differently on the tooth.

To quantify differences in morphology, a landmark set was developed and geometric morphometric methods were applied to 3D models of the right upper and lower tooththrows. Significant morphological differences between the control and BMP7 mutant mice were found for both the upper and lower tooththrows. Additionally, mutant and control mice were found to have different wear facets, indicating that along with a change in morphology, there was also a change in function. This research shows that changes in the expression of BMP7 can lead to changes in the morphology and function of the toothrow and suggests that BMP7 could have played a role in structuring the amount of dental diversity that we see in extinct and extant mammals.

Biography

After receiving her Bachelor of Science (Honours) in zoology at the University of Calgary, Chelsey started her Master's project in the labs of **Dr. Jessica Theodor** and **Dr. Heather Jamniczky**. Her main research interest is in the evolution of the form and function of mammalian molars. □

2016 Field Trips

July and August field trips have been scheduled. For more information please contact **Wayne Braunberger** at (403) 278-5154 or by email at fieldtrips@albertapaleo.org. A field trip registration form was included with the March issue of the *Bulletin* and is available on the APS website, www.albertapaleo.org/fieldtrips.html.

Please note that all fees are due at the time of registration. Fees for trips are \$10.00. This is to cover increased costs as guides will be featuring more colour

photographs and diagrams. Unfortunately guides are only produced in small numbers and volume discounts are not available.

Non-members and unaccompanied minors will not be allowed to attend field trips. All participants are required to have their membership in good standing. Any membership applications received after May 4, 2016 will not be reviewed and voted on by the Board of Directors until September, 2015. Therefore, if you are a non-member and would like to join be sure your application is received prior to May 4, 2016. All participants will be required to read and sign a release form (waiver). Detailed information will be provided to all those registered shortly after the registration deadline. **After the registration deadline no refunds will be given; however, you will receive the printed guide for the trip. No late registrations will be accepted.** Registrations are accepted on a first-come-first-served basis. Sign up early to avoid disappointment.

For the 2016 field trips I will be sending you the waiver and medical forms along with the trip information. This information will be sent to you via e-mail or Canada Post. Please ensure that your address is correct and legible when sending in registration forms. When you arrive at the meeting place please have the forms completed. **All participants are required to have fully completed all waiver and medical forms in order to attend the trip. There will be no exceptions.** All personal information is held in confidence and ultimately destroyed.

Field Trip Participant Responsibilities

It is understood that risk is inherent to some degree in outdoor activities. Before registering for a trip please ensure you understand the risks involved and are prepared to accept them.

- As a participant you are responsible for your own safety and equipment at all times.
- Inform the trip leader of any medical conditions they should be aware of in an emergency.
- Ensure that your previous experience, ability and fitness level are adequate for the trip.

**Trip 2016-2, July 16 and 17, 2016
Southeastern British Columbia**

Our trip will focus on the Cambrian geology and trilobites in the Hughes Range northeast of Cranbrook. Recent discoveries and re-examination of previously known sites have resulted in new genera and species of Upper Cambrian trilobites

being discovered. We will be collecting on privately held mineral claims and as such all instructions of the claim holder must be followed. Any significant specimens will not be kept by individuals but will be donated to the appropriate research institute/museum for curation and study.

Access to the area is via poorly maintained forestry roads and trails. Properly equipped vehicles with high clearance are necessary. To limit our impact and to take as few vehicles as possible, car pooling will be enforced.

Registration deadline is July 1, 2016

**Trip 2015-3, August 13 and 14, 2016
Southeastern Alberta (S. Saskatchewan River)**

This trip will focus on Cretaceous vertebrate localities along the South Saskatchewan River north of Medicine Hat.

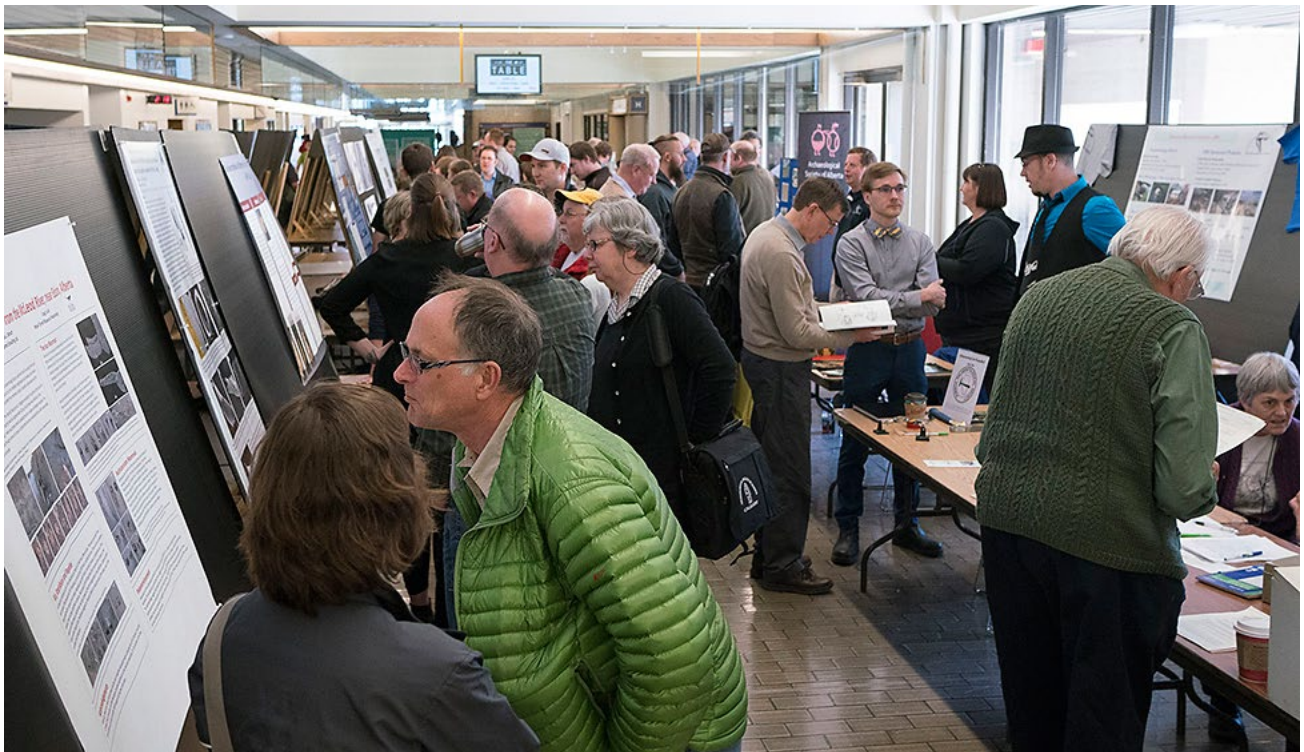
Access to sites is along poorly maintained wellsite access roads and prairie trails. For safety reasons we will be restricted to high clearance vehicles. If there has been significant rain in the area access will be limited. Please note that the area is prime rattlesnake habitat.

Registration deadline is July 29, 2016. □

Record Attendance for Paleo 2016

By Mona Marsovsky, photos by Don Murchison

The combination of warm weather, dry roads (no snow, for a change), additional promotion and an excellent array of speakers resulted in more than 130 people attending Paleo 2016 on Saturday, March 19, 2016.



The poster session was a beehive of activity on Saturday afternoon.

Almost every seat in the Jenkins Theatre at Mount Royal University was filled. This year, extra effort went into promotion of the event, using posters at Calgary Public libraries, Co-op stores and Mount Royal University, social media (thanks to those who tweeted the message to your networks), **Canadian Society of Petroleum Geologists** (in the *Reservoir* and as a separate e-mail to all their members), and an excellent article about one of the talks written in the Calgary Herald (print and online: <http://calgaryherald.com/news/local-news/researchers-find-staggering-bounty-of-fossils-uncovered-by-2013-flood>) and Calgary Sun, on the Thursday before the event. As a result, we saw many new faces at the symposium, some of whom became new members of the APS.

This year, the speakers did an especially excellent job at presenting their talks so that everyone could understand. This was a major accomplishment because the audience was so varied, ranging from young children (four years old) to senior citizens and from laypeople to university professors and research scientists.

APS President **Cory Gross** welcomed attendees and introduced the event. **Dr. Wayne Haglund** briefly described the new terrestrial Cretaceous exhibit planned for Mount Royal University. (If you would like to donate to this educational exhibit or to learn how you can help, contact Dr. Wayne Haglund: whaglund@mtroyal.ca).

Dr. Alwynne Beaudoin of the Royal Alberta Museum summarized palaeoenvironmental research into the last 13,000 years in Alberta and how the techniques used have evolved.

Dr. Darla Zelenitsky of the University of Calgary presented a fascinating detective story of how the lineage of embryo dinosaur “Baby Louie,” featured in a 1996 *National Geographic* article, was determined to be a giant oviraptorosaur.

Dr. Jon Noad illustrated an amazingly diverse array of family fossil hunting day trips within three hours drive from Calgary.

Dr. Jessica Theodor of the University of Calgary, compared the maximum body size evolution of even-toed plant-eaters (e.g. domestic cattle) and odd-toed plant-eaters (e.g. horses) through the Miocene.

Ben Borkovic and **Joe Sanchez** of the Royal Tyrrell Museum of Palaeontology shared their experiences and numerous finds while exploring the

rivers affected by the 2013 floods in southern Alberta.

Darren Tanke, also of the Royal Tyrrell Museum, shared his experiences excavating a plesiosaur, in late November, from the Korite Ammolite mine in southern Alberta and suggested some useful strategies for cold weather fossil extraction.

After the one-hour poster viewing session, **Dr. Chris Jass** of the Royal Alberta Museum, summarized the record of body fossils and footprints of mammoths and mastodons in Alberta.

Dr. Emily Bamforth of the Royal Saskatchewan Museum Field Research Station at the *Tyrannosaurus*



Jenkins Theatre talks were entertaining and well attended.

Dr. rex Discovery Centre in Eastend Saskatchewan described their field work, discovering and excavating 92–95 million year old mid-Cretaceous fossils in the Pasquia Palaeontological Site on Carrot Creek in Saskatchewan.

Finally, keynote speaker **Dr. Jean-Bernard Caron** of the Royal Ontario Museum discussed the overwhelming number of new species of Burgess Shale fossils, 507 million years old, recently found in the Marble Canyon area of Kootenay National Park.

Participants enjoyed fourteen posters. The posters featured a variety of topics:

- Ice age (13,000 years old) camels from the Edmonton and Vauxhall areas of Alberta.
- Whether egg mass could indicate incubation period in dinosaurs.



Palaeo-artist David Murchison (middle) gets valuable critique from the expert himself, Dr. Phil Currie (right).

- Egg shells revealing a large diversity of small theropod dinosaurs in Japan.
- A Paleocene microsite near Edson, Alberta.
- 10,350 year old fossils found at the bottom of Cold Lake, Alberta.
- New dinosaur tracks in southern Alberta with a new type of footprint preservation.
- Studies into the mobility of the neck of a short-necked plesiosaur (marine reptile) from north-eastern Alberta.
- Evaluation of four drying techniques for water-saturated fossils from Cold Lake, Alberta.
- Faunal analysis of the Eocene Cypress Hills Formation (33.9 million years old) in Saskatchewan, leading to a better understanding of the Eocene-Oligocene transition.
- An experiment which showed that a change in tooth shape in rodents causes changes in occlusion (biting pattern) which may be one mechanism for dental adaptation and evolution of rodent teeth.
- Two new plesiosaurs from the Late Cretaceous of Colorado.
- Determination of taxon from three tibiae (leg) fossils from the Miocene of Uganda.
- A description of metazoans (invertebrates) from the middle Cambrian Burgess Shale and Monarch formations from southeastern British Columbia.
- Parsimony (using the simplest evolutionary tree) and its difficulty in including time and geographic information.

In addition to the posters, three fossil displays were on exhibit. **Cory Gross** provided two fossil displays (*Ice Age Alberta* and *The First Fossil Hunters*). **Howard Allen** nicely displayed some of the fossils from the APS collection. In addition, participants viewed beautiful dinosaur art by **David Murchison** and spectacular badlands art by **Dr. Wayne**

Haglund. There were also displays provided by **Les Adler**, the **Archaeological Society of Alberta** and the **Dinosaur Research Institute**.

On Sunday, March 20, **Dr. Emily Bamforth**, of the Royal Saskatchewan Museum's *T. rex* Discovery Centre, taught morning and afternoon sessions of the Climate-Leaf Analysis Workshop, which featured CLAMP (Climate Leaf Analysis Multivariate Program).

The thirty people who attended gained an increased understanding in the use of leaf physiognomic data (leaf sizes and shapes) to infer climate. To use this technique, the researcher needs a sample of at least twenty different leaf types (shapes and sizes) from their locality. Only *Ginkgo* and woody dicot angiosperms (e.g. oak, raspberries, willow) from the last 100 million years can be used for this analysis—not ferns, cactuses, water lilies, spruce or other gymnosperms.

First, each leaf type is evaluated for thirty-one characters such as size, lobed or not, toothed or not, regular or irregular teeth, length to width ratio, etc. The participants of the workshop practiced scoring a variety of leaves from both photos and real specimens provided by Harold Whittaker and Dr. Emily Bamforth. This information is then added to a special spreadsheet provided as part of CLAMP software (available on the internet at <http://clamp.ibcas.ac.cn> without cost). Some participants brought their own laptops to enter the values into the spreadsheet. An overall score for the locality (including all of the leaves) on each character is calculated by the spreadsheet. The researcher then selects one of the provided calibration datasets of modern plants from different localities and the associated climate data. Then special software (such as CANOCO, <http://www.micro-computerpower.com>), available for short-term trial or for purchase from the internet, is used to compare the calibration dataset to the researcher's data using the Canonical Correspondence Analysis technique. The result is a prediction of eleven palaeoclimate parameters, including mean annual temperature, length of growing season, warm month mean temperature, cold month mean temperature, growing season precipitation, and relative humidity, etc.

This year's abstract volume quickly sold out. If you would like an electronic PDF copy (for free), contact **Howard Allen**, editor2@albertapaleo.org.

The 2016 APS organizing committee included **Howard Allen** (editor of the abstracts volume and coordinator of the posters and displays), **Wayne**

Braunberger (provided the display cases), **Mona Marsovsky** (committee chair, advertising and sales table), **Harold Whittaker** (speakers and workshop), **Cory Gross** and **Vaclav Marsovsky**. I would like to thank the sales table volunteers: **Howard Allen**, **Lisa Bohach**, **Wayne Braunberger**, **Cory Gross**, **Georgia Hoffman**, **Arnold Ingelson**, **Vaclav Marsovsky**, **Michele Mallinson**, **Doug Shaw**, and **Pete Truch**.

We must thank our sponsors. Without the support of the Department of Earth Sciences of **Mount Royal University** (especially **Mike Clark** and **Dr. John Cox**), and **Jon Noad** and the **Canadian Society of Petroleum Geologists**, Paleontological Division, we

would not have been able to hold this event without cost to the participants.

We would like to thank all of the speakers, poster presenters and display staff for their contributions to the symposium.

Mark your calendar for next year's symposium, scheduled for March 18, 2017. If you would like to present a talk or workshop or have a suggestion for a talk you would like to see, contact **Harold Whittaker** (programs1@albertapaleo.org). Planning for next year's symposium is already underway to ensure that the speaker program is finalized by the beginning of November 2016. □

Fall and Winter Microfossil Sorting Summary



APS volunteers searching for microfossils in Mount Royal University's geology lab. Photo by Caitlin Collins.

By Mona Marsovsky

Using microscopes provided by Mount Royal University, APS members extracted fossils from matrix on eight 2.5-hour Saturday afternoon sessions from November 2015 to the end of February 2016.

On November 7 and 14 and December 5 and 12, we sorted microfossils for the University of Calgary's

Dr. Jessica Theodor, Masters student **Chelsey Zurowski**, **Dr. Alexander Dutchak** and **Tasha Cammidge**. Nearly eighty identifiable teeth were found in the middle Eocene (46 million year old) Cypress Hills Formation from south of Swift Current, Saskatchewan. The matrix was collected in the 1980s by **Dr. John Storer**. Finds included a molar of a marsupial (opossum), premolar of an insectivore, incisor

and molar of a rodent, fish fossils (skull and teeth) and teeth from four kinds of rodents (*Microparamys solidus*, *Metanoimys fugitives*, *Protadjidaumo altilophus* and *Janimus mires*) and two multituberculates (*Pereatherium innohminatum* and *Peradectes* sp.). Between nine and seventeen volunteers worked at each session.

For the January 16, January 30, February 20 and February 27, 2016 sessions, **Dr. Donald Brinkman** of the Royal Tyrrell Museum of Palaeontology provided matrix from the junction of the Sheep and Highwood rivers, near Okotoks. This site, nicknamed “Sheeps Ahoy” is in the lowermost upper Scollard Formation, of Paleocene age. The site was especially important because it was deposited within the first one million years after the Cretaceous–Paleogene (K-P) extinction event. The fossils accumulated during a flood, in a crevasse splay (river floodplain) deposit about 30 cm thick. Between fifteen and twenty volunteers sorted through the matrix for each of the four sessions. In amongst the abundant shells and coal, volunteers found rare mammal teeth (multituberculate, therid, and placental), fish fossils (scales, vertebrae, teeth, jaws and a *Cyclurus* sp. tooth plate), champsosaur teeth, crocodile teeth, a salamander jaw and vertebrae, lizard jaw and vertebrae, and a reptile phalanx.

We would like to thank **Mike Clark** and **Dr. John Cox** for allowing us to use Mount Royal University’s lab and microscopes. Without this support from **Mount Royal University**, these microfossil sorting sessions would not be possible.

We would especially like to thank Dr. Don Brinkman and Dr. Jessica Theodor for supplying the fossil matrix and their expertise and for letting us search for fossils while the ground was still frozen. □



Photomicrograph of a small mammal tooth with root. No scale included, but tooth would be less than 10 mm in length. Photo by Caitlin Collins.

Moose Mountain field trip guidebook available

By Howard Allen, Editor

The classic field trip guidebook, *Stratigraphy, sedimentology, structural history and exploration history of the Mississippian at Moose Mountain, southwestern Alberta foothills* by D. Mundy, R. Widdowson and D. Sabo is now available for free download in PDF format. The APS—and especially the Editor—thank senior author and long-time member **Dr. David Mundy** for his generosity and assistance.

The guidebook was originally issued in several print editions between 1992 and 1997 for industry field trips. A digital reconstruction in searchable text has been produced from the original “paste-up” of the 1997 edition, complemented with original image files provided by Dr. Mundy, many in colour—making this the first-ever colour version to be released.

For versatility, the digital version is available in three formats, to suit different purposes:

- High-resolution colour, suitable for colour printing (large file: 16.1 MB).
- High-resolution greyscale, for black-and-white printing (14.1 MB).
- Medium-resolution colour, optimized with links and bookmarks for onscreen viewing (6.6 MB).

The medium-resolution colour version may be downloaded from the APS website: www.albertapaleo.org/mundy.pdf. For the high-resolution versions, contact the Editor: editor2@albertapaleo.org. □

**25th Annual
Canadian Paleontological Conference
Sydney, Nova Scotia
August 26–28, 2016**

- Talks and Posters
- Pre-conference Field Trip (Aug 24–25)
- Many Cultural Activities

www.cbu.ca/cpc2016

Rock 'n' Fossil Road Show set for October 15

The next Rock 'n' Fossil Road Show, led and sponsored by the Geological Survey of Canada, will be hosted by the Crowfoot Public Library on Saturday, October 15, 2016 from 11:00 A.M. to 3:00 P.M. The Library is at 8665 Nose Hill Drive, NW, north of the intersection of Nose Hill Drive and John Laurie Blvd.

Earth scientists from the Survey will have hands-on displays of rocks and fossils and will try to identify mystery specimens brought in by members of the public. Perennial volunteer **Dan Quinsey** will have a display and will assist in the activities, showing the flag for the APS. Contact Dan if you'd like to volunteer as an assistant: dinodan@shaw.ca. □

Bulletin back issues available on the Web

A complete archive of *Bulletin* back issues from 1986 through 2015 is available to download as PDF files.

www.albertapaleo.org/bulletinarchive.html

Fossils in the News

CBC News online, May 24, 2016

Amazing fossils found by ordinary people thrill scientists

This article showcases a number of instances where members of the public have made important discoveries in palaeontology, many of them in Canada.

While a small number of professional palaeontologists languish in dimly-lit offices performing administrative duties, thousands of public eyeballs are scanning the ground all over the country, doing most of the real leg-work and discovery that pushes the science forward. According to **Dr. Rich McCrea**, of the Peace Region Paleontology Research Centre in Tumbler Ridge, BC, "at least 75 percent" of his museum's discoveries are made by amateurs.

See www.cbc.ca/ (search "amateur fossil") □

RTMP news release, May 20, 2016

New exhibit paves way for Royal Tyrrell Museum expansion

An injection of \$9.3 million by the Alberta Government will expand the Royal Tyrrell Museum, adding facilities aimed at educating children and adding visitor conveniences. Funds will go to "expanding facilities, including the distance learning studios; additional classroom and learning space; expanding accessible public washroom facilities; developing a hands-on discovery room; and a rest area for the entire family." All this will apparently "diversify our economy."

The new *Foundations* exhibit "will encourage visitors to learn about the basics of palaeontology, geology, evolution, fossilization and the history of life on Earth." If this goal sounds familiar to you, you're not alone; the news release doesn't make clear how the new exhibit will differ from the general aim of any palaeontology museum exhibit. □

2016 Rocky Mountain House Knap-in

Flint knapping lessons and demonstrations, knapping tools, Aboriginal skills, archery, competitions, campfire music, pot-luck dinner, auction, on-site camping (limited)

Friday, July 15 – Monday, July 18, 2016
Rocky Mountain House Heritage Site, AB

For information and registration contact
Russell Thornberry, 1-403-872-4866
russellthornberry@gmail.com



3rd Annual Fort Whoop-up Knap-in

Held in conjunction with the 44th Annual Fort Whoop-up Black Powder Rendezvous

Flint knapping lessons and demonstrations, knapping tools, archery & atlatl range, pot-luck lunch, on-site camping historical and cultural attractions nearby

Saturday, Sept 3 – Monday, Sept 5, 2016
Fort Whoop-up Black Powder Range, Lethbridge, AB

For information and registration contact
Barry Rogers, 1-403-678-5041
barryrogers@shaw.ca