

Alberta

Palaeontological Society Bulletin

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Weird New Fossil— What is it?

Opinion: What's Up with Collecting Laws?

Burgess Shale Centennial Events

- 2009 Field Trips
- Fossils in the News
- Paleo 2009 Wrap-up
- New US Collecting Law

And More!

ALBERTA PALÆONTOLOGICAL SOCIETY

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President	Dan Quinsey	247-3022
Vice-President	(Position vacant)	
Treasurer	Mona Marsovsky	547-0182
Secretary	Garren Dugan	934-9599
Past-President	Vaclav Marsovsky	547-0182

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Editor	Howard Allen	274-1858
Membership	Vaclav Marsovsky	547-0182
Program Coordinator	Philip Benham	280-6283
Field Trip Coordinator	Wayne Braunberger	278-5154

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APAC†	Howard Allen	274-1858
Fossil Collection	Howard Allen	274-1858
Library	Garren Dugan	934-9599
Public Outreach	Dan Quinsey	247-3022
Social	Paul Dugan	934-9599
Symposium	Vaclav Marsovsky	547-0182
Website	Vaclav Marsovsky	547-0182

† Alberta Palaeontological Advisory Committee

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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UPCOMING APS MEETINGS

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

June, July, August, 2009—No meetings: See Field Trips Update, Page 7.

Friday, September 18, 2009—Annual Open House and Fossil Clinic (See Page 4).

ON THE COVER: Alberta fossils—another weird wonder! You might recognize the iridescent "Ammolite" shell, but what's that thing in the middle? See the cover story on Page 15. Photo courtesy of Rusty Pimm, copyright © 2009.

From the Desk of the President

By Dan Quinsey



The Annual General Meeting of the Alberta Palaeontological Society was held on May 8, 2009 at Mount Royal College in room B108. Forty-three were in attendance, of whom thirty-two were voting Members. Quorum was easily achieved.

Treasurer **Mona Marsovsky** prepared a statement of the Society's financial position detailing revenues, expenses and inventory of the Society for 2008. The Motion to approve the audited balance sheet for 2008 was approved. Special thanks go out to members **Harold Whittaker** and **Peter Truch** for performing the audit on the APS Books for 2008. The Books and Records of the Society were also available for inspection by Members. I would like to thank Mona for the excellent work she is doing as Treasurer. Her prudent ways have kept us all in line and we appreciate that!

Past President **Vaclav Marsovsky** presented a slate of nominees for the Officers of the Society as well as the position of Program Director. There were no further nominations from the floor. Elected to the Board were **Wayne Braunberger** as President, **Harold Whittaker** as Vice President, **Mona Marsovsky** as Treasurer, **Garren Dugan** as Secretary, and **Philip Benham** as Program Director.

Directors **Vaclav Marsovsky**, **Howard Allen**, and **Wayne Braunberger** continue in their second year of a two-year term in the roles of Membership Director, Editor, and Field Trip Coordinator respectively.

Dan Quinsey automatically takes over the role of Past President. Dan is also the Public Outreach Committee Chairperson.

Vaclav has done a fantastic job as Past President. I don't think he was expecting to be in that role for seven years but now he can finally rest. **Vaclav** will not be leaving the Board. He will continue his good job as Membership Director and Website Committee Chairperson. Keep up the good work **Vaclav**!

Wayne is no newcomer to the job. He was the

first President of the APS serving from 1986 to 1988. He also served as President from 1995 to 1999. The membership should feel comfortable we are in very good hands. **Wayne** has successfully fulfilled his duties as Field Trip Coordinator for the past many years. Watch for an update in this *Bulletin* regarding Field Trips!

Harold Whittaker is our new face on the Board. He has his sights on the presidency for next year but feels he needs more time as Vice President to learn the ropes. I know **Harold** will do a great job in his elected position.

Garren Dugan is returning as Secretary. **Garren** is also the APS Librarian. His work and commitment to the Board has been great. **Garren** is also a volunteer firefighter. The APS Board knows there will be times when **Garren** may miss an occasional meeting with short or no notice due to priority commitments. We accept this and applaud his volunteer work. By the way—be sure look both ways before crossing the street: **Garren** recently passed his driver's test. Congratulations **Garren**!

Phil Benham has been our Program Coordinator for almost as long as I can remember. He continues to amaze me with his talents in bringing quality speakers to both our General Meetings and Annual Symposium. Keep up the great work, **Phil**!

A Director who is a staple with the APS is **Howard Allen**. Regardless what **Howard** tells you, the job of Editor is not an easy task. Our *Bulletin* is the professional publication it is because of **Howard's** attention to detail and his editorial abilities. **Howard** is also our APAC (Alberta Palaeontological Advisory Committee) representative and Fossil Collection Committee Chairperson. Take a bow, **Howard**!

Another name we should not forget is **Paul Dugan**. **Paul** is continuing as our Social Committee Chairperson. He has done a great job making sure treats and beverages are available at meetings. Fantastic job, **Paul**!

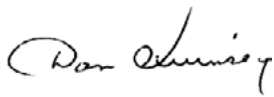
As I have indicated in previous messages, demands on the Society call for accountability and good governance, which has resulted in greater challenges for the Board of Directors. The Board is always looking for ways to improve the Society both externally and internally. To achieve this, we periodically review our model and improve on it where we can. This is a sign of excellent governance and an indication that your Board is doing the job you elected them to do!

The Notice of Motion regarding changes to the Society bylaws, sent out to the membership and dated February 15, 2009 was passed unanimously without

any further modifications. Thank you all for your patience and help with this endeavour. The package has been sent to the Alberta Corporate Registry for filing. [*Late breaking news: the bylaws have been approved by the Registry –ed.*] Once this has been done, a revised Members Information Handbook will be circulated.

At the end of the business meeting, I thanked the Members in attendance for their support over the past seven years while holding the office as President. The members in attendance (led by Howard Allen) reciprocated with an overwhelming ovation. For this I humbly thank you.

That is all for now. Thank you for all your support over the past seven years. I am not gone, just taking a break (wink). □



Upcoming Events

Meeting dates for 2009 and 2010

Year	Month	Board Meeting	General Meeting
2009	Jun	Break	Break
2009	Jul	Break	Break
2009	Aug	Break	Break
2009	Sep	9	18
2009	Oct	7	16
2009	Nov	18	20
2009	Dec	2	11 (2nd Friday)
2010	Jan	6	15
2010	Feb	10	19
2010	Mar	3	13 - 14 (Paleo 2010)
2010	Apr	7	16
2010	May	5	14 (2nd Friday)
2010	Jun	Break	Break
2010	Jul	Break	Break
2010	Aug	Break	Break
2010	Sep	8	17
2010	Oct	6	15
2010	Nov	10	19
2010	Dec	1	10 (2nd Friday)

Open House

Friday, September 18, 2009, 7:30 p.m.

Mount Royal College, Room B108

The September program will be an Open House and Fossil Clinic. Please bring along your summer finds for identification as well as any other items you may need help with. This is an open house and if you are a new member, please visit us. We are available for all your orientation needs. □

Program Summary

Kevin Aulenback

*What's really out there?
The conifers (gymnosperms) of
the Horseshoe Canyon
Formation*

Friday, May 8, 2009

Known for many years, the conifers (gymnosperms) of the Horseshoe Canyon Formation have unfortunately been little studied. The most complete work on the conifers of the formation is incorporated in a broader study of the flora by Bell in *Uppermost Cretaceous and Paleocene floras of western Alberta* (1949; Geological Survey of Canada, Bulletin 13: 1–231). Since then only a handful of individual scientific papers have been published (Ramanujam & Stewart, 1969; Muhammad, 1986; Serbet & Stockey, 1991; McIver & Aulenback, 1994; Aulenback and LePage, 1998).

Although not presently being investigated scientifically, many taxa can be identified readily by the interested researcher, student or collector—or can they? Are there any true cycads in the formation? What pines can one find? Does *Sequoia* exist in the Cretaceous? What is *Parataxodium* and does it have any evolutionary links to present taxa? Does *Taiwania* exist in the flora?

Many of the fossil conifers in the Horseshoe Canyon Formation can be found in coeval formations around the world as well as many older formations. Some of the conifers in the formation can even be placed in extant genera. For these reasons the conifers can be used to identify and offer insights into global environments of the time.

The Horseshoe Canyon Formation conifers were shown and discussed, based on reproductive and vegetative morphology and compared to both extant and extinct taxa. Many conifers, which have not been previously recorded from the formation, were introduced. New insights and interpretations were given which are startling and will change preconceived notions of morphology and relationships of fossil forms in other formations as well as extant taxa.

In the Cretaceous, conifers are not always what they seem.

Biography

Kevin Aulenback worked as a technician at the Provincial Museum in 1980 and transferred to Drumheller in 1981 to work as a full time technician for the Tyrrell Museum. His training over the years eventually focused on fine and chemical preparation. He has many accomplishments both in and out of the field both in palaeovertebrates and palaeobotany, such as: discovery of the first mammal in the lower Horseshoe Canyon Formation (1984); dinosaur embryos in Devil's Coulee (1987); dinosaur nesting sites in the Gobi Desert (1988); monocotyledonous rhizome sites in the Horseshoe Canyon Formation (2000) and Oldman Formation (2002); redesigned and redeveloped the conservatory in the Tyrrell Museum to reflect the fossil record of the Horseshoe Canyon Formation (1996–2001); prepared the bird/dinosaurs *Caudipteryx* and *Protoarchaeopteryx* in China (1996, 1997) and *Archaeoraptor* in Utah, with the result of identifying its composite nature (1999). He also received two recognition awards for service with the department of Alberta Culture (2001, 2003).

Kevin left his job at the Tyrrell Museum in 2004 and is presently a stay-at-home father of three. His main interests are in palaeobotany and photography; he has recently written a book on the fossil flora of the Horseshoe Canyon: *Identification Guide to the Fossil Plants of the Horseshoe Canyon Formation of Drumheller, Alberta*, published by the University of Calgary Press. It is expected to be available in June, 2009 for a price of \$34.95. □

From the Editor

Trying to make sense of nonsense

By Howard Allen

Now that summer is approaching and we're all getting the itch to head into the great outdoors, we're again reminded of the rules and regulations surrounding fossil collecting. Recent changes in the United States have solidified the rules for collecting on Bureau of Land Management (BLM) and Forest Service lands—what we in Canada would call “Crown land” (see the article elsewhere in this issue). Understandably, these changes have been met with applause by professional palaeontologists and skepticism (at best) by amateur collectors. For amateurs, it essentially bans the collection of all vertebrate fossils on federal land, but allows “reasonable” collection of “common” invertebrate and plant fossils.

Here in Canada we are not unfamiliar with collecting regulations, which are under provincial control, and thus form a patchwork across the country, with laws ranging from non-existent to absurdly draconian. A study published for the government of British Columbia in 2004 (currently available at www.al.gov.bc.ca/clad/strategic_land/fossil_mgmt_framework.pdf) summarizes the regulations concerning fossil collecting in each province, as well as several American states and a few other countries. The document is a few years old, but very worthwhile reading.

In reviewing the legislation put in place for jurisdictions close to home, the author (*Bulletin*, June 1996) compared the laws of Alberta and Saskatchewan, casting the latter in a less than favourable light with regard to the activities of amateurs. The bottom line is that in Alberta you can collect any sort of fossils—as long as you have permission of the land owner, you don't collect in parks and other protected areas, you don't excavate, and you remember that the Province is the legal owner of anything you collect. Saskatchewan has seen fit to ban all collecting of fossils without a permit, which means amateur collecting is outlawed—full stop.

At the time I wrote that article, I assumed that Saskatchewan's law was about as harsh as you could get in Canada. I was, of course, wrong. If we refocus our gaze just one province further east, we will find that Manitoba is really the poster child for the “absurdly draconian” category of collecting laws. Manitoba's

law goes way beyond a ban on collecting fossils: Manitoba has actually banned *looking for* fossils. But even that wasn't enough: the lawmakers of that province have even extended the ban to rocks! Yes, in Manitoba it is illegal to look for rocks.

By now you are of course thinking that I've finally lost it, and gone off the deep end. At the very least, I must be misinterpreting some arcane legal jargon in the provincial statutes. Maybe—but I don't think so. The relevant parts of the Manitoba Historical Resources Act of 1986 are written in plain English, with nary a jot of Latin. Have a look. The following excerpts are taken word-for-word from the Act, which is available for viewing at <http://web2.gov.mb.ca/laws/statutes/ccsm/h039-1e.php>.

In “**Part IV: Heritage Objects and Human Remains**,” we have the following definitions:

43(1) . . .

“**heritage object**” includes

- (a) an archaeological object,
- (b) a palaeontological object,
- (c) a natural heritage object, and
- (d) an object designated as a heritage object by the Lieutenant Governor in Council under subsection (2); (« objet du patrimoine »)

Of interest to us are items (b) “a palaeontological object” and (c) “a natural heritage object.” Item (d) just means that the government can designate any other objects it sees fit as “heritage objects” in the event that they've overlooked something and left a loophole. The Act then goes on to define these particular terms:

“**palaeontological object**” means the remains or fossil or other object indicating the existence of extinct or prehistoric animals, but does not include human remains.

It's clear that animal fossils are thoroughly covered, but what about plant fossils—and rocks? That's where the “natural heritage objects” comes into play (italics added for emphasis):

“**natural heritage object**” means *a work of nature consisting of or containing evidence of flora or fauna or geological processes*.

Are you starting to see the implications of this “catch-all” definition? Are rocks “works of nature”? Plainly, yes. Do rocks “contain evidence of geological processes”? Plainly, yes—all rocks “contain evidence of geological processes” by *any* definition, not just this legal one. Nothing confusing or ambiguous

here—plain and simple English. How else could this be interpreted?

OK, we've established that all fossils—and rocks of any kind—are “heritage objects” by falling under the definition of “natural heritage objects.” Now let's move on to the regulations (again, italics added for emphasis):

Heritage permit for searching or excavating

53. No person shall *search or excavate for* heritage objects or human remains except pursuant to a heritage permit and in accordance with such terms and conditions as may be prescribed by the minister and set out in or attached to the heritage permit.

No interpretation needed here, is there? You need a permit to “search for heritage objects.” Does “search for” not mean “look for”? The Act doesn't define the word “search” so it seems fair to assume that “search” in the Act means the same thing as “search” in any

English dictionary. Simply put, “no person shall look for rocks without a heritage permit” would seem to be an accurate interpretation of this regulation, would it not?

What are the implications of this? Let's say I'm a photographer and I want to take pictures of interesting boulders I've found lying on the shore of Lake Winnipeg.

Since I have to “search for” these “natural heritage objects” I must need a heritage permit, otherwise I'm committing an illegal act. Does a five-year-old child need a heritage permit to look for pretty pebbles in Granny's garden? Do you need a heritage permit to pick up and fling skippers at the beach? Does a farmer need a heritage permit to clear stones from his fields? I was unable to find anything on the Manitoba government website that explains the qualifications one needs to obtain a heritage permit to “search for. . . natural heritage objects” or “palaeontological objects.” In other jurisdictions, permits are typically restricted to institutional researchers with advanced academic qualifications. The British Columbia fossil management study (referred to earlier) states that Manitoba Heritage Permits are issued to “serious amateur collectors,” but I was unable to confirm this on the Manitoba government website. The B.C. study also says “. . . the [Manitoba] Act recognizes that ama-

Yes, in
Manitoba
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to look for
rocks.

teur collectors play an important role in providing knowledge about the province's natural and cultural history by providing the collectors with custody of newly-found heritage objects such as fossils." However, the basis for this statement is unclear, as there is no mention of amateur collectors in the Act.

Getting back to reality, it's obvious that no one—including me—seriously thinks the government of Manitoba is going to crack down on toddlers looking for pretty stones. So why do the laws get written this way? Some possibilities come to mind:

- a) The lawmakers are really, really dumb: so dumb that they can't see that their regulations are asinine and unenforceable.
- b) The lawmakers are scientifically ignorant: they're a bunch of lawyers and politicians who wouldn't recognize a "work of nature" if it bit them.
- c) Both a) and b): the popular choice?
- d) Something else is going on here.

I personally suspect that d) is closest to the truth. I think it's likely that the lawmakers wanted to avoid wasting ink, paper and time trying to cover every possible felonious permutation on bilking the citizens of Manitoba out of their heritage and/or financial resources. Despite all the lawmakers' efforts, some clever scoundrel is bound to find a loophole. So the easy solution is this: just make *everything* illegal, then follow a "selective enforcement" model of regulation. Sure, it's illegal for five-year-olds to pick up pretty stones—but it's never been enforced, and never will be. It's also illegal to remove the tags from sofa cushions, or to reuse postage stamps; have you ever heard of anyone being prosecuted for it?

So how might the Act be enforced? Let's say someone finds a few nice trilobites in an out-of-the-way tract of Crown land and decides he wants to make some money on eBay. He hires a bulldozer and starts despoiling the landscape to get at the fossils. An enforcement officer catches him in the act. Ordinarily, the government might try to go after him on some violation of the mining act—say, excavating minerals without staking a claim or obtaining a mining licence, or failing to conduct an environmental assessment. But the accused has a sharp lawyer who might try an angle like: "but, Your Lordship, fossils aren't covered by the mining act, and anyway my client wasn't mining, he was just searching for fossils!" Under the "selective enforcement" model, the alleged perp could be charged with "searching" for "natural

heritage objects" without a permit, and thereby shut down, as nearly everyone would agree he should be.

Another thing to keep in mind is that, in jurisdictions with fossil collecting regulations, the word "fossils" is usually code for "dinosaurs" or "big, flashy vertebrate fossils." Provincial and territorial legislation specifically controlling fossil collecting currently exists in Alberta, Saskatchewan, Manitoba, Nova Scotia and the Yukon (Yukon's law is very similar to Manitoba's). It's no coincidence that these are also the regions with significant occurrences of dinosaurs or other big, flashy vertebrate fossils. Provinces like Ontario and Quebec, which have significant occurrences of invertebrate fossils—but *not* vertebrate fossils (the latter of course offering potential for the extraction of money from tourists) do not have blanket controls on fossil collecting.

So what's the bottom line for the amateur Spalaeontologist in this spectrum of legal grey-ness? I dunno. I'm not a lawyer, and I certainly won't advocate anyone breaking the law. But personally, when I decide to accept the Manitoba tourism ministry's invitation to enjoy a holiday in their fair province, I certainly won't avert my eyes from the ground; and if I should happen to find myself strolling along a sunny and fossiliferous Manitoba shoreline, while soaking up the Pristine Natural Landscape and Vibrant Cultural Experience, I won't necessarily spend a lot of time looking over my shoulder, either—if only for safety's sake. □

2009 Field Trips Update

By Wayne Braunberger

Further details regarding each of the trips are below. If you have any questions, contact me by e-mail at events@albertapaleo.org
Please note that all fees are due at the time of registration. Non-members and unaccompanied minors will not be allowed to attend field trips. All participants will be required to sign a release form (waiver). Detailed information will be provided to all those registered shortly after the registration deadline.

**Trip 2009-01, June 27 and 28, 2009
Drumheller and area, Alberta**

This will be a two-day trip to the Drumheller area. A number of sites will be visited on Saturday and a single locality on Sunday. On Saturday a number of stops will be made, with most sites either near the roadside or involving a short hike. Sunday's stop will be at a single locality. As weather in the badlands in late June can be highly variable you should be prepared for a variety of conditions. If you are attending, plan on being in Drumheller at 9:00 A.M. on Saturday. There are a number of motels/hotels and campgrounds in the area. As it can be quite busy during the summer months you are advised to book your accommodations ahead of time. The registration deadline was June 5, 2009.

**Trip 2009-2, July 18 and 19, 2009
East-central Alberta**

A two-day trip to sites in the Coronation/Hanna area is planned. Sites to be visited on Saturday are in the vicinity of Coronation, sites on Sunday are to the south of Hanna. If you plan on attending this trip you should plan on being in Coronation by 9:00 A.M. on Saturday. There are campgrounds in both Hanna and Coronation and motels in Hanna. The registration deadline is July 3, 2009.

**Trip 2009-3, August 15 and 16, 2009
Flathead Valley, British Columbia**

This is a continuation of the trip that was made last year. Depending on road and river conditions, plans are to visit a number of Jurassic, Cretaceous and Tertiary sites on both days. Roads in the area are gravel and generally not maintained. Numerous random camping sites are available and we will camp as a group in the area. Motels/hotels are available in Fernie. If you are attending this trip you should plan on being in Fernie by 9:00 A.M. on Saturday. The registration deadline is July 31, 2009.

For the 2009 field trips I will be sending the waiver and medical forms to you along with the trip information. This information will be sent to you via e-mail or Canada Post. Please ensure that your addresses are correct and legible when sending in registration forms. When you arrive at the meeting place please have the forms completed so that less time will be spent on paperwork prior to

the trip. All participants are required to have fully completed all waiver and medical forms in order to attend the trip. All personal information is held in confidence and is ultimately destroyed. □

APS 2009 Symposium Wrap-up

By Mona Marsofsky

Paleo 2009 went off without a hitch. Before the talks began on Saturday, March 14, presentations were made to the authors and reviewers of the newly released APS book *Guide to Common Vertebrate Fossils from the Cretaceous of Alberta*. Over eighty APS members and people from the general public enjoyed the talks from eight speakers on Saturday. As in previous years, an abstract volume was printed which contained abstracts of most of the talks and posters. The abstract volume sold out before the end of the day.



Participants view the many posters that were on display. Photo by Dan Quinsey.

At Paleo 2009 we reached a new milestone in APS sales, mostly from the sale of the new APS book (216 copies sold). On that Saturday we also launched the new APS T-shirt, designed by renowned palaeo artist **Michael Skrepnick**, featuring the recently named dinosaur *Albertaceratops nesmoi*.

At the workshop on Sunday morning, **Joseph Hatcher** from the Canadian Fossil Discovery Centre in Morden Manitoba, outlined the basic concepts of natural selection. To illustrate the concepts he, with



Book presentation to authors, editors and reviewers of the new APS book, *Guide to Common Vertebrate Fossils from the Cretaceous of Alberta*. L–R: Chris Marion, Wayne Braunberger, Vaclav Marsovsky, Mona Marsovsky, Dr. Don Brinkman, Dr. Len Hills, Harold Whittaker, Dan Quinsey. Missing: Hope Johnson, Dr. David Eberth, Keith Mychaluk, Howard Allen. Photo by Phil Benham.

the assistance of his colleagues **Keiichi Aotsuka** and **Linda Scott**, introduced the “Big Bill” game. In this game, the workshop participants scrambled to pick up as much food (popcorn, lima beans and marbles) as possible in a set time using one of three sizes of beaks (paper clamps). After each “season”, the food obtained was counted to determine if the participants just survived or were able to survive and reproduce. The appropriate beak sizes were allocated for the next generation’s quest for food. After three seasons, the survivors were counted. After the break, Joseph used his digital microscope to compare the haversian canals in mosasaur, plesiosaur and shark bone. He described the marine fauna found near Morden, Manitoba. Sample strings of neck vertebrae from mosasaurs and plesiosaurs were passed among the class to illustrate their morphological differences.

Dr. Wayne Haglund gave the Sunday afternoon workshop, “Classification and Identification of Bryozoa”. Participants used the microscopes of Mount Royal College to learn how to identify the different classes of bryozoa. The detailed guide provided by Dr. Haglund proved very useful, especially for the quiz at the end of the class which highlighted the concepts and showed how tricky identifying bryozoa can be.

The APS thanks **Mount Royal College** for supplying the facilities. We would also like to specially thank **Mike Clark** from Mount Royal College for making the arrangements and doing the set up/tear

down. Thanks go to **CSPG** for providing some of the funding which allowed us to host speakers from as far away as California and Manitoba. We would like to thank all of the speakers and poster presenters for their diligent preparations and excellent presentations. Finally, we would like to thank all of the APS volunteers, including **Howard Allen, Phil Benham, Lisa Bohach, Wayne Braunberger, Garren Dugan, Georgia Hoffman, Mona and Vaclav Marsovsky, Keith Mychaluk, Dan Quinsey, Doug Shaw, and Harold Whittaker** for making the event a success. □



Darren Tanke's scale model of the American Museum of Natural History scow *Mary Jane*, used in the early years of the 20th Century to hunt for dinosaur fossils on the Red Deer River. Darren was promoting his 2010 re-enactment of a scow-based expedition on the Red Deer River. Photo by Dan Quinsey.

Events Mark 100th Anniversary of Discovery of the Burgess Shale

By Philip Benham and Randle Robertson

2009 is an auspicious year for palaeontology. Not only is it the 200th anniversary of the birth of Charles Darwin, but it is also the 100th anniversary of the discovery of the Burgess Shale Fauna. In late summer of 1909, Charles Walcott encountered amazingly preserved Cambrian fossils near Burgess Pass in what is now Yoho National Park. The site is important for its preservation of soft parts, diversity of species and its occurrence so early in the Phanerozoic. The five-eyed *Opabinia*, truly bizarre *Hallucigenia* and the top predator of the Cambrian seas, *Anomalocaris*, are now all part of the science and lore associated with the Burgess Shale. They and well over a hundred other genera give us an early picture into the development of metazoan lineages. In 1981 the Burgess Shale was designated as a UNESCO World Heritage Site, and three years later was integrated into the Canadian Rocky Mountain Parks UNESCO World Heritage Site. The anniversary of the Burgess Shale discovery gives us an opportunity to celebrate scientific discovery as well as to engage the public.

In the hundred years since Walcott first stumbled upon the imprint of *Marrella splendens*, what is the state of Earth science in our high school programs? Sadly, the junior and senior school curricula are nearly devoid of any geology/Earth science. The students are not aware of what career choices or programs are available to them at the post-secondary levels of study. This comes at a time when the leaders of tomorrow will be faced with maintaining adequate petroleum and mineral resources, sources of water, dealing with climate change, clean air issues and population growth. Earth sciences will be required more than ever to help resolve these problems.

For many years now, the responsibility for providing public access to the Burgess Shale has fallen to the not-for-profit society known as the Burgess Shale Geoscience Foundation. Each summer and early fall, hikers make the pilgrimage to the fossil

site in the capable hands of volunteers (most of them CSPG members) who focus on providing a safe and informative adventure. Besides administering to the educational hikes, the mandate of the Foundation is to: integrate Earth sciences into the curricula from K-12 and to interest high school students in pursuing post-secondary studies in the Earth sciences.

With this in mind, and on the occasion of the multiple anniversaries, the Burgess Shale Geoscience Foundation has organized a number of events focused on promoting science to the general public.

Participate, volunteer, get the word out. Let's put Earth back in the sciences!



Walcott Quarry in Yoho Park, site of the original Burgess Shale discovery. Photo by Wally Randall, used by permission of the Burgess Shale Geoscience Foundation.

Regular Events

- Educational hikes to the Burgess Shale, Mount Stephen Trilobite Beds and the Climate Change/ Ice-line Trail. Weather permitting, hikes begin in late June and last into mid-September. Spots are limited and fill up very quickly.
- The tenth annual Earth Science Professional Development Workshop for High School Teachers (August 15-20).

Special events

- July 14 Centennial Kickoff event: *The Fossil and the Astronaut* by Dr. Roberta Bondar at the Telus Convention Centre.
- June 30 to September 14: Chautauqua series—paired science talks and hikes. Nineteen lecture topics range from the Galapagos finches to a geologists'

bicycle tour of Iceland.

- Geo-Paleo Art for Families, July 22 in Canmore Geoscience Centre, July 23 in Field Elementary School and July 26 in Golden, B.C.

- August 3–7, presentations on the life of Mary Vaux and Charles Doolittle Walcott by Henry Vaux in Field, Golden and Canmore.

- August 21, Geological Survey of Canada reunion, Field Elementary School.

- September 4–5, centennial re-enactment of Walcott's ride by horse to the site of the quarry. BBQ, dance and silent auction to follow.

For more information and a schedule of these events please visit <http://burgess-shale.bc.ca/>

We would also like to mention the International Conference on the Cambrian Explosion, to be held in Banff on August 3–8, 2009. Many top researchers will be presenting at this event. For more information visit www.burgess-shale.info/

[Philip Benham is the APS Program Coordinator, CSPG Paleontology Division Chair and an active volunteer for the Burgess Shale Geoscience Foundation (BSGF). He co-designed and helps lead the annual Earth Science Professional Development Workshop for High School Teachers, which is run by the BSGF. Randle Robertson is Director of the BSGF] □

Library Notes

By Garren Dugan, APS Librarian

Hello everyone! At the last symposium, **Dan Quinsey**, **Wayne Braunberger** and I went through the APS library and sorted out what to keep and what should go. The books we decided not to keep were sold at the April general meeting: we raised \$65.00. The money will go toward new books. With this said, I'd like to ask everyone to make suggestions for what kind of books they think would make good additions to the library.

Finally, I'd like to thank **Dan Quinsey** and two anonymous donors for the following books:

- *Canadian Rockies Geology Road Tours*
- *Carboniferous Plants of Eastern Canada*
- *The Fossils as a Record of a Living Organism*
- *Microfossils*
- Three large boxes, mostly children's books and fossil identifiers. □

2009 Microfossil Sorting Project

By Mona Marsovsky

We have evolved! This year's microfossil sorting focused on the Late Cretaceous and Early Paleocene from the Eastend area in Saskatchewan. On five Saturday afternoons (Jan. 10, Jan. 24, Feb. 7, Feb. 21 and March 7), APS members searched for fossils in the screenwashed matrix provided by **Dr. Donald Brinkman**, the Director of Preservation and Research, Royal Tyrrell Museum of Palaeontology (RTMP). Attendance was excellent with an average of thirteen people volunteering each session.

At our first meeting, we sorted through matrix from "By Gar Gap" in the Frenchman Formation which is equivalent in age to the Late Cretaceous Scollard Formation of Alberta and located very close to the K-T boundary, just before the extinction of the dinosaurs. "By Gar Gap" lived up to its name, yielding an amazing number of gar scales plus other kinds of fossils, including mammal teeth.

On the remaining sorting days, we examined the "Croc Pot" matrix from the Ravenscrag Formation at the base of the Paleocene. Finding mammal teeth became almost routine; the fossils were creamy white. We found mainly multituberculate mammal teeth, but also a few marsupial and placental teeth. There was some excitement when we found a theropod dinosaur tooth in this Paleocene matrix until Don Brinkman explained that there had been some reworking of the older sediments which mixed some dinosaur teeth in with the Paleocene fossils. "Croc Pot" also yielded gar scales, fish and salamander vertebrae, crocodile teeth and *Myledaphus* (ray) teeth.

This year's sorting crew consisted of APS volunteers **Les Adler**, **Howard Allen**, **Steve and Eric Dolha**, **Georgia Hoffman**, **Chris Marion**, **Mona Marsovsky**, **Vaclav Marsovsky**, **Roslyn Osztian**, **Dan Quinsey**, **Al Rasmuson**, **Doug Shaw**, **Tim Shaw**, **Reg Spratley**, **Peter Truch**, **Harold Whittaker** and **Maria Vanderble**.

The APS would like to thank Mount Royal College (especially **Mike Clark**) for allowing us to use their microscopes and lab. We also thank Don Brinkman for giving us the chance to find fossils from the Paleocene and temporarily forget the dreariness of the past winter. □

Fossils in the News

Edited by Chris Marion

CBC News (Online) April 22, 2009

BBC News (Online) April 22, 2009

CTV News (Online) April 22, 2009

“Walking seal” from Canadian Arctic

DEVON ISLAND, Nunavut—The fossil of a 23-million-year-old, four-legged, semi-aquatic mammal unearthed on Devon Island in what used to be a crater lake is the oldest and most primitive pinniped skeleton found to date. *Puijila darwini* had a long, streamlined body with a long tail, flattened digits that suggest webbed feet on its four heavy limbs, and large canine teeth in a short snout with muscular jaws. Sixty-five percent of the skeleton has been recovered; the animal would have been 110 cm long from its nose to the tip of its tail. Though not a direct ancestor of modern seals, *Puijila darwini* shared a common pinniped ancestor and its presence in the arctic seems to indicate that pinnipeds (seals, sea lions and walrus) may have evolved there from freshwater animals. Natalia Rybczynski from the Canadian Museum of Nature published her team's find in the April 23 edition of *Science*.

See: *Arctic fossil points to missing link between seals and land mammals* www.cbc.ca/canada/north/story/2009/04/22/tech-090422-pujila-fossil-seal.html; *“Missing link” fossil seal walked* <http://news.bbc.co.uk/2/hi/science/nature/8012322.stm>; *Canadian fossil find sheds new light on seal evolution* www.ctv.ca/servlet/ArticleNews/story/CTVNews/20090422/fossil_story_090422/20090422?hub=TopStories

ScienceDaily (Online) April 16, 2009

Second pregnant turtle found in Utah

UTAH—Another specimen of *Adocus* was found to have eggs inside its shell [See Bulletin, Dec. 2008, p. 17]. This one, however, did not come from Alberta, though it lived at approximately the same time, 75 million years ago. Preparators were removing a section of the shell when they noticed eggs, prompting the team of researchers to book the fossil for a CT

scan to look for eggs and embryos, and hopefully also its skull, which it may have retracted inside the shell before dying.

See: *Prehistoric turtle goes to hospital for CT scan in search for skull, eggs, embryos* www.sciencedaily.com/releases/2009/04/090415141225.htm

Drumheller Mail March 4, 2009

CBC News (online) February 19, 2009

“SuperCroc” skull on display at Royal Tyrrell Museum

DRUMHELLER—The Royal Tyrrell Museum has just acquired a cast of the skull of *Sarcosuchus*, a 110-million-year-old crocodile-like creature dug up in Nigeria. *Sarcosuchus* is not related to modern-day crocodiles, but it gives an example of parallel evolution, where unrelated creatures living under similar conditions can adopt similar shapes at different times and in different parts of the world. “SuperCroc” would have weighed 8 t, and its skull, 1.7 m in length and counting 140 teeth, hints at its 10 m total length, a size comparable to that of a *T. rex*. The cast is part of the Darwin exhibit “I think. . .” which opened May 16 at the Tyrrell Museum in celebration of the 200th anniversary of Charles Darwin's birth and the 150th anniversary of the publication of his *On the Origin of Species*.

See: *“SuperCroc” skull gives bite to Darwinian theory at Tyrrell* <http://www.drumhellermail.com> (search for supercroc); *“SuperCroc” skull arrives at Tyrrell Museum* www.cbc.ca/canada/calgary/story/2009/02/19/cgy-darwin-tyrell-museum.html

CBC News (Online) March 20, 2009

Canadian Press March 19, 2009

Cambrian predator pieced together

YOHO PARK, B.C.—Initially discovered in 1909 by Charles Walcott, and having had its various parts assigned at the time to many separate animals, *Hurdia victoria* has now revealed itself to be one big predator of the Cambrian sea. One of the many strange, soft-bodied organisms preserved in the 505-million-year-old Burgess Shale in B.C., and at 20 cm one of the largest, *Hurdia* had a spiked shell jutting from the front of its head, ahead of two spiny claws that it would have used to bring food to its toothy mouth in the same fashion as another, better-known predator, *Anomalocaris*. *Hurdia*, an ancestor to the arthropods, is described in the March 20 issue of *Science*.

See: *That's no lobster: Scientists discover "T. rex" of Cambrian period* www.cbc.ca/technology/story/2009/03/19/cambrian-predator.html; *New animal discovered by Canadian researcher* www.theglobeandmail.com/news/technology/science/new-animal-discovered-by-canadian-swedish-paleontologists/article438573/

CBC News (Online) March 16, 2009
BBC News (Online) March 16, 2009

Smallest North-American meat-eating dinosaur found

DRUMHELLER—The tiny bones of a 75-million-year-old meat-eating dinosaur were brought to light after lying hidden in museum drawers since their 1982 discovery by Elizabeth (Betsy) Nicholls about 20 km from Dinosaur Provincial Park. The smallest theropod ever found in North America, *Hesperonychus elizabethae* carried its 2 kg frame on two legs and hunted insects, small mammals and amphibians with the help of the razor-sharp, sickle-shaped claws on its hind limbs. Nick Longrich and Philip Currie described their find in the March 16 edition of the *Proceedings of the National Academy of Science*.

See: *Canadian dig yields tiny dinosaur* <http://news.bbc.co.uk/go/em/fr/-/2/hi/science/nature/7947240.stm>; *Alberta researchers discover mini meat-eating dinosaur* www.cbc.ca/technology/story/2009/03/16/tech-090316-dinosaur-tiny-carnivore.html; *Scientists hail newly found pint-sized meat-eating dino* www.ctv.ca/servlet/ArticleNews/story/CTVNews/20090316/dino_pint_090316/20090316?hub=TopStories

[Thank you to Phil Benham, Georgia Hoffman, and Mike Dooley for sending links.]

More Fossils in the News!

Check the internet for these stories:

Alberta ammonite fossils fetching big bucks in auctions www.calgaryherald.com/Travel/Alta+ammonite+fossils+fetching+bucks+auctions/1423004/story.html

Baby mammoth discovery unveiled <http://news.bbc.co.uk/go/em/fr/-/2/hi/science/nature/6284214.stm>; *Baby mammoth photos: milk, feces part of calf's diet* <http://news.nationalgeographic.com/news/2009/04/090420-baby-mammoth-photo.html>

Dinosaur-bird link: Ancient proteins preserved in soft tissue from 80 million-year-old hadrosaur www.sciencedaily.com/releases/2009/04/090430144528.htm

Tyrannosaur "missing link" among new dinosaurs from China www.sciencedaily.com/releases/2009/04/090422085144.htm

New stegosaur with odd long neck discovered <http://news.nationalgeographic.com/news/2009/02/090224-long-neck-stegosaur.html>

Oldest seahorses found; help solve mystery <http://news.nationalgeographic.com/news/2009/05/photogalleries/seahorse-fossils/index.html>

Evolution classes optional under proposed Alberta law www.cbc.ca/technology/story/2009/04/30/cgy-bill-evolution-law-alberta-classes-teachers.html

Tyrannosaurus rex \$4 silver proof Canadian coin released www.silvercoinstoday.com/tyrannosaurus-rex-4-silver-proof-canadian-coin-released/10900/

New blow against dinosaur-killing asteroid theory, geologists find www.sciencedaily.com/releases/2009/04/090427010803.htm

Copies of long-lost fossil trackway rediscovered www.timescolonist.com/Entertainment/Copies+long+lost+fossil+trackway+rediscovered/1512549/story.html

Most complete great white fossil yet <http://news.nationalgeographic.com/news/2009/03/090312-shark-jaw-picture.html>; *Preserved shark fossil adds evidence to great white's origins* www.sciencedaily.com/releases/2009/03/090312174733.htm

Triceratops was a social animal, group of dinosaur fossils suggests www.sciencedaily.com/releases/2009/03/090324081431.htm

Fossil corals show catastrophic sea-level rise? <http://news.nationalgeographic.com/news/2009/04/090415-sea-levels-catastrophic.html>

Glacier "bleeds" proof of million-year-old life-forms <http://news.nationalgeographic.com/news/2009/04/090416-blood-falls.html>

Dinosaurs looking to make home in Herrin www.thesouthern.com/articles/2009/04/17/front_page/28887748.txt

Alligators hint at what life may have been like for dinosaurs www.sciencedaily.com/releases/2009/04/090417083957.htm

Prehistoric bears ate everything and anything, just like modern cousins www.sciencedaily.com/releases/2009/04/090408170815.htm

First tool users were sea scorpions? <http://news.nationalgeographic.com/news/2009/04/090413-first-tool-users.html>

Rare octopus fossil found <http://news.nationalgeographic.com/news/2009/03/090319-octopus-fossil-picture.html>

Genomic fossils in lemurs shed light on origin and evolution of HIV and other primate viruses www.sciencedaily.com/releases/2009/03/090319224524.htm

Complete dinosaur skeleton fails to sell at auction www.cbc.ca/technology/story/2009/03/21/dryosaurus-auction.html

Ancestor of T. rex found in China <http://news.bbc.co.uk/1/hi/sci/tech/8010292.stm>

China's Gobi Desert source of rare dinosaur find www.cbc.ca/technology/story/2009/03/16/ostrich-dinosaur.html

Ancient seabird with "teeth" found <http://news.nationalgeographic.com/news/2009/03/090302-toothy-seabird-picture-ap.html>

Oldest fossil brain found in "bizarre" prehistoric fish <http://news.nationalgeographic.com/news/2009/03/090303-oldest-brain-found.html>

Oldest fossilized brain found in prehistoric fish www.cbc.ca/technology/story/2009/03/03/fossil-brain.html

Controversy over world's oldest traces of life www.sciencedaily.com/releases/2009/02/090216131450.htm

Giant seabird's fossilized skull found in Peru www.cbc.ca/world/story/2009/02/27/bird-fossil.html

How fat or fit were dinosaurs? Scientists use laser imaging www.sciencedaily.com/releases/2009/02/090220110912.htm

X-rays used to reveal secrets of famous "dinobird" fossil www.sciencedaily.com/releases/2009/02/090215151858.htm

Fish fossil clue to origin of sex <http://news.bbc.co.uk/2/hi/science/nature/7909984.stm>

Sex started a lot sooner than we thought, fossil study shows www.cbc.ca/technology/story/2009/02/25/tech-fish-sex.html

Ancient footprints show we've walked this way for 1.5 million years www.cbc.ca/technology/story/2009/02/27/tech-footprints.html

Scientists find world's greatest sea monster: 50 ft long with foot-long teeth www.dailyrecord.co.uk/news/uk-world-news/2009/03/17/scientists-find-world-s-greatest-sea-monster-50ft-long-with-foot-long-teeth-86908-21204317/

Arctic sea monster's giant bite <http://news.bbc.co.uk/go/em/fr/-/2/hi/science/nature/7948670.stm>

Scientists identify ancient super underwater predator www.ctv.ca/servlet/ArticleNews/story/CT-VNews/20090319/underwater_dino_090319/20090319?hub=TopStories

Famed Montana fossil hunter to admit dinosaur crimes www.ctv.ca/servlet/ArticleNews/story/CT-VNews/20090320/Montana_fossil_090320/20090320?hub=SciTech

Dinosaur find raises questions about feathers www.ctv.ca/servlet/ArticleNews/story/CT-VNews/20090318/dinosaur_090318/20090318?hub=SciTech

Fossil hints at fuzzy dinosaurs <http://news.bbc.co.uk/go/em/fr/-/2/hi/science/nature/7950871.stm>

Whale fossil found in kitchen counter <http://news.nationalgeographic.com/news/2009/05/090504-egypt-fossils-video-wc.html> □

On the Cover:

A bizarre Alberta fossil sees the light of day

By Howard Allen

If your instinctive reaction to this month's cover photo was "trilobite!" you are excused. It's the first thing that entered my head, too. Trouble is, being attached as it is to an ammonite shell, something must be wrong. (Unfortunately, readers who get the black-and-white printed *Bulletin* can't see the iridescent shell colours surrounding the specimen). We all know that trilobites went extinct at the end of the Palaeozoic, so a trilobite has no business being stuck to a Cretaceous ammonite shell. My second reaction was "hoax!" An ill-timed April fool's joke? A feeble creationist attempt to discredit the science of biostratigraphy? Happily, no. In fact, it's one of those delightfully serendipitous finds that keep us interested in palaeontology. It's a barnacle. Yes, really.

Barnacles, as you'll remember if you were paying attention in biology class, are crustaceans—along with crabs and lobsters—that live attached to substrates like rocks, mollusc shells, and ships' hulls. They are assigned to the arthropod class Cirripedia, which means "feather feet," so-called because they extend their feathery legs from their shells to cap-

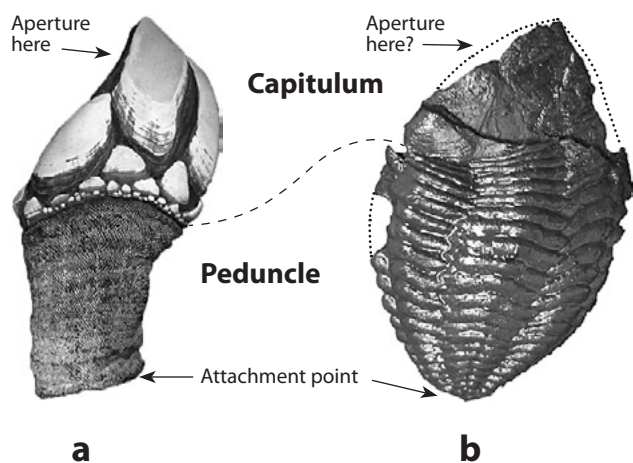


Figure 1. (a) A typical goose barnacle, *Pollicipes cornucopia* and (b), the fossil specimen, *Stramentum* sp. Figures are not to scale. Figure 1a photo by Hans Hillewaert, from Wikimedia Commons, reproduced under Creative Commons Attribution ShareAlike 2.5 licence, copyright © 2006. Figure 1b photo by Rusty Pimm, copyright © 2009.

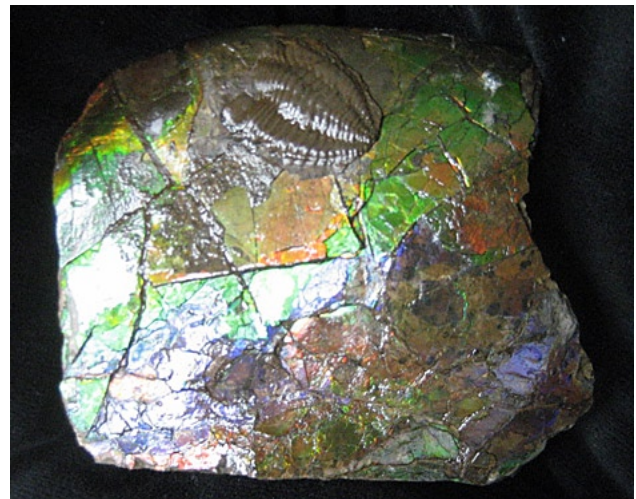


Figure 2. The specimen attached to its host, a fragment of the ammonite *Placenticerus meeki* (no scale provided). Photo by Rusty Pimm, copyright © 2009.

ture plankton from the sea currents. Two groups of barnacles that we are most likely to come across on modern seashores are the "balanomorphs," which include the little white volcanoes covering everything in sight that we all think of as typical barnacles; and the "lepadomorphs," which include the goose barnacles: less common types that have a multi-plated shell (the "capitulum") that opens on one side to expose the legs; this is mounted on a flexible stem (the "peduncle") that's attached to the substrate at its lower end (Newman *et al.*, 1969). The specimen on our front cover is of the lepadomorph variety; Figure 1 points out the main elements.

Although the specimen in our photos was not identified as such, a quick flip through the *Treatise* (Newman *et al.*, 1969) easily narrowed the search to one probable suspect: the genus *Stramentum*, which occurs in Cretaceous rocks, pretty much around the globe (Newman *et al.*, 1969; Hattin, 1977; Collins, 1986). The prominent feature of *Stramentum* is the peduncle, covered in a flexible armour of tiny, overlapping plates that gives it the superficial resemblance to a trilobite. Interestingly, a preferred substrate for attachment of *Stramentum* appears to be ammonite shells (Darwin, 1851; Collins, 1986; Foster and Buckeridge, 1987; Randell, 2008; and the present specimen).

In his 1851 monograph on the British fossil stalked barnacles, Charles Darwin (*yes*, the one and only!) described and illustrated a very similar-appearing species, *Loricula pulchella* (later renamed *Stramentum pulchellum*), originally described by G.B. Sowerby in 1843.

Apparently these fossils are quite rare, and articulated specimens (like the one featured here) even

more so. In North America, species of *Stramentum* occur in Upper Cretaceous (Late Cenomanian and Turonian) rocks of Kansas, and may be locally abundant there (Hattin, 1977). A quick literature search turned up only two records of *Stramentum* in Canada, both from Manitoba: a specimen collected by J.B. Tyrrell and described by J.F. Whiteaves in 1889 as *Loricula* (now *Stramentum*) *canadensis*, is dated to the Turonian (Hattin, 1977). Wickenden (1945, p. 32) lists *Loricula canadensis* as occurring in the Favel Formation, but makes no other mention of the species; it is possible—perhaps likely—that Wickenden compiled his faunal list with Whiteaves' type specimen in mind, since the Favel Formation is exposed in the area where Whiteaves' specimen was found, so it may be that there is only one actual record of an articulated specimen from Manitoba.¹

As of 1986 (Collins), two species of *Stramentum* were known from the “Senonian” (a mostly obsolete term lumping together the Coniacian through Maastrichtian ages). Other species range from Albian to Turonian; apparently most species and specimens have been found in Turonian beds. The present specimen, found in the Bearpaw Formation of southern Alberta (Campanian/Maastrichtian) would represent a relatively late record for the genus.

The size of this fossil was surprisingly difficult to assess; the specimen was photographed without any scale. My “gut feeling” for whatever that’s worth (absolutely nothing) from eyeballing several photos, is that it’s in the range of 20 mm to 30 mm long. Online sources were no more enlightening. Collins (1986), in describing a new species, never gives an absolute size measurement for any of his specimens, including the holotype; his photos are printed with magnification factors (“x 1.5” etc.), but the paper was viewed online and the original dimensions of the printed pages are not known. This is a common annoyance: the Randell (2008) web page, with its excellent photos, also gives the scale in magnification factors, but since magnification varies with the viewer’s screen resolution, it is a poor way to communicate size.

Digging into the literature eventually produced some size ranges for these critters. Darwin’s specimen of *Loricula pulchella* measured “rather above one inch” in length (Darwin, 1851, p. 84). Whiteaves’ Manitoba specimen is 13.3 mm long (Hattin, 1977); articulated specimens of other *Stramentum* species

described by Hattin (1977) range in length from 4.7 mm to 38.3 mm. From what I can gather, it appears that typical *Stramentum* specimens are less than 30 mm in length, and often less than 10 mm.

Our specimen was found by **Mr. Rusty Pimm**, owner of Rusty Pimm Enterprises, and operator of the Aurora Ammolite Mine, in material from his mine on the St. Mary River, near Lethbridge. Mr. Pimm donated the specimen to the Royal Tyrrell Museum and gave the APS permission to reproduce his photographs. The author thanks Mr. Pimm for his generosity, and APS member **Keith Mychaluk** for communicating with Mr. Pimm and alerting us to this interesting find. □

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¹ Whiteaves (p. 191) notes that J.B. Tyrrell collected “a few isolated capitular plates” of the same species at a different locality in Manitoba; these are probably from the same (Favel) formation (see, for example, Wickenden, 1945, Map 713A).

New Collecting Law for USA

By Howard Allen

Amateur palaeontologists thinking of visiting our southern neighbour should take notice that the Paleontological Resources Preservation Act (PRPA) was passed into law on March 30, 2009. It legislates protection for vertebrate fossils on US federal land—that is, Bureau of Land Management (BLM) and National Forest Service administered lands.

Advocates such as the Society of Vertebrate Paleontology (SVP) are keen to point out that the new Act simply puts into law existing policy, and that in practical terms little has changed, other than to give “teeth” to the regulations and standardize policy for all US public land (except National Parks, which are covered by other, existing legislation). In brief:

- Collecting of *all vertebrate fossils* without a research permit is illegal and punishable by forfeiture, fines and/or jail time.
- Permits are issued *only* to “qualified researchers” (read Ph.D.) for research and educational purposes. All fossils collected under permit are property of the United States and must be deposited in qualified public institutions.
- Amateur collecting is restricted to “common” invertebrate and plant fossils, rocks and minerals.
- Commercial collecting is completely prohibited.
- The Act is not enforceable on aboriginal or private land.

An SVP web page, www.vertpaleo.org/education/government.cfm discusses the basis for the new law and its implications for amateurs and professionals. The page links to a full-text PDF of the Bill.

The SVP’s message to amateurs can be summed up as “don’t worry, be happy.” An SVP e-mail sent out to members states that the PRPA (underlined by the SVP for emphasis) “greatly benefits amateur paleontologists.” Typical fuzzy qualifiers such as “common,” “abundant” and “scientifically significant” are applied to the discussion of invertebrate and plant fossils (keep in mind what the V stands for in SVP), and are likely to leave some amateurs scratching their heads.

One benefit of the Act to amateurs, according to the SVP page, is that the law now gives amateurs a legal right to collect “common” invertebrate and plant fossils, rocks and minerals on the lands protected

by the Act, whereas formerly various administrative bodies could extend or withdraw collecting privileges by bureaucratic fiat.

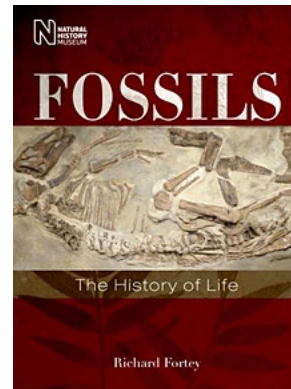
Consider yourself alerted. □

[Thanks to Vaclav Marsovsky for information.]

Book Review

By Dan Quinsey

***Fossils: The History of Life*, 2nd Edition. By Richard Fortey, 2009. Natural History Museum, London. Hardcover, 256 pages, ISBN 978-1-4027-6254-3. Price CDN\$32.95.**



Imagine my surprise and delight to see a new fossil book on the shelves. The Natural History Museum has completely revised and updated *Fossils: The History of Life* first published in 1982.

This fascinating introduction to fossils and how they’re used to determine Earth’s history is written by Richard Fortey, former senior palaeontologist at the Natural History Museum, London. It features dozens of engrossing colour and black-and-white photographs. Also new to the second edition are sections on molecular palaeontology and how to recognize fossils.

In this book you can read about some of the incredible discoveries that have been found buried in rocks, before exploring connections between fossils and other geological sciences, to learn how the Earth’s animal and plant life is intimately bound up with the story of the rocks themselves, and the configuration of the continents and oceans.

Fortey explores how fossils are reconstructed from fragments to determine how the creatures once lived, the origin and history of early life such as bacteria, causes of extinction and how this process is instrumental to evolution, and the ways in which fossils are of practical use to us. The book ends with advice on how to find, clean, identify, and store fossils.

I found this book to be fresh and up-to-date, and well worth the money spent. □

APS Balance Sheet for 2008

Revenues

Memberships	2835.00
US\$ Exchange	0.00
T-shirts	40.00
Pins	9.00
Field Trip Guides	24.00
Abstract Volumes	10.00
CD-ROM	0.00
Postage for Sales	0.00
Misc. Sales	11.00
Refreshments	4.10
Field Trip Fees	265.00
Workshop Fees	705.00
Donations	186.00
Symposium Abstract Sales	577.00
Symposium Donations	450.00
Fund Raising	12.00

Subtotal Revenues 5128.10

Plus Revenue Received in 2007 for 2008

2008 Membership Fees	1220.00
2008 Workshop Fees	60.00
2008 Symp Donation (2006+7)	1000.00

Subtract Revenue Received in 2008 for 2009

2009 Membership Fees	1605.00
2009 Symposium Donation	650.00
Fund Raising Proceeds	12.00
2009 Symposium Workshop	120.00

Total Revenues 5021.10

Expenses

Bulletin Printing	443.75
Bulletin Postage	333.83
Speaker Expenses	30.80
PO Box Rental	128.26
Membership Printing	21.56
Membership Postage	89.85
Field Trip Expenses	210.66
Workshop Expenses	49.27
Symposium Speaker	1001.11
Symposium Abstract Printi	391.81
Postage for Sales	0.00
Website Expenses	377.70
Refreshments	50.05
Bank Charges	96.80
Library	26.20
Miscellaneous	44.61
Special Projects	26.54

Subtotal Expenses 3322.80

Plus Expenses paid in 2007 for 2008

2008 Symposium speaker	493.62
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Minus Expenses paid 2008 for 2009

Special Projects	26.54
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Total Expenses 3789.88

Excess of Revenues over Expenses = \$1231.22

For Years 2002 to 2008

Total Fund Raising Proceeds 3,723.50

Total Fund Raising Costs 354.97

Net Fund Raising 3,368.53

Inventory Sale Value \$190.00

Values Current to Date: Dec. 31, 2008

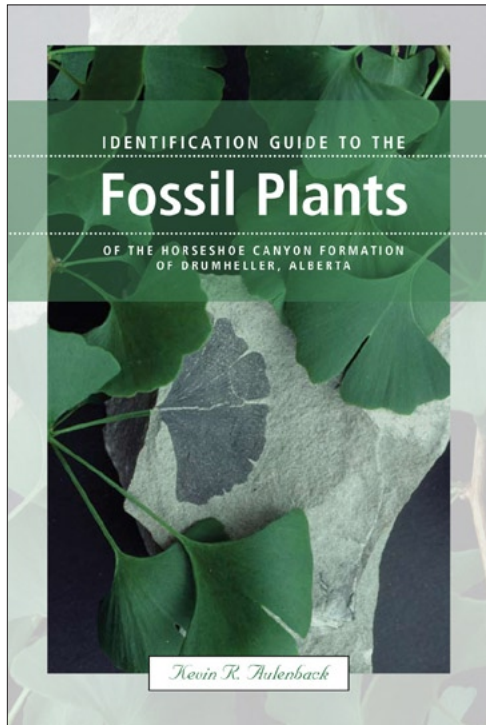
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Kevin Aulenback was employed for many years as a full-time technician with the Royal Tyrrell Museum in Drumheller, Alberta. His expertise in prehistoric flora spearheaded the redevelopment of the museum's paleoconservatory and garnered two recognition awards for service from the Government of Alberta.

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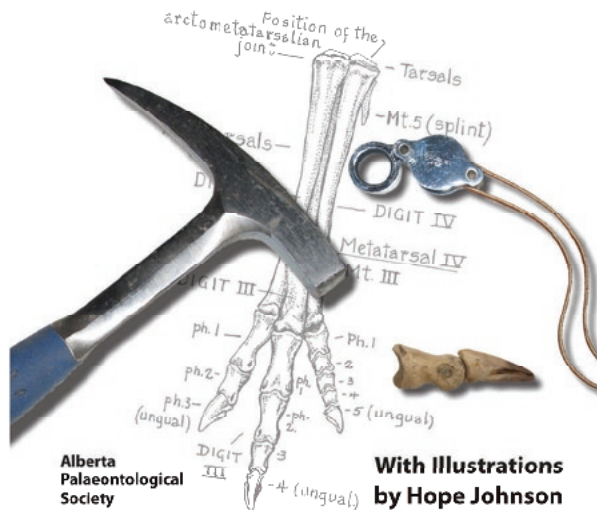
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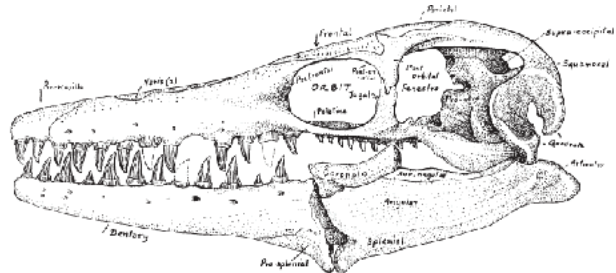
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