Palæontological
Alberta
Society
Bulletin

VOLUME 25 • NUMBER 3 www.albertapaleo.org SEPTEMBER 2010

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**

THE BULLETIN WILL BE PUBLISHED QUARTERLY: March, June, September and December. Deadline for submitting material for publication is the 15th of the month prior to publication.

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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, October 15, 2010—Dr. Len V. Hills, University of Calgary:
The Wally's Beach Site: A Palaeontological-Archaeological Treasure Trove (see Page 4).

Friday, November 19, 2010—Dr. Takuya Konishi, Royal Tyrrell Museum of Palaeontology:
Studying Mosasaurs Far and Deep: The Evolution of the Swimming Style in the Last Giants of the Mesozoic Oceans (see Page 5).

Friday, December 10, 2010—Vaclav Marsovsky, Alberta Palaeontological Society:
Mammal Trackways in Toadstool Geological Park, Nebraska (see Page 6).

ON THE COVER: Grassy Mountain coal mine in the Crowsnest Pass area of southwestern Alberta. The now abandoned open-pit mine exposes rocks of the Upper Jurassic to Lower Cretaceous Mist Mountain Formation of the Kootenay Group, one of the primary coal-producing formations in western Canada. The area produces well-preserved plant fossils and was the venue for the August 2010 APS field trip. Photo by Keith Mychaluk.

Society Mourns Hope Johnson


Dan Quinsey

It is our sad duty to announce the passing of Mrs. Barbara Elizabeth "Hope" Johnson on Tuesday, August 24, 2010 at the age of 94, in Medicine Hat.

Hope Johnson was of course very well known to the APS, having been a long-time member, our Society's first Life Member, and collaborator/illustrator and inspiration for the recently published APS book, *Guide to Common Vertebrate Fossils from the Cretaceous of Alberta*. It is hard to overstate Hope's influence on Alberta palaeontology, particularly within the amateur community, where she was—and is—an icon.

Hope's life and accomplishments are too large a topic to document in this brief announcement. **Darren Tanke** is preparing a major article on Hope's life as part of his *Remember Me* series of biographies and we plan to publish it in the *Bulletin* later this year or early in 2011.

Past-President **Dan Quinsey** was able to attend Hope's Memorial Service in Medicine Hat, on behalf of the APS. His report follows.

Memorial Service for Hope Johnson

By Dan Quinsey, Past-President

I attended Hope Johnson's Memorial Service September 4, 2010 at Pattison Chapel in Medicine Hat.

Barbara Elizabeth "Hope" Johnson was born March 17, 1916 in Sardis, BC and passed away on August 24, 2010 in Medicine Hat, Alberta at age 94.

The Service lasted approximately one hour. **Sharon Steim** gave the opening statement and greeting to everybody—the many family members, friends, relatives and guests present.

Hope's son **Lawrence Johnson** followed with the Obituary. Hope's many accomplisments were cited (including one I did not know: she apparently found the first flying reptile fossil in Canada). Lawrence shared a few memories of his life as a child being "dragged" into the sweltering heat of the badlands for hours on end, collecting rocks, fossils, and wildflowers. Hope frequently invited Lawrence's friends to tag along. He remembered his friends calling her a "walking encyclopedia."

He grinned when he said Hope was not much of a housekeeper, as the house was always full of these items in every corner and on every table along with art supplies scattered around where Hope was painting or drawing.

Lawrence shared another memory: he sarcastically asked his mom what she was making for dinner one day and she calmly replied with her usual big smile, "rattlesnake stew". He was quite surprised about her reply and was not sure if she was joking or not. (Sharon Steim later commented with a big grin, "I can just imagine Hope stuffing a rattlesnake into the pressure cooker".)

Lawrence said Hope had many followers who wanted to meet her and get their picture taken with her. Hope never turned anyone away but was known to comment about the numerous pictures she had of herself with people she did not even know. Her children had a running joke in the family that those pictures were kept for "scale" in reference to Hope's diminutive height.

Darren Tanke, **Patty Ralrick** and **Dr. Don Brinkman** were also in attendance. A few of Hope's family and close friends went up to the podium to relate comments and short stories during the open mike portion of the Memorial. Darren Tanke related how he and **Phil Currie** were always excited to receive a package from Hope with a few fossils she had collected. She would usually have them already identified and described and was asking for their confirmation, as opposed to the many packages they usually receive from the public without any paperwork, asking for identification. By Darren's account, Hope had donated approximately 2300 fossils to the Museum.

The APS was mentioned a few times in the recounting of her induction as a Life Member of the Society, the date we approached her about republishing her drawings, and the launch of the new book. Our presence was acknowledged by Sharon Steim.

The drive to and from Medicine Hat along with the Service made it a long day for me but I was happy to have attended and to have represented the APS. ❑

Corrections

In "May Election Results" (June 2010 *Bulletin*, p. 3), the date of the Annual General Meeting is incorrect. The meeting was actually held on Friday, May 21, not May 28.

On the same page, in the article "Paleo 2010" the surname of artist **Brian Cooley** is misspelled "Coulee." Author **Mona Marsovsky** and the editor apologize for the error. ❑

Upcoming Events

October

Dr. L.V. Hills

University of Calgary

The Wally's Beach Site: A Palaeontological-Archaeological Treasure Trove

Co-authors
B. Kooyman, University of Calgary
S. Tolman, Cardston
P. Mcneil, Steppe Consulting

Friday, October 15, 2010, 7:30 P.M.
Mount Royal University, Room B108

The Wally's Beach Site (DhPg8), near Cardston, Alberta, contains a diversity of palaeofauna and artifacts. This talk will focus on the pre-11,000 years RCBP (radiocarbon years before present) aspects of the site.

Geology and wind played a significant role in the preservation, and ultimately exposing the site to the view of archaeologists and palaeontologists. A Laurentide till which overlies sandstones of the St. Mary River Formation extended westward from the site into the foothills of Alberta. As the ice retreated, a thick sequence of rhythmites was deposited in a proglacial lake. A re-advance of the ice into the area produced an end moraine system and outwash sands and gravels in the area. With recession of the second ice sheet, the St. Mary River reestablished itself on the glacio-lacustrine sediments. Initially a meander loop to the south followed by a cutoff produced a large island in the river. This island became the focus for food and water for the palaeofauna.

When the river cut down to the resistant sandstones of the St. Mary River Formation, incision slowed and the river cut laterally into the soft lake sediments, producing a broad floodplain west of the site and a west-facing scarp to the island. It was at this point that the palaeofauna, followed by Palaeo Indians, entered the area.

During wet intervals, the palaeofauna moved across the area leaving tracks and trackways which were covered by a veneer of silt and sand, preserving them for later exposure. The palaeofauna attracted the Palaeo Indians and the skeletal elements of their successful hunts were rapidly encased in sands, preserving them from scavengers such as wolves and foxes.

The palaeofauna is comprised of mammoth, western camel, Mexican horse, ancient bison, caribou, wolves, foxes, scimitar cats and rodents. Evidence of Palaeo Indian activity in the area includes Clovis points, butchered horses and camels and a collection of cast caribou antlers. Protein residue on Clovis points provided the first use of this technique on samples 11,000 years old. Butchering of Mexican horse and camel is documented for the first time. The archaeological, biological and geological significance of the tracks and trackways as they reflect animal behaviour will be reviewed.

Biography

Dr. Len Hills was born and raised on a farm at Judah, Alberta. On completion of high school, he joined Socony Vacuum (later Mobil Oil and ExxonMobil). He left to attend university in 1956, received his B.Sc. and M.Sc. from UBC by 1962 and his Ph.D. from the University of Alberta in 1965. He worked briefly for Shell Canada before entering the Department of Geosciences at the University of Calgary. He became an Emeritus Professor there in 1996.

In 1979 he was President of the CSPG and has edited the *Bulletin of Canadian Petroleum Geology*, *Arctic* (Journal of the Arctic Institute), is the Founding Editor of *Occasional Papers in Archaeology*, and edited several CSPG Memoirs. His work has been published in about 150 publications on sedimentary geology, stratigraphy, palynology, archaeology and biology. He supervised 48 graduate students and was member of 260 committees. His interests include

natural history, plants, animals, geomorphology, and public education. Dr Hills' honours include: Fellow of the Arctic Institute of North America, Honorary Member of the CSPG and Order of the University of Calgary. ❑

November

Dr. Takuya Konishi

Royal Tyrrell Museum of Palaeontology

Studying Mosasaurs Far and Deep: The Evolution of the Swimming Style in the Last Giants of the Mesozoic Oceans

Friday, November 19, 2010, 7:30 P.M.
Mount Royal University, Room B108

During the Mesozoic, a variety of reptilian vertebrates were constantly evolving in the marine as well as terrestrial realms. Mosasaurs, temporally confined to the Late Cretaceous but spatially distributed worldwide, constituted the last major lineage of marine reptiles during the era. Following the emergence of such marine reptiles as ichthyosaurs, plesiosaurs, marine crocodiles, and sea turtles, mosasaurs were unique in that they represented the first and the last squamates, a reptilian group comprising lizards and snakes, to have become fully aquatic with flippers.

Figure 1. *Platecarpus* in the flesh. Credit: illustration by Stephanie Abramowicz, Dinosaur Institute, Natural History Museum of Los Angeles County.

Some reaching the estimated total body length of 15 m or more, mosasaurs are also the largest squamates known to the history of Earth. While their taxonomic diversity continues to increase with new fossil discoveries, many biological aspects of mosasaurs, including their swimming styles, continue to be the subjects of active ongoing research.

Plioplatecarpines are typically medium-sized (6–10 m total body length) and short muzzled mosasaurs, commonly found in Upper Cretaceous marine strata in North America including southern Alberta. Stomach contents associated with several skeletons show that these medium-sized mosasaurs mostly fed on fish and other small vertebrates. When temporal and geographic ranges of plioplatecarpines were incorporated into the newly proposed phylogeny, the interrelationships among these mosasaurs, it became evident that: (1) these mosasaurs did not distribute to both sides of the Atlantic Basin until the latest part of the Late Cretaceous; and (2) the only group with this extended geographic distribution, *Plioplatecarpus*, is also the most derived among plioplatecarpine mosasaurs. Hence, I propose that some or many of the anatomical characters that evolved both in the lineage leading to *Plioplatecarpus* and within the members of *Plioplatecarpus* after its establishment enabled this mosasaur to become fully pelagic.

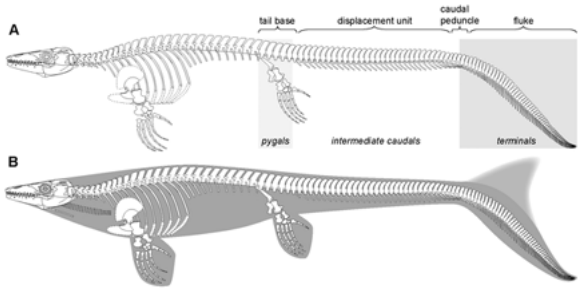


Figure 2. Skeletal reconstruction and inferred body outline of the plioplatecarpine mosasaur *Platecarpus*. (A) New reconstruction based on LACM 128319. Note the regionalized caudal vertebral column resulting in four discrete structural units: proximal tail stock or base, mid-sectional displacement unit, narrow caudal peduncle, and distal fluke or propulsive surface. Also note the change in inclination of the neural and haemal spines along the caudal segment and the distinct tail bend formed by wedge-shaped vertebrae. (B) Inferred body form of *Platecarpus*. The precise shape and depth of the dorsal lobe of the caudal fin is unknown.

Based on the new phylogeny, the following characters for *Plioplatecarpus* are considered indicative of their pelagic and possibly deep-diving adaptations: (1) torso region less flexible; and (2) orbital size increased. Further, among the three known species of *Plioplatecarpus*, the following anatomical features are exclusively shared by the two, geologically youngest species: (1) posterior torso region primarily immobile; (2) lateral movement of neck restricted; (3) body deepened as neural spines of dorsal vertebrae elongated; and (4) tail base extremely stiffened. Presence of these latter anatomical modifications indicates that plioplatecarpine mosasaurs continued to develop deeper and progressively more rigid body

architecture conducive to a pelagic lifestyle up to the very end of their evolutionary history, which came to an abrupt end at the end of the Cretaceous.

A recent study indicates that *Platecarpus*, a moderately derived plioplatecarpine mosasaur, possessed a well-developed tail fin like that found in modern sharks. At the same time, *Platecarpus* lacked any of the aforementioned specializations found in *Plioplatecarpus*. Plioplatecarpines as a group existed in the last 25 million years of the Mesozoic Era. While a well-developed tail fin was clearly present by 85 million years ago in *Platecarpus*, acquisition of the large orbit and the stiff torso region, likely prerequisites for fully pelagic existence, did not take place for the next 10 million years or so until *Plioplatecarpus* appeared in the last stage of the evolution of plioplatecarpines.

Biography

Originally from Japan, Takuya Konishi came to Edmonton, Alberta to pursue his education in palaeontology at the University of Alberta. In 2004, he completed his undergraduate degree and proceeded to do his graduate work under Dr. Michael Caldwell at the university. He recently completed his dissertation work and has been a postdoctoral fellow at the Royal Tyrrell Museum of Palaeontology since September, 2009. His specialty is in mosasaurs, from the systematics to palaeoecology to functional morphology. ❑

December

Vaclav Marsovsky

APS Membership Director

Mammal Trackways in Toadstool Geological Park, Nebraska

Friday, December 10, 2010, 7:30 P.M.
Mount Royal University, Room B108

Passport in Time (PIT) is a volunteer archaeology and historic preservation program of the USDA Forest Service (FS). PIT volunteers work with professional FS archaeologists, palaeontologists and historians on national forests throughout the USA on such diverse activities as archaeological survey and excavation, rock art restoration, survey, archival research, historic structure restoration, oral history gathering, and analysis and curation of artifacts. The goal of PIT is to preserve the nation's past with the help of the public. PIT volunteers contribute to environmental and historical research on US public lands. Most of the programs are archaeological, few are paleontological.

Figure 1. PIT volunteers cleaning the trackway surface. Photo by Vaclav Marsovsky.

Vaclav and Mona Marsovsky along with about twenty other volunteers gave their time at the Toadstool Geological Park and helped to document the mammal trackways before they succumb to the process of erosion and are lost. The trackways, recognized a few years ago, have already started to degrade.

This presentation will give a general overview of the geology, show what the trackways look like, how the photogrammetric techniques were employed and what animals were involved in making the tracks.

Under the direction of the USDA Forest Service Regional Palaeontologist, the volunteers also prospected and collected fossils that were found eroding out of the badlands.

Biography

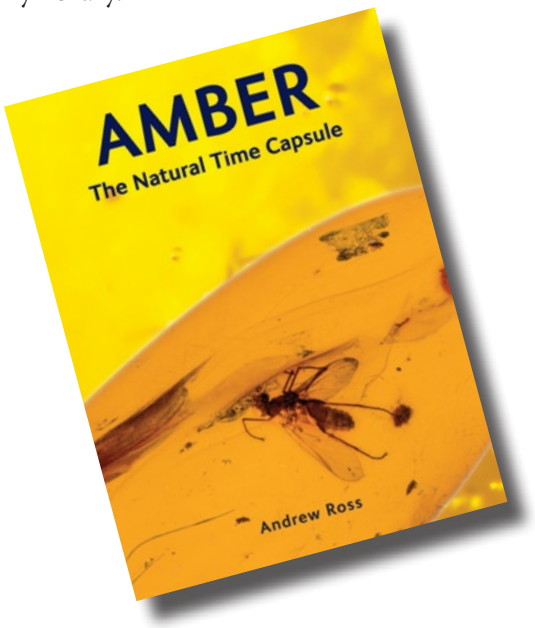
Vaclav Marsovsky has a degree in Engineering and an interest in Palaeontology. Vaclav has been on the APS board for over 15 years in several administrative roles, including President. He was a major contributor to the book *Guide to Common Vertebrate Fossils from the Cretaceous of Alberta*, recently published by the APS. ❑

Book Review

By Dan Quinsey

***Amber: The Natural Time Capsule*. By Andrew Ross, 2010. Firefly Books. Hardcover, 112 pp, ISBN 13-978-1-55407-609-3. Price CDN$29.95.**

A new book hit the shelves recently. *Amber: The Natural Time Capsule* by Andrew Ross, Principal Curator of Invertebrate Palaeontology and Paleobotany at the Natural Museums, Scotland. At first glance, I immediately knew I had to add this volume to my library.



In 1993, Andrew Ross started work curating the amber collection in the Department of Palaeontology at the Natural History Museum, London. His task was to clean, identify and organize the specimens. Although there are many characteristics to separate the different groups , most of these features are difficult to see in amber due to the insect not being in its natural resting state.

Andrew learned which features were useful in separating the different groups. He also realized which insects are common in amber and which are rare—which in many cases are completely different to what are rare or common today. Using this knowledge, he put together a guide to help identify insects you are most likely to see, most of which are illustrated by photographs.

His book explains how amber is formed, where it is found and how to distinguish genuine amber from fakes. He describes its many uses, both in art and science, and recounts the elusive search for DNA from insect inclusions.

The best part of the book is the detailed, illustrated identification keys to the most common insect inclusions. The many stunning and previously unpublished photographs of specimens from the collection of the Natural History Museum in London guide you in the identification of species of insects and other amber inclusions. I particularly like how the identification key references the photographs found in the book. Another valuable thing worth mentioning is the fact that every photograph includes the scientific description of the inclusion in the caption, something you do not see in other amber books.

I have several books on amber and a few on the subject of entomology but together, they do not compare to the number of identified photographs or the identification key found in *Amber: The Natural Time Capsule.* ❑

Tyrrell Dino Talk at Calgary Zoo

Date: Thursday, November 4, 2010. Time: 7:00–9:00 P.M. Cost: $18. Location: Esso Auditorium, Calgary Zoo. Tickets available online, www.calgaryzoo.com or 403-232-9300.

This talk is designed for adults. No prior dinosaur knowledge is required. You will learn about current research, interesting facts and theories.

New Fossils, New Ideas: Our changing views of dinosaurs and how they lived. The past thirty years, and the last ten years in particular, have seen great changes in our ideas about dinosaurs and their ways of life. The dinosaur fossil record is much more than

just skeletons. We have trackways, skin impression, nests with eggs and brooding adults, eggs with embryos, eggs inside bodies, bite marks made by one dinosaur on another while they were still alive, evidence of cannibalism, and even some internal organs and fossil feathers on dinosaurs!

Donald P. Henderson, Curator of Dinosaurs at the Royal Tyrrell Museum will take us on a tour through these new fossils and ideas. ❑

Fossils in the News

Edited by Chris Marion

Edmonton Journal—*Edmonton drainage crew discovers dinosaur tooth, bones* **www.edmontonjournal.com/technology/Edmonton+drainage+crew+discovers+dinosaur+tooth+bones/3432278/story.html**

Science Daily—*Dinosaur-chewing mammals leave behind oldest known tooth marks* **www.sciencedaily.com/releases/2010/06/100616161207.htm**

CBC—Largest dinosaur graveyard found in Alberta **www.cbc.ca/technology/story/2010/06/17/dinosaur-graveyard.html**

Science Daily—Mojoceratops: *New dinosaur species named for flamboyant frill* **www.sciencedaily.com/releases/2010/07/100708160935.htm**

Science Daily—*New horned dinosaur: Two-ton plant-eater lived 78 million years ago in Montana* **www.sciencedaily.com/releases/2010/05/100528113914.htm**

Science Daily—*First horned dinosaur from Mexico: plant-eater had largest horns of any dinosaur* **www.sciencedaily.com/releases/2010/05/100528124513.htm**

Science Daily—Triceratops *and* Torosaurus *were same dinosaur at different stages* **www.sciencedaily.com/releases/2010/07/100714131244.htm**

Discovery News—*New giant horned dinosaur a* Triceratops *relative* **http://news.discovery.com/dinosaurs/horned-dinosaur-ojoceratops-triceratops.html**

CBC—*Huge mammoth skull found in Yukon gold fields* **www.cbc.ca/canada/north/story/2010/06/15/yukon-mammoth-fossils.html**

Science Daily—*Primitive frogs do a belly flop: study shows that frogs evolved jumping before they refined landing* **www.sciencedaily.com/releases/2010/07/100721085450.htm**

CTV—*Ice Age baby mammoth on display in France* **www.ctv.ca/CTVNews/SciTech/20100716/ice-age-mammoth-100716/**

CBC—*Ancient fish fossil found in Manitoba* **www.cbc.ca/canada/manitoba/story/2010/07/16/mb-ancient-fish-fossil-manitoba.html**

CBC—*Ancient reptile tracks found in N.B.* **www.cbc.ca/technology/story/2010/07/30/reptile-footprints.html**

BBC—*Australia's marsupials 'have American roots'* **www.bbc.co.uk/news/science-environment-10774536**

Science Daily—*Feathered friends: Ostriches provide clues to dinosaur movement* **www.sciencedaily.com/releases/2010/06/100630213614.htm**

Science Daily—*Why you should never arm wrestle a saber-toothed tiger* **www.sciencedaily.com/releases/2010/07/100702194143.htm**

Science Daily—*New research on rapidly-disappearing ancient plant offers hope for species recovery* **www.sciencedaily.com/releases/2010/07/100713132258.htm**

Science Daily—*Ancient birds from North America colonized the south, thanks to Panama land bridge* **www.sciencedaily.com/releases/2010/07/100713091441.htm**

CBC—*Ancient marsupial fossil trove found* **www.cbc.ca/technology/story/2010/07/16/marsupial-fossil-cave.html**

MSN—*Skull of whale-eating whale discovered* **http://news.ca.msn.com/top-stories/cbc-article.aspx?cp-documentid=24753943**

Drumheller Online—*Dinosaur hunting by boat* **http://drumhelleronline.com/index.php?option=com_content&task=view&id=1967&Itemid=66**

Editor's note: By far the best & most thorough coverage of the preceding story is on Darren Tanke's blog, **http://2010dinohuntingbyboat.blogspot.com/**

CBC—*New hominid pushes back date of walking upright* **www.cbc.ca/technology/story/2010/06/22/skeleton-ancestor-humans.html**

Science Daily—*World's oldest fig wasp fossil proves that if it works, don't change it* **www.sciencedaily.com/releases/2010/06/100615191649.htm**

Science Daily—*Warm-blooded marine reptiles at the time of the dinosaurs* **www.sciencedaily.com/releases/2010/06/100614093341.htm**

CBC—*Giraffes can swim, though poorly: study* **www.cbc.ca/technology/story/2010/06/01/giraffe-swimming-math-science.html**

Science Daily—*New skeletons from the age of dinosaurs answer century-old questions about prehistoric reptile* Typothorax **www.sciencedaily.com/releases/2010/05/100528125635.htm**

CBC—*Mystery of squid-like fossil solved* **www.cbc.ca/technology/story/2010/05/26/squid-fossil.html**

BBC—*Horned dinosaurs "island-hopped" from Asia to Europe* **http://news.bbc.co.uk/2/hi/science_and_environment/10167170.stm**

Science Daily—*Prehistoric birds were poor flyers, research shows* **www.sciencedaily.com/releases/2010/05/100526100612.htm**

Science Daily—*New species of plant-eating dinosaur named for "grinding mouth and wrinkle eye"* **www.sciencedaily.com/releases/2010/05/100526111330.htm**

Science Daily—*Were dinosaurs warm or cold-blooded? First method for directly measuring body temperatures of extinct vertebrates* **www.sciencedaily.com/releases/2010/05/100524151428.htm**

Science Daily—*Fossil reveals 48-million-year history of zombie ants* **www.sciencedaily.com/releases/2010/08/100818105730.htm**

Science Daily—*Ancient "terror bird" used powerful beak to jab like an agile boxer* **www.sciencedaily.com/releases/2010/08/100818171916.htm**

CBC—*Oldest animal fossils found in Australia* **www.cbc.ca/technology/story/2010/08/18/sponge-fossils-animal-australia.html**

Science Daily—*Dwindling green pastures, not hunting, may have killed off the mammoth* **www.sciencedaily.com/releases/2010/08/100817211052.htm**

Science Daily—*Mosasaur Fossil: Life of 85-Million-Year-Old "Sea Monster" Illuminated* **www.sciencedaily.com/releases/2010/08/100810101732.htm**

CBC—*Arctic rocks reveal Earth's recipe* **www.cbc.ca/technology/story/2010/08/11/baffin-island-rocks-mantle.html**

BBC—*Ancient "cat-like" crocodile had bite like a mammal* **www.bbc.co.uk/news/10874312**

Science Daily—*Genome of ancient sponge reveals origins of first animals, cancer* **www.sciencedaily.com/releases/2010/08/100804151408.htm**

BBC—*Fin to limb evolution clue found* **http://news.bbc.co.uk/2/hi/science_and_environment/10396532.stm**

Thanks to Georgia Hoffman, Phil Benham, Mike Dooley and Vaclav Marsovsky for sending links. These links and more can be found on the APS website at **www.albertapaleo.org** *thanks to Vaclav.* ❑

www.albertapaleo.org

Field Trip Reviews

By Mona Marsovsky

Field Trip 2010-1
June 26–27, 2010
Irvine area, Alberta

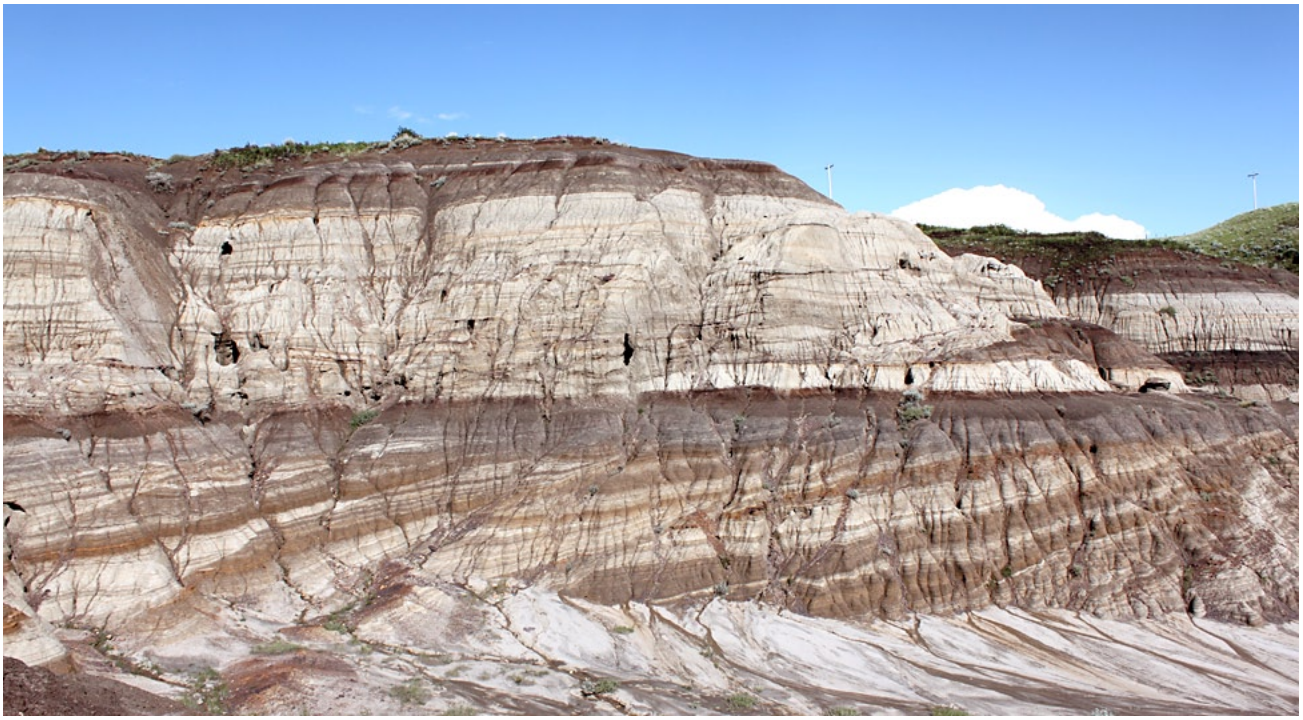
Keith Mychaluk (left) presents landowner Shane Pender with a copy of the APS book, in appreciation for his generosity and hospitality. Photo courtesy of Keith Mychaluk.

With some trepidation, twenty-three APS members met at the "World's Largest Teepee" in Medicine Hat on Saturday, June 26, at 10 A.M. After days of rain and flooding in the Irvine and Medicine Hat areas, some of us were worried about the roads and access to the sites, but found instead that access was excellent, and even a bit dusty. APS members donated items of food for the Irvine Flood Fundraiser, organized by the town of Irvine, for the victims of the flood.

Mr. **Shane Pender** kindly met us in Medicine Hat, to led us to the rendezvous location in Irvine and then onto his property. Mr. Pender even led us to a hillside strewn with fragments of clams and ammonites among the grass. As a token of thanks for his assistance, we presented Mr. Pender with a copy of the APS book, *Guide to Common Vertebrate Fossils from the Cretaceous of Alberta* and a complimentary membership.

The general consensus was that we were exploring the Bearpaw Formation, of Late Cretaceous age. Amongst the thin grass in the pasture, APS members found ammonites (*Placenticeras meeki*), clams (*Arc-*

Exploring Bearpaw Formation exposure near Irvine. Photo by Vaclav Marsovsky.



WOW! There's a ton of geology going on in this photo of the Dinosaur Park Formation badlands near Irvine—get a load of those lateral accretion surfaces! Photo by Keith Mychaluk.

tica ovata), razor clams and gastropods.

The locals (at least the mosquitos and ticks) were happy to see us. Mr. Pender said that they had already received four times the normal annual rainfall. The bumper crop of mosquitos was evidence of that fact. It was sunny and warm (25°C) with a slight

Badlands denizen scoots for cover as the APS field trip crew approaches. Photo by Keith Mychaluk.

breeze which mercifully discouraged visits from some of the mosquitoes. The grass was wonderfully green, flowers bloomed and large selenite crystals sparkled in the sun. Later in the afternoon, a rain storm with lightning and light hail chased some out of the field while others stood their ground and got drenched. The sun quickly returned.

Arctica ovata clams weathering out of the Bearpaw Formation shale. Photo by Keith Mychaluk.

Grassy Lake abandoned coal mine property was explored for fossil amber. The site has been largely remediated, leaving only a partiially landscaped exposure of the Cretaceous Foremost Formation. Photo by Vaclav Marsovsky.

On Sunday, a slightly smaller group (nineteen) assembled at the Chamberlain School in Grassy Lake, to examine amber in the nearby abandoned coal mine dumps. The upper Foremost Formation of Late Cretaceous age at this location contained numerous small pieces of amber, some up to pea-sized.

In all we had a wonderful two days of exploration. We thank Field Trip Coordinator **Keith Mychaluk** for organizing this excellent field trip and for finding new sites for us to explore. ❑

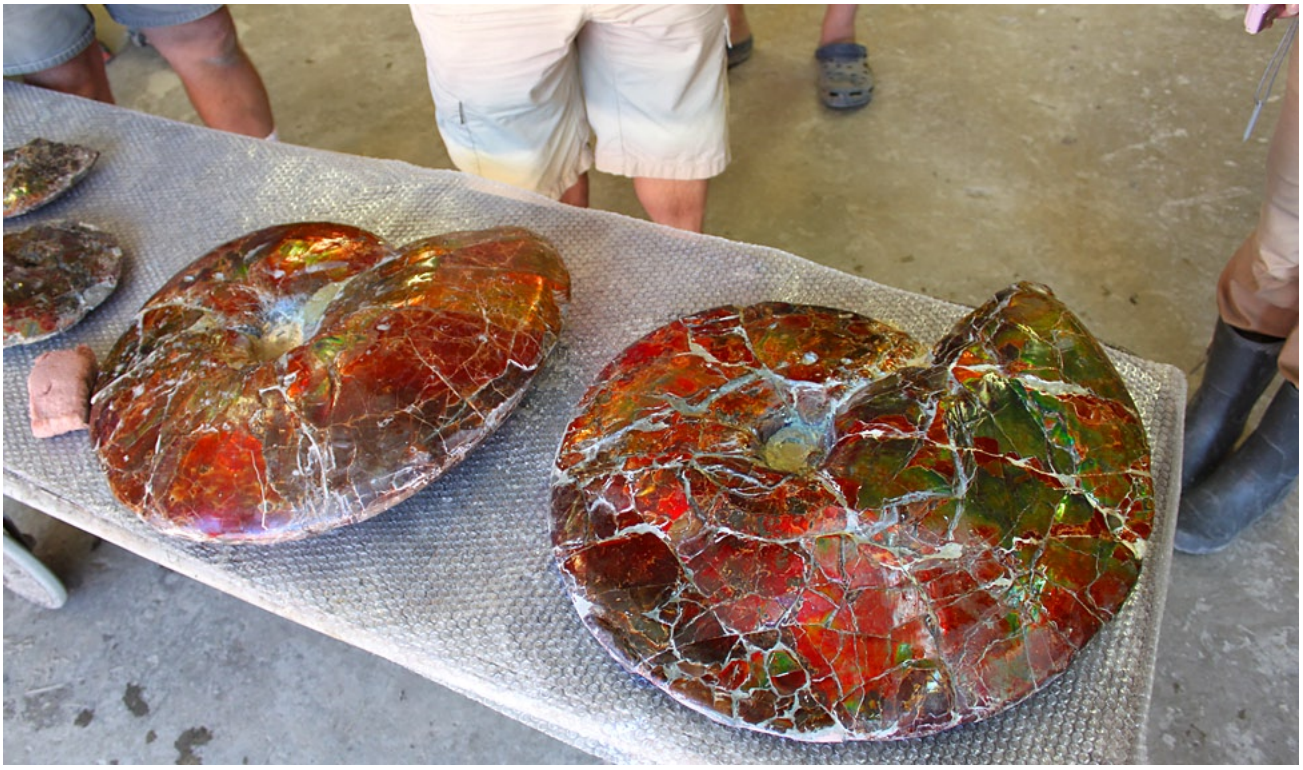
Amber fragment* with lens cap for scale. Photo by Keith Mychaluk.

* For the benefit of readers with the black-and-white printed version of the *Bulletin*, the amber is the lighter object to the right of centre at the bottom of the photo; these photos really do look much better in colour! Contact the Editor if you think it's time to switch to the colour version.

Field Trip 2010-2, July 17, 2010
Korite Ammonite Mine, Alberta

Rene Trudell, Korite Field Manager, with the ammonite "find of the day." Photo by Keith Mychaluk.

"Power Pole" quarry of the Korite ammolite mining operation. Photo by Keith Mychaluk.



Partially restored specimens of the ammonite *Placenticeras meeki* at the Korite field office. Photo by Keith Mychaluk.

Field Trip 2010-3
August 21, 2010

Grassy Mountain, Alberta

By Mona Marsovsky

Pterophyllum rectangulare leaf fossil. Photo by Vaclav Marsovsky.

Eight APS members assembled at the Crowsnest Consolidated High School in Coleman Alberta at 10 A.M. on August 21, 2010. Luckily the light rain showers immediately before the field trip disappeared and were replaced by sunny, blue skies. We enjoyed smoke-free vistas, while Calgary was blanketed in thick forest fire smoke. The warm, breezy day was perfect for the hike up the mountain.

We caravanned the fifteen minutes along the rough gravel road to the base of Grassy Mountain. Vaclav Marsovsky led the group up an alternate route, straight up the coal seam. Although this very steep route was shorter, it took the same amount of time (2.5 hours) as the more gradual winding road.

This steep alternate route followed the abandoned strip mine along the coal beds past some impressively large areas of ripple marks on the steeply dipping bedding planes. The ripe raspberries and saskatoons (and even a solitary strawberry) provided sustenance and the outstanding views of the surrounding mountains provided distraction as we climbed up the hill.

As we crested one uphill stretch to be confronted by another, at least twenty small frogs hopped from their little pond. Fragments of rock with fossil plant

Long march up Grassy Mountain to the abandoned mine workings affords spectacular views. Photo by Keith Mychaluk.

Doug Shaw catches some R&R on a spectacularly rippled bedding surface. *Bedding*. Get it? Yuk, yuk. Photo by Keith Mychaluk.

impressions along the route provided the incentive to push ahead. At another spot, a deer with velvety antlers posed for pictures.

Our target was the Mist Mountain Formation of the Kootenay Group of Late Jurassic to Early Cretaceous age where compression/impression plant fossils could be found amongst the colorful rock debris and glistening coal of the abandoned mine.

Along the route and at the top of the mine itself, APS members found a variety of plant fossils including *Podozamites lanceolatus*, *Coniopteris brevifolia*, *Pterophyllum rectangulare*, *Elatocladus brevifolia*, *Cladophlebis virginiensis*, *Coniopteris yukonensis*, *Nilssonia* and even one or two specimens of *Gingko pluripartita* and possibly *Equisetum*.

Only the room available in our backpacks and the threat of the 1.5 hour long walk back to our vehicles limited our collections. We started down the mountain at 3:00 P.M. Most of us, especially the tired ones, walked down the gradual switch-backing road to our waiting vehicles. Thank you, Keith, for organizing this excellent field trip and putting together the comprehensive field trip guide. ❑

Mule deer poses for the cameras. Photo by Keith Mychaluk.

Coal mine open pit, now abandoned, is the main area for finding plant fossils and viewing the spectacular geology. Photo by Vaclav Marsovsky.

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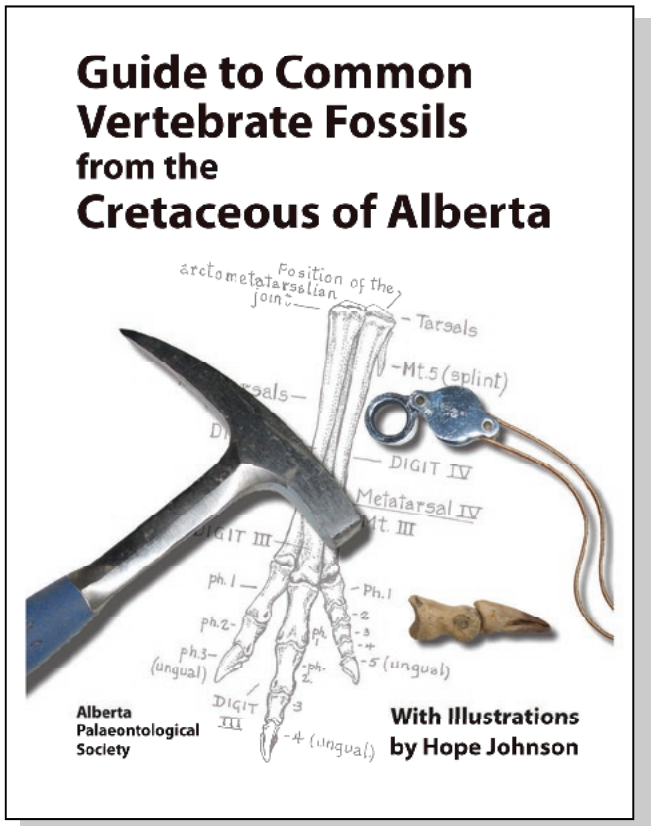
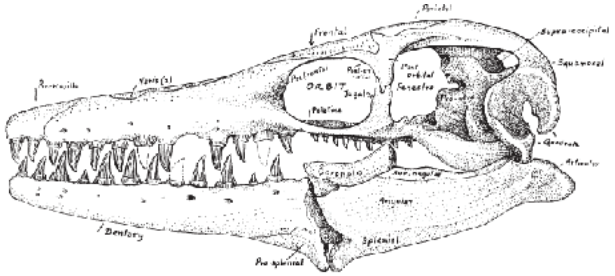


Hope Johnson's illustrations are the inspiration for this publication. Her passion for nature and contributions to the science of palaeontology have brought Alberta's natural history to life.



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