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GEOLOGICAL ASSOCIATION OF CANADA
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Cover Photo: Emily L. Bamforth
Southfork Brontothere Quarry, Eocene Cypress Hills Formation, Saskatchewan

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Introduction

Hello and welcome from the executive of the Geological Association of Canada's Paleontology Division (PD)!

In 2023, the GAC Paleontology Division elected to alternate between hosting in-person and virtual conferences. While in-person conferences are excellent for networking, catching up with colleagues, and field trip options, the COVID-19 pandemic also demonstrated the benefits of meeting virtually. CPC 2025 was created with no registration cost and, as it does not require participants to pay for travel and accommodation, it has been accessible to a wider group of people, particularly students. This conference will showcase work from across Canada in a variety of different fields of paleontology, from the Cambrian to the modern.

At CPC 2025, we will be awarding the Thomas E. Bolton Award to acknowledge excellence in paleontological research by a student through their paper presentation. This year we are also thrilled to be awarding the GAC-Paleo Division's Avocational Paleontologist Award, a distinction that recognizes exceptional contributions to Canadian paleontology by a non-professional.

Despite paleontology being the study of long dead organisms, this is a science that is constantly changing and moving with the times. As a Paleontology Division, we are excited to support and recognize the amazing work that is being done throughout the country to further our understanding of life past, present, and future.

Have a wonderful conference!

Emily L. Bamforth, PhD
Past Chair, Geological Association of Canada's Paleontology

Division On behalf of the PD Executive Team.

Meagan Gilbert, Chair
Emily Bamforth, Past Chair
Keith Dewing, Treasurer
Sandy McCracken, Publications Coordinator
Brittany Laing, Webmaster
Marc Laflamme, Councilor
Joe Moysiuk, Councilor
Louis-Phillip Bateman, Student Representative

Land Acknowledgement and Inclusivity Statement

The Paleontology Division meets, works, and gathers across many traditional and treaty lands across Canada. We recognize the historical and systemic barriers encountered by many people in our society and welcome the inclusion of diverse voices.

Conference information

PLATFORMS

Oral presentation sessions and social events for CPC will be held via GatherTown. GatherTown is a free online teleconferencing platform that does not require participants to download anything to their personal computer.

CONFERENCE LINK

If you are registered, you will receive a link invitation via email. Clicking this invitation link will direct you to the oral presentations and the Saturday afternoon Awards Ceremony.

If you DO NOT receive a link, or have any other questions or concerns, please email gacpd@gmail.com.

CONFERENCE ETIQUETTE

When you 'arrive' in the session, you will be automatically muted. We ask that people remain muted while the presentations are taking place. At the end of each talk, there will be time for a few questions. During this time, you may either unmute yourself to ask the question or type it into the textbox.

Do not record or take screen shots of presenter's talks or their slides.

If you wish to have a copy of anything in a presenter's talk or poster, you are encouraged to contact the author directly. Authors' contact information can be found in the abstract volume.

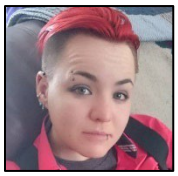
Meet the GAC-PD Executive!

Dr. Emily Bamforth: Curator at the Philip J. Currie Dinosaur Museum in Wembley, AB. Research interests include Cretaceous vertebrate paleontology, paleobotany and paleoenvironemtal reconstruction, especially regarding paleoecological processes.

Louis-Phillipe Bateman: Paleontology MSc student at McGill University, under the supervision of Dr. Hans Larsson.

Michael Cuggy: Senior Laboratory Coordinator at the University of Saskatchewan with expertise in Cambrian trilobites, eurypterids (sea scorpions), and Cambrian biostratigraphy.

Dr. Keith Dewing: Research Scientist at the Geological Survey of Canada, with expertise in Cambrian-Ordovician stratigraphy of the Canadian Arctic Islands. Especially interested in biostratigraphy and using fossils for thermal maturity, and a sentimental attachment to strophomenid brachiopods.



Dr. Meagan Gilbert: Petroleum Geologist at the Saskatchewan Geological Survey with expertise in Late Cretaceous to Paleogene vertebrate paleontology, stratigraphy, biostratigraphy and depositional systems.

Brittany Laing: Doctoral student at The University of Saskatchewan and Macquarie University. Researching the behavioural evolution and ecological impact of organisms through their trace fossils during the Ediacaran-Cambrian transition.

Dr. Marc Laflamme: Professor at the University of Toronto Mississauga. Interests lie in the classification and preservation of the Ediacaran biota, the oldest large and complex organisms in the rock record.

Sandy McCracken: Paleontologist, Volunteer Scientist with the Geological Survey of Canada (Calgary). Retired from the GSC in 2017 and now living in Nanaimo, BC. Expertise in Ordovician and Silurian conodonts and biostratigraphy, as well as some experience in Devonian.

Meet the GAC-PD Executive!

Dr. Joe Moysiuk: Curator of Paleontology and Geology at the Manitoba Museum in Winnipeg, MB. His work centers on the oldest animal fossils and insights they provide about the evolution of major groups.

Schedule

Pacific (PST)	Mountain (MST)	Central (CT)	Eastern (EST)	Atlantic (AST)	Newfoundland (NST)	**Friday, November 21st**	**Saturday, November 22nd**
12:00	13:00	14:00	15:00	16:00	16:30	***Opening Remarks***	***Opening Remarks***
12:15	13:15	14:15	15:15	16:15	16:45	Ononuba, Gideon	Bateman, Louis-Phillipe
12:30	13:30	14:30	15:30	16:30	17:00	Patrocinio, Sofia	Black, Mollie
12:45	13:45	14:45	15:45	16:45	17:15	Paun, Elena-Ioela	Costa, Bruno
13:00	14:00	15:00	16:00	17:00	17:30	Valcourt, Andrea	Gillis, Veronica
13:15	14:15	15:15	16:15	17:15	17:45	Vishnoi, Praveen	Joubarne, Tristin
13:30	14:30	15:30	16:30	17:30	18:00	Gilbert, Meagan	Li, Hugo
13:45	14:45	15:45	16:45	17:45	18:15	Helm, Charles	Thompson, Mira
14:00	15:00	16:00	17:00	18:00	18:30	Dederichs, Rene	Urgon, Snider
14:15	15:15	16:15	17:15	18:15	18:45	BREAK	BREAK
14:30	15:30	16:30	17:30	18:30	19:00	Bamforth, Emily	Heere, Jelle
14:45	15:45	16:45	17:45	18:45	19:15	Craffey, Matthew	Jobbins, Melina
15:00	16:00	17:00	17:00	18:00	19:30	Cuggy, Michael	Shell, Ryan
15:15	16:15	17:15	18:15	19:15	19:45	Drysdale, Eamon	Therrien, Francois
15:30	16:30	17:30	18:30	19:30	20:00	Boyce, Doug	Westrop, Stephen
15:45	16:45	17:45	18:45	19:45	20:30	Izquierdo-Lopez, Alejandro	Badea, Daniel
16:00	17:00	18:00	19:00	20:00	20:30	BREAK	BREAK
16:15	17:15	18:15	19:15	20:15	20:45	***2024 CPC Photo***	***Presentation of the 2025 TE Bolton Award and Avocational Paleontologist Award***
16:20	17:20	18:20	19:20	20:20	20:50	***Poster Session***	***Poster Session***
						Room 1: Rempert, Trevor and Martens, Brennen	**Room 1:** Martens, Brennen and Rempert, Trevor
						Room 2: Qureshi, Zaid	**Room 2:** Qureshi, Zaid
						Room 3: Gong, Annie	**Room 3:** Gong, Annie

*Eligible for the TE Bolton Award

PLEASE CHECK YOUR TIME ZONE

Note: Student talks eligible for the T. E. Bolton Award are on November 22nd.

Technical Session – Friday

PLEASE CHECK YOUR TIME ZONE IN THE CHART ABOVE. *Note the times in the schedule below are in Eastern Standard Time (EST)*

**Denotes presenting author*

Friday November 21st, 2025

15:00 EST	***WELCOME AND OPENING REMARKS***
15:15 EST	**Thanetian dinoflagellate cyst assemblages and biostratigraphy from the Lista Formation in well 24/6-2, North Sea** Gideon Ononuba*, Manuel Vieira, Lígia Castro
15:30 EST	**The DinoDawn Expedition: Integrating Paleontological Fieldwork and Science Communication in Southern Portugal** Sofia Patrocínio*, João Neves, Victor Carvalho, Bruno Camilo, Lígia Castro, Paulo Fernandes, David Isserman, David Finnegan, Marc Bryan-Brown, Lars Finskud, Raphael Feldt, Klara T. Gerken, Romain David, Nicolai Christiansen, Beth Moore, Luís Marcelino and Ricardo Araújo
15:45 EST	**Landscapes in transition: taphonomic and palaeoecological insights from Ţuţcani, Eastern Romania (Scythian Platform)** Elena-Ionela Păun*, Bogdan-Gabriel Răţoi, Dumitru-Daniel Badea and Mihai Brânzilă
16 :00 EST	**Revisiting *Dalyia*: New Insights into a Cambrian Pterobranch from the Burgess Shale** Andrea K. Valcourt*, Jean-Bernard Caron
16:15 EST	**Stepwise ichnological recovery across the Permian-Triassic Boundary, Spiti Basin, Indian Himalayas** Praveen Vishnoi*, Suraj Bhosale, Anirban Das, Bhawanisingh G. Desai
16:30 EST	**Using integrated ichnology, paleontology, and sedimentology to reinterpret the Eastend to Battle formation sequence in southern Saskatchewan** Meagan Gilbert*
16:45 EST	**Dinosaur tracking in British Columbia and South Africa** Charles Helm *
17:00 EST	**Deciphering the theropod fauna from the Early Cretaceous Balve locality of Northwestern Germany** René Dederichs*, Denis Theda, Darius Nau, Alessandro Lania, Christophe Hendrickx, and Achim H. Schwermann
17:15 EST	BREAK
17:30 EST	**Exploring the role of evolving forest composition in shaping dinosaur diversity patterns in the Cretaceous of northern Alberta, Canada**

	Emily L. Bamforth*
17:45 EST	**The role of body size selectivity in structuring the rise of animals in the late Ediacaran period** Matthew Craffey*
18:00 EST	**Stratigraphy and trilobite biostratigraphy of the Cambrian (Marjuman; Guzhangian) Sullivan Formation, southern Canadian Rocky Mountains, Alberta and British Columbia** Michael B. Cuggy* and Stephen R. Westrop
18:15 EST	**Novel thyreophoran ichnospecies from the Dunvegan and basal Kaskapau Formations near Tumbler Ridge British Columbia, indicate presence of ankylosaurids in the Cenomanian of North America** Eamon T. Drysdale*, Martin G. Lockley, Roy Rule, and Charles W. Helm, and Victoria A. Arbour
18:30 EST	**Reassessment of post-*Paradoxides davidis* Biozone trilobites from Walsh's Road, Conception Bay South, Avalon Peninsula, Newfoundland** W. Douglas Boyce* and Benjamin W.T. Rideout
18:45 EST	**A new marrellomorph from Beecher's Trilobite beds (Ordovician) shows a case of evolutionary stasis in morphotypes** Joseph Moysiuk, Alejandro Izquierdo López*, Melina Jobbins, Derek E. G. Briggs, Jean-Bernard Caron

Technical Session – Saturday

PLEASE CHECK YOUR TIME ZONE IN THE CHART ABOVE. *Note the times in the schedule below are in Eastern Standard Time (EST)*

**Denotes presenting author*

^ *Denotes student author eligible for the T. E. Bolton Award*

Saturday, November 22nd, 2025

15:00 EST	***WELCOME AND OPENING REMARKS***
15:15 EST	**Phone-based Photogrammetry Apps can be a Suitable Alternative to 3D Scanners in Biological Data Acquisition** Louis-Philippe Bateman*^ & Alexandre Demers-Potvin
15:30 EST	**Public Understanding of Fossil Legislation in Western Canada** Mollie K. Black*^, Colin D. Sproat, and Emily L. Bamforth
15:45 EST	**A New Large Filter-Feeding Lamniform Shark from the Late Cretaceous Western Interior Seaway of Southern Manitoba, Canada**

	Bruno P. Costa*^, Ricardo L. Silva, & Kirstin S. Brink
16:00 EST	**Puncture marks on Upper Cretaceous ammonites in southern Alberta** Veronica L. Gillis*^ and Paul A. Johnston
16 :15 EST	**Differences in exceptional soft tissue preservation of a juvenile hadrosaurid from the upper Campanian Dinosaur Park Formation of Alberta, Canada** Tristan Joubarne*^, Caleb M. Brown, Paul Durkin, Kirstin S. Brink
16:30 EST	**Revisiting *Peytoia nathorsti* from the Cambrian Burgess Shale** Hugo T Li*^, Joseph Moysiuk, and Jean-Bernard Caron
16:45 EST	**Using geochemically fingerprinted bentonites to correlate fluvial strata: Implications for dinosaur biostratigraphy, Dinosaur Park Formation, Alberta** Mira Thompson*^, Kirstin Brin[1], Caleb Brown, and Paul Durkin
17:00 EST	**Ontogenetic variation of nuchal musculature size on the frill of the ceratopsian *Centrosaurus apertus*** Urgon J. T. Snider*^, Hillary C. Maddin, Jordan C. Mallon
17:15 EST	**BREAK**
17:30 EST	**Tracing Ancient Herbivores: A new project Investigating Diets of Late Cretaceous Sea Turtles (Chelonioidea) from the Type Maastrichtian Seagrass Meadows (Belgium and the Netherlands)** Jelle J. A. Heere*, Jasper Ponstein, Jonathan J. W. Wallaard, Johan Vellekoop
17:45 EST	**Early vertebrate diversity of the Middle Devonian of Manitoba** Melina E. M. Jobbins*, Jorge Mondéjar Fernández, Paul R. Durkin, Ricardo L. Silva & Kirstin S. Brink
18:00 EST	**Retracing the work of University of Michigan Geology Professor Russell Claudius Hussey (1888-1970): Journeys in the library, the museum, the field, and the future** Nick Gardner & Ryan Shell*
18:15 EST	**Limb segment proportions and running speed estimates of dinosaurs from the Upper Cretaceous Dinosaur Park, Hell Creek, and Nemegt formations: implications for predator-prey relationships and cursorial abilities** François Therrien*, Jared Voris, Kohei Tanaka, Darla K. Zelenitsky
18:30 EST	**Trilobites, agnostids and ashes: building a Cambrian time scale in Avalonian Canada** Stephen R. Westrop*, Ed Landing, Gerd Geyer and Mark Schmitz
18:45 EST	**First occurrence of *Prospalax petteri* (Anomalomyinae, Rodentia) in the Upper Miocene of the Eastern Carpathian Foreland, Romania**

	Dumitru-Daniel Badea*, Bogdan-Gabriel Rățoi, Davit Vasilyan
19:00 EST	**BREAK**
19:15 EST	***PRESENTATIONS OF THE T. E. BOLTON AND AVOCATIONAL PALEO AWARD***

POSTER SESSION – Friday and Saturday at 19:20 EST

ROOM 1	**1. Reassessment of *Tylosaurus borealis* (Mosasauridae: Tylosaurinae) and a review of mosasaurid remains from the Puskwaskau Formation** Trevor H. Rempert*, Brennan P. Martens and Alexander P. M. Vinkeles Melchers **2. The mosasaur fauna from the Northumberland Formation of Hornby Island, British Columbia** Brennan P. Martens, Trevor H. Rempert and Alexander P. M. Vinkeles Melchers
ROOM 2	**Exploring the ecological and temporal trends of the first animal-built reefs** Zaid A. Qureshi* and Marc Laflamme
ROOM 3	**Pioneering Computational Fluid Dynamics in Paleontology: Modelling Cambrian Sponge Feeding Efficiency** Annie Gong*, Zaid A. Qureshi, Marc Laflamme

First occurrence of *Prospalax petteri* (Anomalomyinae, Rodentia) in the Upper Miocene of the Eastern Carpathian Foreland, Romania

Dumitru-Daniel Badea[1,2,* †], Bogdan-Gabriel Rățoi[1], Davit Vasilyan[3, 4]

[1] "Alexandru Ioan Cuza" University of Iași, Department of Geology, 20A Carol I Blvd., 700505 Iași, Romania

[2] "Alexandru Ioan Cuza" University of Iași, Natural History Museum Iași, 16 Independenței Blvd, 700098, Iași, Romania

[3] University of Fribourg, Department of Geosciences, Chem. du Musée 4, 1700 Fribourg, Switzerland

[4] JURASSICA Museum, Rte de Fontenais 21, 2900 Porrentruy, Switzerland

This study documents the the easternmost known occurrence of the rodent species *Prospalax petteri* (Anomalomyidae, Rodentia) from the Late Miocene (Turolian, MN 11) deposits of the Eastern Paratethys realm, specifically in Northeastern Romania (Moldavian Platform). The material, consisting of well-preserved isolated molars and mandibular fragments recovered from sedimentary deposits, provides crucial morphological data for the species. The detailed analysis of the dental material confirms the characteristic dental pattern of *Prospalax petteri*, different stages of wear of the molars are also observable, as mentioned in the dental patterns of anomalomyid. Biometric analysis further supports the assignment, placing the specimens within the established size range for this species. This discovery significantly extends the geographical range of *Prospalax petteri* during the Late Miocene. Previously reported from Late Miocene (MN 10 and MN 11) localities in Central and Eastern Europe (Austria, Germany, and Hungary), this find confirms its persistence and dispersal into the Eastern Paratethys region during the Turolian (MN 11). As the easternmost record of *Prospalax petteri* during the Turolian, this finding offers new insights into the paleobiogeography of the *Prospalax* lineage, confirming its wide dispersal across Central and Eastern Europe and suggesting a broader distribution than previously detailed. It also contributes to a better understanding of the faunal turnover and paleoenvironmental conditions in this area during the Upper Miocene. The association with other characteristic MN 11 micro-mammals further refines the regional biochronology. The fossorial adaptations of *Prospalax petteri* suggest a Late Miocene paleoenvironment of open woodlands and steppe-like habitats with rich ground cover.

*Speaker

† Corresponding author: badeadaniel.i13@gmail.com

Exploring the role of evolving forest composition in shaping dinosaur diversity patterns in the Cretaceous of northern Alberta, Canada

Emily L. Bamforth [1,2,3*†]

[1] Philip J. Currie Dinosaur Museum. Box 328. 9301-112 Ave Wembley, Alberta, T0H 3S0, Canada
[2] University of Saskatchewan, Department of Geological Sciences. 114 Science Place, Campus Drive. Saskatoon, Saskatchewan, S7N 5E2, Canada
[3] University of Alberta, Department of Biological Sciences. Biological Sciences Building, Edmonton, Alberta, T6G 2E9, Canada

Fossil plant assemblages are critically important for recreating paleoenvironments and understanding the paleoecology of vertebrate communities. In this study, six new macrofloral sites from northern Alberta, Canada, as well as a review of past studies of Albian floras and faunas from the same region, help to shed light on the potential role forest composition had in driving dinosaur ecology and evolution. Previous studies of the macroflora from the Albian (109 – 107 Ma) Gates Formation of northeast Alberta, and the stomach contents (cololite) of the nodosaur *Borealopelta* found in the coeval marine Clearwater Formation, suggest these forests were dominated by conifers, seed ferns, horsetails, and cycads. The dominant megaherbivores at this time, as evidenced by the body fossils and footprints, were ankylosaurians. While the vertebrate fossil record of the Cenomanian (96 – 93 Ma) Dunvegan Formation of northwest Alberta is less well known, the dinosaur faunas are similarly dominated by ankylosaurians. However, the macrofloral record from the same formation suggests that these animals were living in significantly different forests. A new macrofloral site from the Dunvegan Formation, the McCoy Leaf Site, is dominated by a diverse angiosperm leaf assemblage with a small number of *Metasequoia* fronds. The only other known macrofloral site from this formation in northeast British Columbia is also dominated by angiosperms and conifers, with little evidence of the seed ferns present in the Abian floras. By the late Cretaceous, the ankylosaurians were gone and the forest composition had changed fundamentally. The dominant megaherbivores in Campanian (~72 to 74 Ma) Wapiti Formation of northwest Alberta were hadrosaurs and, to a lesser extent, ceratopsians. Five newly discovered palaeofloral sites from the Wapiti Formation imply forests whose canopies were made up of *Metasequoia* and *Parataxodium* confers, and with diverse understories made up primarily by broad-leafed angiosperms and gingkoes. While the replacement of ankylosaurians by hadrosaurs as the dominant megaherbivores during the middle and late Cretaceous could be attributed to several factors, the structure and diversity of forests, as their main source of food, could have been a major driver. Ongoing, small-scale studies such as this one in northern Alberta may help to elucidate the extent the role plant communities had in influencing trends in dinosaur ecology and evolution.

*Speaker
† Corresponding author: curator@dinomusuem.ca

Phone-based Photogrammetry Apps can be a Suitable Alternative to 3D Scanners in Biological Data Acquisition

Louis-Philippe Bateman[1,* †] & Alexandre Demers-Potvin[2]

[1] Department of Biology, McGill University, 1205 Av. du Docteur-Penfield, Montréal, Quebec, H3A 1B1, Canada
[2] Department of Bioengineering, McGill University, 3480 Rue University #350, Montréal, Quebec, H3A 0E9, Canada

Three-dimensional (3D) models are increasingly essential in biological and palaeontological research, enabling precise quantification of morphology, functional reconstruction, and digital data sharing. However, traditional high-accuracy surface scanners, such as structured-light systems, remain costly, technically demanding, and logistically cumbersome. Recent advances in mobile technology and the proliferation of photogrammetry applications offer a potential alternative. In this study, we compare the performance of a smartphone-based photogrammetry application (Abound) to a professional structured-light scanner (Creaform Go!Scan Spark) across a range of biological specimens varying in size and topology. Models were evaluated for geometric accuracy, resolution, artefacts, and usability. Our results show that structured-light scanners outperform phone-based systems for highly complex or topographically intricate specimens, such as skulls and skeletons, producing cleaner topologies and more consistent resolution. Nonetheless, smartphone photogrammetry performs comparably for small to medium, topographically simple specimens and can occasionally achieve higher local resolution due to closer imaging distances. These apps also offer considerable advantages in accessibility, portability, and ease of use, making them particularly suitable for educational, preliminary, or field-based applications. We further discuss ethical considerations associated with the growing ease of 3D data acquisition, emphasizing the need for responsible data collection, institutional permissions, and open-access sharing through repositories such as MorphoSource and Zenodo. Overall, our findings indicate that phone-based photogrammetry represents a viable and democratizing alternative for 3D data acquisition in biology and palaeontology, expanding access to digital modeling while maintaining sufficient accuracy for many research applications.

*Speaker
† Corresponding author: louis-philippe.bateman@mail.mcgill.ca

Public Understanding of Fossil Legislation in Western Canada

Mollie K. Black[1,* †], Colin D. Sproat[2], and Emily L. Bamforth[3]

[1] Department of Geological Sciences, University of Saskatchewan, 114 Science Place, Saskatoon, SK S7N 5E2
[2] Department of Geological Sciences, University of Saskatchewan, 114 Science Place, Saskatoon, SK S7N 5E2
[3] Philip J. Currie Dinosaur Museum, 9301-112 Ave. Wembley, AB T0H 3S0

Fossils form the basis of palaeontological research, with many discoveries made by non-palaeontologists. However, if not handled properly, these discoveries may not reach palaeontologists, museums, and other institutions. This study conducted an online public survey across British Columbia, Alberta, Manitoba, and Saskatchewan, asking participants questions about fossil legislation practices, as well as what they would do if they found a fossil. It was found that most participants are unaware of, or unsure of rules protecting fossils within their province. Despite this, many participants still said that they would report a fossil they found to a University or known scientist. These results suggest that while participants may not know what to do if they find a fossil, they are still interested in fossils and want to do the right thing. By making fossil legislation more publicly accessible through science communication and museum interpretation, fossils may be better protected to be enjoyed by all in public repositories where they can be properly curated, displayed, and studied.

*Speaker
† Corresponding author: ciz097@usask.ca

Reassessment of post-*Paradoxides davidis* Biozone trilobites from Walsh's Road, Conception Bay South, Avalon Peninsula, Newfoundland

W. Douglas Boyce[1,* †] and Benjamin W.T. Rideout[2]

[1] 54 Torbay Road, St. John's, NL A1A 2G4
[2] 84 Rideout's Road, Long Pond, Conception Bay South, NL A1Z 7B2

Incomplete, articulated ptychopariid trilobite material has been recovered from fragile black shales of probable Elliott Cove Formation (Harcourt Group), exposed along the eastern side of Walsh's Road (Conception Bay South), near its intersection with Red Bridge Road. The newly discovered locality is of unknown stratigraphic distance above the *Paradoxides davidis* Biozone strata of the underlying Manuels River Formation (Harcourt Group) of the adjacent Red Bridge Road Quarry (formerly known as 'The Kelligrews Quarry'), which are correlative with the late Maiolingian Series (Drumian Stage). Material initially identified as *Leptoplastus,* is newly assigned to *Parabolinites*. A correlation somewhere within the *Leptoplastus* to *Peltura* Superzones of Avalonia and Scandinavia is indicated, placing the locality within the Late Cambrian Furongian Series (Jiangshanian Stage – Stage 10).

*Speaker
† Corresponding author: wdbenator@gmail.com

A New Large Filter-Feeding Lamniform Shark from the Late Cretaceous Western Interior Seaway of Southern Manitoba, Canada

Bruno P. Costa[1,* †], Ricardo L. Silva[1], & Kirstin S. Brink[1]

[1] Department of Earth Sciences, Clayton H. Riddell Faculty of Environment, Earth, and Resources, University of Manitoba, Winnipeg, Manitoba, Canada

The Late Cretaceous nutrient-rich waters of the inland meridional Western Interior Seaway (WIS) favoured niche partitioning among various vertebrate taxa, from durophagous and piscivorous marine reptiles to macrophagous and planktivorous elasmobranchs. The fossil record of the WIS suggests that planktivorous, filter-feeding elasmobranchs were present during the Late Cretaceous, with the oldest occurrence potentially dating back to the early Cenomanian. Three unrelated filter-feeder elasmobranchs were so far unambiguously recognized – *Pseudomegachasma comanchensis*, *Aquilolamna milarcae*, and *Cretomanta canadensis* – all of which evolved planktivory independently. Here we report a new species of large planktivorous filter-feeder shark from the lower Campanian (Upper Cretaceous) Pembina Member (Pierre Shale) of southern Manitoba, Canada. The holotype specimen preserves a nearly complete skeleton, comprising a partial neurocranium, jaws, teeth, branchial structure, vertebral centra, tessellated calcified cartilage, a pectoral girdle, and a pectoral and possible pelvic fin. The teeth differ from other planktivorous filter-feeder sharks from the WIS due to a combination of distinctive morphological features and chiefly because of their remarkable small size (~0.7 mm in total tooth height and 0.5 mm mesiodistal length).
A phylogenetic analysis suggests this specimen represents yet another independent lineage of elasmobranchs, specifically a lamniform shark, that filled a planktivorous filter-feeding niche in the WIS. The description of this new species further emphasizes the recurrent evolutionary trend across invertebrate and vertebrate lineages that large, pelagic filter-feeders evolve from large carnivorous ancestors.

*Speaker

† Corresponding author: costab@myumanitoba.ca

The role of body size selectivity in structuring the rise of animals in the late Ediacaran period

Matthew Craffey[1,* †]

[1*]Department of Chemistry and Physical Science, University of Toronto, Mississauga. William G. Davis Building, 3359 Mississauga Road, Mississauga, Ontario, L5L 1C6, Canada

The Ediacaran Period (645-538 Ma) marks the appearance of macroscopic animals. This is a critical transition as increases in body size (a key ecological trait) may have allowed for the evolution of new kinds of organisms and ecological communities. Thus, examining how body size changed across the Ediacaran may help us to better understand how animal ecosystems initially developed.
We measured lengths (i.e. longest axis) and widths for 97 Ediacaran genera from museum specimens and the literature. We calculated mean log biovolume using measured lengths and widths and simple geometric models for each taxonomic group that best corresponded to their reconstructed morphology (e.g. ellipsoid, cylinder). We compared body size distributions between each Ediacaran assemblages (the Avalon, White Sea, and Nama assemblages) using Kolmogorov-Smirnov tests. We also determined the selectivity of body size and taxonomic grouping on origination and extinction using log odds regressions. We find that body size distributions shifted dramatically from the Avalon to White Sea assemblages but not the White Sea to Nama assemblages, despite intense extinction. We find that body size helped reshape the Nama assemblage's fauna through 1) increased extinction at the White Sea-Nama transition among smaller taxa and 2) increased origination among small-bodied taxa of different ecological and taxonomic groups. Body size thus may have played a critical role in mediating ecological and evolutionary responses at the end of the Ediacaran.

*Speaker
† Corresponding author: matthew.craffey@untoronto.ca

Stratigraphy and trilobite biostratigraphy of the Cambrian (Marjuman; Guzhangian) Sullivan Formation, southern Canadian Rocky Mountains, Alberta and British Columbia

Michael B. Cuggy[1*†] and Stephen R. Westrop[2]

[1] Department of Geological Sciences, University of Saskatchewan, Saskatoon, SK, Canada S7N 5E
[2] Oklahoma Museum of Natural History and School of Geosciences, University of Oklahoma, Norman, Oklahoma 73072, USA, 103 Melita Street, Ingersoll, ON, Canada, N5C 3W3

The Sullivan Formation is a mixed siliciclastic–carbonate succession overlain and underlain by the carbonates of the Waterfowl and Lyell formations, respectively. The limited published record of the trilobite faunas is more than 80 years old, but is sufficient to show that the Sullivan corresponds to the traditional *Cedaria* and *Crepicephalus* zones. These zones span an interval of high sea level with flooding of the interior of the continent in Wisconsin and Minnesota. As such, the Waterfowl–Sullivan boundary may record carbonate platform drowning during sea level rise. In the Mt. Murchison area, Banff National Park, the Sullivan is composed entirely of fine siliciclastics with cm- to dm-thick carbonate interbeds. To the south-west, at Paget Peak, Yoho National Park, the siliciclastics are punctuated by a carbonate unit with a basal interval of thrombolitic buildups.

The lower third of the Sullivan yields low diversity trilobite assemblages that include *Nixonella* and *Paracedaria*. The middle Sullivan is dominated by diverse species of *Arapahoia*, which points to correlation with successions in western United States, including the DuNoir Limestone of Wyoming and the Abrigo Formation of Arizona. Rapid turnover of *Arapahoia* species will be the basis for a high resolution zonation that can be applied throughout the study area. The upper Sullivan includes oolitic grainstone units in an interval that is transitional with the overlying Lyell Formation. Faunas are sparse, but genera such as *Uncaspis* and *Dresbachia* indicate a correlation with the traditional *Crepicephalus* Zone.

*Speaker
† Corresponding author: michael.cuggy@usask.ca

Deciphering the theropod fauna from the Early Cretaceous Balve locality of Northwestern Germany

René Dederichs[1,* †], Denis Theda[2], Darius Nau[3], Alessandro Lania[3], Christophe Hendrickx[4,5], and Achim H. Schwermann[6]

[1] University of Zurich, Department of Paleontology, Karl-Schmid-Straße 4, CH-8006 Zurich, Switzerland; rededpaleo@gmail.com
[2] Lippisches Landesmuseum Detmold, Ameide 4, 32756 Detmold, Germany; theda-paleo@gmx.de
[3] Department of Paleontology, Bonn Institute for Organismic Biology, University of Bonn, Nussallee 8, 53115 Bonn, Germany, dariusnau@uni-bonn.de; alelania99@gmail.com
[4] Dinosauria Lab, Fundación Miguel Lillo, Miguel Lillo 251, San Miguel de Tucumán 4000, Tucumán, Argentina; christophendrickx@gmail.com
[5] Unidad Ejecutora Lillo, CONICET-Fundación Miguel Lillo, Miguel Lillo 251, San Miguel de Tucumán 4000, Tucumán, Argentina
[6] LWL-Museum of Natural History Münster, Sentruper Straße 285, 48161, Münster, Germany; achim.schwermann@lwl.org

Terrestrial deposits preserved in the karstic fissure fill of Balve have yielded a rich collection of fossilized remains from the Barremian-Aptian (Early Cretaceous) of what is now Northwestern Germany. Paleogeographic reconstructions suggest that the region was an upland environment, which is rarely recovered in the Early Cretaceous fossil record of central Europe. Annual excavations conducted by the LWL-Museum for Natural History Münster (Germany) consistently yield numerous fossils from the digging site, particularly isolated remains. The Balve assemblage currently encompasses a large variety of tetrapods, including mammals, amphibians, crocodilians, pterosaurs, and dinosaurs. The latter are dominated by iguanodontian ornithopods, but also include sauropods and theropods. Here we present the current status of the research on the theropod fauna from Balve, which is represented by isolated teeth as well as numerous cranial and postcranial elements. While comparative material is sparse in contemporary localities, the usage of phylogenetic and morphometric methods enabled us to assign the material to several averostran clades. Our findings include the first published remains of Ornithomimosauria from Germany as well as remains of Tyrannosauroidea and Allosauroidea. The ongoing studies not only refine our understanding of the composition of the Balve biota in northwestern Germany, but also contribute to our knowledge of non-avian theropod paleobiogeography in the Early Cretaceous of Europe.

*Speaker
† Corresponding author: rededpaleo@gmail.com

Novel thyreophoran ichnospecies from the Dunvegan and basal Kaskapau Formations near Tumbler Ridge British Columbia, indicate presence of ankylosaurids in the Cenomanian of North America

Eamon T. Drysdale[1,* †], Martin G. Lockley[2], Roy Rule[3], and Charles W. Helm[1,4], and Victoria A. Arbour[5,6]

[1] Tumbler Ridge Museum, 255 Murray Drive, Tumbler Ridge, British Columbia V0C 2W0, eamon.drysdale@trmf.ca
[2] Dinosaur Trackers Research Group, Campus Box 172, University of Colorado Denver, PO Box173364, Denver, 80217-3364, U.S.A
[3] Tumbler Ridge UNESCO Global Geopark, 265 Southgate St, Tumbler Ridge, British Columbia, V0C 2W0; roy.rule@tumblerridgegeopark.ca
[4] African Center for Coastal Palaeoscience, PO Box 77000, Nelson Mandela University, Gqeberha, South Africa, 6031; helm.c.w@gmail.ca
[5] Department of Natural History, Royal BC Museum, 675 Belleville St, Victoria, BC, V8W 9W2 Canada; Victoria.arbour@gmail.com
[6] School of Earth and Ocean Sciences, University of Victoria, 9882 Ring Rd, Victoria, BC, V8P 3E6, Canada

The Peace Region of British Columbia is known for having an abundance of trackway material from a variety of vertebrate groups, including dinosaurs, crocodilians, pterosaurs and birds. One of the most common vertebrate ichnofossils found within the Tumbler Ridge area, *Tetrapodosaurus borealis*, is an ankylosaurian ichnospecies first described from the Gething Formation of Peace Region of British Columbia, and is now known from additional localities across North America. Recent work in the Dunvegan and basal Kaskapau Formations within the Tumbler Ridge area has uncovered a novel thyreophoran ichnogenus, *Ruopodosaurus clava*, which can be identified by a narrow gauge trackway with a pentadactyl manus, and a tridactyl pes which typically has a bilobed heel, and rounded or bluntly-pointed unguals, which are rotated outward. Examination of the ankylosaur body fossil record shows that only ankylosaurids have three pedal digits, rather than the four seen in other ankylosaur clades, indicating that *R. clava* is likely the first known track morphotype of ankylosaurid ankylosaurs. *R. clava* tracks have been found within the same localities as *T. borealis*, indicating that both ankylosaurid and non-ankylosaurid ankylosaurs co-existed in the Peace Region during the mid Cretaceous. The presence of *R. clava* in the Cenomanian deposits of the Peace Region is significant, as the presence or absence of ankylosaurid dinosaurs in Laramidia during the Albian and Cenomanian was previously debated. The identification of a distinct ankylosaurid track morphotype also provides the potential for testing the antiquity of ankylosaurids in North America.

*Speaker

† Corresponding author: eamon.drysdale@trmf.ca

Using integrated ichnology, paleontology, and sedimentology to reinterpret the Eastend to Battle formation sequence in southern Saskatchewan

Meagan Gilbert[1]* †

[1] Saskatchewan Geological Survey, Subsurface Geological Laboratory, 201 Dewdney Avenue East, Regina, Saskatchewan, Canada

The Maastrichtian to earliest Neogene depositional sequence extensively crops out along the southern flanks of the Cypress Hills in southwestern Saskatchewan, particularly in the Frenchman River Valley near the town of Eastend. Integrated sedimentologic, ichnologic, and palaeontologic analysis of the Eastend Formation indicates the formation was deposited in a wave-dominated delta during the final major regression of the Bearpaw Cycle of the Western Interior Seaway. The entire deltaic succession is preserved including overlying coastal plain and meandering stream facies. By integrating these datasets, the visually distinctive white claystones and sandstones of the Whitemud Formation are reinterpreted as a highly altered pedogenic soil profile overprinting Eastend Formation facies. Therefore, the Whitemud Formation is demoted to member status (Whitemud Member) within the Eastend Formation. A disconformity surface is recognized between the amalgamated Eastend/Whitemud formations' upper contact and the overlying Battle Formation, which was deposited in a lacustrine and adjacent corresponding wetland. Deposition was controlled by foreland basin tectonics to the west, with the Eastend Formation deposited during tectonic unloading and basin quiescence. The Whitemud Member and Battle Formation were deposited during thrust sheet loading, resulting in uplift of the hinge-line located at or just east of the study area.

*Speaker

† Corresponding author: meagan.gilbert@gov.sk.ca

Puncture marks on Upper Cretaceous ammonites in southern Alberta

Veronica L. Gillis[1]* † and Paul A. Johnston[1] †

[1] Department of Earth and Environmental Sciences, Mount Royal University, Calgary, AB

Shells of *Placenticeras meeki*, an ammonite from Upper Cretaceous marine deposits (Bearpaw Formation) in southern Alberta, often show puncture marks. Early studies interpreted these as bite marks of mosasaurs. More recently, researchers proposed that the punctures are diagenetically collapsed homing scars of limpet gastropods. To test these hypotheses, we examined *P. meeki* specimens in collections at Mount Royal University and the Royal Tyrrell Museum. For punctures occurring near the venter of *P. meeki*, we are unable to provide a single example of an exit hole on the antipode, despite tooth length in co-occurring mosasaurs exceeding the venter width. Micro-CT scans of a *P. meeki* specimen reveal septa directly below punctures that come close to the shell surface without damage. Attachment of limpets to *P. meeki* shells from the Bearpaw Fm is not in dispute—we reference a previously unreported attached limpet and document new examples of minute parallel scratch marks, resembling limpet grazing traces. Specimens with many punctures on only one side of the ammonite shell are inconsistent with mosasaur bites. Superimposing holes from opposing sides of individual shells reveals few examples of in-line correspondence predicted from mosasaur jaws. When rows of roughly equally spaced punctures do occur, the punctures sometimes have notches oriented in the same direction, which seems consistent with the carinae on successive mosasaur teeth. However, we note that modern intertidal limpets are territorial, they often have a preferred orientation, and they may occur in rows which reflects an environmental interface. While mosasaur predation on ammonites would be unsurprising given their inferred paleobiology, we propose that the majority of punctures on *P. meeki* shells are incompatible with mosasaur bites.

*Speaker

† Corresponding authors: vgill8611@mtroyal.ca; pajohnston@mtroyal.ca

Pioneering Computational Fluid Dynamics in Paleontology: Modelling Cambrian Sponge Feeding Efficiency

Annie Gong[1,*], Zaid A. Qureshi[2,†], Marc Laflamme[2,†]

[1] Appleby College, Oakville, ON, L6K 3P1, Canada
[2] Department of Chemical and Physical Sciences, University of Toronto Mississauga, Mississauga, ON, L5L 1C6, Canada

The emergence of computational fluid dynamics (CFD) marks a turning point in paleontology, enabling quantitative studies of the functional roles of extinct organisms. This study applies CFD to investigate the functional morphology of *Tumuliocyathus vologdini*, an extinct archaeocyath characterized by distinctive external structures known as simple tumuli; hollow, dome-like structures with a single downwards-opening pore. The ecological role of all external features of archaeocyaths has remained speculative due to a lack of effective modelling and simulation techniques. In this study, CFD was incorporated with CAD-based 3D reconstructions of fossils to quantitatively model water flow around and through *T. vologdini* to explore how tumuli may have enhanced feeding efficiency. Simulations across three ecologically plausible flow regimes (0.05 m/s, 0.1 m/s, and 0.2 m/s) reveal that tumuli played an important role in directing fluid into the organism's internal segments, optimizing flow velocities and minimizing turbulence. Results suggest that *T. vologdini* employed an active filter-feeding strategy, as water entering the tumuli and pores showed reduced velocity, making passive, current-driven filtration unlikely. As a result, active, energy-dependent pumping was likely required to maintain internal flow. Tumuli appear to have influenced external and internal flow, challenging earlier ecological interpretations of archaeocyaths as passive filter feeders. Beyond insights into *T. vologdini*'s ecology, this study demonstrates CFD's power to replace speculative interpretations with quantitative, replicable models. It illuminates early reef metazoan adaptations and exemplifies how CFD is reshaping paleontology through interdisciplinary innovation.

*Speaker
† Corresponding authors: zaid.qureshi@mail.utoronto.ca, marc.laflamme@utoronto.ca

Tracing Ancient Herbivores: A new project Investigating Diets of Late Cretaceous Sea Turtles (Chelonioidea) from the Type Maastrichtian Seagrass Meadows (Belgium and the Netherlands)

Jelle J. A. Heere[1,2,* †], Jasper Ponstein[1,3], Jonathan J. W. Wallaard[1,2], Johan Vellekoop[4,5]

[1] Het Nationaal Oertijdmuseum, Bosscheweg 80, 5283 WB Boxtel, the Netherlands
[2] Utrecht University, Budapestlaan, 4, 3584 CD Utrecht, The Netherlands; j.j.a.heere@students.uu.nl
[3] Museum für Naturkunde Berlin, Invalidenstraße 43, 10115 Berlin, Germany
[4] KU Leuven, Celestijnenlaan 200E, 3001 Heverlee-Leuven, Belgium
[5] Institute of Natural Sciences, Vautierstraat 29, 1000 Brussels

BelgiumSea turtles (Chelonioidea) are a relatively common find in the Maastrichtian type area of Belgium and the Netherlands, preserving one of the oldest known sea grass-dominated ecosystems of the world. Extant chelonioids are one of very few marine tetrapod groups that contain (partially) herbivorous species (Figure 1). In modern seagrass ecosystems, large herbivores like the dugong (*Dugong dugon*), and green sea turtle (*Chelonia mydas*) are often considered key-stone species, due to their ecosystem engineering and control of biomass. It is expected that among the fossil chelonioid taxa known from the type Maastrichtian sea grass meadows, there are herbivorous species with a similar role in the ecosystem. However, diets of fossil chelonioids are difficult to discern for a few reasons: chelonioids bear an edentulous beak; no stomach contents or bromalites are known from Maastrichtian sea turtles; and finally, the retrieval of organic nitrogen from marine fossils is notably difficult. As a result, none of the chelonioid taxa discovered so far from the type Maastrichtian sea grass meadows have been positively confirmed as herbivorous. In fact, *Allopleuron hoffmanni*, by far the most prevalent species, has been shown to have $\delta^{13}C$ values similar to extant carnivorous chelonioids, starkly opposed to morphological methods which suggested it was a herbivore. In this new research project, we plan to build on this previous work, by performing $\delta^{13}C$ analysis on a larger selection of specimens and taxa of chelonioids from the type-Maastrichtian, to help uncover their trophic guild membership and role within the trophic web.

Figure 1: *"Green Turtle (Chelonia mydas) female grazing on seagrass"*
by Bernard Dupont (https://www.flickr.com/photos/65695019@N07/49586259141),
used under CC BY-SA 2.0. No changes made.

*Speaker
† Corresponding author: curator@oertijdmuseum.nl

Dinosaur tracking in British Columbia and South Africa

Charles Helm[1* †]

[1] Tumbler Ridge, Alberta.

Northeastern British Columbia is home to a variety of Cretaceous trace fossils. These include the tracks of dinosaurs, crocodylians, pterosaurs, birds, and possibly snakes. Highlights include the only known tyrannosaurid trackways, several *Saurexallopus*, *Ordexallopus* and *Magnoavipes* tracks, multiple ankylosaurid and nodosaurid trackways, theropod trackways with digit pads, and the first record of giant crocodylian swim traces. Furthermore, the 2025 summer field season in British Columbia has yielded several new discoveries, which are actively being researched.

Much of my research is on Pleistocene tracks and traces in aeolianites on South Africa's Cape south coast, including hominin tracks. At times I found myself in sedimentary, non-marine Mesozoic deposits and realized the potential for finding dinosaur tracks, using the skills I had learned in British Columbia. The initial discoveries prompted an invitation to a Canadian sedimentologist colleague to join me in writing up the findings. The result was the documentation and publication in *Ichnos* of the first Cretaceous dinosaur tracks in southern Africa. These sauropod tracks, aged around 140 Ma, were by far the youngest to be described from South Africa. Early in 2025 even younger dinosaur tracks (sauropod, ornithopod, theropod), aged around 132 Ma, were discovered.

Applying the knowledge gained from North American mentors to deposits in South Africa has been a great privilege. The work there is in its infancy, as there are many suitable areas for further exploration.

*Speaker
† Corresponding author: helm.c.w@gmail.com

Early vertebrate diversity of the Middle Devonian of Manitoba

Melina E. M. Jobbins[1,* †], Jorge Mondéjar Fernández[2], Paul R. Durkin[1], Ricardo L. Silva[1] & Kirstin S. Brink[1]

[1] Department of Earth Sciences, University of Manitoba, 125 Dysart Road, Winnipeg, Manitoba R3T 2N2, Canada
[2] Division Paleontology and Historical Geology, Senckenberg Research Institute and Natural History Museum, Frankfurt am Main, Germany

The Elm Point Formation is a Middle Devonian (Eifelian) unit deposited in the Elk Point Basin in North America. Specimens recovered from three localities in the interlake region of Manitoba, Canada, comprise skull and thoracic material of fossil early vertebrates, particularly dental elements. They include the arthrodiran placoderms *Elmosteus lundarensis*, *Homosteus manitobensis* and *Squamatognathus steeprockensis*, ptyctodonts *Ptyctodus* and *Rhynchodus*, dipnoans, and sarcopterygians including onychodontids and dipnoans. One sarcopterygian specimen exhibiting cosmine has been identified as the postparietal shield of an 'osteolepiform', representing the oldest tetrapodomorph from Canada. The overall faunal diversity of the Elm Point Formation is similar to other North American faunas from the Eifelian. Comparisons between North American Middle Devonian stratigraphic units show a slow change in faunal diversity, with the Eifelian rich in ptyctodont diversity and the Givetian exhibiting a diversification of arthrodires.

*Speaker
† Corresponding author: melina.jobbins@umanitoba.ca

Differences in exceptional soft tissue preservation of a juvenile hadrosaurid from the upper Campanian Dinosaur Park Formation of Alberta, Canada

Tristan Joubarne[1,* †], Caleb M. Brown[1, 2], Paul Durkin[1], Kirstin S. Brink[1]

[1] Department of Earth Sciences, University of Manitoba, 125 Dysart Rd, Winnipeg, Manitoba, R3T 2M6, Canada; joubarnt@myumanitoba.ca; Paul.Durkin@umanitoba.ca; Kirstin.Brink@umanitoba.ca
[2] Royal Tyrrell Museum of Palaeontology, Drumheller, Alberta, T0J 0Y0, Canada; caleb.brown@gov.ab.ca

Although rare in the fossil record, well-preserved soft tissues are relatively common in hadrosaurs. These discoveries reveal valuable information about the external anatomy of hadrosaurs, such as integument patterns, fleshy “mittens” around the hands, soft tissue cranial crests, and keratinous sheaths forming nails and hooves. However, despite the relative abundance of fossilized soft tissues in hadrosaurs, the processes leading to their preservation are poorly understood. Our research aims to understand how soft tissues in hadrosaurs are preserved. To do so, we examined an indeterminate hadrosaur, with fossilized integument, recovered from the Dinosaur Park Formation near Irvine (Alberta). Soft tissues on the hands of this specimen form a “mitten” around digits II-III-IV, and vertical bands formed of two different types of scales were observed on its torso. For our study, we re-examined these tissues under UV light. Our preliminary analyses revealed the presence of a hoof-like structure extending from the ungual of digit IV on the left foot, and possibly of digit III on the right foot, reminiscent of the structures reported in *Edmontosaurus annectens* mummies from the Lance Formation of Wyoming. These structures produce a yellow fluorescence under UV light. Preliminary analyses also reveal an orange fluorescence of the integument on the limbs, but not of the integument from the torso of this individual, suggesting different modes of preservation for these soft tissues. Future directions for our project include conducting further sedimentological and geochemical analyses to determine the pathways that led to the preservation of soft tissues on this specimen.

*Speaker
† Corresponding author: joubarnt@myumanitoba.ca

Revisiting *Peytoia nathorsti* from the Cambrian Burgess Shale

Hugo T Li [1,* †], Joseph Moysiuk[2], and Jean-Bernard Caron[3]

[1] 33 Willcocks St, Toronto ON M5S 3B3; Hugo.li@mail.utoronto.ca
[2] 190 Rupert Ave, Winnipeg, MB R3B 0N2; jmoysiuk@manitobamuseum.ca
[3] 100 Queen's Park, Toronto, ON M5S 2C6; jcaron@rom.on.ca

Radiodonta represent a diverse group of stem euarthropods which filled key predator roles in the Cambrian food web. The first radiodont known, *Anomalocaris canadensis* was described from Mount Stephen in 1892 as the body of a shrimp. Following the discovery of the Burgess Shale in 1909, Walcott described several enigmatic fossils as individual species belonging to different animal phyla, which are now recognized as different radiodont body parts. Thanks to the discovery of articulated and better-preserved specimens in the late 20th century by the ROM we now understand the true nature of these animals.

Peytoia nathorsti was first described in 1911 from an articulated body fossil, although not recognized as such when it was first published. Additional *Peytoia* specimens including complete specimens have since been uncovered, and this species has played a major role in shaping our understanding of radiodont morphology and evolution. Our project focuses on examining hundreds of new *Peytoia* specimens from the ROM's extensive Burgess Shale collection. The large number of specimens enables an improved reconstruction of *Peytoia*. This will allow for better understanding of not just the anatomy of *Peytoia* but other species of radiodonts. One goal of our study is to better differentiate the morphology between the *Hurdia* and *Peytoia* claws and mouth cones. As these radiodonts are often preserved together, our research also aims to better understand the relative importance of these two species in the community. This research will grow our understanding of radiodont morphology, distribution, and ecological roles in the Cambrian ecosystems.

*Speaker
† Corresponding author: Hugo.li@mail.utoronto.ca

The mosasaur fauna from the Northumberland Formation of Hornby Island, British Columbia

Brennan P. Martens[1,*], Trevor H. Rempert[2,†] and Alexander P. M. Vinkeles Melchers[3]

[1] Vancouver Paleontological Society, 12-1871 Stevenston Highway, Richmond, British Columbia V7A 1M4, Canada
[2] University of Tennessee Health Science Center, 920 Madison Ave., Memphis, Tennessee 38163, USA
[3] Paleontica Foundation, Nassau Dillenburgstraat 17, 2596 AB The Hague, The Netherlands

The Northumberland Formation is a Late Campanian deep-water stratum of the Nanaimo Group, exposed along the northwestern coast of Hornby Island, off Vancouver Island, in British Columbia, Canada. Within the Northumberland Formation, fossils are preserved in fine silt and mudstone carbonate concretions eroding out of an intertidal zone. Collecting during the 1990s and early 2000s at two localities on Hornby Island — Manning and Collishaw Point — produced numerous ammonoids, gastropods, bivalves, urchins, and starfish, as well as a diverse fauna of marine vertebrates, including teleosts, selachians, and reptiles. Mosasaur remains are uncommon fossil discoveries, mostly consisting of teeth, vertebrae, and jaw sections. Representatives of at least three mosasaur subfamilies are present: a plioplatecarpine, a prognathodontin mosasaurine, and a tylosaurine. Here, we provide the first detailed description of the mosasaurid fauna of the Northumberland Formation.

Figure 1. A prognathodontin mosasaur tooth crown in labial view from the Northumberland Formation at Hornby Island, British Columbia, Canada.

*Speaker
† Corresponding author: trempert@uthsc.edu

A new marrellomorph from Beecher's Trilobite beds (Ordovician) shows a case of evolutionary stasis in morphotypes

Joseph Moysiuk[1,2,3], Alejandro Izquierdo López[4,* †], Melina Jobbins[5], Derek E. G. Briggs[6,7], Jean-Bernard Caron[2,8,9]

[1] Manitoba Museum, 190 Rupert Avenue, Winnipeg, MB, R3B 0N2, Canada
[2] Department of Natural History, Royal Ontario Museum, 100 Queen's Park, Toronto, ON, M5S 2C6, Canada
[3] Department of Geological Sciences, University of Saskatchewan, 114 Science Place, Campus Drive, Saskatoon, SK, S7N 5E2, Canada
[4] State Key Laboratory of Continental Dynamics, Shaanxi Key Laboratory of Early Life and Environment, Department of Geology, Northwest University, Xi'an 710069, PR China
[5] Department of Earth Sciences, University of Manitoba, 125 Dysart Rd, Winnipeg, MB, R3T 2M5, Canada
[6] Department of Earth and Planetary Sciences, Yale University, 210 Whitney Ave, New Haven, CT, 06511, USA
[7] Yale Peabody Museum, 170 Whitney Ave, New Haven, CT, 06511, USA
[8] Department of Ecology and Evolutionary Biology, University of Toronto, 25 Willcocks Street, Toronto, ON, M5S 3B2, Canada
[9] Department of Earth Sciences, University of Toronto, 22 Ursula Franklin Street, Toronto, ON, M5S 3B1, Canada

Evolutionary stasis is a common phenomenon in which anatomical traits in animal lineages remain largely unaltered for hundreds of millions of years. Possible causes include multiple factors from morphological constraints to ecological conservatism that must be evaluated independently to enrich our understanding of macroevolutionary processes. Here, we describe a new acercostracan (Marrellomorpha, Arthropoda), from the Ordovician Beecher's Trilobite Beds (New York, USA). The new genus and species has five pairs of cephalic appendages: a first pair of uniramous antennae, two pairs of robust appendages bearing exopods with setae, one pair of extremely long uniramous appendages and a fifth reduced pair, a condition identical to the Silurian Xylokorys and the Devonian Vachonisia. Its body is covered entirely by a head shield, showing two highly distinct morphotypes differentiated by their shape and by the presence of four large lateral spines. We compare the disparity of the acercostracan head shield to the analogous prosoma of xiphosurans, often regarded as an exemplary case of evolutionary stasis. Using Elliptic Fourier analysis on their outlines, standardizing for differences in diversity and temporal distribution, we conclude that the head shield was a highly conserved structure for over 100 million years, comparable in disparity to the xiphosuran prosoma. Interestingly, acercostracan disparity is increased by distinct intraspecific morphotypes related to development or sexual dimorphism that are conserved across multiple genera and over 100 million years. This variation could have facilitated acercostracan diversification despite their body plan being potentially constrained by post-Cambrian benthic refugia or by a specialized ecological role.

*Speaker
† Corresponding author: alizlo@hotmail.com

Thanetian dinoflagellate cyst assemblages and biostratigraphy from the Lista Formation in well 24/6-2, North Sea

Gideon Ononuba[1,* †], Manuel Vieira[2, 3], Lígia Castro[1, 3]

[1]NOVA School of Science and Technology, Department of Earth Sciences, Campus de Caparica, 2829-516 Caparica, Portugal

[2] Aker BP ASA, Strandveien 4, 1366 Lysaker, Oslo, Norway; manuel.vieira@akerbp.com

[3] GeoBioTec-pólo NOVA FCT, Campus de Caparica, 2829-516 Caparica (Portugal); lscastro@fct.unl.pt

This study examines the Thanetian dinoflagellate cyst assemblages and stratigraphy of the Lista Formation in well 24/6-2, North Sea Basin. The analyzed interval represents upper Paleocene deposits immediately preceding the Paleocene Thermal Maximum (PTM). The Lista Formation consists mainly of blocky grey, pale green, and brown claystones that are locally bioturbated but generally non-carbonaceous, non-calcareous, and non-pyritic, suggesting low-energy offshore deposition under moderately oxygen-poor conditions. Twenty palynological samples were analyzed, with 300 dinoflagellate cysts counted per slide following standard preparation methods. Microscopic analyses were performed at the University of NOVA FCT, and taxonomic identification was guided by the Palsys and Dinoflaj3 databases.

A total of 2,483 dinoflagellate cysts were identified, representing 17 species and 12 genera. Assemblages are dominated by *Spiniferites* spp. and *Areoligera gippingensis*, indicative of outer-shelf to open-marine environments with stable salinity and warm surface waters. The consistent presence of *Alisocysta margarita* and *A. gippingensis* constrains the studied interval to the Late–Middle Thanetian (Biozone P8), in agreement with established North Sea biozonations.

Assemblage composition suggests deposition in marine, mesotrophic settings with a stable water column prior to the environmental perturbations of the PTM. The dominance of *Spiniferites* and *Areoligera* may reflect enhanced nutrient availability linked to late Paleocene climatic variability.

These findings refine the biostratigraphic framework of the Lista Formation and offer insights into paleoceanographic conditions across the North Sea Basin leading up to the Paleocene–Eocene transition.

*Speaker

† Corresponding author: g.ononuba@campus.fct.unl.pt

The DinoDawn Expedition: Integrating Paleontological Fieldwork and Science Communication in Southern Portugal

Sofia Patrocínio[1,2*†], João Neves[4], Victor Carvalho[1,2], Bruno Camilo[2,3,5], Lígia Castro[5,6], Paulo Fernandes[7], David Isserman[8], David Finnegan[8], Marc Bryan-Brown[8], Lars Finskud[8], Raphael Feldt[1,2], Klara T. Gerken[9], Romain David[10], Nicolai Christiansen[1], Beth Moore[8], Luís Marcelino[1,2] and Ricardo Araújo[1,2]

[1]CERENA (Centro de Recursos Naturais e Ambiente), Instituto Superior Técnico, Universidade de Lisboa, Lisboa, Portugal; sofia-patrocinio@live.com.pt; vcarvalho@alt-shn.org; feldtraphael@gmail.com; christiansen.nicolai@gmail.com; luisedumarcelino@gmail.com; ricardo.araujo@tecnico.ulisboa.pt
[2]Ci2Paleo-Centro de Paleobiologia e Paleoecologia, Sociedade de História Natural de Torres Vedras, Estrada Nacional 247-km 27, Santa Cruz, 2560-042 Torres Vedras, Portugal; laboratorio@alt-shn.org
[3]Departamento de Engenharia de Recursos Minerais e Energéticos, Instituto Superior Técnico, Universidade de Lisboa, Av. Rovisco Pais, 1, 1049-001 Lisbon, Portugal
[4]Faculdade de Ciências, Universidade de Lisboa, Campo Grande, 1749-016 Lisboa, Portugal; nevesj98@gmail.com
[5]NOVA School of Science and Technology, Quinta da Torre, Campus da Caparica, 2829-516 Caparica, Portugal; lscastro@fct.unl.pt
[6]GeoBioTec – NOVA FCT pole-NOVA.ID.FCT, Campus da Caparica, 2829-516 Caparica, Portugal
[7]Centro de Investigação Marinha e Ambiental (CIMA), Universidade do Algarve, Faro, Portugal; pfernandes@ualg.pt
[8]The Explorers Club, Flag Expedition, New York, USA; david@isserman.com;DaveFinnegan@BlackFinn.Co; mbryan-brown@explorers.org; lfinskud@vanguardstrategy.com; ski.beth@gmail.com
[9]Bonner Institut für Organismische Biologie (BIOB), Rheinische Friedrich-Wilhelms-Universität Bonn, Bonn, Germany; ktgerken97@gmail.com
[10]Centre for Human Evolution Research, Natural History Museum, London, United Kingdom; r.david@nhm.ac.uk

Since mid-2024, the DinoDawn Expedition has been investigating Carnian–Norian (Upper Triassic) sedimentary sequences in the Algarve (southern Portugal), to reconstruct paleoenvironmental and faunal transitions linked to early dinosaur and mammal diversification. The Carnian Pluvial Episode serves as the scientific and narrative hook of the project, anchoring public engagement around one of the most dramatic climate and biodiversity shifts in Earth's history. The project also integrated a science communication initiative to enhance researcher–community interaction.
During the campaign, the team engaged in direct dialogue with residents, addressing questions regarding the ongoing fieldwork and its broader scientific relevance. Complementary activities were carried out in local schools, with onsite and remote activities, where researchers introduced students to paleontological research methods and the significance of the region's fossil record. These initiatives provided an opportunity to promote public understanding of science and to foster local interest in geological heritage.

Integrating targeted outreach into paleontological fieldwork strengthens the connection between science and society, enhancing research visibility and promoting the conservation of paleontological heritage. This project stands out for combining real-time field communication, digital mapping, and community-based participation. The Explorers Club, which has contributed to the project in multiple ways - including developing the expedition's website and outreach materials - has helped the initiative

achieve global visibility and educational reach. The website dinodawnexpedition.com and its interactive tools further engaged young audiences worldwide. Future campaigns will extend the survey area and deepen partnerships with regional schools, fostering lasting community involvement in scientific discovery.

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*Speaker
† Corresponding author: sofia-patrocinio@live.com.pt

Landscapes in transition: taphonomic and palaeoecological insights from Țuțcani, Eastern Romania (Scythian Platform)

Elena-Ionela Păun[1,* †], Bogdan-Gabriel Rățoi[1], Dumitru-Daniel Badea[1] and Mihai Brânzilă[1]

[1] "Alexandru Ioan Cuza" University of Iași, Faculty of Geography and Geology, Department of Geology, 20A Carol I Blvd., 700505 Iași, Romani; elenaionelapaun@gmail.com; bog21rat@gmail.com; badeadaniel.i13@gmail.com; mib@uaic.ro

The Țuțcani outcrops, situated in several ravines near Mălușteni (Vaslui County, Romania), lie on the Scythian Platform between the villages of Țuțcani and Igești, about 11 km from Murgeni. These ravines developed within continental and lacustrine deposits, lithologically correlated with the classic fossiliferous sites of Mălușteni and Mănăstirea.

The lithostratigraphic succession is simple, consisting mainly of yellowish sands interbedded with grey sandy clays. The basal layer comprises coarse to medium, poorly sorted sands with large-scale cross-stratification, overlain by a grey sandy horizon and capped by fossiliferous sands with clay lenses and occasional concretions.

Based on microfaunal evidence, the vertebrate-bearing strata correspond to the lower Pliocene (MN14). The faunal assemblage reflects a diverse fluvio-lacustrine ecosystem, with freshwater, brackish, and terrestrial taxa. Notable elements include *Testudinidae* indet., fish remains of *Acipenseridae, Sparidae*, and *Percidae*, and anuran fossils of *Pelobates* sp., a genus rarely recorded in the Romanian Cenozoic, previously reported only from the Dâncu Formation (Cluj County) and the late Miocene of Crețești-Dobrina (Vaslui County). Reptilian fossils include *Macrovipera* sp. and amphisbaenian fragments, while small mammals are represented by *Ochotona ursui*, *Trischizolagus dumitrescuae*, and *Trogontherium minus*. Larger herbivores include *Procapreolus moldavicus*, indeterminate Cervidae, and *Sus avernensis*.

The fossils exhibit variable colouration and abrasion, indicating reworking and redeposition within dynamic channel-fill environments. The Țuțcani assemblage complements the classic early Pliocene faunas of eastern Romania, refining paleoenvironmental and paleobiogeographic reconstructions of the Scythian Platform before the Pleistocene climatic transition.

*Speaker

† Corresponding author: elenaionelapaun@gmail.com

Exploring the ecological and temporal trends of the first animal-built reefs

Zaid A. Qureshi[1,* †] and Marc Laflamme[1]

[1]Department of Chemical and Physical Sciences, University of Toronto Mississauga, Mississauga, ON, L5L 1C6, Canada; Zaid.qureshi@mail.utoronto.ca; marc.laflamme@utoronto.ca

Archaeocyaths are an extinct group of calcareous sponge-like organisms that existed during the lower Cambrian (~530 Ma to 509 Ma) and were the first reef-building animals. These enigmatic organisms have a long history of research encompassing many taxonomic and ecological discoveries related to lower Cambrian reef systems. To date, no single resource has provided a database on presence or absence data of archaeocyath taxa from global lower Cambrian reef localities. To address this, we created an archaeocyath database that compiles information on geography, archaeocyath taxonomy, archaeocyath morphology, temporal distribution, interpreted paleoenvironment, and lithology from primary literature. In total, our database has entries from 45 global reef localities across 11 countries. The dataset was analyzed in R to assess changes in archaeocyath morphology, geography, and ecology over time. Our results show that archaeocyaths proliferated within shallow marine settings across the world in a short period, but following the Sinsk extinction event (~513.5 Ma), their geographic extent became very limited before extinction. The morphology of early archaeocyaths also displays primitive features with low diversity but over time the features present begin to increase in complexity. This coincides with an increased diversity in environmental conditions suggesting specific features could have been associated with specific flow regimes, substrates, or niches created by microbes or other archaeocyaths. Ultimately, our database provides crucial information for improving our understanding of archaeocyaths, metazoan reef ecosystems, and ecology during the Cambrian explosion.

*Speaker

† Corresponding author: Zaid.qureshi@mail.utoronto.ca

Reassessment of *Tylosaurus borealis* (Mosasauridae: Tylosaurinae) and a review of mosasaurid remains from the Puskwaskau Formation

Trevor H. Rempert[1,*†], Brennan P. Martens[2] and Alexander P. M. Vinkeles Melchers[3]

[1] University of Tennessee Health Science Center, 920 Madison Ave., Memphis, Tennessee 38163, USA
[2] Vancouver Paleontological Society, 12-8171 Stevenston Highway, Richmond, British Columbia V7A 1M4, Canada
[3] Paleontica Foundation, Nassau Dillenburgstraat 17, 2596 The Hague, The Netherlands

The Puskwaskau Formation is comprised of a series of marine strata laid down during the Santonian to mid-Campanian in the northern Western Interior Seaway (WIS) of North America. During the approximately 35-myr existence of the WIS, it underwent several transgression-regression cycles resulting in major variations in latitudinal extension, width and depth. The Puskwaskau Formation represents the last time period in which the WIS remained open to the Boreal Sea. Situated approximately 55 km north of Grande Prairie, Alberta, Canada, exposures of the Puskwaskau Formation are among the northernmost mosasaur-bearing fossil localities. This site had a palaeolatitude of 62°N during the Late Cretaceous. Mosasaur remains from the Puskwasaku Formation predominantly consist of fragmentary skeletal elements and teeth. Here, new material is described and previously noted material, including the material assigned to the informally named "*Tylosaurus borealis*" is reviewed.

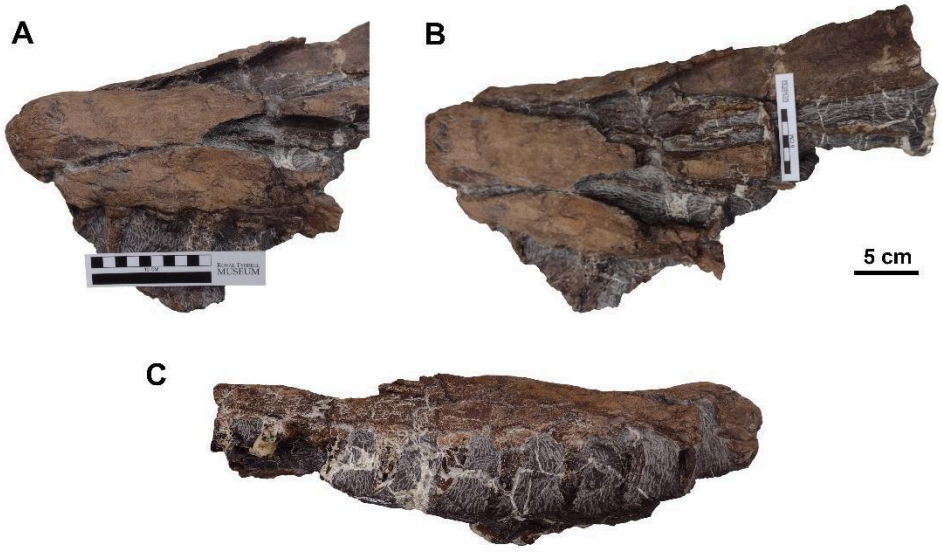


Fig. 1. TMP2014.0011.0001 "*Tylosaurus borealis"*, a semi-articulated *Tylosaurus proriger* muzzle in A, left lateral view; B, dorsal view; C, right lateral view.

*Speaker
† Corresponding author: trempert@uthsc.edu

Retracing the work of University of Michigan Geology Professor Russell Claudius Hussey (1888-1970): Journeys in the library, the museum, the field, and the future

Nick Gardner[1], Ryan Shell[2,* †]

[1] Mary Shipper Library, West Virginia University Potomac State College, Keyser, West Virginia, USA
[2] Department of Vertebrate Paleontology, Cincinnati Museum Center. Cincinnati, Ohio, USA

Russell Claudius Hussey (1888-1970) was a University of Michigan geology professor for more than three decades beginning after a successful defense of his doctoral research on the geology and paleontology of the Upper Ordovician of Michigan. In decades that followed, Hussey completed the written portion of his doctoral work, but only after publishing other papers, authoring leading textbooks on historical and applied geology, and establishing a regional reputation as a strong proponent of continuing education and spreading the "gospel of geology" wherever he went. Dr. Hussey's paleontological work expanded our understanding of the Ordovician in Michigan, added numerous new species, possibly reported some of the earliest fossil fish known in North America, teased gigantic cephalopods, and offered a correlation of the Early Paleozoic rocks of the Michigan Basin to those elsewhere in North America.

Over the last four years, we have retraced the work of Hussey, both through fieldwork on public lands, and through archival and museum collections. This work tells the story of where his various reported occurrences ended up, sheds light what could have been a major vertebrate find had it not been for World War II, and locates evidence for Hussey's rumored monster sized cephalopods in the Upper Ordovician of North America.

We provide a definitive synopsis to Hussey's life and career as well as a synthesis of our travels in his shoes in this talk as well as in previously published work and in papers currently in review.

*Speaker
† Corresponding author: ryanshell501@gmail.com

Ontogenetic variation of nuchal musculature size on the frill of the ceratopsian *Centrosaurus apertus*

Urgon J. T. Snider[1,2,3,*†], Hillary C. Maddin[3], Jordan C. Mallon[3,4]

[1] Department of Earth Sciences, 125 Dysart Road, University of Manitoba (Fort Garry Campus), Winnipeg, Manitoba R3T 2N2, Canada
[2] Department of Geology and Paleontology, Manitoba Museum, 190 Rupert Avenue, Winnipeg, Manitoba R3B 0N3, Canada
[3] Department of Earth Sciences,1125 Colonel By Drive, Carleton University, Ottawa, Ontario K1S 5B6, Canada (Previous Affiliation for U.J.T. Snider)
[4] Beaty Centre for Species Discovery and Palaeobiology, Canadian Museum of Nature, Ottawa, Ontario K1P 6P4, Canada

Ceratopsid dinosaurs had unique anatomical characteristics that made them distinctive on the Late Cretaceous landscape. Their parietosquamosal frills were one of the most recognizable and distinguishing anatomical characters among these dinosaurs. The ventral margin showcases numerous depressions and recesses that have been defined as points of attachment for nuchal musculature. However, the relative growth of these muscle insertion points and the maturation of the associated nuchal muscles have not been studied. Utilizing an earlier published nuchal muscle model, nine specimens of *Centrosaurus apertus* were selected for study, at different ontogenetic stages. With the inferenced extant phylogenetic bracket nuchal model, we establish concavities on the squamosal, occiput, and parietal as positions for muscle attachment. Reconstructions of muscle insertions show that even on the youngest known specimen, muscle insertions are relatively prominent, and these muscle insertions become amplified in size, depth, and shape as the animal matured. The hypotheses of isometric growth for muscle insertion relative to body size was supported in three of the four linear regressions, showing the correlation of parietosquamosal frill area vs. the area of muscle insertion. Although, the small sample size generated confidence intervals that were not constrained enough, more data collection will likely result in tighter intervals, as it had been accepted that the frill grew with positive allometry relative to the post-cranial body. We proposed that *Centrosaurus* was able to perform dynamic movements and behaviours throughout its ontogeny, potentially including locomotion, foraging, predator avoidance, mate selection, and combat. These behaviours and movements would have been key for the survival of an herbivorous dinosaur.

*Speaker

† Corresponding author: snideru@myumanitoba.ca

Limb segment proportions and running speed estimates of dinosaurs from the Upper Cretaceous Dinosaur Park, Hell Creek, and Nemegt formations: implications for predator-prey relationships and cursorial abilities

François Therrien[1,* †], Jared Voris[2], Kohei Tanaka[3], Darla K. Zelenitsky[2]

[1] Royal Tyrrell Museum of Palaeontology, PO Box 7500, Drumheller, AB, T0J 0Y0, Canada,.
[2] Department of Earth, Energy, and Environment, University of Calgary, 2500 University Drive NW, Calgary, Alberta T2N 1N4, Canada.
[3] Faculty of Life and Environmental Sciences, University of Tsukuba, Tsukuba, Ibaraki 305-8572, Japan.

Limb segment proportions (i.e., tibia/femur and [metatarsus + tibia]/femur length ratios) are often used to infer the relative cursorial abilities of dinosaur species but they have rarely been considered in an ecological context in combination with running speed estimates to evaluate potential predator-prey relationships within ecosystems. Here, we compare hindlimb segment proportions and running speed estimates of bipedal (theropods, thescelosaurids, pachycephalosaurs) and facultatively bipedal (hadrosaurs) dinosaurs from three uppermost Cretaceous formations renowned for their astounding ecosystem preservation: the upper Campanian Dinosaur Park Formation (Alberta), the upper Maastrichtian Hell Creek Formation (U.S.A.), and the Maastrichtian Nemegt Formation (Mongolia). Although the two ratios produce generally consistent results, the [metatarsus + tibia]/femur ratio distinguishes four cursorial "categories" in each ecosystem: hypercursorial (small oviraptorosaurs and alvarezsaurids), cursorial (large oviraptorosaurs, dromaeosaurs, *Troodon*, ornithomimids, and immature tyrannosaurids), "hypocursorial" (pachycephalosaurs and adult tyrannosaurids), and non-cursorial (hadrosaurs, large therizinosaurs, and the giant ornithomimosaur *Deinocheirus*). Comparison with maximum running speed estimates reveals that these cursorial categories are not direct indicators of cursorial abilities: for example, cursorial dromaeosaurs ran as fast as small hypercursorial oviraptorosaurs and hypocursorial pachycephalosaurs, whereas non-cursorial hadrosaurs and therizinosaurs ran as fast as hypocursorial adult tyrannosaurids and non-cursorial *Deinocheirus* ran even faster. Thus, limb segment proportions and cursorial categories may better represent the initial burst sprinting capabilities of species, whether to evade predators or pursue prey, rather than their sustained running performances. Differences in cursorial categories and running speed between tyrannosaur growth stages support the existence of an ontogenetic niche shift in these apex predators.

*Speaker
† Corresponding author: francois.therrien@gov.ab.ca

Using geochemically fingerprinted bentonites to correlate fluvial strata: Implications for dinosaur biostratigraphy, Dinosaur Park Formation, Alberta

Mira Thompson[1], Kirstin Brink[1], Caleb Brown[2], and Paul Durkin[1]

[1] Department of Earth Sciences, University of Manitoba, 125 Dysart Road, Winnipeg, Manitoba R3T 2N2, Canada
[2] Royal Tyrrell Museum, 1500 North Dinosaur Trail, Drumheller, Alberta T0J 0Y0, Canada

The Campanian Dinosaur Park Formation (DPF) preserves some of the world's most abundant and diverse dinosaur fossil assemblages and outcrops mainly in Dinosaur Provincial Park (DPP), Alberta. DPF strata are predominantly fluvial channel sandstones and floodplain mudstones with highly variable lateral extent and thickness, making lithostratigraphic correlation difficult. Therefore, DPP strata lack a resolved stratigraphic framework, creating uncertainty regarding dinosaur fossil stratigraphic placement and hypotheses of evolution and faunal turnover in DPF dinosaur assemblages.

Bentonites are ideal marker beds for resolving stratigraphic correlation issues because they preserve widely deposited ash from short volcanic events that can be radiometrically dated. We geochemically fingerprinted 14 bentonites from DPP, five that have been previously dated and nine of which were previously unsampled. Stratigraphic sections were measured for each bentonite sample, and elevation of bentonite beds were recorded to 2-cm vertical resolution. Geochemical data for sampled bentonites derives from Electron Probe Micro-Analysis of biotite, alkali feldspar, and plagioclase phenocrysts. Our results show that bentonites in DPP have unique geochemical and physical traits that can be used to differentiate them, and we identify three previously unrecognized DPF bentonites. Utilizing these geochemical fingerprints, we correlate the Plateau Tuff bentonite over 10 km in DPP. Stratigraphic position of several dinosaur fossil sites relative to the Plateau Tuff suggests that dinosaur species from different biozones in the DPF overlap stratigraphically. This demonstrates the need to re-evaluate DPF dinosaur fossil site stratigraphic placement and highlights the importance of our goal of constructing a stratigraphic framework for DPP.

*Speaker
† Corresponding author: thomp151@myumanitoba.ca

Stepwise ichnological recovery across the Permian-Triassic Boundary, Spiti Basin, Indian Himalayas

Praveen Vishnoi[1]*, Suraj Bhosale[2], Anirban Das[1], Bhawanisingh G. Desai[1]

[1] School of Energy Technology, Pandit Deendayal Energy University, Gandhinagar, 382426, India
[2] Gondwana Paleobiology Laboratory, Birbal Sahni Institute of Palaeosciences, Lucknow 226007, India

The Permian–Triassic boundary (PTB) marks Earth's most catastrophic biotic crisis. Globally, infaunal activity declined sharply during the Griesbachian and began recovering in the Dienerian with simple horizontal burrows. The Pin Valley, in the Spiti Basin of the Indian Tethyan Himalaya, preserves a nearly continuous marine succession across this interval, allowing high-resolution ichnological and quantitative ichnofabric analysis. Field investigations across 17 stratigraphic sections reveal the transition from the Upper Permian Gungri Formation to the overlying Induan-Olenekian Mikin Formation. The Gungri Formation (Upper Nodular Black Shale Member) exhibits moderately diverse ichnofabrics of *Zoophycos*, *Teichichnus*, *Chondrites*, *Alcyonidiopsis*, *Planolites*, and *Palaeophycus* with bioturbation indices (BI) of 4–5 and complex multi-tier ichnofabric. Toward the boundary, laminated, pyritic shales record a sharp BI drop (0–1) and low ichnodiversity, with sparse traces preserved within phosphatic nodules. Bioturbation ceases at the PTB. Lower Triassic (Griesbachian) beds show condensed succession with multiple *Trypnites* surfaces and shallow-tier simple burrows like *Planolites*, *Palaeophycus*, and boring networks, followed by the progressive reappearance of deep-tier *Thalassinoides* and *Balanoglossites* from the Dienerian to Smithian–Spathian (Mikin Formation). Quantitative BI profiles and ichnofabric analysis document a stepwise yet incomplete recovery of benthic activity across the PTB. These data from Spiti basin provide a detailed temporal framework for understanding Early Triassic oxygen stress and spatial heterogeneity in post-extinction ecosystem rebound.

*Speaker
† Corresponding author: pkvishnoi2929@gmail.com

Trilobites, agnostids and ashes: building a Cambrian time scale in Avalonian Canada

Stephen R. Westrop[1,* †], Ed Landing[2], Gerd Geyer[3] and Mark Schmitz[4]

[1] Oklahoma Museum of Natural History and School of Geosciences, University of Oklahoma, Norman, Oklahoma 73072, USA; mailing address: 103 Melita Street, Ingersoll, Ontario N5C 3W3, Canada.
[2] New York State Museum, 222 Madison Avenue, Albany, New York 12230, USA
[3] Lehrstuhl für Geodynamik und Geomaterialforschung, Institut für Geographie und Geologie, Bayerische Julius-Maximilians-Universität Würzburg, Am Hubland, 97074 Würzburg, Germany
[4] Department of Geosciences, Boise State University, 1910 University Drive, Boise, Idaho 83725, USA

Fragments of the Avalonian microcontinent in southern Britain, eastern Canada and the northeastern United States are united by a terminal Ediacaran–Ordovician sedimentary cover sequence. Ashes with volcanic zircons produce high resolution U-Pb dates in the context of trilobite and agnostid biostratigraphy and sedimentary depositional sequences. Comprehensive revision of Cambrian trilobite and agnostid faunas from eastern Canada is in progress, and focuses on well preserved material from carbonate nodules.

Lower Cambrian ("Series 2") faunas from the Brigus Formation in Newfoundland include eodiscid and ellipsocephalid trilobites, with dates ranging from 507.67 ± 0.08 Ma to 507.21 ± 0.13 Ma. The lower part of the overlying Middle Cambrian (Miaolingian) Chamberlain's Brook Formation has dates in the range of 506.34 ± 0.21 Ma to 506.25 ± 0.07 Ma. Detailed work on the trilobite faunas is limited to the upper member (Fossil Brook) of the formation. Species can be tracked from the English Midlands through Newfoundland and into New Brunswick and Massachusetts, providing additional evidence for the unity of Avalonia. The Drumian (Middle Cambrian) Manuels River Formation has been divided into two zones based either on trilobites or agnostids. New collections from Newfoundland indicate that a much finer resolution into four or five zones is possible. A new date of 501.44 ± 0.10 Ma from New Brunswick lies near the middle of the formation. Upper Cambrian (Furongian) trilobite faunas from the Chesley Drive Group in Nova Scotia and New Brunswick have been restudied. New collections underscore similarities with Avalonian Britain and also with Baltica.

*Speaker
† Corresponding author: swestrop@ou.edu

CANADIAN PALEONTOLOGY CONFERENCE AND ITS PREDECESSORS

(*a.k.a.* Biostratigraphy Seminar, Eastern Canadian Biostratigraphy Conference, Canadian Paleontology & Biostratigraphy Seminar)

Y / M / D	TYPE	VENUE	CITY	No.	CONVENOR	THEME/MEETING
1965/4/2	BS	McGill Univ.	Montreal	46	C.W. Stearn	Paleoecology
1965/11/10	BS	Queen's Univ.	Kingston	?	J.L. Usher, R.G. Greggs	Biostratigraphy
1967/3/14	BS	Ottawa Univ.	Ottawa	?	?	
1968/3/21	BS	Western	London	?	A.C.Lenz, C.G. Winder	
1968/11/29	BS	Univ. Montreal	Montreal	?	P.J. Lesperance, B.L.L. Mamet	
1969/10/31	BS	Carleton Univ.	Ottawa	?	K. Hooper	
1970/10/9-10	BS	Laurentian Univ.	Sudbury	?	P. Copper	Precambrian Fossils
1971/10/8-9	BS	Memorial Univ.	St. John's	?	M.M. Anderson	Cambrian of Newfoundland
1973/9/29-30	BS	Bruce Peninsula	Field trip	?	B.A. Liberty	
1974/12/6-7	BS	McGill Univ.	Montreal	?	C.W. Stearn	Evolution and Paleontology
1975/11/21-22	BS	R.O.M.	Toronto	?	P.H. von Bitter, G. Norris	
1976/10/22-23	ECBC	Univ. Windsor	Windsor	125	R.K. Jull	
1977/10/21-22	ECBC	Univ. Waterloo	Waterloo	100	C.R. Barnes	
1978/9/20-25	ECBC	Memorial Univ.	St. John's	?	Skevington, James, Stevens	
1979/9/22-26	CPBS	Univ. Alberta	Edmonton	?	B.D.E. Chatterton, B. Jones	
1980/9/27-30	CPBS	Univ. N.B.	Fredericton	40	R.K. Pickerill	
1981/9/26-29	CPBS	Manitoulin Island	Little Current	52	P.G. Telford	Field Meeting
1982/9/18-22	CPBS	Univ. Calgary	Calgary	28	R.L. Hall	
1983/9/23-25	CPBS	Univ. Toronto	Toronto	80	R. Ludvigsen	
1984/9/28-30	CPBS	Univ. Ottawa	Ottawa	120	G.S. Nowlan	
1985/9/27-29	CPBS	Laval Univ.	Quebec	80	J. Riva	
1986/9/26-27	CPBS	N.Y. Geol. Survey	Albany	105	E. Landing	N.Y. State Geol. Survey 150th Anniv.
1987/9/26-27	CPBS	Univ. W. Ontario	London	60	A.C. Lenz	
1988/9/23-25	CPBS	Univ. Manitoba	Winnipeg	33	R.J. Elias, E. Leith, G. Lammers	
1989/9/29-1	CPBS	AGC-BIO	Dartmouth	40	G.L. Williams, R. Fensome	
1990/9/28-1	CPBS	Queen's Univ.	Kingston	103	G.M. Narbonne, N.P. James	Precambrian-Cambrian Transition
1991/8/18-27	CPC-	Univ. BC	Vancouver	105	P.L. Smith, M.J. Orchard	Pander Society Joint

	1	Col.				Meeting
1992/9/25-27	CPC-II	GSC/CMN	Ottawa	105	A.D. McCracken	Earth's Historians
1993/10/1-3	CPC-III	Ont. Geo. Survey	Sudbury	110	P. Copper	CSRG Joint Meeting
1994/9/23-25	CPC-IV	Brock Univ.	St. Catharine's	60	S.R. Westrop	
1995/9/29-10/2	CPC-V	Royal Tyrrell Museum	Drumheller	91	P. Johnston	Intl. Symp. Paleobiology & Evol.
1996/9/28-30	CPC-VI	Memorial Univ.	Corner Brook	30	S.H. Williams, E. Burden	Economic & Applied Paleontology
1997/9/27-29	CPC-VII	Univ. Sask	Saskatoon	40	Basinger, Kotyk, Mclver & Pratt	
1998/10/22-25	CPC-VIII	Roy. Ont. Mus.	Collingwood	45	D.M. Rudkin, J. Waddington	In Memory of Thomas E. Bolton
1999/8/20-21	CPC-IX	Univ. Calgary	Calgary	100	A.D. McCracken	Intl. Congr. Carb. & Perm.; Pander Soc.
2000/8/18-20	CPC-X	St. F. Xavier U.	Antigonish	35	M.J. Melchin	
2001/9/22-24	CPC-2001	Univ. W. Ontario	London	60	Jin, Tsujita, Lenz & Caldwell	
2002/9/28-30	CPC-2002	Geol. Surv. Canada	Ottawa	52	B.J. Dougherty	National Museum & GSC Collections
2003/9/19-24	CPC-2003	Univ. Alberta	Edmonton	107	B.D.E. Chatterton, M.W. Caldwell	
2004/9/23-26	CPC-2004	H.M.S.C	St. Andrews	47	J.B. Caron, M. Best	Bay Fundy: Modern/Ancient Settings
2005/8/24-30	CPC-2005	Exploration Plc.	Prince George		R. Campbell	6th BC Paleontological Symposium
2006/10/13-16	CPC-2006	Redpath Museum	Montreal	60	V. Millien, M. Best, B. Carroll, M. Chartier, M. Cournoyer, M. Dubreuil, H. Hoffman, H. Larsson	Musée de Paleontologie et de l'Évolution and McGill University
2007/9/20	CPC-2007	Memorial Univ.	St. John's	50	E.T. Burden, E.N. Edinger, D. McIlroy	
2008/9/19-21	CPC-2008	The Manitoba Museum	Winnipeg	60	G.A. Young, R.J. Elias, A. Janzic	Field Trip: Upper Ordovician Rocks and Fossils, Southern Manitoba
2009/9/10-13	CPC-2009	Laurentian Univ. Ont. Geo. Survey	Sudbury	27	F.R. Brunton, E. Turner, D. Armstrong	Field Trip: Paleozoic of Manitoulin Island, Bruce Peninsula
2010/09-29 – 2010/10/02	CPC-2010	Geol. Surv. Canada	Dartmouth		R. Fensome, G. Williams	Joint with AASP
2011/8/19-22	CPC-2011	Univ. BC	Vancouver		P.L. Smith, J.W. Haggart	E.T. Tozer Triassic Special Session
2012/9/21-23	CPC-2012	UofT-ROM	Toronto	>40	L. O'Brien, C. Brown, K. Brink	ROM collections theme
2013/8-29 to 9-1	CPC-2013	Univ. of Alberta Vertebrate Paleo lab	Edmonton	>50	M. Vavrek, K. Bramble, V. Arbour, G. Funston, A. Torices, M.l Caldwell	Sternberg 50th Anniversary of Vertebrate Paleontology Lab at UofA

2014/8-28-31	CPC-2014	Redpath - McGill	Montreal	60	H. Larsen, C. Cameron, M. Chartier, M. Cournoyer	Joint Invertebrate / Vertebrate Paleontology Conference
2015		No CPC held				
2016/8/26-28	CPC-2016	Cape Breton	Sydney	37	Jason Loxton, Melissa Grey	Hist./Geology Cabot Trail
2017/9/30-2017/10/1	CPC-2017	Geol. Surv. Canada	Calgary	49	R. MacNaughton, L. Tingley, S. Gouwy, K. Bell, K. Dewing, B. Richards, B. Medioli, C. Morgan, C. Gross, P. Johnston	
2018/9/21-24	CPC-2018	Univ of Sask	Saskatoon	40	M. Cuggy, G. Mangano	
2019/8/23-25	CPC-2019	UTM	Mississauga	50	M. Laflamme	
2020	-	No CPC held	-	-	-	-
2021	-	No CPC held	-	-	-	-
2022/10/20-21	CPC-2022	Online	VIRTUAL	60	Kimberley Bell, Emily Bamforth, Meagan Gilbert, Brittany Laing	-
2023/10/27-28	CPC-2023	U of T, Mississauga	Mississauga	50	M. Laflamme	-
2024/11/22-23	CPC-2024	Online	VIRTUAL	60	Emily Bamforth, Meagan Gilbert, Brittany Laing, Joe Moysiuk, Michael Cuggy	-
2025/11/21-22	CPC 2025	Online	VIRTUAL		Emily Bamforth, Meagan Gilbert, Brittany Laing, Joe Moysiuk, Michael Cuggy	

Note: There was no Biostrat Seminar in 1972 because it conflicted with International Geological Congress in Montreal

The T. E. Bolton Award

The Paleontology Division of the Geological Association of Canada gives an award to acknowledge excellence in paleontological research by a student through his or her paper presentation at the Canadian Paleontology Conference. Beginning in 1998, the award has been named in honour of Tom Bolton. The first of the Thomas E. Bolton Awards was presented at the Eighth Canadian Paleontology Conference in Collingwood, Ontario.

Past Recipients of the Bolton Award

1998 Christopher Rancourt (University of Toronto) A shallow-water versus deep-water origin for the Collingwood Member of the Lindsay Formation

1999 Paul E. McNeil (University of Calgary) Late Pleistocene fauna from the St. Mary Reservoir, southwestern Alberta

2000 Jennifer Russel-Houston (Dalhousie University) Graptoloid concentration beds from the Cape Phillips Formation, Nunavut, Canada

2001 Matthew Clapham (Queen's University) Community ecology of Ediacaran fossil assemblages at Mistaken Point, Newfoundland

2002 Catherine Boisvert (Redpath Museum, McGill University) Vertebral development and its evolution in modern salamanders

2003 Louise Longridge (University of British Columbia) The Jurassic ammonite *Badouxia* from the Taseko Lakes map area, British Columbia

2004 Tim Fedak (Dalhousie University) New Early Jurassic dinosaurs from Nova Scotia

2005 Stephan Little (University of Alberta) A developmental study of Middle Eocene Princeton Chert: aquatic adaptation of *Decodon allenbyensis* and a new type of bark

2006 Nadia Fröbish (McGill University) Metamorphosis and neoteny – alternative pathways in the life history of branchiosaurids (Temnospondyli)

2007 Emily Bamforth (Queen's University) Network rangids: an early experiment in multicellular life from the Ediacaran of Newfoundland

2008 Pengfei Chen (University of Western Ontario) Functional morphology and evolution of Late Ordovician – Early Devonian orthide brachiopod *Dicoelosia*

2009 Martin Smith (Dept. of Palaeobiology, Royal Ontario Museum & University of Toronto) A redescription of the Burgess Shale animal *Nectocaris*

2010 Matt Stimson (Saint Mary's University) Evidence of fossil horseshoe crabs from Joggins, Nova Scotia: paleoichnology and paleoenvironmental implications

Emily Bamforth (Redpath Museum, McGill University) Ecosystems in stone: determining terrestrial biodiversity drivers in the latest Cretaceous of central North America

2011 Andrew Caruthers (Dept. of Earth & Ocean Sciences, University of British Columbia) The Early Toarcian marine extinction in western North America

2012 Aaron LeBlanc (Dept. of Ecology and Evolutionary Biology, University of Toronto) Histological examination of the dental replacement pattern in the Early Permian reptile *Captorhinus aguti*

2013 Karma Nanglu (Dept. of Ecology and Evolutionary Biology, University of Toronto & Dept. of Palaeobiology, Royal Ontario Museum) Reconstructing the early evolution of enteropneusts in the light of new fossil finds from the Burgess Shale and modern decay experiments.

2014 Trina Du (Redpath Museum, McGill University) Simulated and observed patterns of theropod cranial disparity and chronomorphic evolution reveals lineage-specific shape novelties.

2016 Greer Strothers (Sheridan College) Trends, tropes and speculation in paleoart

2017 Brittany Cheung (Dept. of Ecology and Evolutionary Biology, University of Toronto) Redescription of the Middle Cambrian *Amiskwia sagittiformis* as a stem lophotrochozoan

2018 Brittany Laing (Dept. of Geological Sciences, University of Saskatchewan) The Fortunian fuse for the CambrianExplosion: An ichnologic ecospace analysis of the Treptichnus pedum ichnofossil assemblage zone at the Ediacaran-Cambrian GSSP

2019 Joseph Moysiuk (Dept. of Ecology and Evolutionary Biology, University of Toronto) A new hurdiid radiodont from the Burgess Shale evinces the exploitation of Cambrian infaunal food sources

2020-2021 (No recipients)

2022 Mikayla Rychel (Dept. of Geological Sciences, University of Saskatchewan) Polycotylid plesiosaur ontogeny: A geometric morphometric case study from Late Cretaceous Saskatchewan

2023 Joshua Wasserlauf (University of Toronto) Isotope Paleoecology of Duck-Billed Dinosaurs (Ornithischia: Hadrosauridae) from the Upper Campanian Dinosaur Park Formation

2024 Zaid Qureshi (University of Toronto Mississauga) The Functional Morphology Of A Strange Cambrian Sponge

The Billings Medal

The Billings Medal, established by the Paleontology Division of the Geological Association of Canada, is awarded to an individual in recognition of an outstanding long-term contribution to any aspect of Canadian paleontology or by a Canadian to paleontology. The Billings Medal is named in honour of Elkanah Billings, Canada's first paleontologist.

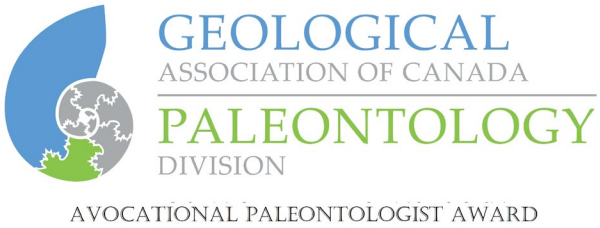
Year	Recipient
2023	Gabriella Mangano
2017	S. George Pemberton
2015	Paul Smith
2013	Godfrey Nowlan
2011	Graham L. Williams
2009	Guy Narbonne
2007	Brian Chatterton
2005	Christopher R. Barnes
2003	Brian Norford
2001	P. Copper
1999	R.C. Fox
1997	T. Bolton
1995	G.E.G. Westermann
1993	A.C. Lenz
1991	R.L. Carroll
1989	E.T. Tozer
1987	C.S. Stearn
1984	L.S. Russell
1980	H.J. Hofmann
1978	G. Jeletzky

Past Recipients of the Pikaia Award

The Pikaia Award is named after Pikaia, an early cephalochordate known from the Burgess Shale. The Pikaia Award is awarded biennially in even-numbered years by the Paleontology Division. It is awarded in recognition of a recent contribution to research on any aspect of Canadian paleontology, or by a Canadian to paleontology that is judged to constitute an outstanding accomplishment in the field. The outstanding accomplishment may be a single paper or monograph or a series of closely related papers. The award will normally go to an individual who is no more than 15 years past their last degree.

Year	Recipient
2024	Allison Daley
2020	Matthew Clapham
2018	Ryan McKellar
2016	Marc Laflamme
2014	Not awarded
2012	Howard Falcon-Lang
2010	Jean-Bernard Caron
2008	Michael W. Caldwell
2006	Nick Butterfield
2005	Not awarded
2004	Jonathan Adrain
2003	Jisuo Jin

Avocational Paleontologist Award



Great discoveries are made, and great things are done by people who have no formal training in paleontology, but are passionate about ancient life, fossils, and the preservation of fossil sites. Whether it is donating a fossil collection to an institution, protecting and/or maintaining a site of paleontological importance, volunteering in fossil prep or outreach, or fundraising to build a fossil museum, avocational paleontologists play a huge role in the Canadian palaeontology community.

The Paleontology Division (PD) of the Geological Association of Canada (GAC) created this new award to recognize the role of avocational paleontology in Canada. This new award will recognize and celebrate the contributions of non-professional paleontologists to the field, helping to send the message that avocational paleontologists of are all ages are important and valued.

2023 Dr. Charles Helm (Tumbler Ridge, British Columbia)

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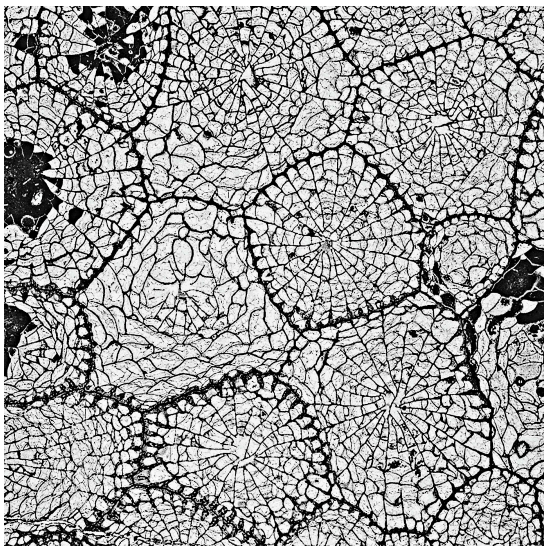
PALAEONTOGRAPHICA CANADIANA No. 41

Cyathophyllid and halliid rugose corals from the Lower and Middle Devonian of western Canada



R.A. McLean

2025

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