

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:

1. Promote the science of palaeontology through study and education.
2. Contribute 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 IS 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. Back issues are available at www.albertapaleo.org/bulletinarchive.html. 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

Held in webinar format until further notice.

No meetings in June, July and August. See Field Trips on our [website](#).

Friday, September 16, 2022—Dr. Kirsten Brink, University of Manitoba.

Topic to be announced. (See <https://kirstinbrink.weebly.com/lab-members.html>).

COVID-19 has affected our operations. Watch the APS website for updates!

www.albertapaleo.org/meetings.html

ON THE COVER: Alberta fossils! Blastoid calices, *Strongyloblastus petalus* Fay, 1962. Upper Banff Formation (Lower Carboniferous), Canyon Creek, Alberta. Width of view is about 10 cm. Photo copyright © by APS Life Member **Geoff Barrett**, used with permission.

Program Summary

May

Dr. Emily Bamforth

Philip J. Currie Dinosaur Museum

Ecosystem Jenga: What tiny fossils tell us about a giant extinction

Friday, May 13, 2022, 7:30 P.M.

Presented online in webinar format

[We were lucky to have our own APS Vice President, **Dr. Bamforth**, stand in for a postponement of the scheduled talk by **Dr. Jason Pardo** and **Ramon Nagesan**, who delivered their talk two weeks later, on May 27. See the March Bulletin for an abstract of their talk.]

Was the bolide (“meteor”) impact to blame for the dinosaur mass extinction, or was there already an extinction going on? And why did this bolide impact cause an extinction when other bolide impacts in Earth’s history didn’t? These are questions that palaeontologists have been working to answer for decades.

Fossils known as “microvertebrates” which include the fossils of fish, turtles, lizards, snakes, crocodiles, champsosaurs, birds, mammals, amphibians, and dinosaurs, can help palaeontologists understand what was going on at the ecosystem level in the time leading up to the extinction event.

Plant fossils and ancient soils can be used to reconstruct the palaeoclimate at the time, allowing palaeontologists to understand if and how changing climates and environments stressed ecosystems prior to the extinction.

My research in the latest Cretaceous Frenchman Formation of Saskatchewan, which included studying over 12,000 microvertebrate fossils, suggests that the ecosystem just before the mass extinction could be viewed like a Jenga tower. Jenga is the game where you build a tower of wooden blocks, and then try to pull the blocks out one-by-one without causing the tower to collapse. In the Late Cretaceous, the ecosystem “tower” continued to stand (the ecosystem appears to be intact) but as more and more “blocks” are pulled out (as environmental factors such as long-term climate change, the recession of the inland

sea, and mass volcanism stressed the system), the tower became unstable. When the bolide impact occurred, the ecosystems collapsed entirely, as a Jenga tower would if too many blocks had already been pulled out. This discovery has important implications for understanding the impact of climate change in today’s sixth mass extinction.

Biography

Dr. Emily Bamforth is a palaeontologist and curator at the Philip J. Currie Dinosaur Museum in Wembley, Alberta. Her research focuses on palaeobiodiversity and palaeoenvironmental interactions, palaeobotany and palaeoclimate, and the end-Cretaceous mass extinction. She also has an interest in early life, specifically the Ediacaran Period.

Dr. Bamforth earned a B.Sc. in evolutionary biology from the University of Alberta in 2005, with an undergraduate thesis that involved 38 million-year-old fossil snake hibernacula from Wyoming. She went on to complete a M.Sc. in Precambrian invertebrate palaeontology at Queens University with **Dr. Guy Narbonne**, exploring Ediacaran taphonomy and palaeoecology at Mistaken Point in Newfoundland. In 2008, she began her Ph.D. at McGill University under the supervision of **Dr. Hans Larsson**, exploring pre-extinction biodiversity trends immediately prior to the K-Pg extinction in Saskatchewan. She received her doctorate in 2014, the same year she began working for the Royal Saskatchewan Museum. Dr. Bamforth has published several papers and numerous conference abstracts on Ediacaran and Cretaceous palaeontology. She was a recipient of an NSERC CGS-D Scholarship, as well as a two-time winner of the Geological Association of Canada Paleontology Division’s Thomas E. Bolton Best Student Paper award. She enjoys teaching and field research. □

Thank You!

We thank APS member **Dr. Brian Hitchon** for a monetary donation to help defray production costs of the *Bulletin*. □

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Paleo 2022 Summary

By Mona Trick, Symposium Committee Chair

The continued restrictions imposed to curtail the spread of COVID-19 forced APS to hold our annual symposium virtually using Zoom software on March 19, 2022. We were inspired to hold our symposium virtually by **Dr. Emily Bamforth**, the APS Vice-President. Emily co-hosted the Zoom session and provided instructions on using the software. To avoid problems (such as “Zoom Bombing”) during the symposium, attendees were required to register in advance. The link to join the symposium was emailed to each registrant a few days before the event. A total of 81 people registered for the symposium. Attendance varied from 43 to 50 during the sessions. The virtual nature of the symposium allowed people to tune in and tune out, as they liked. Programs Director **Harold Whittaker** organized a wide variety of topics, spanning from the Ediacaran to the latest Pleistocene. To start off the event, APS President, **Cory Gross** welcomed the symposium attendees.

Dr. Caleb Brown, of the Royal Tyrrell Museum of Palaeontology, discussed how facial bite marks in tyrannosaurids (*T. rex* family) could be a result of fighting between members of the same species. His comprehensive research examined a large number of tyrannosaur specimens, noting the position and frequency of scars on the skulls and the size of the specimen. These facial scars were virtually absent in small specimens and then appeared more commonly in specimens of a larger size. He noted that size can be used as a proxy for age of the individual. He proposed that the presence of these marks may help to determine the onset of sexual maturity in tyrannosaurids.

Dr. Robert MacNaughton of the Geological Survey of Canada (Calgary) showed how the new Ediacaran fossils found in the Mackenzie Mountains, NWT, can be used to help determine the stratigraphic location of the Ediacaran-Cambrian boundary.

Dr. Ryan McKellar of the Royal Saskatchewan Museum described the Cretaceous amber found at a new site near Rolling Hills, Alberta. This site

came to his attention during the 2015 APS workshop on amber (*Bulletin*, December 2015) in which APS members polished amber found at the Rolling Hills site to look for inclusions. The amber from the Rolling Hills site was found *in situ* and nearby stratigraphy allowed it to be accurately dated. He showed how this new site helps to determine the source and age of the amber found at Grassy Lake, Alberta and Cedar Lake, Manitoba.

Dr. John-Paul Zonneveld of the University of Alberta described his research on the coral reefs in the “Coral Triangle” in Indonesia, from the late Pleistocene into the present day. He reported that the high sedimentation and active tectonics in that area did not stifle coral reef development. This conclusion differs from the generally accepted perspective that coral reefs require low sedimentation and stable environments to thrive. He suggested that coral reefs in areas with high sedimentation should be protected as a source of genetic diversity and resilience in the face of a warming climate. Dr. Zonneveld deserves special thanks for undertaking a last-minute dash from his home—where a power failure had occurred—to his office at the University of Alberta, to give his talk in the nick of time!

Dr. Grant Zazula, of the Yukon Government Palaeontology Program and Yukon Beringia Interpretive Centre, dazzled us with “Zhur,” the mummified Pleistocene wolf pup found in the summer of 2016 in the Klondike region of central Yukon Territory. He stressed the importance of the cooperation of the gold miners who willingly share their fossil finds while hydraulically mining for gold.

Darren Tanke of the Royal Tyrrell Museum of Palaeontology updated us on his work to find lost dinosaur quarries in Dinosaur Provincial Park, Alberta. He highlighted how the fossils from two ankylosaur (*Euoplocephalus tutus*) quarries may each be residing in two different museums, and his efforts on reuniting the specimens. Due to unexpected dental surgery on the morning of the symposium, Darren wisely arranged for us to record his presentation during the afternoon of the previous day. **Dr. Bamforth** then played the recorded presentation

during his time slot in the symposium. The ability to pre-record a presentation to show it later is one of the upsides of holding a virtual symposium!

The abstract volume is available as a PDF, which can be downloaded here: <https://www.dropbox.com/s/mp55yqke3a6jy9a/Symp%202022.pdf?dl=0>.

The APS organizing committee included **Harold Whittaker** (organizer of the speakers), **Howard Allen** (editor of the abstracts volume), **Mona Trick** (symposium committee chair, registrations, co-host), **Dr. Emily Bamforth** (co-host for the event and guidance on using Zoom), **Vaclav Marsovsky** (APS website) and President **Cory Gross**. We would like to thank the **Canadian Society of Petroleum Geologists** for advertising the symposium in their publication, *The Reservoir*. We would especially like to thank all of the speakers for their excellent talks.

Mark your calendar for next year's symposium, scheduled for March 18 – 19, 2023. Hopefully next year in addition to speakers, we can host posters and a workshop. Contact **Harold Whittaker** (programs1@albertapaleo.org) if you would like to present a talk or workshop or have ideas on a talk or workshop which you would enjoy. We will finalize our speaker program by the end of October 2022, so be sure to submit your suggestions now. □

2022 Annual General Meeting Election Results

By Vaclav Marsovsky, Secretary

The Annual General Meeting (AGM) was held on May 13, 2022. It was our second AGM held virtually on the webinar CSPG platform due to the pandemic restrictions and our inability to meet at Mount Royal University. A quorum was met with 26 voting members in attendance virtually. The minutes of the meeting may be requested from the secretary but in any case will be made available prior to the next AGM, scheduled for May 12, 2023.

Elected to a one-year term were **Cory Gross**, President; **Emily Bamforth**, Vice-President; **Vaclav Marsovsky**, Secretary; **Mona Trick**, Treasurer.

No directors were voted upon this year because they have a two-year term and they are all continuing on to their 2nd year. As a reminder they are: **Keith Mychaluk**, Field Trips Coordinator; **Harold Whittaker**, Programs Coordinator; **Howard Allen**, both Editor and Membership Director. The President, who chaired the meeting, recognized and thanked the past board members and committee chairpersons for their volunteering and tireless service over the past year. The financial information and financial audit was presented and a motion for the names of next year's auditors approved. □

September Field Trip Rescheduled

By Keith Mychaluk, Field Trips Coordinator

Members are advised that the fall field trip, **Tyndall Building Stone Tour of Calgary**, originally set for Saturday, September 10, has been rescheduled to the following weekend: **Sunday, September 18**. A revised Field Trips Registration Form is available on the APS website: <http://www.albertapaleo.org/fieldtripform.pdf> □

Fossils in the News

CBC News online

“Perfect” baby mammoth found in Yukon permafrost

The first frozen woolly mammoth to be found in North America was uncovered June 21 in a Dawson City-area hydraulic gold mining operation. www.cbc.ca/news [search “baby mammoth”].

Nature Communications

10-arm octopus found in Montana is 325 million years old

Oldest member of its group, named for US President Biden, is described in this open-access paper: www.nature.com/articles/s41467-022-28333-5.

[Thanks to Phil Benham and Vaclav Marsovsky.] □

APS Revenue & Expenses for 2021 For January 1, 2021 to December 31, 2021

Revenues		Expenses	
US\$ Exchange	5.04	Bulletin Printing	146.40
2021 Single + Family Memberships	1760.00	Bulletin Postage	100.92
2022 Single + Family Memberships	650.00	Meeting Speaker expenses	25.96
Bank interest + GICs cashed	307.04	Membership expenses	67.16
T-shirts (member + non-member)	10.00	Field Trip Expenses	13.17
Book: Common Vert Fossils (mem+non)	660.00	Symposium Workshop	0.00
Book: Hope Johnson (mem + non)	150.00	Symposium Speaker	0.00
Handling fees: Book Common Vert Fossil	127.88	Symposium Abstract Printing	0.00
Handling fees: Book Hope Johnson	0.00	Book: Common Vert Fossils	16.26
APS Guides (field trip + old abstracts)	0.00	Book: Hope Johnson print	0.00
Other books (China-Canada)	0.00	Postage: Common Vert Fossils	105.51
APS pins	0.00		
Refreshment donations	0.00	Postage: Hope Johnson	0.00
Field trip fees	690.00	Website domain and hosting fees	0.00
Donations (General to APS)	20.00	Refreshments	0.00
Symposium 2021 Abstract sales	0.00	Bank Charges+GIC purchase	0.00
Symposium Donations	0.00	Postbox rental	181.65
Symposium workshop fees	0.00	Insurance	1675.97
Library income	0.00	Hope Johnson award	0.00
Public Outreach income	0.00	Public Outreach expenses	0.00
Hope Johnson award income	0.00	Library expenses	0.00
Subtotal Revenues	4379.96	Subtotal Expenses	2333.00
Plus Revenue Received in 2020 for 2021		Plus Expenses paid in 2020 for 2021	
2021 Membership Fees	405.00	2021 Insurance	1875.00
Savings for 2022 Symposium	2734.00	Website for 2021 and 2022	449.36
Savings for Library	725.25	Minus Expenses paid for 2022	
Savings for Public Outreach	706.23	Website for 2022	224.68
Savings for Hope Johnson award	1605.23	2022 Insurance	1675.97
Savings for Insurance (incl 2021 donation)	4423.12		
Savings for T-shirt purchase	573.05		
Subtract Revenue Received in 2021 for 2022			
2022 Memberships Fees	650.00		
Savings for 2022 Symposium	2734.00		
2022 Symposium Workshop Fees	0.00		
Savings for 2022 Library	725.25		
Savings for 2022 Public Outreach	706.23		
Savings for 2022 Hope Johnson Award	1605.23		
Savings for Liability Insurance	4423.12		
Savings for future T-shirts	573.05		
Total Revenues	4134.96	Total Expenses	2756.71
Excess of Revenues over Expenses	1378.25	GICs	16,400.00
Inventory Cost	\$1,400.75	Dec. 31, 2021 Bank Account:	15,198.14

Audited by APS Members (Bylaws):

Printed Name: GILLES FOURNIER

Printed Name: [Signature]

Values Current to Date: 01-Jan-22

Signature: [Signature] Date: _____

Signature: [Signature] Date: March 5, 2022

Jan. 25, 2022