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

- Promote the science of palaeontology through study and education.
- 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.
- Provide information and expertise to other collectors.
- 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

SOCIETY MAILING ADDRESS:

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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 P.M. in **Room B108**,
Mount Royal University, 4825 Mount Royal Gate SW, Calgary, Alberta.

Friday, January 17, 2014—Tetsuto Miyashita, University of Alberta.
Traveling the Land of Dragons for Curiously Primitive Sauropod Dinosaurs ([See Page 4](#)).

Friday, February 21, 2014—Topic to be announced ([watch website for updates](#)).

Saturday and Sunday, March 22 and 23, 2014—Paleo 2014, APS 18th Annual Symposium ([see Page 8](#)).

Friday, April 25 (FOURTH FRIDAY), 2014—Topic to be announced ([watch website for updates](#)).

ON THE COVER: Alberta fossils. *Ginkgo* sp. leaf fossil, Paskapoo Formation (Paleocene), found on the APS field trip to the Sundre area, September 21, 2013. Specimen is 7 cm long. Photo courtesy of David Patmore (copyright © 2013). See field trip summary, [Page 5](#).

President's Message

By Cory Gross

As I write this at the beginning of November, the Public Outreach committee has wrapped up its busiest season. October brings almost one event every weekend in which the APS participates. The first weekend was the *Calgary Gem and Mineral Show* at the Chinese Cultural Centre, the third was the *Rock 'N' Fossil Road Show* headed by scientists from the Geological Survey of Canada; and the final weekend was the *Sci-Fi Night* at the Rothney Astrophysical Observatory. I would like to extend thanks to every member of the Society that helped out during the events and who stopped by to say "hi!"



Judith Aldama staffs the APS booth at the Calgary Gem and Mineral Show in October. A young visitor proves just how exciting fossils really are. Photo by Cory Gross.

The APS exists to help "promote the science of palaeontology through study and education," including "education of the general public." That mandate is as important as ever, as changes to the operation of museum and heritage institutions throughout the city of Calgary are slowly chipping away at public Earth Science education.

The first permanent "Prehistoric Park" in North America opened at the Calgary Zoo in 1934, growing to over fifty life-sized sculptures created by John Kanerva. I am just old enough to remember the remaining statues and the old fossil house before they

were destroyed in the early Eighties, following construction of the "new" Prehistoric Park on the North side of the Bow River. I had the pleasure of working there as an interpreter during the animatronic *Dinosaurs Alive* exhibit in 2010. You may be aware, however, of the Zoo's redevelopment plan released this past April, which would close the Prehistoric Park (www.calgaryzoo.com/masterplan/). Soon the last remaining dinosaur at the Calgary Zoo will be the iconic "Dinny."

Telus Spark moved from the former Centennial Planetarium to a marvellous new building in 2011. Unfortunately their permanent galleries are light on Earth Sciences and they offer only one related school program, on petroleum geology. There is a real demand for school programs though. Each year the Glenbow Museum—where I teach as a full-time Museum Educator—is visited by thousands of students taking geology and mineralogy programs in the stunning *Treasures of the Mineral World* exhibit.

Nearly everywhere we go, we are asked by parents and educators if our people are willing to visit schools, scout groups and other clubs to share our knowledge of fossils. So far, we do a fantastic job with the resources we have. Our presence at the Calgary Rock and Lapidary Club show and Calgary Gem and Mineral Show is always well-received, and we have built many bridges working with organizations like the Rothney Astrophysical Observatory and Chinook Country Historical Society. Since September, we've also been working hard to make our meetings more open and friendly to guests of all ages. I continue to encourage everyone to bring specimens for show-and-tell and giveaways.

As more responsibility is falling to groups like ours to provide public exposure to the Earth Sciences, is there more that we could do? Having a permanent palaeontological museum in Calgary would be very nice, and perhaps something like that could be in our future. In the mean time, where are the opportunities for us to work with other organizations throughout the province? Where are the opportunities for us to take initiative with new projects? Where are the people with a passion to share their love of prehistoric life with others?

We're always looking for fresh ideas, new possibilities and excited volunteers! Keep your eyes peeled, ears to the ground and schedules open. If anything comes up in your neighbourhood or in your head, don't hesitate to send me an e-mail about it!

corywgross@gmail.com
(403) 617-2079 □

APS Receives Major Donation of Books

Member **Bill McPheeters** has made an extremely generous donation of books to the Society.

Bill is moving to a smaller residence and needed to downsize his library, so the APS was his choice as the primary recipient of this gift, for which we are very grateful and offer our heartfelt thanks.

The books—142 in total—include non-fiction titles on vertebrate palaeontology, general science, history and many other subjects. Some of the palaeontology books will be accessioned to the Society's library, but most will be sold, probably by silent auction, at upcoming General Meetings. Planning is underway—watch future *Bulletins* and the website for updates. □

Upcoming Events

January

Tetsuto Miyashita

University of Alberta

Traveling the Land of Dragons for Curiously Primitive Sauropod Dinosaurs

Friday, January 17, 2014, 7:30 P.M.

Mount Royal University, Room B108

China is an increasingly attractive country for doing dinosaur research, with new significant taxa added for almost every major lineage every decade. I recently had an opportunity to travel in China for a month, partly for descriptive projects on sauropod dinosaurs and partly for continued work on tyrannosaur phylogeny and theropod anatomy. This travel took me from the central fossil collections in Beijing to various localities in Sichuan Basin and to the outskirts of the heavily industrial city of Chongqing. I will report on this trip, as well as introduce two new sauropods I worked on while in China.

Sauropod dinosaurs were dominant megaherbivores on all continents throughout Jurassic time. It remains an open question, however, as to how each continental fauna developed with different lineages of sauropods. East Asia from Middle to Late Jurassic

time is particularly an interesting place and time to explore this question. Unusually rich Middle Jurassic localities from China—rare elsewhere in the world—document a diverse array of sauropods from the most basal eusauropod *Shunosaurus* to the potentially oldest neosauropods *Abrosaurus* and *Bellusaurus*. On the other hand, the Late Jurassic sauropod fauna from China is dominated almost entirely by a single genus, *Mamenchisaurus*.

Recent fieldwork in China recovered two new sauropods that bear on this problem. One of the two is a recently named taxon, *Nebulasaurus taito*, from the Middle Jurassic of Yunnan Province. Although only known from a braincase, a cladistic analysis places *Nebulasaurus* as a sister taxon to *Spinophorosaurus* from the Middle Jurassic of Africa.

The second taxon is a new genus and species of a mamenchisaurid from the Late Jurassic of Qijian District, southern China. The specimen consists of an incomplete skull, partly articulated axial skeleton, and fragmentary appendicular skeleton. This new taxon is the first mamenchisaurid from the Late Jurassic of China that is definitively distinct from *Mamenchisaurus*, indicating a greater width to the morphological and taxonomic diversity of the Late Jurassic mamenchisaurids.

The revised faunal list identified dramatic transitions in the sauropodomorph fauna from the Jurassic to Cretaceous of Asia; the transitions are consistent with the geographic isolation of that continent through Late Jurassic times. Non-sauropod sauropodomorphs, non-mamenchisaurid eusauropods (including basal macronarians), and mamenchisaurids successively and gradually replaced one previous grade through the Jurassic Period, and titanosauriforms excluded all other sauropod lineages across the Jurassic-Cretaceous boundary.

Biography

Tetsuto Miyashita is Ph.D. student at the University of Alberta. A book by prominent Canadian dinosaur palaeontologist Philip Currie—a Christmas gift from parents when he was ten—sparked his dream of becoming a palaeontologist. He moved to Drumheller, Alberta at age 16 to volunteer for the Royal Tyrrell Museum of Palaeontology. He followed the master again to Philip's appointment at the University of Alberta, where he has been stumbling through three degrees and one major illness, and where his academic deviations from palaeontology into marine biology, embryology, and invertebrate zoology (and all other troubles he runs into) give constant head-

aches to his two supervisors, Philip and evolutionary biologist Richard Palmer. His most recent adventure was to spend two summer months at the Marine Biological Laboratory at Woods Hole, MA, where he engaged in developmental research under Nobel laureates and Nobel hopefuls, and served as a class captain to lead the 120th class of Embryology to a smashing victory over Physiology in a softball game, after a 13-year losing streak. □

Dates set for 2014 microfossil sorting

By Beverley Ulmer

Microfossil sorting sessions for the 2014 winter season will be held in Room B213 of Mount Royal University from 1:00 P.M. to 3:30 P.M. on the following dates (all Saturdays).

January 11

January 25

February 8

February 22

March 8

We will be sorting through matrix provided by **Dr. Don Brinkman** of the Royal Tyrrell Museum. The material is from an early Paleocene site which would be dominated by fish, but should have teeth of early mammals and other vertebrates like lizards, amphibians, etc. We are assisting in Dr. Brinkman's research, a faunal study documenting what is present at the site, in what relative abundance, and general studies of teleost fish and mammals.

These are family events and a valuable learning experience. Microscopes are provided by Mount Royal University. Participants need to bring tweezers suitable for picking up fine particles under a microscope. Also, a pen will be required to record your finds. All fossils found will be kept by Dr. Brinkman for his research.

The sessions are held on a drop-in basis, but you may send an email message to **baulmer2010@gmail.com** or sign up at general meetings if you wish to have your phone number recorded, so I can contact you in the event that we have to cancel a session due to bad weather or other circumstances. □

2013 Field Trip Review

By Wayne Braunberger

During the 2013 field season the Alberta Palaeontological Society held two field trips: Alexo, Alberta in July and Sundre, Alberta in September. Unfortunately, the trip to Swan Hills, scheduled for August, was cancelled.

Both Saturday and Sunday (July 20 and 21) were sunny and warm. Fortunately the thundershowers held off until later Saturday evening. On Saturday the Late Cretaceous plant locality along the abandoned rail right of way at Alexo was visited. The APS had previously been to this site in 2003 and 2004. Since that time the site has become more overgrown and



Alexo outcrop section of the Paleocene Paskapoo Formation is examined by APS members. Photo by Wayne Braunberger.

the outcrop is more difficult to access. **Georgia Hoffman** organized and led the trip. She was able to arrange for access through the Alexo Children's Camp which allowed for direct access to the abandoned railway. This made the trip to the site much easier. On the way back some quad riders were kind enough to carry some of the heavier specimens back to our vehicles.



Fossil conifer leaves show the typical mode of preservation for Paskapoo Formation fossils at the Alexo locality. Photo by Wayne Braunberger.

Sunday was spent at the Bighorn Dam, west of Nordegg, examining the Cardium and Wapiabi formations, exposed downstream from the dam.



Possible Ginkgo seeds on reverse side of the specimen shown on the front cover of this issue. Width of view is about 3 cm. Photo on the right shows a typical association of modern Ginkgo leaves and fruits on a forest floor setting. The dry seeds strongly resemble cherry pits in size and shape. Photo on left by APS member David Patmore. Photo on right from Wikipedia: "Ginkgo biloba, Palmengarten, Germany" © 2003 by Fritz Geller-Grimm, reproduced here under CC-BY-2.5 licence.

The trip to Sundre was held on Saturday, September 21. After assembling in Sundre the group travelled to the outcrop along the Red Deer River. This site is Paleocene in age and both molluscs and plant remains are preserved. Unfortunately the spring floods had removed some of the outcrop (the portion with the best plants), but new exposures were created.

Thanks to **Doug Shaw** for leading the trip and **Georgia Hoffman** for assisting. **Arnold Ingelson** took care of the administrative duties as I was unable to attend the trip.

Guidebooks

A new guidebook is being compiled for the Alexo/Bighorn Dam areas and another is being assembled for the Sundre/Red Deer River area. A guidebook is available for the Swan Hills area.

Swan Hills

If you are interested in going to the Swan Hills area please let me know. Rather than pick a defini-



tive date a trip may be scheduled on short notice, depending on weather.

2014 Field Trips

Planning is underway for the 2014 field season. If you have any suggestions for possible trips or would be willing to lead a trip please contact me or any member of the Board. Tentative dates for 2014 are: June 21 and 22, July 19 and 20 and August 16 and 17.

Field Trip Committee

I broached the idea of forming a field trip committee last year and although some interest was shown, no one committed to serving. If you would like to be more involved with the field trips but not have to make a huge commitment this would be a good opportunity. □

Fossils in the News

Edited by Howard Allen

BBC News Online/Science & Environment
November 28, 2013

Giant prehistoric toilet unearthed

ARGENTINA—Palaeontologists have discovered a huge deposit of 235 million year old (early Late Triassic) coprolites in La Rioja Province of western Argentina's Andean foothills. The coprolites occur in seven concentrations in the Chanares Formation. According to Dr. Lucas Fiorelli, lead author of a paper in *Scientific Reports*, the animals that left the “oldest known communal latrines” were large, herbivorous, mammal-like reptiles called dicynodonts. Their bones were found “littered everywhere at the site.”

Coprolites have been found in all shapes and sizes, some as large as 40 cm and occurring in densities of up to 94 specimens per square metre. The authors claim that this is the oldest—by some 220 million years—evidence of communal latrines in the fossil record. www.bbc.co.uk/news/science-environment-25126333. The original paper is open access and can be read here: www.nature.com/srep/2013/131128/srep03348/full/srep03348.html

CBC News online/Technology & Science
December 12, 2013

Alberta dinosaur's head adorned with fleshy comb

GRANDE PRAIRIE—University of Alberta palaeontologists were surprised to learn that one of their recent dinosaur discoveries sported a feature never seen before. A “mummified” specimen of *Edmontosaurus regalis* was found in 2012 by Phil Bell (formerly of the Philip J. Currie Dinosaur Museum, Grande Prairie) and Federico Fanti, of the University of Bologna. While the specimen was under preparation in the lab, it was discovered that skin impressions preserved with the skull included the impression of what was once a fleshy “comb” on the top of the animal's head.

Other hadrosaurs are known to have had bony crests on top of their skulls, but this was the first time a fleshy structure had been seen. It's possible that other specimens may have preserved the features, but lost them during preparation by technicians and palaeontologists who would have assumed they were chipping worthless matrix away from the bone. www.cbc.ca/news/technology/alberta-dinosaur-s-head-adorned-with-fleshy-comb-1.2461149. The original paper by Bell, Fanti, Currie and Arbour (*Current Biology*, in press; online Dec. 12, 2013) is paywalled: US\$31.50 (plus taxes).

Grande Prairie Daily Herald Tribune
October 3, 2013

Big dino fossil found near Spirit River

SPIRIT RIVER, Alberta—Workers with Tourmaline Oil Corp. hit unexpected paydirt while excavating for a pipeline southwest of Spirit River. A large block of bedrock, pulled up by a track hoe, revealed a breathtaking sight: the fully articulated tail of a hadrosaur, preserved in exquisite detail—even the ossified tendons are visible in their life position along the base of the tail. Work was halted while scientists at the Currie Museum and the Royal Tyrrell Museum were contacted and given the chance to safely remove the fossil. See www.dailyheraldtribune.com/2013/10/03/big-dino-fossil-found-near-spirit-river and www.curriemuseum.ca/site-content/uploads/2013/11/2013-November-Newsosaur-For-Web.pdf

[Thanks to Phil Benham for sending links. –ed.] □

Paleo 2014

Alberta Palaeontological Society's
18th Annual Symposium

The Symposium

Paleo 2014 is a two day event with talks, posters and displays on Saturday, March 22 and a workshop on Sunday, March 23. 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 2014. The symposium will feature presentations from avocational, student and professional palaeontologists from all over western Canada. We welcome posters or displays associated with palaeontology. Invitations have been sent to staff and students of universities, natural history clubs, the Geological Survey of Canada, museums, the resource industry and the artists' community. Our aim is to showcase palaeontology to the public and foster closer relations between the APS and the above groups. 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 9:00 A.M. Saturday, March 22. During the day a poster session period will be specified; please be available at least during this time for discussion of your exhibit. The deadline for submitting requests for poster space is February 15, 2014.

Paleo 2014 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 for publication. **Abstracts may be any length:** less than a full page is OK, multi-page abstracts or short papers will be accepted. **Contributors are encouraged to include photos and/or diagrams**, but note that colour images will be converted to black and white. Documents are not edited for content but will be formatted to fit into the volume. The author's mailing address (and email address if you wish) should be included. **Submission deadline is February 15, 2014.** Download guidelines for authors (PDF) from our website, www.albertapaleo.org or contact the Editor (see contact information, next page).

Sunday Workshop

A workshop will be offered at Mount Royal University, Room B213. Registration is limited to 20 participants, so register early! To register, contact **Harold Whittaker** (Contact Information, Page 9). **Registration deadline is March 10, 2014.** 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 35111 Sarcee Postal Outlet, Calgary, AB T3E 7C7.

Exploring Canadian Cretaceous Amber and Amber Research Process with Dr. Ryan McKellar, Ph.D., University of Alberta. Sunday, March 23, 2014, 9:00 A.M. to 4:00 P.M. with a one-hour lunch break (bring your own lunch). Cost: **\$15.00 per person.**

This workshop will introduce participants to the range of inclusions found within Canadian Late Cretaceous amber, and provide hands-on experience in the search for inclusions, preparation of amber specimens for research, and many of the steps involved in studying amber inclusions. Participants will help screen an unexplored set of Cretaceous amber pieces for inclusions, as well as specimens that have already been prepared as epoxy-embedded research mounts, using a stereomicroscope. Participants will also get a chance to prepare their own research-grade microscope slide mounts, and try out some of the latest technology utilized in modern scientific illustration. In short, you will have a chance to experience many of the steps involved in the amber research process, with the potential to make your own palaeontological discoveries.

- Participants are asked to bring their own "tweezers" or forceps for handling amber pieces.

Contact Information

Paleo 2014 Committee Chairperson: Cory Gross, (403) 617-2079, president1@albertapaleo.org

Posters & displays: Doug Shaw 1 (403) 556-2438 (long distance, Olds Alberta), posters@albertapaleo.org

Presentations & Workshops: Harold Whittaker (403) 286-0349, programs1@albertapaleo.org

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

Advertising: Reg Spratley (403) 263-0556, library@albertapaleo.org

Visit the APS website for confirmation of lecture and workshop times and speakers: 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' x 3' to 4' x 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!

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).

Good luck, and have fun!

Alberta Palaeontological Society

Paleo 2014

Mount Royal University

4825 Mount Royal Gate SW, Calgary, Alberta

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

Lectures and poster displays—Saturday, March 22, 2014, 9:00 AM to 5:00 PM

Workshop—Sunday, March 23, 2014, 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 22 speaker schedule

All talks to 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 Director Harold Whittaker.*
- 9:15 AM** *The perils of Protichnites: The checkered history of an iconic ichnotaxon.*
Robert MacNaughton, Ph.D., Geological Survey of Canada.
- 10:15 AM** Coffee Break.
- 10:30 AM** *Cretaceous methane seepage fueling life oases in the Arctic.*
Benoit Beauchamp, Ph.D., University of Calgary.
- 11:00 AM** *Lungfishes: Origin and evolution of an iconic “living fossil”.*
Jason Pardo, University of Calgary.
- 11:30 AM** *Life before impact: Palaeodiversity dynamics immediately prior to the end-Cretaceous.* **Emily L. Bamforth, Ph.D., Royal Saskatchewan Museum.**
- 12:00 PM** Lunch Break and Poster Displays.
- 1:00 PM** *Cretaceous/Paleocene terrestrial palynology.* **Kimberley Bell, University of Calgary.**
- 1:30 PM** *How complete is our knowledge of prehistoric biodiversity?*
Sarda Sahney, Ph.D., University of Bristol.
- 2:00 PM** Poster session, coffee break. Poster presenters are requested to be with their posters.
- 3:00 PM** *Heavy industry activities in Alberta and their positive effect on vertebrate palaeontology at the Royal Tyrrell Museum of Palaeontology.*
Darren Tanke, Royal Tyrrell Museum of Palaeontology.
- 3:30 PM** *Growth and histology of the armoured dinosaurs.*
Michael Burns, University of Alberta.
- 4:00 PM** *A high Arctic camel on Ellesmere Island.*
Natalia Rybczynski, Canadian Museum of Nature.