

# Alberta

*Palaeontological Society Bulletin*

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# ALBERTA PALAEOLOGICAL SOCIETY

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## THE SOCIETY WAS INCORPORATED IN 1986

### as a non-profit organization formed to:

1. Promote the science of palaeontology through study and education.
2. Make contributions to the science by: discovery; responsible collection; curation and display; education of the general public; preservation of palaeontological material for study and future generations.
3. Work with the professional and academic communities to aid in the preservation and understanding of 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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Requests for 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, 2018**—No meetings. **Field trips,** see Page 3.

**Friday, September 21, 2018**—Dr. Terry Poulton, Geological Survey of Canada (Calgary).  
*Ammonites (title to be announced).*

**Friday, October 19, 2018**—Chad Morgan, University of Calgary.  
*Research on trilobites of the Cambrian Stephen Formation*  
and

*Pete Truch will give a 10-minute presentation on Ashfall Fossil Beds State Park, Nebraska.*

**Watch the APS website for updates!**

**ON THE COVER:** Oilsand well core slab with oncoids—concretionary microbial carbonate growths forming on fossil fragments, including a gastropod (snail) shell. Methy Formation, Elk Point Group, Middle Devonian, northwestern Saskatchewan. APS collection, catalogue number APS.2007.01b, donated by Georgia Hoffman. Width of core slab is 6.7 cm. APS file photo. **Quiz: is this core right way up? How do you know?** Send your answer to [editor2@albertapaleo.org](mailto:editor2@albertapaleo.org). A solution will be revealed in the next *Bulletin*.

# The New Earth Sciences Museum Feasibility Study

By Cory Gross, APS President

The future of natural history education in Calgary is not looking good. The Calgary Zoo's 20-year Master Plan involves tearing down the existing Pre-historic Park to expand room for tigers, seals, and sea lions on the Bow River's north bank. The Glenbow Museum has already begun a transition towards a full-time art gallery. Short of Mount Royal University's fantastic *Cretaceous Land and Sea* exhibit, the lack of public, dedicated, permanent Earth sciences museum space in Calgary is reaching a crisis point.

In response to this, the APS executive has created a Museum Feasibility Committee to investigate the possibility of the Society or a spin-off organization creating a new museum here in the city. Chaired by Cory Gross, this committee will look into issues surrounding the creation of a small, community-focused museum, including funding, partnerships, sponsorships, deterrents, spaces, exhibits, management, legalities, and other questions. This is an information-gathering committee with the goal to have a report ready for the May 2019 Annual General Meeting, including recommendations for or against a feasible museum plan.

To accomplish this, the Museum Feasibility Committee needs passionate, interested people. If public Earth sciences education is something you feel strongly about, if the museum field is something you've been interested in, or if you have valuable skills in research, communication, fundraising, business or law, you would be a great and necessary fit for the committee! Please get in touch with Cory right away at [president1@albertapaleo.org](mailto:president1@albertapaleo.org) so we can start meeting and working toward this ambitious goal! □

*Bulletin* back issues are available online:  
[www.albertapaleo.org/bulletinarchive.html](http://www.albertapaleo.org/bulletinarchive.html)

# 2018 Field Trips Update

By Wayne Braunberger, Field Trips Director

## Trip 2018-1, June 23 & 24, 2018 Drumheller Marine Tongue, Alberta

Prior to the field trip Dr. Wayne Haglund will be giving a presentation on the Drumheller Marine Tongue. The presentation will take place at 7:30 P.M. on June 21 at Mount Royal University. (If you have registered for the field trip you will be notified of the time and place.) All field trip participants are strongly urged to attend.

On the field trip itself we will explore the fascinating Drumheller Marine Tongue, exposed at various locations in the Horseshoe Canyon Formation along the Red Deer River and its tributaries in the vicinity of Drumheller. Most locations are short hikes; however to access the type section requires a hike of 2 – 3 km (return). A variety of oysters, bivalves and gastropods are known to occur within the Drumheller Marine Tongue.

**The registration deadline for this trip (June 8, 2018) has now passed.**

## Trip 2018-2, July 21 & 22, 2018 Southeastern Alberta

This trip will focus on Cretaceous vertebrate localities in southeastern Alberta. At this time the localities to be visited have not been confirmed.

Access to sites is along poorly maintained wellsite access roads and prairie trails. For safety reasons we will be restricted to high clearance vehicles. If there has been significant rain in the area access will be limited. Please note that the area is prime rattlesnake habitat.

**Registration deadline is July 6, 2018.**

## Trip 2018-3, August 18 & 19, 2018 Blindman River/Burbank, Alberta

On the first day of this field trip we will explore the banks of the Blindman River near Red Deer. Our objective will be to find fossil leaves in the up-

per Paleocene Paskapoo Formation. On the second day we will visit a nearby site where slightly younger Paskapoo beds contain a different assemblage of plant fossils. Bring your hammer, fine chisels and **SAFETY GLASSES (!)** because we will be splitting fallen boulders to expose the plant fossils.

**Registration deadline is August 3, 2018.**

**Trip 2018-4, September, 2018  
Waterton area, southwestern Alberta**

A trip to the Waterton area of southwestern Alberta is tentatively planned for late September. Exact dates and localities to be visited have not been confirmed. The trip will focus on Precambrian stromatolites. **Further details will be announced** on the APS website and in the *Bulletin*. Members will also be notified by e-mail. □

# Paleo 2018 Summary

By Mona Marsovsky

**M**ore than 100 people attended Paleo 2018, APS' 22nd annual symposium on Saturday March 17, 2018 at Jenkins Theatre at Mount Royal University, braving the icy roads and threatening snow storms.

APS President **Cory Gross** welcomed the symposium attendees. **Dr. Wayne Haglund** briefly described the new Cretaceous exhibit which was unveiled last January on the second floor of MRU.

**Dr. Richard McCrae**, from the Peace Region Palaeontology Research Centre (PRPRC), provided an overview of dinosaur trackways in Alberta, British Columbia and the Yukon Territories, which range in age from Middle Jurassic to Late Cretaceous. Two trackways illustrate the presence of sauropod (long-necked) dinosaurs in Canada; sauropod fossil bones have not yet been found in Canada.

**Dr. Lisa Buckley**, also from PRPRC, showed us how the study of modern bird tracks can help in identifying bird fossils. Lisa illustrated that indicators such as marks from halluces (the backward-facing digit on the bird's foot) and webbing may be missing from a bird track depending on the characteristics of the ground.

## CRANBROOK HISTORY CENTRE



### PRESENTS A GRAND OPENING

You are cordially invited to attend a  
Grand Opening and be among the first to preview  
the Fossil Gallery and Exhibit  
Of Cambrian, Jurassic, and Cretaceous  
Fauna and Flora  
on Monday, June 25, 2018  
4:00 P.M. – ?

57 Van Horne Street South  
Cranbrook, B.C.  
Canada V1C 1Y7

Opening to be followed by a BBQ

**Tammy Pigeon**, preparator at the PRPRC, described the preparation of British Columbia's first dinosaur skull and the complex steps required to produce a copy of the fossil for study.

**Dr. Emily Bamforth**, from the Royal Saskatchewan Museum, showed us 74 million-year-old fossils found in two localities (Saskatchewan Landing and Herschel) of the Dinosaur Park Formation in western Saskatchewan. These localities allow study of the interaction between coastal beachfront and shallow marine environments at the very edge of the Western Interior Seaway.

**Dr. Michael Wilson** of Douglas College, BC, described the fossils of the Bighill Creek Formation (late Pleistocene) and discussed how they are becoming scarce due to erosion, gravel mining and urban development.

**Dr. François Therrien**, of the Royal Tyrrell Museum of Palaeontology (RTMP), illustrated that the cooling trend just before the Cretaceous – Paleogene (K–Pg) extinction event, 66 million years ago, negatively affected many animal species—but not the dinosaurs, which maintained their diversity. He concluded that long-term climate and environmental changes were not responsible for the extinction of dinosaurs.

**Dr. Jon Noad**, Sedimental Services, illustrated a vast array of trace fossils and how they can be used to decipher animal behaviour.

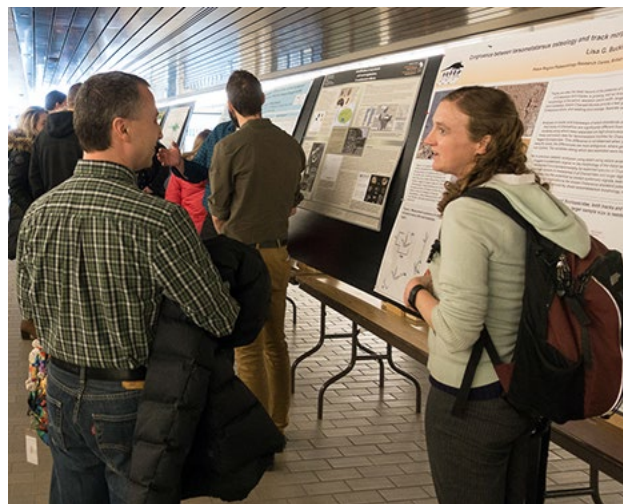
**Aaron van der Reest**, Master's student at the University of Alberta, shared his research which found soft tissues—including original protein structures—in 76 million-year-old fossils from the Dinosaur Park Formation.

**Darren Tanke** of the RTMP described the life of Maurice Stefanuk, an amateur fossil collector, and his substantial contributions to palaeontology.

Participants enjoyed twenty-one posters, featuring a wide variety of topics. There were interesting displays provided by the Archaeological Society of Alberta, Dinosaur Research Institute, dinosaur artist **Cameron Ansorger**, and geologist-author **Dr. Dale Leckie**. Fossil displays were provided by **Cory Gross** and from the APS collection (thanks to **Howard Allen**). Cory provided the materials for the children's colouring area. He also provided a game that challenged participants to put the fossil on the appropriate place in the time line from 4.6 billion years to 10,000 years ago. Thanks go to **Brandy Yanchyk** for allowing us to show her new video, *Dinosaur Echo*, which features interviews of Alberta and B.C. dinosaur hunters (<http://tinyurl.com/ztzfmj>), including our featured speakers, **Dr. Richard McCrae** and **Dr. Lisa Buckley**.

**Tim Carlielle-Shaw** volunteered to film the event. Tim's excellent short video is now up on YouTube: <https://youtu.be/neXG3Y0q-O8>.

On Sunday, March 18, **Dr. Keith Dewing** of the Geological Survey of Canada, taught two half-day sessions of the workshop, "Brachiopod Basics." The thirty-two participants learned about the structure, abundance and diversity of brachiopods from the Cambrian to present. Participants also got a chance



**Scientists networking** at the Paleo 2018 poster display. Photo by Don Murchison.

to examine fossil brachiopods.

We have just one copy of this year's abstract volume available for sale at the bargain price of \$7.00. **Howard Allen** assembled all of the abstract volumes by hand, which kept the cost very low. If you would like to buy a copy, contact **Mona Marsovsky** via e-mail: [giftshop@albertapaleo.org](mailto:giftshop@albertapaleo.org).

The APS organizing committee included **Howard Allen** (editor of the abstracts volume and coordinator of the posters and displays), **Mona Marsovsky** (symposium organizing committee chair, advertising and sales table), **Harold Whitaker** (speakers and workshop) and **Cory Gross**. I would like to thank those who volunteered at the APS sales table: **Lisa Bohach**, **Wayne Braunberger**, **Cory Gross**, **Georgia Hoffman**, **Arnold Ingelson**, **Gulnara Machitova**, **Michèle Mallinson**, **Vaclav Marsovsky**, **Keith Mychaluk**, **Doug Shaw**, and **Pete Truch**.

We would like to thank all of those who helped to publicize this event. The **Canadian Society of Petroleum Geologists** advertised the symposium in their publication, *The Reservoir*. An excellent article about **Dr. Michael Wilson's** talk, written by **David Blackwell** in the *Calgary Herald* newspaper and on-line (see <http://calgaryherald.com/technology/science/access-to-key-ice-age-fossil-formation-along-the-bow-river-sort-of-running-out>), published the day before the event, helped to raise awareness. The weekly magazine supplement *Swerve* included our symposium in its article "Five family-friendly

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things to do in Calgary this weekend.” The *Breakfast Television* (CityTV) interview with **Dr. Jon Noad**, one of our featured speakers, on Wednesday, March 14 at 7:20 A.M. (<http://www.btcalgary.ca/videos/celebrating-palaeontology/>) also spread the word. Information about the symposium was also posted on the **Global News** website ([www.globalnews.ca/Calgary/events](http://www.globalnews.ca/Calgary/events)).

We would like to thank the **University of Calgary Gallagher Library, Calgary Public Libraries, Calgary Co-op stores, Community Health Foods** and **Safeway** for displaying our posters advertising this event. Thanks also go to those who tweeted the message to their social networks.

We would like to thank all of the speakers, poster presenters and display staff for their contributions to the symposium.

APS is able to hold this event without cost to the general public as a result of the support of the **Department of Earth Sciences of Mount Royal University** (especially **Mike Clark** and **Dr. Paul Johnston**) and **Dr. Jon Noad** and the **Canadian Society of Petroleum Geologists, Paleontological Division**. Thank you all!

**M**ark your calendar for next year’s symposium, scheduled for **March 23 – 24, 2019**. Contact **Harold Whittaker** ([programs1@albertapaleo.org](mailto:programs1@albertapaleo.org)), if you would like to present or suggest a talk or workshop. We will finalize our speaker program by the end of October 2018, so be sure to submit your suggestions now. □

## Summary of Microfossil Sorting Sessions: Fall 2017 and Winter 2018

By Daegan Kovacs and Risa Kawchuk

**A**PS members sorted fossils out of the matrix during nine 2.5 hour-long Saturday afternoon sessions from November 4, 2017 to March 10, 2018 using microscopes provided by Mount Royal University. We had a total of thirty-four different volunteers

over these nine sessions.

From November 4 to December 16, APS members sorted for University of Calgary’s **Dr. Jessica Theodor** and **Dr. Alexander Dutchak**. Again we worked with Swift Current Creek matrix, an Eocene site, about 46 million years old, from the Cypress Hills Formation of southern Saskatchewan. Finds included teeth from numerous rodents (*Protadajidaumo* and *Janimus* species), marsupials (*Peratherium*), multituberculates (*Ectypodus*) and various insectivores and bats (including at least one vespertilionid bat, like most bats found in Alberta and Saskatchewan today). Also found were fish fossils (teeth, jaws, skull bones, vertebrae, scales) and lizard jaws. About a dozen volunteers worked at each session.

From January 13 to March 10 we uncovered microfossils in the matrix provided by **Dr. Donald Brinkman** of the Royal Tyrrell Museum. This year we sorted new material, comprised mainly of shells, from a site near Manyberries, with a similar age to Dinosaur Provincial Park. Hidden in the mountains of clam and snail shells, volunteers found fish fossils (scales, spines, plates, vertebrae, teeth, jaws, and otoliths [ear bones]) as well as turtles (vertebra and shell fragments) and some lizards (skull bones, jaws, osteoderms, teeth, and vertebrae). These lizard fossils represented several families including varanoids (monitors), anguids (slowworms, glass lizards and alligator lizards), xenosaurids (knob-scaled lizards), and helodermatids (beaded lizards such as the Gila monster). Other fossils found included frogs (jaws, skull bones, vertebrae, and a humerus), and tons of salamanders and a close relative called *Albanerpeton* (various bones). Other finds included a marsupial, multituberculate, and crocodile teeth, and several dinosaur teeth from hadrosaurs, ceratopsians, ankylosaurs, and theropods including a possible bird tooth. As in the fall sessions there were usually about a dozen or so volunteers each week. The February 24 session was the most well-attended, when eighteen volunteers came and we almost ran out of microscopes!

APS would like to thank Dr. Theodor, Dr. Dutchak, and Dr. Brinkman for their expertise, supplying the matrix, and making it possible for us to search for fossils even when it’s the middle of winter.

Thank you to **Mike Clark** and **Dr. Paul Johnston** for lending us **Mount Royal University’s** lab and microscopes. Without the University’s support, these sessions would not be possible. □

# CPC 2018 set for September in Saskatoon

The 2018 Canadian Paleontology Conference (CPC) will be held at the University of Saskatchewan, Saskatoon, September 21 – 24, 2018. Registration fees are \$55.00 to \$130.00; a field trip is available for another \$55.00. For presenters, abstract submission deadline is September 7. A public lecture by **Dr. Ryan McKellar** will be offered on September 22. To download a First Circular or register for the conference, visit the CPC 2018 website at <http://artsand-science.usask.ca/geology/news/conference.php>.

To read what went on at the 2017 CPC (held in Calgary), see the *Bulletin*, December 2017, p. 7: <http://www.albertapaleo.org/bulletin324.pdf> □

## 2018 Wildhorse Knap-in and Primitive Skills Festival, July 13–15

Anyone interested in flint-knapping and other “primitive skills” is invited to the 2018 Wildhorse Knap-in. The event takes place at the Wildhorse Ranch, east of Rocky Mountain House.

Admission is free, July 13 – 15, 2018 (Friday through Sunday), 9:00 A.M. to 5:00 P.M. daily. There is plenty of room for tents, tipis, trailers or campers.

Something for the whole family! Learn & experience flint knapping, horse packing ropes and knots, atlatl throwing, longbow shooting, Crazy Horse archery, tomahawk throwing, bow drill fire making, traditional glue making, traditional hide preparation, traditional Indigenous-style canoe paddle making and traditional self-bow making for kids and adults.

**Driving Directions from From Caroline, Alberta:** From the stop sign on Main Street in Caroline, drive north on Arbutus Road 24.2 km. Turn east (right) on TWP RD 38-4 (see Wildhorse sign), drive 1.6 km. Turn South (right) onto RGE RD 6-2. Drive 0.8 km into Wildhorse Ranch.

For more information and registrations contact **Russell Thornberry**, (403) 722-2821, [russellthornberry@gmail.com](mailto:russellthornberry@gmail.com). □

## Fossils in the News

**CNN—This is what the first bird beak looked like.**

CT-scanning a slab of Late Cretaceous rock from Kansas has revealed a well-preserved toothy beak of an extinct, seagull-sized bird called *Ichthyornis*.

[www.cnn.com/](http://www.cnn.com/) (search “first bird beak”). See also the Yale University news release: <https://news.yale.edu/2018/05/02/scientists-find-first-bird-beak-right-under-their-noses> and the research paper (paywalled), in *Nature*: [www.nature.com/articles/s41586-018-0053-y](http://www.nature.com/articles/s41586-018-0053-y)

**Blogger—Crisis in Indian palaeontology.**

Geologist-blogger laments the sad state of affairs in India’s palaeo community. Is this writing on the wall for the rest of the world?

<http://suvratk.blogspot.com/2018/04/crisis-in-indian-palaeontology.html>

**New York Times—Big discovery in a tiny mammal-like skull found under a dinosaur’s foot.**

While excavating a dinosaur from Lower Cretaceous rocks (130 million years old) in Utah, palaeontologists found a tiny mammal skull under the dino’s foot. It turns out that the skull belongs to a group of transitional reptile/mammal creatures (haramiyids) previously known only from much older, Triassic – Jurassic aged rocks of Eurasia.

[www.nytimes.com/2018/05/23/science/haramiyid-skull-utah.html](http://www.nytimes.com/2018/05/23/science/haramiyid-skull-utah.html)

A link to the research paper in *Nature* (open-access) can be found in the *New York Times* article.

**BBC—Oldest “footprints” found in China.**

Trackways of a bilaterian animal (animal with bilateral symmetry) have been found in rocks dated to between 551 and 541 million years old (latest Ediacaran), in southern China. The trackways consist of pairs of parallel lines of small impressions made by a creature with paired appendages. [www.bbc.com/news/science-environment-44404246](http://www.bbc.com/news/science-environment-44404246)

Open-access paper in *Science Advances*: <http://advances.sciencemag.org/content/4/6/eaao6691.full>

[Thanks to Phil Benham and Evelyn Wotherspoon.] □

## APS Balance Sheet for 2017 For January 1, 2017 to December 31, 2017

| <b>Revenues</b>                                     |                   | <b>Expenses</b>                            |                            |
|---|-------------------|--|----------------------------|
| Memberships   | 2405.00           | Bulletin Printing                          | 131.33                     |
| US\$ Exchange                                       | 6.33              | Bulletin Postage                           | 83.03                      |
| T-shirts  | 135.00            | Speaker Expenses                           | 359.90                     |
| Field Trip Guides                                   | 0.00              | PO Box Rental                              | 0.00                       |
| Old Abstract Volumes                                | 0.00              | Membership Printing                        | 56.70                      |
| APS Book  | 1790.00           | Membership Postage                         | 90.14                      |
| Shipping and Handling                               | 104.38            | Field Trip Expenses                        | 153.86                     |
| Misc. Sales+Post Box Refund                         | 56.59             | Workshop Expenses                          | 178.84                     |
| Refreshments  | 24.75             | Symposium Speaker                          | 371.14                     |
| Field Trip Fees                                     | 500.00            | Symposium Abstract Printing                | 268.69                     |
| Workshop Fees                                       | 290.00            | Postage for Sales                          | 95.36                      |
| Donations   | 0.00              | Website domain and hosting fee             | 672.74                     |
| Symposium Abstract Sales                            | 252.00            | Refreshments                               | 30.69                      |
| Symposium Donations                                 | 508.00            | Bank Charges+GIC purchase                  | 16315.81                   |
| Bank account interest + GICs cashed                 | 16323.45          | Miscellaneous                              | 0.00                       |
| Public Outreach income                              | 0.00              | APS Book printing                          | 1310.14                    |
| Library income                                      | 152.00            | Public Outreach                            | 806.00                     |
| <b>Subtotal Revenues</b>                            | <b>22547.50</b>   | <b>Subtotal Expenses</b>                   | <b>20924.37</b>            |
| <b>Plus Revenue Received in 2016 for 2017</b>       |                   | <b>Plus Expenses paid in 2016 for 2017</b> |                            |
| 2017 Membership Fees                                | 255.00            | 2017 PO Box rental                         | 170.10                     |
| 2017 Workshop Fees                                  | 0.00              |  |                            |
| Savings for 2017 Symposium                          | 3662.00           |  |                            |
| Savings for Library                                 | 519.25            |  |                            |
| Savings for Public Outreach                         | 1600.66           | <b>Minus Expenses paid 2017 for future</b> |                            |
| Savings for T-shirt purchase                        | 573.05            | Website domain and hosting fee             | 448.49                     |
| Savings for GIC purchase                            | 0.00              |  |                            |
| <b>Subtract Revenue Received in 2017 for 2018</b>   |                   |  |                            |
| 2018 Memberships Fees                               | 525.00            |  |                            |
| 2018 Workshop Fees                                  | 10.00             |  |                            |
| Savings for 2018 Symposium                          | 3862.00           |  |                            |
| Savings for 2018 Library                            | 671.25            |  |                            |
| Savings for 2018 Public Outreach                    | 794.66            |  |                            |
| Savings for future T-shirts                         | 573.05            |  |                            |
| <b>Total Revenues</b>                               | <b>22721.50</b>   | <b>Total Expenses</b>                      | <b>20645.98</b>            |
| <b>Excess of Revenues over Expenses = \$2075.52</b> |                   |  |                            |
| <b>Total Fund Raising Proceeds</b>                  | <b>\$1,855.23</b> | <b>GICs due Jan 20 2018</b>                | <b>16,315.81</b>           |
| <b>Inventory Cost</b>                               | <b>\$1,378.63</b> | <b>December 31, 2017 Account</b>           | <b>12,582.15</b>           |
| <b>Values Current to Date:</b>                      | <b>1-Jan-18</b>   | <b>Audited by APS Members (Bylaws):</b>    |                            |
| Printed Name: <u>RISA KAWCHUK</u>                   |                   | Signature: <u><i>Risa Kawchuk</i></u>      | Date: <u>Feb 18, 2018</u>  |
| Printed Name: <u>Jeff Davis</u>                     |                   | Signature: <u><i>Jeff Davis</i></u>        | Date: <u>23 March 2018</u> |