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THE SOCIETY WAS INCORPORATED IN 1986 as a non-profit organization formed to:

- a. Promote the science of palaeontology through study and education.
- b. Make contributions to the science by: 1) Discovery. 2) Collection.
 3) Description. 4) Education of the general public. 5) Preservation of material for study and the future.
- c. Provide information and expertise to other collectors.
- d. Work with professionals at museums and universities to add to the palaeontological collections of the province (preserve 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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Inquiries regarding 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 р.м. in **Room B108**, **Mount Royal University**, 4825 Mount Royal Gate SW, Calgary, Alberta.

Friday, September 20, 2013—Dr. David A. Eberth, Royal Tyrrell Museum.

Climate Influence on Dinosaurian Biostratigraphy in the Horseshoe Canyon Formation

(Upper Cretaceous), Alberta, Canada (See abstract in June Bulletin).

Friday, October 18, 2013—Scott Persons, University of Alberta. *The Guts of Microraptor* (see Page 5).

Friday, November 15, 2013—Dr. Jason Anderson, University of Calgary. *Gaps in the Fossil Record of Vertebrates* (see Page 5).

Friday, December 13 (Second Friday), 2013—Christmas Social.

ON THE COVER: Alberta fossils. Crododile dermal ossicles (scutes). Belly River Group (Upper Cretaceous), southern Alberta. Width of largest scute is 29 mm. Specimens in the APS collection, accession numbers APS.1992.11a, 11b, 11c. Photo is from the collection photography project.

In Memoriam

t is our sad duty to report the loss of two highly-regarded people this past August from the circle of APS friends.

On August 4, Dr. Len V. Hills, Professor Emeritus of the University of Calgary, passed away at the age of 80 years. Dr. Hills was a leading authority on Alberta geology, palaeontology and archaeology. Several of our society's geologist members had Len as a professor of geology and palynology, and he served as a graduate school advisor and mentor to a great many currently practicing scientists. A tireless educator, Dr. Hills volunteered his time and



Dr. Len Hills interprets an outcrop in the Oldman Formation, Milk River valley, in 1998. Photo by Howard Allen.

knowledge at several APS events, including talks at general meetings and the APS annual symposium. He led a two-day APS field trip to the Milk River area in 1998, and was a reviewer for the 2009 APS book, *Guide to common vertebrate fossils from the Creta-*

ceous of Alberta. We extend our deepest sympathy to his family and friends.

ong-time APS member Elsie Patmore, wife of David Patmore, passed away August 18, just

three days short of her 73rd birthday. Elsie and Dave began their relationship with the APS in 1989. The Patmores, of Devon Alberta, have been regular participants on the summer field trips. Elsie's quiet but enthusiastic demeanour made her a welcome companion to all who shared our expeditions in the wilder parts of Alberta and she will be remembered fondly by us. Our sympathies and best wishes go to Dave, her husband of 47 years, her son **Anthony**, and her many relatives and friends.



Elsie and Dave Patmore enjoy a favourite pastime, searching for fossils in the Red Deer River badlands, 2006. Photo by Howard Allen.

President's Message

By Cory Gross

s the new President of the Alberta Palaeontological Society, it is my privilege to
welcome you to our 2013–2014 season.
I hope that everyone was able to enjoy
as much of the summer as they could and that the
floodwaters that ripped through southern Alberta
left your families unscathed. With autumn and a new
year of activity upon us, I am excited by the opportunities ahead.

When I joined the Society in 1993, it was hot on the heels of a little film you might have heard of, called *Jurassic Park*. Though I grew up with a deep seated love of prehistoric life, it was this iconic motion picture that stirred my imagination, pushing me to begin a post-secondary career in geology and to become a member of the APS. I don't have to tell you how much the science of palaeontology benefited—and still is benefiting—from the public interest sparked by *Jurassic Park*. My own studies in geology eventually parlayed into a degree in museums and heritage, the field in which I currently work.

Jurassic Park was re-released to theatres this past spring in 3D, and we can hope that we might once again enjoy some residual growth with a new generation. Unfortunately no organization can survive on one dinosaur movie coming out every two decades. During my twenty years of membership (I can't believe it's been that long!) I've seen the APS ebb and flow, grow and shrink. Right now, when I look over the health and affairs of the Society, I see a group that deceptively appears to be running smoothly but is facing significant organizational challenges.

There is no one to blame for the current state of affairs. Our executive committee has been exemplary and we have enjoyed many wonderful speakers and opportunities to contribute to the science of palaeontology over the last few years. The faces we see on our executive are, however, the same faces that we've seen for decades. There is no one in line to fill these roles when other life responsibilities take over and they are vacated, as we have seen with a Field Trip Coordinator position that technically sat empty for some time. We have also seen declining posters

for the Symposium, very few fossils trickling into meetings for us to peruse, and a chronic inability to even reach quorum at our annual general meeting. While our membership numbers are high, volunteerism is low.

During my presidency of the APS, I do not want to be a warm body filling in the spot because nobody else will. That would simply be another act of shuffling around the same exhausted executives. What I hope to do is facilitate a new phase of growth for the society. I want to do what I can to support and reinvigorate you, our members, and to make membership in the APS something exciting and vital.

This growth will be a big and lengthy project covering many different aspects of the Society, from succession planning, to how we run meetings, to rebranding, to pursuing opportunities for public education and Earth science advocacy. In many ways, it will simply be recapturing the vitality that led me to join all those years ago. Most of all, I look forward to your ideas. *The APS is your Society*.

The executive is always looking for fresh blood and fresh ideas. We want to hear your ideas, your comments, your concerns and your criticisms. My e-mail is always available, my phone is usually on and I prefer to hear those things first-hand. I can't do anything about problems that I don't know about. When it comes to ideas, I am a committed "how can we make this work" person—not a "no" person, not a "here-are-all-the-problems-with-it" person.

It's an adventure that I'm looking forward to! I hope you are too!

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Upcoming Events

September

David A. Eberth

Royal Tyrrell Museum of Palaeontology

Climate Influence on Dinosaurian Biostratigraphy in the Horseshoe Canyon Formation (Upper Cretaceous), Alberta, Canada

Friday, September 20, 2013, 7:30 P.M. Mount Royal University, Room B108

An abstract of this talk appeared in the June *Bulletin*.

Scott Persons

The University of Alberta

The Guts of Microraptor

Friday, October 18, 2013, 7:30 P.M.

Mount Royal University, Room B108

Since its discovery, the four-winged dinosaur *Mic-roraptor* has remained central to debates over the origin of modern birds and the functional origin of bird flight. As such, the life habits of *Microraptor* have enticed much speculation, and this speculation has been frequently used to support broader theories.

A new, fully articulated and nearly complete specimen of Microraptor gui provides direct evidence that the feeding ecology of Microraptor differed from all previous interpretations. In addition to well preserved keratinous sheaths covering the claws and traces of long contour feathers originating from the forelimbs, hind limbs and tail, the new specimen includes gut contents. The gut contents consist almost entirely of teleost fish remains. *Microraptor* is characterized by an absence of anterior tooth serrations, and re-examination of the dentition of *Microraptor* shows that the first three teeth in the dentary are strongly procumbent (leaning forward). Reduced tooth serrations and procumbent dentition are both traits common to many piscivores (fisheaters). Combined with previous discoveries, this new evidence makes the diet of *Microraptor* the best sampled of any dinosaur. Microraptor was not limited to arboreal predation and appears to have been capable of successfully hunting the most common prey throughout the micro-habitats of its ecosystem. Additionally, the new specimen is the largest *Micro*raptor gui yet recorded.

Biography

Scott Persons is originally from North Carolina and completed an undergraduate degree at Macalester College in St. Paul, Minnesota. He completed his Master's degree in Evolution and Systematics from the University of Alberta in 2012 where he is presently working on his PhD program under Dr. Philip Currie. His research interests focus on dinosaur ecology and functional morphology and on arms-race-driven macroevolutionary trends.

Jason Anderson

The University of Calgary

Gaps in the Fossil Record of Vertebrates

Friday, November 15, 2013, 7:30 P.M. Mount Royal University, Room B108

Our view of the history of vertebrate life is inextricably entwined with the quality of the fossil record. Fossilization removes information that is accessible in modern animals, making fossil species of a higher taxonomic level than modern species, since figuring out "cryptic species" is impossible. We cluster groups of species based on the shared derived characters they possess, but when gaps in the fossil record are present, groups can artificially cluster based on the methods we use rather than being precise reflections of biologic reality. Also, large scale gaps in the fossil record can suggest macroevolutionary processes at play artificially. I will examine two gaps in the fossil record, using the famous Romer's Gap and the Lepospondyli as case studies for the misleading nature of gaps. In both cases, new data are suggesting that phenomena are actually artifacts upon closer scrutiny.

Biography

Jason Anderson is an Associate Professor of Anatomy in the Department of Comparative Biology and Experimental Medicine, an Adjunct Associate Professor in the Department of Biological Sciences, and a founding member of the Faculty of Veterinary Medicine at the University of Calgary. He earned his BSc from the University of Michigan and his PhD in vertebrate palaeontology at McGill University. After holding an NSERC Postdoctoral Fellowship at the University of Toronto, he joined the new College of Veterinary Medicine at Western University of Health Sciences in Pomona, California, prior to taking his position in Calgary. He specializes in early amphibian anatomy and phylogeny, with particular emphases on three dimensional morphology and the question of the evolutionary origins of modern amphibians. He has published over 50 scientific articles, edited several volumes including Major Transitions in Vertebrate Evolution from Indiana University Press, and sits on several journal editorial boards, including the *Journal of Vertebrate Paleontology.* **□**

Fall & Winter 2013–2014 Microfossil Sorting

By Bev Ulmer

This fall's fossil sorting workshops will be held on Saturday afternoons at Mount Royal University in Room B213 from 1:00 to 3:30 P.M. Sessions have been confirmed for the following dates:

November 2 Dr. Jessica Theodor November 16 Dr. Don Brinkman November 30 Dr. Jessica Theodor December 14 Dr. Don Brinkman

Dates in January, February and March of 2014 are not yet finalized. Watch the December *Bulletin* and the APS website for updates.

Dr. Jessica Theodor from the University of Calgary will be supplying a coarse matrix of late Eocene age from the area of Swift Current, Saskatchewan.

Dr. Don Brinkman of the Royal Tyrrell Museum will have us examining early Paleocene material. It is expected to be dominated by fish remains, but will also include mammal teeth and lizard and amphibian bones. This is part of a faunal study to determine diversity and relative abundances of whatever taxa show up in the samples.

There will be a signup sheet at our monthly meetings if you wish to attend, but if you aren't able to sign the sheet, please come anyway. The signup sheet is used to inform you in the event that a session needs to be cancelled on short notice. You may also contact me at **baulmer2010@gmail.com** and leave me your name and number.

Microscopes and related equipment will be provided by Mount Royal University. All participants need to bring a pair of tweezers suitable for picking up small particles and a pen to record your finds.

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June Flooding Brings Big Changes to Foothills

Photos by Dan Quinsey

hen Highway 66, west of Bragg
Creek, was re-opened to traffic in
early August following the catastrophic flooding of late June, APS
members **Dan and Valerie Quinsey** and **Geoff Barrett** took a "look-see" to survey the damage.
These photos show some of the changes to the area
around Canyon Creek, a popular day-trip destination
for Calgary fossil hunters. Some old fossil sites are
gone, but perhaps new ones await discovery.



Temporary bypass around the washed out Highway 66 Bridge over the Elbow River east of Allen Bill Pond.



Former location of Allen Bill Pond, once a popular picnic site, is now a debris-choked braided channel of the Elbow River.





Before and after pictures at the "Stigmaria site" fossil plant locality on Canyon Creek (Mount Head Formation, Carboniferous), which was discovered by APS member **Les Adler** after bedrock was exposed by flooding in 1995. Upper image, taken in August 2009, shows the fossiliferous Mount Head dolostone bedrock exposed in the creek bed. View is looking downstream (south). Lower image, taken from almost the same spot, but looking the opposite direction (upstream, north) shows the 2013 flood deposits covering the former fossil site to a depth of more than 1 m.





More before and after pictures at the "Stigmaria site". View across Canyon Creek bed to east bank from the fossil site on the west bank, showing the quantity of gravel deposited in the channel by the 2013 floods. Views vary in perspective, but images have been scaled and rotated to approximately match. Upper image taken in August 2009. White line shows approximate surface of 2013 flood deposits (>1 m above 2009 creek bed). Lower image was taken August 4, 2013.





Flood deposits filling Canyon Creek channel at the bridge on Canyon Creek Road. Upper photo taken August 2009. Lower photo taken August 2013. Note tree roots dangling from bridge and gravel packed into triangles: evidence that the bridge had been inundated during the flood, and cleared by road crew prior to this photo being taken.



Fresh exposure of fossiliferous upper Banff Formation revealed by erosion of the Canyon Creek road bed near the Banff/Pekisko contact. For fossil hunters, this new locality won't last long, as road crews are sure to cover it up when the road is repaired.

A Possible Identity for Dino Toe Bone?

By Howard Allen

A mystery fossil illustrated in the June *Bulletin* may be closer to having its true identity solved. The specimen, donated to the APS collection by **Judith Aldama**, was collected from Upper Cretaceous rocks. While its anatomical identity—an ungual phalanx, or "claw bone"—was obvious from the start, the critter it belonged to was less obvious. **Vaclav and Mona Marsovsky** visited the Museum of the Rockies in Bozeman, Montana this summer and had a *déjà vu* moment while gazing at the display of a *Montanaceratops* foot.

Upper photo is by Vaclav Marsovsky. Lower photo from APS files. \Box





Montanaceratops right pes (top), Museum of the Rockies, Montana. Below, APS 2013.06. Scale bar = 1 cm.

Update: "Bringing the Cretaceous Sea to Mount Royal University"

At the September 10 APS executive meeting, **Dr.**Wayne Haglund, Professor Emeritus of Mount
Royal University (MRU) and project director, gave
the Officers and Directors in attendance a progress
update. The project, also known as the "East Gate
Entrance Fossil Display" is partly funded by an APS
donation of \$1000, approved by a majority vote at the
May AGM (see *Bulletin*, June 2013, p. 3).

Dr. Haglund reports that the goal of raising \$100,000 to fund "Phase 1" of the project (purchase and installation of full-scale skeletal models of Cretaceous vertebrates in the MRU East Gate entrance) has been attained. Models have been purchased and transport and installation are arranged.

Phases 3 and 4 of the project involve a painted mural and museum-quality display cases of Cretaceous invertebrate fossils. Fundraising an additional \$100,000 for these final phases is ongoing. Contact Dr. Haglund (403) 440-7238 if you can help with financing ideas or assistance. □

Fossils in the News

Edited by Howard Allen

CBC News Online June 7, 2013

Man fined \$7,000 for exporting fossils, gems to Japan

CALGARY—Fossil dealer Terry Ciotka, of Pangea Fossils Ltd. was hit with a \$7,000 fine after being convicted of violating the federal Cultural Property Export and Import Act and the National Parks Act. Ciotka, a Saskatchewan resident, attempted to export fossils, minerals and gemstones in 2011 without the proper permits. The National Parks violation was related to Burgess Shale fossils that were part of the shipment. Customs agents called in the RCMP when they became suspicious of the declared value of the shipment and the lack of documents. http://www.

cbc.ca/news/canada/calgary/man-fined-7-000-forexporting-fossils-gems-to-japan-1.1412579

The National Post Online August 30, 2013

Most complete dinosaur skeleton ever found in BC unearthed, revealing 73-million-year-old hadrosaur—minus its head

TUMBLER RIDGE, BC—A palaeontological crew led by Dr. Richard McCrea of the Peace Region Palaeontology Research Centre (PRPRC), has recovered much of a hadrosaur skeleton from a remote site in northeastern BC. Excavation took five years, but the bulk of the specimen was airlifted by helicopter to the Tumbler Ridge Museum in early August. According to McCrea, the site is a bonebed and could contain "at least thirty more skeletons". The head of the first hadrosaur was not found, but McCrea is hopeful it may still be discovered. About sixty shed tyrannosaur teeth (not "tyrannosaurus," as the article repeatedly states) have also been removed from the site, indicating that the dinosaur carcasses had been scavenged. http://news.nationalpost. com/2013/08/30/most-complete-dinosaur-skeletonever-found-in-b-c-unearthed-revealing-73-millionyear-old-hadrosaur-minus-its-head/

Photos documenting the five field seasons of work on the project can be seen at the PRPRC website: **www.prprc.com** (click "Field Projects").

CNN Online June 5, 2013

Giant lizard named for Jim Morrison tells tale of climate change

LINCOLN, Nebraska—If you pick through this example of what passes for science journalism at CNN, you might come up with a kernel of actual science news: Palaeontologist Jason Head, of the University of Nebraska, has described a new fossil lizard from Eocene rocks of Myanmar (formerly Burma), and named it *Barbaturex morrisoni* after *The Doors*' late singer Jim Morrison. The plant-eating lizard existed at a time when global temperatures were much higher than today, and it filled an ecological niche usually occupied by herbivorous mammals.

The CNN article is a confusion of errors, hyperbole and celebrity name-dropping. If you still want to read it, go to www.cnn.com/2013/06/05/us/climate-

change-jim-morrison-lizard/index.html?iid=article_ **sidebar**. A hype-free description of *Barbaturex* can be read at Wikipedia: http://en.wikipedia.org/wiki/ **Barbaturex**. Better yet, read the scientific paper (open access) at http://rspb.royalsocietypublishing. org (search for "Barbaturex").

Science (online) July 19, 2013

Meet "Big-Nose Horned-Face"

UTAH—Yet another horned dinosaur has been revealed to the world, this one *Nasutoceratops titusi*, remains of which were recovered from the Kaiparowits Formation (Late Cretaceous: late Campanian) of Grand Staircase-Escalante National Monument in southern Utah. The standout features of this animal are a short but very high, narrow snout and a pair of horns that would not look out of place on a bovine. The 5 m-long animal was named and described by a team led by Dr. Scott D. Sampson of the Denver Museum of Nature and Science and University of Utah.

In a reversal of the usual state of affairs, the Science news blurb is paywalled, but you can download and read the original scientific paper (open access) at http://rspb.royalsocietypublishing.org (search for "Nasutoceratops").

The Salt Lake Tribune (online) July 21, 2013

Could new rules bury citizen paleontology?

SALT LAKE CITY, Utah—Professional palaeontologist-lobbyists who pushed hard for the United States Paleontological Resources Preservation Act—supposedly to protect fossils on US federal land—may become unwitting victims of another law: unintended consequences. The Act, passed in 2009 with much fanfare from the likes of the Society of Vertebrate Paleontology (see *Bulletin*, June 2009, p. 17), required land management agencies such as the U.S. Forest Service (USFS) and the Bureau of Land Management (BLM) to come up with rules to control fossil collecting by amateurs.

Predictably, it appears this might be too much of a good thing, and some academics are now alarmed that their most valuable source of new discoveries (namely, amateur palaeontologists) may be legally prevented from pursuing their hobby, and either discouraged from going out in the field at all, or keeping any finds they do make away from the eyes of professionals, for fear of legal consequences.

The *Tribune* article highlights the case of two Utah amateurs who have a total of 95 man-years of experience in finding fossils and sharing their discoveries with the scientific community. New collecting laws on the drawing board are threatening to bring all that to a grinding halt.

To anyone experienced in fossil hunting, the drafted rules for collecting invertebrate fossils seem absurd (collecting of vertebrate fossils of any kind is banned outright). For example, the USFS proposes that collectors would be limited to twenty-five pounds (11.3 kg) of material per year. And they would further be limited to no more than five specimens of "any one type" of invertebrate fossil, again, per year. Any collecting beyond those limits would require a permit, which would only be available to qualified academics. "It seems like government bureaucracy run amok," says Dick Robison, Professor Emeritus at the University of Kansas, who formerly taught in Utah. "I have worked with [amateurs] since I arrived in Utah in the mid-1960s. They have been phenomenal. These rules will put an end to that cooperation." He calls the twenty-five-pound rule "absolutely bizarre." But, says Robison, "The real problem is five specimens a year. You can't pick up a piece of fossiliferous rock and not have more than five specimens on it. I have broken the law by picking up a rock."

www.sltrib.com/sltrib/news/56598999-78/collecting-fossils-rules-fossil.html.csp?page=1

[Thanks to Phil Benham and Georgia Hoffman for sending links. -ed.]

"Dino 101" Online Course

A free online course for dino fanciers is being offered by the University of Alberta and taught by renowned dinosaur palaeontologist Dr. Phil Currie. The first session of the course is already running (started September 4), but future sessions may be in the offing. Sessions run for 12 weeks and have a workload of 3–10 hours per week. At least one APS member is enrolled in the current session and has good things to say about it, so bookmark the web page if you're interested and keep an eye on it. http://uofa.ualberta.ca/dino101