

# Alberta

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# ALBERTA PALAEOLOGICAL SOCIETY

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

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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.

**June, July, August, 2014**—No meetings. See Field Trips schedule, **Page 6**.

**Friday, September 19, 2014**—Presenter and topic to be announced.

**Friday, October 17, 2014**—Presenter and topic to be announced.

**Watch the APS website for updates on autumn 2014 programs.**

**ON THE COVER:** British Columbia fossil: *Canadoceras yokoyamai* ammonite, Haslam Formation (Upper Cretaceous), Vancouver Island. Maximum dimension is 85 mm. APS fossil collection, APS.2002.01. APS file photo. Why not an Alberta ammonite? See Page 7 to find out.

# Annual General Meeting May 23

## Election results

Due to our failure to reach quorum (twenty voting members were required, only thirteen attended), the AGM was cancelled and rescheduled for the following Friday, May 30, at which nine members were present (quorum for the rescheduled AGM was five voting members after one half hour waiting).

## These positions were filled by acclamation:

Position	Term	Elected
President	1 year	Cory Gross
Vice President	1 year	(open)
Secretary	1 year	Vaclav Marsovsky
Treasurer	1 year	Mona Marsovsky
Editor	2 years	Howard Allen
Membership Director	2 years	Howard Allen

## These positions are continuing:

Field Trip Co-ordinator

Wayne Braunberger (2nd of 2 year term).

Program Co-ordinator

Harold Whittaker (2nd of 2 year term).

## These Committee Chairs are appointed:

Committee	Chairperson	Term
Fossil Collection	Howard Allen	Unlimited
Library	(Open)	Unlimited
Logo Design	Cory Gross	Limited
Public Outreach	Cory Gross	Unlimited
Social	Dan Quinsey	Unlimited
Symposium	(Open)	Unlimited
Website	Vaclav Marsovsky	Unlimited

Terms for newly filled positions begin September 1. If you would like more information about Board positions or are interested in chairing or participating on a committee, please contact Past President **Wayne Braunberger** at (403) 278-5154 evenings and weekends or by e-mail: [pastpres@albertapaleo.org](mailto:pastpres@albertapaleo.org).

## Bulletin back issues on Web

A complete archive of *Bulletin* back issues from 1986 to 2013 is available to download as PDF files. [www.albertapaleo.org/bulletinarchive.htm](http://www.albertapaleo.org/bulletinarchive.htm)

## In Memoriam



We are sad to report yet another loss among our membership.

**Dr. Murray Smith**, of Brandon, Manitoba, passed away February 1, 2014 at the age of 70. We offer our sincere condolences to his wife Sally and all his family and friends. The following excerpt from his obituary describes his lifelong interest in palaeontology:

*Murray's interest in fossils started when he was 11 and grew throughout the years. He cultivated many a young person's interest and was always keen to share his knowledge. After a lifetime of collecting, Murray published a book documenting Manitoba's fossil outcrops but the crown jewel in his fossil hunting hobby was finding a previously undiscovered species of crab that was eventually named after him. Recently Murray donated his extensive collection of fossils to a museum where they can inspire future rock hounds.*

Murray joined the APS in 2004. While we didn't have the pleasure of meeting Murray in person, we benefitted from his knowledge and generosity in the *Bulletin* as he contributed an illustrated article, "Souris Fossils" (September 2012, p. 7-8) and a photo and background information for a news item about his crab fossil discovery: "APS member discovers important crab fossil" (March 2008, p. 42). We were privileged to have Murray as a member and he will be missed. Read his full obituary at [www.memorieschapel.com/book-of-memories/1792285/Smith-Murray/obituary.php](http://www.memorieschapel.com/book-of-memories/1792285/Smith-Murray/obituary.php)

[Thanks to Sally Smith. Photo of Murray Smith from Manitoba Museum, courtesy of Murray Smith.] □

## Program Summary

April

### Jon Noad

Husky Energy

### *In Search of Provincial Fossils*

**Friday, April 25, 2014, 7:30 P.M.**

Mount Royal University, Room B108

Forty states in the United States have an Official State Fossil. These include dinosaurs, a marine

reptile, fossil mammals, fish, invertebrates and two fossil plants. There are ten states in total without a state fossil, but only one state—Kansas—that does not at least have a state rock, gemstone or mineral. Now ask yourself how many provinces and territories in Canada have designated a Provincial or Territorial Fossil? Surprisingly the answer is only ONE, Nova Scotia, which designated the oldest known reptile in the world, *Hylonomus lyelli*, as the official fossil of the province in May, 2002. Despite Canada's extraordinary geological heritage, no other province has taken the plunge and chosen a fossil to represent them.

In response to this apathy, extensive research has been undertaken to nominate a series of thirteen Provincial and Territorial Fossils. The nominated fossils really do span the spectrum of fossil life in Canada, both in terms of age and complexity, ranging from the cyanobacteria that created the stromatolites of New Brunswick, to a primitive multicellular Ediacaran. There are invertebrates such as a crinoid, a brachiopod, a crustacean and shrimp burrows, and then a mix of vertebrates including fish, a dinosaur, reptile tracks and mammals. The latter comprise a dwarf hippo and a giant camel, while the chosen fish represents a key evolutionary "missing link." Finally, there is a tree to represent the ancient plants of the continent. The slight bias towards vertebrates is similar to that of the state fossils of the United States, and has been driven partly by the public appeal of "big fossils." Dr. Noad invited us to see whether we agreed with his choices, and to learn which fossils made it and which just missed the final cut.

### Biography

Jon obtained his undergraduate degree from Imperial College, London, in 1985 and then worked as a mining geologist in South Africa. He returned to the UK in 1990 and joined the phone company BT as their marine geologist, responsible for analyzing submarine cable routes. During that time, he also completed a Master's degree in sedimentology at night school, with his thesis focusing on the fluvial sequence stratigraphy of Dinosaur Provincial Park. He subsequently returned to London University full time in 1995 to complete a Ph.D. on the Sedimentary Evolution of Eastern Borneo, where he developed a love of fossil mangroves and hot chilies. After completing his Ph.D., Jon was recruited by Shell in 1998, and worked mainly on Middle Eastern exploration before moving to Shell Canada in 2006. There, he worked as a senior exploration geologist in the Basin Centre Gas team in Calgary, until he joined Mur-

phy Oil in 2010 as Exploration Manager, Canada. He moved to Husky Energy in [September 2012](#), and organizes all the subsurface technical reviews for the company, as well as leading occasional field trips.

May

## Stephanie Blais

University of Alberta

### *Devonian Fishes and the Evolution of Vertebrate Teeth*

**Friday, May 23, 2014, 7:30 P.M.**

Mount Royal University, Room B108

The evolution of true teeth was one of the most important steps in vertebrate evolution. It allowed early vertebrates to become active predators, diversify into new ecological niches, and would ultimately lead to their success in marine and eventually terrestrial environments. Teeth also make very informative fossils, as a single individual can have many teeth, and they are durable and fossilize well. They provide valuable information about an organism's diet and ecological role; in some groups (such as mammals) the teeth are so diverse they are used to identify new species. Because of these attributes, fossil teeth have been very well studied. Despite this, we understand very little about the earliest teeth and their origins.

Teeth first appeared definitively in the fossil record in the Late Silurian (approximately 425 million years ago). By the Early Devonian (approximately 416–411 million years ago), they were already present in all of the crown-group gnathostomes, which include chondrichthyans (cartilaginous fishes including sharks and rays), an extinct group or grade of spiny jawed fishes called acanthodians, and osteichthyans (bony fishes, including tetrapods). Recent research suggests that tooth-like structures in some derived members of a grade of armoured fishes called placoderms may have been related to the teeth of crown-group gnathostomes. Thanks to the recent renewed interest in early vertebrate evolution, we are starting to gain a better understanding of these ancient fishes and their dentition.

### Biography

Stephanie Blais is a Ph.D. student at the University of Alberta. She received her B.Sc. in Earth Sciences

from St. Francis Xavier University in Antigonish, Nova Scotia, and moved west to work with Dr. Mark Wilson on early vertebrate dentitions. She has been very fortunate to be able to do fieldwork in Alberta and the Northwest Territories, collecting fossil ammonites, sharks, acanthodians, heterostracans, osteostracans, as-yet-unidentified invertebrates, and tetrapods including ichthyosaurs and dinosaurs! □

## Update: “Bringing the Cretaceous Sea to Mount Royal University”

Dr. Wayne Haglund has provided an update on the “East Gate Entrance Fossil Display,” to which the APS has made a financial contribution (*Bulletin*, June 2013; September 2013). He reports: “The original site of the display in the East Entrance Atrium is no longer available. A new site has been identified that will provide an area for the display of the same vertebrate fossil models but in a less public place. The new site is the entrance to the B wing on the second level . . . In addition, one of the fish in the original proposal is replaced by a large marine reptile. I am confident that it will be a spectacular display and one we can all be proud of. The installation of the specimens is scheduled for the last week in December 2014.” □

## Review

By Les Adler

### **Digging Utah’s Dinosaurs**

By Peter Miller, Photos by Cory Richards  
*National Geographic*, May 2014, pages 60–79

The title covers both the actual process of retrieving the evidence and establishing the scientific theories, in the Kaiparowitz and Fruitland areas of Utah and comparing the many species with those of Dinosaur Park, Alberta and the Two Medicine and Judith River areas of Montana.

Scott Sampson, chief curator at the Denver Museum of Nature and Science, with Joe Sertich, the museum’s dinosaur palaeontologist and the Miller brothers, palaeobotanists, have been collecting north of Horse Mountain in the Grand Staircase-Escalante National Monument. Since 2000 Sampson has

helped lead expeditions into an area designated as the “lost continent” of Laramidia created about 90 million years ago during the Late Cretaceous Period. There, the Kaiparowitz Formation, 79 to 77 million years old, produces thousands of plants and animals ranging from conifer cones to crocodiles, turtles and dinosaurs. Prospecting the badlands, Sampson distinguishes fossil bone from matrix rock by licking it: if it is bone it will stick to your tongue, if rock, it won’t. Hadrosaurs here can produce as many as 800 teeth in one jaw. The Utah dinosaurs are different from those found elsewhere. Not only the dinosaurs but the whole fauna of mammals, fishes, lizards, turtles and crocodiles, all new to science.

Each community of animals appears to have evolved differently, like Darwin’s famous finches did in the Galapagos, where they have become new species after spreading to different islands. Sampson is examining alternative hypotheses, proposed by Thomas Lehman, a palaeontologist at Texas Tech University. The possibility is that environmental conditions segregated the animals in Laramidia. After a dinosaur had spread over a long geographic range the populations at opposite ends may have adapted through natural selection to different climate zones and vegetation so that the two populations eventually developed into two different species. Perhaps sexual selection contributed to their differentiation. This is suggested by the bizarre looking frills of some ceratopsian dinosaurs.

There are also some unexpected giant dinosaurs. Then there are developments in plants, with peculiar types of fossil vines and jungles indicating big rivers, side channels and lakes filled with tannin, similar to those found in Louisiana today.

Sampson and his team are returning to the Utah badlands over many seasons to shed new light on the Laramidia story, which may reach publication later. A small amount of the *National Geographic* subscription price supports the digging. □

### **Further reading**

Sampson, Scott D. 2010. Dinosaurs of the lost continent of Laramidia. Alberta Palaeontological Society Fourteenth Annual Symposium, Abstracts. Mount Royal University, Calgary, Alberta, p. 40.

\_\_\_\_\_. 2009. *Dinosaur Odyssey: Fossil threads in the web of life*. University of California Press, 352 pp.

## New Arky Society Website

The Archaeological Society of Alberta (Calgary) has a great new website. Check it out! <http://arkycalgary.com/>

# 2014 Field Trips

By Wayne Braunberger

Planning is underway for this year's trips. For more information please contact **Wayne Braunberger** at (403) 278-5154 or by email, [fieldtrips@albertapaleo.org](mailto:fieldtrips@albertapaleo.org). A field trip registration form is included with this issue of the *Bulletin* and is also available on the APS website ([www.albertapaleo.org](http://www.albertapaleo.org)). Information will also be available at the monthly meetings.

Please note that all fees are due at the time of registration. Fees for trips are \$10.00. This is to cover increased costs as guides will be featuring more colour photographs and diagrams. Unfortunately, guides are only produced in small numbers and volume discounts are not available.

Non-members and unaccompanied minors will **NOT** be allowed to attend field trips. **All participants are required to have their membership in good-standing. Any membership applications received after May 1, 2014 will not be reviewed and voted on by the Board of Directors until September, 2014.** All participants will be required to read and sign a release form (waiver). Detailed information will be provided to all those registered shortly after the registration deadline. **After the registration deadline no refunds will be given, however, you will receive the guide for the trip. No late registrations will be accepted.** Registrations are accepted on a first come first served basis. Sign up early to avoid disappointment.

For the 2014 field trips I will be sending you the waiver and medical forms along with the trip information. This information will be sent to you via e-mail or Canada Post. Please ensure that your addresses are correct and legible when sending in registration forms.

When you arrive at the meeting place please have the forms completed. **All participants are required to have fully completed all waiver and medical forms in order to attend the trip. There will be no exceptions.** All personal information is held in confidence and ultimately destroyed.

## Trip Participant Responsibilities

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

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

### Trip 2014-1, July 5, 2014 Drumheller area, Alberta

A trip focusing on Cretaceous palaeosols (fossil soil horizons) will be led by Ph.D. student **Annie Quinnie**. The formal portion of the trip will take place on Saturday, July 5. Activities for Sunday have not been determined.

**Registration deadline is June 30, 2014.**

### Trip 2014-2, August 16 & 17, 2014 Yahatinda-Red Deer River area, Alberta

This trip will examine the Cretaceous, Jurassic and Triassic formations that are exposed in the area and their invertebrate faunas.

**Registration deadline is August 1, 2014.**

### Trip 2014-3, September 2014 (tentative) Date and location to be announced.

A late September trip is being considered. At this time a location and date have not been determined. Please indicate if you are interested on the sign-up sheet and information will be sent to you when it becomes available. □

## APS Logo Search

A reminder that the Society is on the search for new logo ideas (See the March *Bulletin*, Page 6). Though there is no firm deadline for submission of ideas, the Executive plan to create promotional materials for the annual symposium and other events, and it would be great to have a new logo ready to show off by the end of the year. If you have an idea for a logo design, please sketch it out and send it to any member of the Executive (see Page 2). □

# “Like Any Other Fossils”

Alberta ammonites and why it’s hard for amateurs to follow the law

Opinion by Howard Allen, Editor

Summer’s almost here and a lot of us are itching to explore Alberta’s bedrock exposures with eyes tuned to the evocative shapes of fossils. Of course, this comes with the responsibility to mind the basic rules and regulations that control our avocation:

- No excavation of fossils.
- Surface collecting only with permission of private landowners, or on unrestricted Crown land.
- No collecting in parks or other protected areas.
- No selling of Alberta fossils or transporting fossils out of the Province. Alberta owns the fossils.
- No damage or alteration of Alberta fossils.
- Report to the authorities anything that might be scientifically important.

We’re familiar with these rules because they’ve been laid out in black-and-white in government pamphlets, on the Tyrrell Museum’s website ([http://tyrrellmuseum.com/research/fossils\\_law.htm](http://tyrrellmuseum.com/research/fossils_law.htm)), in official versions of the regulations and spread through our community by word-of-mouth and sources such as APS meetings, field trips and the *Bulletin*.

But do we really know all the rules? I thought I did, until one day a few weeks ago when I was idly surfing the web and landed on a Royal Tyrrell Museum of Palaeontology (RTMP) blog posting by Dan Spivak, Head of the Museum’s Resource Management Program (<http://royaltyrrellmuseum.wordpress.com/2014/04/17/collection-and-disposition-of-ammonite-shell-in-alberta-2/>). When I got to the second paragraph, I pulled up abruptly:

“... you cannot surface collect ammonite shell in Alberta.”

Wait—*what*? But this can’t be true, I thought. Hadn’t this issue been dealt with years ago, in an amendment to the law surrounding ammonite shell? As far as I knew, it was common knowledge and well documented. In a comment to the blog post, I ques-

tioned the author on this point. He replied promptly and courteously, quoting the *Dispositions (Ministerial) Regulation 101/1998* of the *Historical Resources Act* which—sure enough—states in no uncertain terms:

*No person shall recover ammonite shell by any means from any land unless that person*

*(a) has an HRA exemption,*

*(b) has a permit issued under section 30(1) of the Act,*

*(c) has received a disposition of the interest of the Crown in right of Alberta in ammonite shell under section 8(1), or*

*(d) is an Indian or member of a band within the meaning of*

*the Indian Act (Canada) and is recovering ammonite shell*

*for religious or ceremonial purposes.*

## Where did we go wrong?

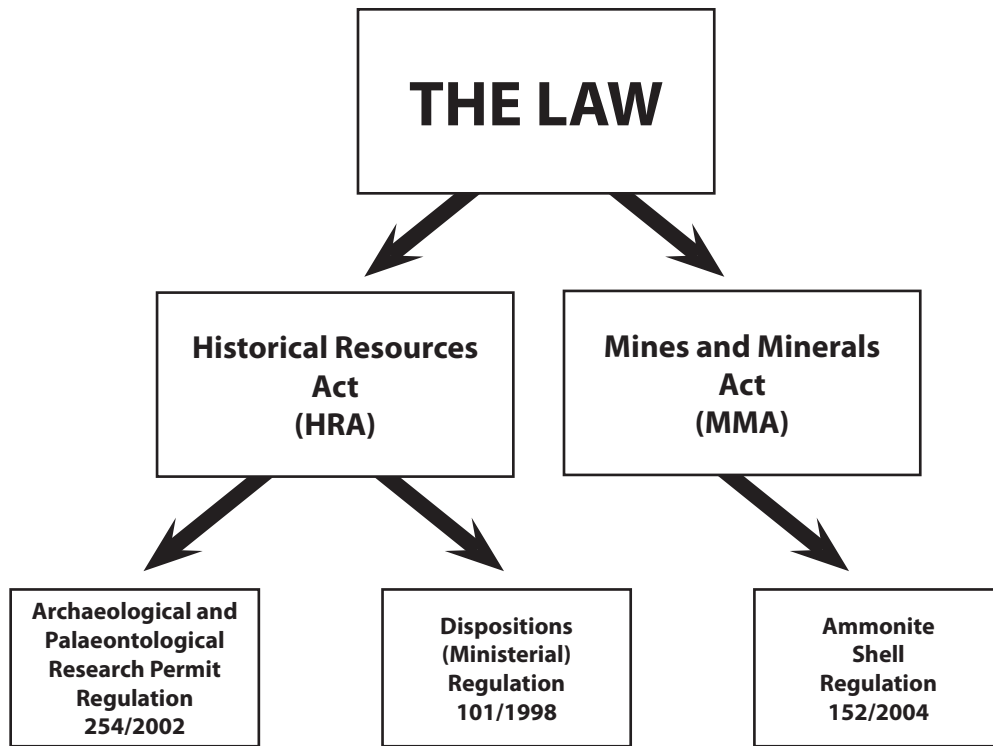
I was still feeling perplexed and decided it would be good for my education to do some research and figure out where I had gone wrong in my understanding. If I’ve misunderstood the law, then other people may have, too.

The obvious starting point was looking at the regulations. All are available for free download at the website of the Queen’s Printer ([www.qp.alberta.ca/](http://www.qp.alberta.ca/)) which is the official source for all recent government legislation and records.

As I understand it (Figure 1), “The Law” is formalized into *Acts* which are passed into effect by the Provincial Legislature and administered by the various government ministries. In Alberta there are two acts that deal specifically with fossils: *The Historical Resources Act* (HRA; the latest version available was current as of June 12, 2013) and the *Mines and Minerals Act* (MMA; current as of June 17, 2013). Attached to each act are *Regulations* that spell out the specific dos and don’ts that everyone must follow.

The HRA includes only four regulations, two of which concern fossils: the *Archaeological and Palaeontological Research Permit Regulation 254/2002* (the numbers are the regulation number and the year it came into effect, respectively) and the *Dispositions (Ministerial) Regulation 101/1998*.

The MMA has a whole heap of regulations attached to it (thirty-nine by my count), almost all



**Figure 1.** The legal framework with respect to fossils in Alberta.

directed at the mining and oil and gas industries, as you might expect. There's only one that deals with fossils, the *Ammonite Shell Regulation 152/2004*.

We've already seen what the HRA's *Disposition Regulation 101/1998* says about ammonites. But the MMA's *Ammonite Shell Regulation 152/2004* (note the date of this regulation, which is five or six years later than the *Dispositions Regulation 101/1998*) appears to leave a door open to surface collecting:

*No person shall recover non-exposed ammonite shell unless the person is the holder of an agreement.*

The regulation explicitly refers to “*non-exposed ammonite shell*” which would seem to imply that *exposed* ammonite shell should be fair game. If so, this would make ammonites no different than other types of fossils, of which you can surface collect specimens, but cannot excavate. So one act (HRA) says you can't surface collect ammonites and another act (MMA) seems to say you can. Can one act trump another act? Do different acts hold equal weight under the law? Does a regulation that explicitly forbids something hold sway over another regulation that implicitly allows it? I don't know, and here I have to cop the coward's plea: I'm not a lawyer.

Earlier, I asked readers to note the dates of the two regulations, 1998 versus 2004. The HRA regulation

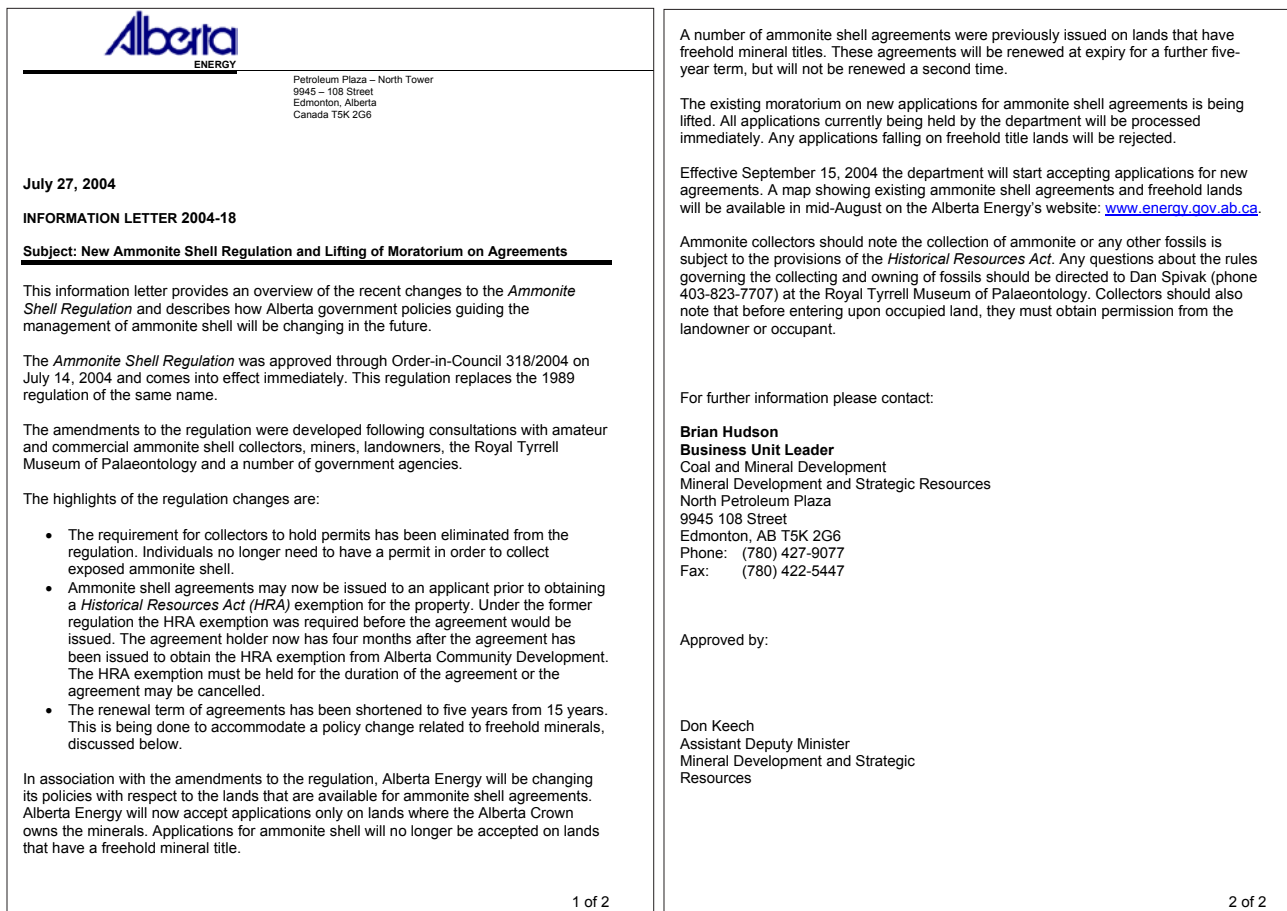
that bans ammonite collecting was already in effect five or six years prior to the MMA regulation that would seem to permit it. Why would lawmakers in 2004 leave such an obvious hole in their wording if they knew that the earlier 1998 law expressly banned ammonite collecting without a permit? Do they not check existing laws before they pass something that might be inconsistent? Are ordinary citizens expected to sort this out? (I'm afraid the answer to this one is “yes”. We've all been drilled to know that ignorance of the law is no defence.)

### **A red herring: The 2004 letter**

A notion was still stewing in my mind that the ammonite collecting issue had been dealt with years ago, and had been settled in favour of legal surface collecting by amateurs. More digging turned up a two-page letter on Alberta Government letterhead, dated July 27, 2004 (hereinafter referred to as “the 2004 letter”, Figure 2) and sent to various interested parties, including the APS.

It's useful to know the background of the *Ammonite Shell Regulation*. The original regulation, numbered 59/1989 is too old to found be on the Queen's Printer website, but it can be viewed at the web archive of the Canadian Legal Information Institute (CanLII; [www.canlii.org](http://www.canlii.org)). Prior to the new (2004)





**Figure 2.** “The 2004 letter.”

regulation, it was illegal to surface collect ammonite shell without either a *permit* (allowing you to surface collect) or an *agreement* (a mining licence—with hefty fees<sup>1</sup>—allowing you to excavate ammonite shell for commercial purposes). Without a mining agreement it was illegal to excavate or to remove exposed ammonite shell except by hand or with light hand tools. The new *Ammonite Shell Regulation 152/2004* did away with the *permit* for surface collecting but still required the *agreement* for excavating or mining.

The 2004 letter (Figure 2) outlines changes in the new *Regulation 152/2004*. Note in particular: “The amendments to the regulation were developed following consultations with amateur and commercial ammonite shell collectors” and “Individuals no longer need to have a permit in order to collect exposed ammonite shell.” It’s easy to see why amateurs might have gotten the idea that it was OK to surface collect

ammonites since 2004. But there was an important sentence in the last paragraph of the 2004 letter. It glosses over a devil in the details that will become significant later:

*Ammonite collectors should note the collection of ammonite or any other fossils is subject to the provisions of the Historical Resources Act.*

### The APAC Minutes

Meanwhile, even more digging turned up the official minutes of Meeting #39 of the now-defunct APAC<sup>2</sup> for May 28, 2004. Under “Business arising from minutes” it is recorded that:

*D. Spivak [Royal Tyrrell Museum] reported that recent changes to the regulations allow surface collection of ammonites for non-commercial purposes. A draft version of the new regulations was circulated.*

<sup>1</sup> \$625.00 application fee plus \$3.50 per hectare annual rental fee, minimum \$50.00. (Ammonite Shell Agreement Application, <http://www.energy.alberta.ca/minerals/718.asp#ammonite>).

<sup>2</sup> Alberta Palaeontological Advisory Committee, a government-appointed committee of representatives from University of Alberta, University of Calgary, Geological Survey of Canada, the amateur community (APS), industry and the Royal Tyrrell Museum. The last APAC meeting was held in 2005 and it was legally abolished under *HRA Amendment Regulation 133/2010*. Disclosure: the author was the APAC representative for APS at the time of dissolution.

The minutes of the subsequent—and, as it turns out, final—Meeting #40 (May 20, 2005) show that:

*D. Spivak reported on Surface Collecting Permits for ammonite collecting. Copy of new regulation circulated. Ammonite surface collecting is now like all other fossils . . .*

So as recently as 2005 the RTMP's Resource Management office was promoting the idea that the new *Ammonite Shell Regulation 152/2004* would “allow surface collection of ammonites for non-commercial purposes” and that “ammonite surface collecting is now like all other fossils.” This sounds like “it's OK to surface collect ammonites,” doesn't it?



**Figure 3.** One of the least stunning ammonite specimens discovered in Alberta. On display in the APS fossil collection. Scale = 1 cm. APS file photo.

### Did we miss something?

Did something change between May 20, 2005 and the blog post of April 17, 2014? Were there legislated amendments to the regulations? No, apparently not. The current version of the *Ammonite Shell Regulation* includes “amendments up to and including Alberta Regulation 305/2009” and still includes the phrase “non-exposed ammonite shell.” So that part of the regulation hasn't changed. The *Disposition (Ministerial) Regulation 101/1998* in its original, unamended form stated that “No person shall recover ammonite shell by any means from any land” which is exactly the same wording that's in effect today. Over the years there have been four amendments to the *Disposition Regulation* but none of the amendments have

changed that wording (see “Close, but no cigar,” Page 11). Under the HRA it was and still is illegal to surface collect ammonite shell without a permit.

Could there be something in the legal definition of “ammonite shell” that's confusing the issue? Maybe “ammonite shell” only refers to the colourful, commercially valuable stuff from the Upper Cretaceous Bearpaw Formation and doesn't include regular, run-of-the-mill, dull old ammonites (Figure 3) from everywhere else? No. The legal definition of ammonite shell is the same in both acts (HRA and MMA):

*“ammonite shell” means a work of nature consisting of or containing evidence of the external skeleton of an extinct cephalopod having ammonitic sutures, that is, sutures with subdivided lobes and saddles.*

That's pretty clear. “Containing evidence of” means that even the vaguest, dullest, unidentifiable swirl on a slab of Triassic siltstone scree in the Rockies (Figure 4) is “ammonite shell” in the eyes of the law and therefore uncollectable by amateurs.

### The devil in the details

At this point it's time to get down to the “devil in the details” I mentioned earlier. The 2004 letter has a “gotcha” in the final paragraph and I think this is where we amateurs went wrong:

*Ammonite collectors should note the collection of ammonite or any other fossils is subject to the provisions of the Historical Resources Act.*

There's that phrase again: “any other fossils.” Anyone casually reading the letter would naturally skim over this cautionary line, assuming it was just another gentle reminder of our responsibility to obey the laws that we already know—because ammonites would be treated like “any other fossils,” right?

But it was a mistake to think that just because the need for a MMA permit was removed in 2004 ammonites would automatically become available for collecting, like “any other fossils.” The devil in the details is this: *there wasn't just one permit required to collect ammonites—there were two.* Abolishing the MMA permit for ammonites merely removed a redundancy. The old HRA permit requirement for ammonites was there all the time, lurking in the fuzzily named *Dispositions (Ministerial) Regulation*. The fact is, you still need a HRA permit to collect ammonites and you won't get one, because they're only granted to qualified academic researchers.

There is another way to legally collect ammonites, detailed in the RTMP blog post of April 17, but it's



**Figure 4.** “A work of nature consisting of or containing evidence of the external skeleton of an extinct cephalopod having ammonitic sutures, that is, sutures with subdivided lobes and saddles”. Scale = 5 cm. APS file photo.

expensive (see footnote 1, Page 9) and so convoluted and impractical that no amateur collector would be willing to navigate the maze. You have to apply for a mining agreement, which for all your cost and trouble would allow you to collect only on a specified, small parcel of land and nowhere else.

A cynic might think that the “consultation with amateurs” mentioned in the 2004 letter was just an exercise to mollify a small and naïve interest group with feel-good language when in fact the changes

gave no leeway to amateur collectors.

It seems to me that it would have been simpler and a lot more honest if the authors of the 2004 letter had written “*Ammonite collectors should note the collection of ammonites still requires a permit under the provisions of the Historical Resources Act.*”

Why was the Resource Management office in 2004–2005 letting people think that it was OK to surface collect ammonites without a permit when it knew full well that the *Dispositions Regulation* expressly banned the practice? It’s a good question and I’ll leave the answer as an exercise for the reader.

### Close, but no cigar: The 2009 letter

But there’s even more to the story. If, by the end of 2005, amateurs were under a mistaken belief that ammonite collecting had been legalized, then another government letter sent to the APS (and to other stakeholders, presumably) in November 2009 would have dispelled the notion only momentarily. “The 2009 letter” (Figure 5) announced the proposals of a committee under the ministry of Culture and Community Spirit to amend the *Dispositions (Ministerial) Regulation*. Four amendments were proposed by the committee:

1. Abolish APAC.

**Government of Alberta** ■  
Culture and Community Spirit

Royal Tyrrell Museum  
Box 7500  
Dumfries, Alberta T0J 0Y0  
Canada  
Telephone: 403-623-7707  
[www.tyrrellmuseum.com](http://www.tyrrellmuseum.com)

Mr. Wayne Braunberger  
President  
Alberta Palaeontological Society  
P.O. Box 35111  
Sarcee Postal Outlet  
Calgary, Alberta  
T3E 7C7

September 14, 2009

Dear Mr. Braunberger:

Alberta Culture and Community Spirit is currently reviewing the Dispositions Regulation to ensure that this legislation remains relevant and effective. As part of this review we are consulting with stakeholders to solicit feedback on proposed changes. As a representative of a member institution of the Alberta Palaeontological Advisory Committee (APAC) you have been identified as a stakeholder in this process.

We have identified the following potential changes to the Regulation that we feel will address stakeholder issues or will make day-to-day operations of Dispositions Regulation related activities more efficient and will result in a decrease in processing time for our clients.

1. Dissolve the Alberta Palaeontological Advisory Committee and remove all references to the committee from the Regulation. In place of APAC an *ad hoc* committee will be established, as needed, to discuss palaeontological issues in Alberta and provide advice as required.
2. Modify section 4(3)(c) which currently reads
 

(3) A person who has custody of a resource under subsection (1) is subject to the following requirements:  
(c) the archaeological resource or palaeontological resource may not be traded, sold, altered or removed from Alberta without the written permission of the Minister.

to allow for temporary export of palaeontological resources for which custodianship has been issued by the Minister. This will allow custodians to temporarily remove their collections from Alberta without applying for written permission from the Minister of Culture and Community Spirit. In your feedback,

Sincerely,



Dan Spivak  
Chairperson, Dispositions Regulation Review Committee  
Head, Resource Management Program



please include what you feel would be an appropriate amount of time for temporary exports.

3. Modify section 9, which currently reads:
 

No person shall recover ammonite shell by any means from any land unless that person...

to allow people to surface collect ammonite shell. This change will result in ammonite shell being treated the same as any other palaeontological resource under the *Historical Resources Act* and will allow fossil collectors to legally surface collect ammonite shell.
4. Add a statement to the regulation allowing ammonite shell to be excavated for First Nations ceremonial or spiritual purposes. This change is being recommended as a result of consultation with the three Blackfoot Nations held earlier this year.

You can view a copy of the Dispositions Regulation on the Queen's Printer's website (<http://www.qp.alberta.ca>).

Your input in this matter on these or any other matters is important to us. Please send any comments you may have to me by September 28, 2009. You can either e-mail your reply to [dan.spivak@gov.ab.ca](mailto:dan.spivak@gov.ab.ca) or by using standard mail to the address above.

**Figure 5.** “The 2009 letter.”

2. Allow short-term export of custodial fossil collections without written ministerial permission—for example, to allow the display of specimens at out-of-province conferences, shows or other events.
3. “Modify section 9, which currently reads:

*No person shall recover ammonite shell by any means from any land unless that person . . .*

to allow people to surface collect ammonite shell. This change will result in ammonite shell being treated the same as any other palaeontological resource under the [HRA] and will allow fossil collectors to legally surface collect ammonite shell.”

4. Allow First Nations to excavate ammonites “for ceremonial or spiritual purposes.”

In the end, only amendments 1 and 4 were passed into law, as *Alberta Regulation 133/2010, Historical Resources Act Dispositions Amendment Regulation* (The Alberta Gazette, Part II, September 30, 2010, p. 908).

There was no followup letter to let us know that the proposal to legalize ammonite collecting had been nixed. Governments are happy to announce what they hope to do, but are less eager to announce what they fail to do. Few of us would have gone to the regulations to see if the amendments had actually gone through as proposed. We should have.

Obviously one or more interested parties were opposed to letting amateurs surface collect ammonites and they were in a position to voice their opposition. The APS, despite being “identified as a stakeholder” was not made aware that there was opposition to the amendments, so we had no real opportunity to defend the amateur position. To be fair, the 2009 letter did invite input from the APS. But with no clue that the amendment proposals were up against opposition, it would have been difficult to formulate counter arguments beforehand. I don’t know who opposed the collecting amendment and while it’s easy to think of possible suspects, there’s no value in pointing fingers.

### Where does all this leave us?

The most important lesson to take away is this: *It is illegal to collect ammonites in Alberta.* All ammonites. Sad but true. There are no exceptions or loopholes in the law that will be of any practical use to amateur palaeontologists. You know what you have to do.

But amateurs should not feel too guilty about their ignorance of the law. As we’ve seen, messages emanating from the various government entities over the years can best be described as “mixed,” so it should

be no surprise that members of the public were ill-informed. For better or worse, the RTMP’s Resource Management Program (acting as proxy for the Minister) is the sole authority in Alberta for administering permits, dispositions and anything else to do with fossil regulations. The second important lesson for amateurs is to take any information coming from this office or any other source with a healthy dose of skepticism. Don’t believe news or rumours you may hear or read about changes to the law until you’ve gone straight to the Queen’s Printer and read the latest regulations yourself—*all the regulations!*

I will only add as confirmation that, as of this writing, the RTMP’s *Fossils & The Law* web page doesn’t even mention the word “ammonite,” leaving its readers assuming that ammonites are to be treated—you guessed it—just like any other fossils. □

*[The opinions expressed in this piece are solely those of the author. Thanks to Wayne Braunberger and Dan Quinsey for helping to locate documentation. Discussion is not only welcome, but encouraged.*

**editor2@albertapaleo.org]**

## Fossils in the News

Edited by Howard Allen

*CBC News online*

May 7, 2014

### **Pinocchio rex long-snouted tyrannosaur discovered in Asia**

CHINA—Another branch of the tyrannosaur family tree has been described from material found in southern China. Dubbed *Qianzhousaurus sinensis*, its most distinctive features are a relatively long, slender skull (hence the “Pinocchio” nickname) and long, thin teeth. The animal lived during the Maastrichtian age, making it roughly contemporary with its relatives, *Tyrannosaurus* and *Tarbosaurus*. One of the authors of the (paywalled) paper describing the find, Dr. Steve Brusatte, of the University of Edinburgh, says “this is a different breed of tyrannosaur . . . its snout was much longer and it had a row of horns on its nose.” An abstract of the paper is available at [www.nature.com/ncomms/2014/140507/ncomms4788/full/ncomms4788.html](http://www.nature.com/ncomms/2014/140507/ncomms4788/full/ncomms4788.html). Read the CBC article here: [www.cbc.ca/news/technology/pinocchio-rex-long-snouted-tyrannosaur-discovered-in-asia-1.2634651](http://www.cbc.ca/news/technology/pinocchio-rex-long-snouted-tyrannosaur-discovered-in-asia-1.2634651).

CBC News online May 7, 2014

## Huge, ancient meteorite crater found in southern Alberta

BOW CITY—A large, buried meteorite crater has been discovered by Alberta Geological Survey geologist Paul Glombick, while mapping subsurface rocks near the Bow River, southwest of Brooks. Subsequent geophysical analysis and examination of surface exposures confirmed the find and delineated its extent. The impact structure is about 2.5 km deep and 8 km in diameter. Dr. Doug Schmitt of the University of Alberta has studied the structure and tentatively estimates its age as between 50 and 70 million years old (Late Cretaceous to Eocene). Anyone looking for the structure on the surface will be disappointed. “It’s buried,” says Dr. Schmitt. “There isn’t a lot to see.”

There is surface evidence, however, if you know what to look for. Cretaceous rocks exposed in a nearby tributary coulee of the Bow River show structural deformation related to the impact. The object that impacted the ground is estimated to have been between 300 and 500 m in diameter, if it was mostly iron. [www.cbc.ca/news/canada/calgary/huge-ancient-meteorite-crater-found-in-southern-alberta-1.2635289](http://www.cbc.ca/news/canada/calgary/huge-ancient-meteorite-crater-found-in-southern-alberta-1.2635289). A short abstract of the paywalled paper describing the structure is at <http://onlinelibrary.wiley.com/enhanced/doi/10.1111/maps.12296>. A good article with outcrop photos of the disturbed beds is available at [www.physics.ualberta.ca/en/Physics%20News/2014/May/Ancientcraterpointstomassivemeteoritestrike.aspx](http://www.physics.ualberta.ca/en/Physics%20News/2014/May/Ancientcraterpointstomassivemeteoritestrike.aspx).

CBC News online March 19, 2014

## “Chicken from hell” dinosaur gets scientific name

PITTSBURGH—A dinosaur that had languished anonymously for decades as fragments in museum drawers has received a formal description and name. *Anzu wyliei* was a toothless, beaked biped that would have been about 2 m tall and weighed 226 kg. Bits and pieces of this or similar animals, some referred to the oviraptorosaur genus *Caenagnathus*, had been found in western North America—including Alberta—since the 1920s. It wasn’t until the 1990s, when partial skeletons were excavated in North and South Dakota, that enough bones were finally available to do a thorough study. The “chicken from hell” moniker was a nickname given to the bones by Carnegie Museum staff. *Anzu* is the name of a Mesopotamian mythological winged monster. An account of the

new dinosaur, written by Hans-Dieter Sues, one of the researchers, can be read at [nmnh.typepad.com/smithsonian\\_fossils/2014/03/anzu-wyliei-a-bizarre-new-dinosaur.html](http://nmnh.typepad.com/smithsonian_fossils/2014/03/anzu-wyliei-a-bizarre-new-dinosaur.html). A full, open-access research paper is available at [www.plosone.org](http://www.plosone.org) (search “Anzu”).

CBC News online May 15, 2014

## Giant fossil sperm are the oldest ever found

SYDNEY, Australia—Researchers at the University of New South Wales, excavating deposits from the floor of an ancient cave, have found what they believe are the oldest fossilized sperm ever found. The sperm cells, up to 1 cm in length, belonged to ostracodes (seed shrimp) that lived in a cave pool some 17 million years ago (Miocene). The excavated cave deposits also contain abundant bat bones, leading to speculation that accumulated bat droppings were responsible for preserving the ostracod sperm cells and other delicate internal organs. Ostracod fossils were examined using high-tech X-ray tomography techniques that produced 3D images of the fossils, including all aspects of their soft internal organs, right down to the interiors of cells. It is thought that the highly phosphatic nature of the bat guano prevented decomposition of the soft tissues, resulting in their preservation. [www.cbc.ca/news/technology/giant-fossil-sperm-are-the-oldest-ever-found-1.2644037](http://www.cbc.ca/news/technology/giant-fossil-sperm-are-the-oldest-ever-found-1.2644037). An abstract of the paywalled paper in *Proceedings of the Royal Society B* can be read here: <http://rspb.royalsocietypublishing.org/content/281/1786/20140394.abstract>.

CBC News online June 4, 2014

## Ichthyosaur graveyard found in Chile

TORRES DEL PAINE NATIONAL PARK, Chile—A team of Chilean and German researchers has announced the discovery of the nearly complete skeletons of forty-six ichthyosaurs belonging to four different species. The fossils, showing “excellent preservation,” were exposed recently by a retreating glacier and have been dated to the Early Cretaceous (about 135 million years ago). [www.cbc.ca/news/technology/ichthyosaur-fossil-graveyard-found-in-chile-1.2664362](http://www.cbc.ca/news/technology/ichthyosaur-fossil-graveyard-found-in-chile-1.2664362). Read an abstract of the paywalled paper at <http://gsabulletin.gsapubs.org/content/early/2014/05/22/B30964.1.abstract>.

[Thanks to Phil Benham, Dave Frishman and Georgia Hoffman] □

# APS Balance Sheet for 2013

## Revenues

Memberships	1945.00
US\$ Exchange	1.18
T-shirts	20.00
Pins	0.00
Field Trip Guides	0.00
Abstract Volumes	8.00
APS Book	995.00
Shipping and Handling	188.00
Misc. Sales	13.00
Refreshments	61.63
Field Trip Fees	380.00
Workshop Fees	480.00
Donations	10.00
Symposium Abstract Sales	296.00
Symposium Donations	12.30
Bank account interest	0.23
PublicOutreach (18.00)+Library (399.50)	417.50

**Subtotal Revenues 4827.84**

## Expenses

Bulletin Printing	335.04
Bulletin Postage	115.23
Speaker Expenses	358.34
PO Box Rental	157.50
Membership Printing	3.68
Membership Postage	1.82
Field Trip Expenses	0.00
Workshop Expenses	183.64
Symposium Speaker	0.00
Symposium Abstract Printing	235.20
Postage for Sales	150.38
Website Expenses	125.78
Refreshments	231.48
Bank Charges + GIC purchase	15000.00
Miscellaneous	1090.85
APS Book printing	655.07

**Subtotal Expenses 18644.01**

## Plus Revenue Received in 2012 for 2013

2013 Membership Fees	455.00
2013 Workshop Fees	150.00
Donations for 2013	30.00
Savings for 2013 Symposium	744.00
Savings for Library	97.75
Savings for Public Outreach	76.00

## Subtract Revenue Received in 2013 for 2014

2014 Memberships Fees	240.00
Donations for 2014 Symposium	1261.00
Savings for 2014 Public Outreach	294.00
Savings for 2014 Library	497.25

**Total Revenues 4088.34**

## Plus Expenses paid in 2012 for 2013

PO Box rental	147.00
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## Minus 2012 Surplus Used

MRU Display Donation	1000.00
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## Minus Expenses paid 2013 for 2014

PO Box rental	157.50
GICs due Jan 17, 2014	15000.00

**Total Expenses 2633.51**

**Excess of Revenues over Expenses = \$1454.83**

**Starting Jan. 1, 2013**

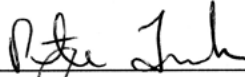
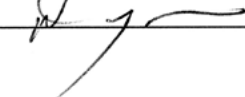
**Inventory Sale Value \$1,673.00**  
**Values Current to Date: 04-Jan-14**

**Total Fund Raising Proceeds 1,855.23**  
**Total Fund Raising Costs**  
**Net Fund Raising 1,855.23**

**Audited by APS Members as per the APS Bylaws:**

Printed Name: Pete Truch

Printed Name: Doug Shaw

Signature:  Date: Feb 6/14  
 Signature:  Date: April 12/14