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THE SOCIETY WAS INCORPORATED IN 1986

as a non-profit organization formed to:

1. Promote the science of palaeontology through study and education.
2. Make contributions to the science by: discovery; responsible collection; curation and display; education of the general public; preservation of palaeontological material for study and future generations.
3. Work with the professional and academic communities to aid in the preservation and understanding of Alberta's heritage.

MEMBERSHIP: Any person with a sincere interest in palaeontology is eligible to present their application for membership in the Society. Please enclose membership dues with your request for application.

Single membership \$20.00 annually

Family or Institution \$25.00 annually

SOCIETY MAILING ADDRESS:

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Requests for missing *Bulletin* issues should be directed to the Editor. Send changes of contact information to the Membership Director.

NOTICE: Readers are advised that opinions expressed in the articles are those of the authors and do not necessarily reflect the viewpoint of the Society. Except for articles marked "Copyright ©," reprinting of articles by exchange newsletters is permitted, as long as credit is given.

Upcoming APS Meetings

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

Friday, April 21, 2017—Dr. Lisa Bohach, Stantec Consulting Ltd.
The Fossils, Fauna and Flora of Ellesmere Island. See Page 3.

Friday, May 12, 2017—Tetsuto Miyashita, University of Alberta.
*A Wild Chase for a Giant Marine Crocodile
from the Cretaceous of Northern Africa.* See Page 4.

June, July and August, 2017—No meetings. Summer field trips. See Page 6.

Watch the APS website for updates.

ON THE COVER: A tyrannosaur tooth, Dinosaur Park Formation (Late Cretaceous: Campanian), southern Alberta. APS collection, donated by Don Sabo. Catalogue number APS.1986.43. Length of specimen is 22 mm. APS file photo.

2017 Elections Friday, May 12

By Wayne Braunberger, Past President

Election of Officers and Directors to the Board of the Alberta Palaeontological Society will be held at the Annual General Meeting which is scheduled for 7:30 P.M., Friday, May 12, 2017 in Room B108 at Mount Royal University. All Single, Family and Life Members 18 years and older are entitled to vote. Executive positions are one-year terms and directorships are two-year terms. Nominations are being solicited for the following positions:

Officers

President
Vice-President
Secretary
Treasurer

Directors

Program Co-Ordinator
Field Trip Co-ordinator

Continuing directorships are Editor (**Howard Allen**) and Membership (**Howard Allen**). Both positions are entering the second year of a two-year term.

In addition to the elected positions the APS has a number of committee chairs which are appointed by the Board:

Committee	Chairperson	Term
Fossil Collection	Howard Allen	Unlimited
Library	Georgia Hoffman	Unlimited
Public Outreach	Cory Gross	Unlimited
Social	Michele Mallison	Unlimited
Website	Vaclav Marsovsky	Unlimited

Terms begin September 1. If you would like more information about Board positions or are interested in chairing or participating on a committee, please contact Past President **Wayne Braunberger** at (403) 278-5154 or by e-mail: pastpres@albertapaleo.org. All inquiries will be kept confidential if requested. □

Bulletin back issues available on the Web

A complete archive of *Bulletin* back issues from 1986 through 2015 is available to download as PDF files.

www.albertapaleo.org/bulletinarchive.html

Upcoming Events

April

Lisa Bohach

Stantec Consulting Ltd.

The Fossils, Fauna and Flora of Ellesmere Island

Friday, April 21, 2017, 7:30 P.M.
Mount Royal University, Room B108

The high arctic ecosystem of Ellesmere Island is a place of extremes. With 24 hours of daylight in the summer followed by 24 hours of darkness in the winter, average daytime temperatures over the year range from a high of 9°C in July to a low of -33°C in January. Annual precipitation is low, creating a high arctic desert. Limited areas of vegetation grow, bloom and seed out within the short spring and summer, which is compressed into a six-week period. This is an ideal landscape for fossil hunting.

Past ecosystems were vastly different. Much of Ellesmere Island was covered by the ocean during the Cretaceous, leaving behind marine reptile and invertebrate fossils. Ocean levels dropped during the Paleocene along the Fosheim Peninsula, creating barrier island and estuarine environments, followed by delta plains. These strata contain an abundance of plant fossils, including fields of petrified/coalified stumps and compressed, mummified layers of leaf litter. The fossils indicate that a rich, high-arctic forest existed in the Paleocene and Eocene, which persisted



Mummified fossil leaf litter, Ellesmere Island. Photo by Lisa Bohach.



Outcrop exposure of the fossiliferous Iceberg Bay Formation, Ellesmere Island. Photo by Lisa Bohach.

through to the late Pliocene. Evidence of Tertiary animal life is extremely sparse along the Fosheim Peninsula with a better, although still sparse, record farther south in the Strathcona Fiord area.

During the peak of the Quaternary glacial advances, all of Ellesmere Island was covered by ice. The remnants of this continental ice sheet still occur in central portions of Ellesmere Island. Thick regressive sequences of sediment were deposited along the margins of the island during the Holocene. Isostatic rebound lifted the land surface during the early Holocene, leaving the oldest shoreline fossil and archaeological assemblages at higher elevations than their more recent counterparts.

Biography

Dr. Lisa Bohach, Ph.D., P.Geol., earned a B.Sc. degree at the University of Alberta and her Ph.D. at the University of Victoria. Since 2001 she has worked as a palaeontological consultant in Canada, providing assessment and construction monitoring services for industrial development.

May

Tetsuto Miyashita

University of Alberta

A Wild Chase for a Giant Marine Crocodile from the Cretaceous of Northern Africa

Friday, May 12, 2017, 7:30 P.M.

Mount Royal University, Room B108

In 2014, the Italy-Tunisia Tataouine Project discovered a skull and articulated skeleton of a large teleosaurid crocodile from the Lower Cretaceous rocks south of Tataouine, Tunisia. The new teleosaurid, *Machimosaurus rex*, validates skepticism toward some aspects of the end-Jurassic extinction event: at least these marine crocodiles did not go extinct across that boundary. Phylogenetic analysis supports its placement closer to *M. hugii* and *M. mosae* than

M. buffetauti. With the skull length up to 160 cm and an estimated body length of 10 m (or somewhat less), *M. rex* is the largest known thalattosuchian, and the largest known crocodylomorph in its time. This giant thalattosuchian was probably an ambush predator in the lagoonal environments that characterized the Tethyan margin of Africa during the earliest Cretaceous.

Whether the Jurassic-Cretaceous mass extinction was real or an artefact continues to be debated. The discovery of *M. rex* supports that the end-Jurassic crisis affected primarily Laurasian biota and its purported magnitude is most likely biased by the incomplete Gondwanan fossil record. The faunal turnovers during the J–K transition are likely interpreted as local extinction events, triggered by regional ecological factors, and survival of widely-distributed and eurytypic forms by means of habitat tracking.

Biography

Tetsuto Miyashita is a Ph.D. candidate at the Department of Biological Sciences, University of Alberta, under the supervision of **Richard Palmer** and **Philip Currie**. Tetsuto has given talks for APS in the past on early vertebrate evolution, Devonian vertebrate localities of Atlantic Canada, tyrannosaurid systematics, and Jurassic sauropods from China. His research interests include all of the above, plus recently cultivated topics such as dinosaur remains trapped in Cretaceous ambers and developmental genetics of living fish. Tetsuto is a Vanier and Killam scholar, an alumnus of Embryology at the Marine Biological Laboratory, and recently a visiting researcher at California Institute of Technology (2015–2016) and Muséum national d’Histoire naturelle, Paris (2014–2015). □

Program Summary

Clinton Tippet

Shell Canada (Retired)

A visit to the Florissant Fossil Beds, central Colorado

Friday, January 20, 2017

This 15-minute presentation preceded the January featured speaker, Dr. Alex Dutchak, whose abstract appeared in the December 2016 Bulletin.

These classic latest Eocene (34 Ma) deposits are located approximately 50 km west of Colorado Springs, Colorado, high in the Front Ranges. They were laid down with profound unconformity over Precambrian granitic rocks that had been exhumed during regional uplift. Explosive volcanic activity was concurrent with the deposition of the Tertiary sediments and indeed it was the creation of shallow lahar-dammed lakes that provided the catchment for the sedimentary strata. Fossiliferous “paper shales” that entrapped and preserved the finely detailed impressions of life were created by diatomaceous blooms in these silica-rich waters. They are interbedded on a mm- to cm-scale with ash flow tuffs, with the overall fossiliferous package sandwiched between much thicker volcanoclastic units.

Despite being only 2,400 ha in extent with patchy bedrock exposure, over 50,000 museum specimens representing 1,700 species have been recovered, including 1,500 species of insects, 150 species of plants and numerous birds and mammals. Strangely, no reptiles or amphibians have been found to date.

One of the most remarkable aspects of the area is the preservation of massive *Sequoia* stumps—remnants of a warm temperate forest that was killed off when a thick lahar flooded the lake and its surrounding vegetation. There is an active controversy concerning the conditions at the time of deposition. Certainly the climate was different than today—but was this due to regional controls, global change or possibly elevation variations due to uplift and subsidence?

Research into these rich fossil beds began in the 1870s. The Florissant Fossil Beds National Monument itself was created only in 1969 after a period of intense lobbying and court battles. Prior to that time it was private property and subject to destructive scavenging of petrified wood and other fossil remains. It is now home to a beautiful interpretive centre with programs and walking trails. The Park Service operates an intern program and there is an active “Friends” organization assisting with operations. The Monument is host to ongoing research under the direction of Dr. Herb Meyer who was first appointed as permanent palaeontologist in 1994. Interestingly, there is a Peruvian sister site only slightly older (39 Ma) and collaborative research is underway.

The monument is adjoined by a small private commercial fossil quarry where you can try to amass your own fossil collection. Tools and pre-quarried slabs are provided. But don’t find anything too good—the owners reserve the right to keep scientifically-



The "Big Stump," an enormous petrified *Sequoia* tree stump, a highlight of the Florissant Fossil Beds National Monument walking tour. Photo by Clint Tippett.

significant specimens!

For more information, please refer to Special Paper 435 (2008) and Field Guide 5 (2004), both of the Geological Society of America. The internet also contains excellent summaries.

Biography

Dr. Clint Tippett is a retired petroleum geologist based in Calgary. He was employed by Shell for over 34 years. During that time he was able to attend many petroleum industry conventions and to participate in their associated field trip programs. This talk focused on a 2015 excursion during the Denver meeting of the American Association of Petroleum Geologists. □

2017 Field Trips

Planning is underway for this year's trips. For more information please contact Wayne Braunberger at (403) 278-5154 or by email at

fieldtrips@albertapaleo.org. The field trip registration form is included with this issue of the *Bulletin* and is available on the APS website, www.albertapaleo.org/fieldtrips.html. Information will also be available at the monthly meetings.

Please note that all fees are due at the time of registration. Fees for trips are \$10.00. **Non-members and unaccompanied minors will not be allowed to attend field trips. All participants are required to have their membership in good standing. Any membership applications received after May 3, 2017 will not be reviewed and voted on by the Board of Directors until September, 2017. Therefore, if you are a non-member and would like to join be sure your application is received prior to May 3, 2017.** All participants will be required to read and sign a release form (waiver). Detailed information will be provided to all those registered shortly after the registration deadline. **After the registration deadline no refunds will be given; however, you will receive the printed guide for the trip. No late registrations will be accepted.** Registrations are

accepted on a first-come-first-served basis. Sign up early to avoid disappointment.

For the 2017 field trips I will be sending you the waiver and medical forms along with the trip information. This information will be sent to you via e-mail or Canada Post. Please ensure that your address is correct and legible when sending in registration forms. When you arrive at the meeting place please have the forms completed. **All participants are required to have fully completed all waiver and medical forms in order to attend the trip. There will be no exceptions.** All personal information is held in confidence and ultimately destroyed.

Field Trip Participant Responsibilities

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

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

**Trip 2017-1, June 17–18, 2017
Turner Valley area, Alberta**

A trip to the Turner Valley area is planned for Saturday, June 17. At this time the itinerary has not been finalized. It is anticipated that several roadside stops will be made during the day. A tour of the Turner Valley Gas Plant is also tentatively planned. Please note that a small fee is charged for plant tours. We will be carpooling and as there is limited parking at many of the stops the number of participants will be limited. This will be an educational trip with very limited opportunities to collect. A second day trip to different locations may be held on Sunday, June 18. Further information will be on the APS Website.

Registration deadline is June 9, 2017.

**Trip 2017-2, July 15–16, 2017
Location to be determined**

**Trip 2017-3, August 19–20, 2017
Location to be determined**

At this time locations and trip itineraries have not been determined. Further information will be in the June *Bulletin* and on the APS website. □

SVP Conference Registration Open

Registration for the Society of Vertebrate Paleontology conference in Calgary, **August 23–26, 2017** is now open. There are member and non-member prices, plus one-day registration options.

Visit <http://vertpaleo.org/Annual-Meeting/Registration.aspx>.

Deadline for the Early Registration discount is June 12, 2017. □

Parrsboro Rocks Project

By Mona Marsovsky

Parrsboro, Nova Scotia, on the Bay of Fundy, boasts a wealth of fossils from different eras, from the Carboniferous to the Jurassic to the Pleistocene. The rapid erosion of the shoreline by the high tides of the Bay of Fundy has resulted in the discovery of numerous dinosaur and other fossils.

The Fundy Geological Museum (<http://fundy-geological.novascotia.ca>), a Nova Scotia provincial museum located in Parrsboro, tells the story of the geology of the area; however, it does not have the fossil specimens to fully describe the palaeontology. The Parrsboro Rocks Project will incorporate fossils from the Parrsboro Rock and Mineral Shop and Museum into the Fundy Geological Museum.

The Parrsboro Rock and Mineral Shop and Museum was the first rock shop in Canada and is now one of the oldest rock shops in North America. It first opened for business in 1948, owned and operated by Eldon George. Mr. George was a keen fossil hunter from an early age, finding his first fossil at the age of nine. Eldon opened this rock shop when he was only seventeen years old. He is a self-taught field geologist. Eldon has worked with the Nova Scotia museum assisting with the Geology Collection for many years. He made major contributions to palaeontological research as an active citizen scientist. Over more than sixty years of regular prospecting, he has found and accurately documented many fossils, with carefully recorded drawings, maps and notes. Eldon found the “world’s smallest dinosaur

footprints.” These 200 million-year-old tracks were from a juvenile *Coelophysis*, which was the size of a songbird. He also found a 300 million year old fossil of a dragonfly ancestor, *Stenodictya*. Now in his 90th year, Eldon George has donated his collection to the Fundy Geological Museum.

During the first phase of the Parrsboro Rocks Project, from August 2015 to July 2017, Eldon George, museum staff and volunteers will document and inventory the specimens from the Parrsboro Rock and Mineral Shop. In the second phase of this project, some of the items will be exhibited at the Fundy Geological Museum. Other items will be used for interpretive and education purposes, and will be distributed to other regional museums. A few items will be sold at fundraising events to support the goals of the Parrsboro Rocks Project. The Parrsboro Rocks Project will ensure that the important fossils and stories collected by Eldon George stay in Parrsboro. To achieve this goal, donations are gratefully accepted. To donate to this worthy cause, go to <http://www.parrsbororocks.ca> or send a cheque to Fundy Geological Museum, Rock Shop Projects, PO Box 640, Parrsboro, Nova Scotia, B0M 1S0. A Canadian charitable tax receipt will be issued. □

In Memoriam

With sadness, we report the passing of former APS member **Jean Whitely Wallace** at the age of 93, on December 19, 2016, in Austin, TX. Jean was a member of APS from 1986 to 2004, with husband **Emmette Wallace** (d. 1999; *Bulletin*, March 1999). Jean was a good friend of Life Members **Harvey and Steffie Negrich**, who visited her on their snowbird trips to Texas. Our condolences to Harvey and Steffie, and to all of Jean’s family and friends. An obituary is posted at <http://obit.king-tearsmortuary.com/obitdisplay.html?id=1687648&listing=Current>

2017 Clearwater Knap-in

Flint knapping lessons, demonstrations, tools, pot-luck dinner, auction, on-site camping.

Thursday, July 6 – Monday, July 10, 2017
Clearwater College, west of Caroline, AB

For information and registration contact
Russell Thornberry, 1-403-872-4866
russellthornberry@gmail.com

Book Review

By Mona Marsovsky

Articulating Dinosaurs: A Political Anthropology
By Brian Noble, 2016, 408 pages plus references and indices. University of Toronto Press, ISBN 978-1-4426-2705-0 (paperback).

Articulating Dinosaurs is about how humans bring their opinions, biases, viewpoints and assumptions into describing and understanding dinosaurs. The book studies “The Maiasaur Project,” a dinosaur exhibit at the Royal Ontario Museum in Toronto from its design (late 1993 to mid 1995) to its display (July 1995 to 2012).

This book is NOT an easy read about dinosaurs. The author, Brian Noble, associate professor in the Department of Sociology and Social Anthropology at Dalhousie University in Halifax, Nova Scotia, assumes the reader has at least an undergraduate degree in anthropology. The anthropological terms and words invented by the author serve as barriers to understanding. My guess is that the book was written for anthropology graduate students. However, the interviews with the museum visitors, staff and exhibit designers could be informative for those designing dinosaur (or other) displays at museums.

Unless you’re an anthropological scholar, I recommend skipping Chapter 1 entirely. These twenty-five pages waste the reader’s time by describing the contents of the rest of the book in complicated anthropological terms. It has caused at least one reader to give up reading the entire book in frustration. Chapter 2 can also be bypassed, as it is just a summary of the following five chapters. In Chapters 3 to 7 the author describes how the “Great White Hunter,” masculinist, imperialist, white superiority biases of Henry Fairfield Osborn (head of the Vertebrate Paleontology Department from 1891 to 1908 at the American Museum of Natural History in New York) influenced the 1902–1917 display of *Tyrannosaurus rex*. This dinosaur was displayed as a male blood-thirsty killer, slayer of the weak. The author describes the complementary approach taken in the 1912 novel *The Lost World*, written by Sir Arthur Conan Doyle.

The rest of the book (chapters 8 to 16) contrasts the blood-thirsty dinosaur image with the “good mother lizard,” *Maiasaura peeblesorum*, the star of “The Maiasaur Project: The Life and Times of a

Dinosaur.” These pages document the author’s fascinating interviews with the curator, marketing department, multimedia coordinator, exhibit planner, fossil preparators, museum guides and visitors to the exhibit. The interviews highlight how the message of the exhibit was planned, changed due to fiscal constraints and how it was received by museum visitors. Seemingly insignificant parts, such as a small pewter sculpture of the dinosaur that visitors were allowed to touch, had the biggest impact on visitors. The science may have gotten lost along the way, pushed out by the spectacle. The book describes the tension at museums between educating and entertaining. It is unfortunate that the display was removed in 2012; after reading about its development, I wanted to see the actual exhibit.

This book is not for everyone. However, anthropology scholars and those interested in the approaches to displaying dinosaurs at museums may find it a worthwhile read. □

FOUR FOSSILS

By Howard Allen, APS Collection Curator

Another random selection of specimens from the APS collection is up for this installment. Two are Alberta fossils, one is from the opposite side of the globe and one is from “somewhere” north of 60°. Like all fossils, they have stories to tell.

APS.1986.25 (scale bar = 1 cm)

Not one of our most charismatic specimens, this is a fairly large, low-spined gastropod (snail) shell still partly embedded in its matrix of microcrystalline dolostone. Its value to the collection is probably mostly in demonstrating the typically poor state of preservation that is seen in fossils preserved in dolostone. Dolostone is a rock made primarily of the mineral dolomite, $\text{CaMg}(\text{CO}_3)_2$. The rock name itself is a point of contention among geologists, some of whom prefer to call it “dolomite”—same as the mineral name—others insisting on the sensibleness of making a clear distinction between the rock and the material of which it’s composed, citing other precedents: “limestone,” “sandstone,” “claystone,” *etc.* Some of us are just glad that the igneous petrologists didn’t offer an opinion, otherwise it might have been dubbed “dolomitite.”

Whatever you prefer to call it, dolomite in sedimentary rocks is almost always a secondary mineral, replacing the calcite (CaCO_3) that made up an original limestone rock, through the incorporation of magnesium ions. The conversion of limestone to dolostone involves an atomic-level rebuilding of the mineral crystals, resulting in wholesale destruction of the original rock texture, along with any fossils unfortunate enough to get in the way. This is why it’s relatively rare to find decent fossils in dolostone rock formations, which occur in many places in the Rockies. Many of our Devonian reef rocks are



dolostone. If you think about exposures such as Grassi Lakes (near Canmore), you’ll note that most of the fossils are preserved either as off-coloured “ghosts” in the rock, or as empty moulds, where the original calcite fossils were dissolved away from the porous dolostone matrix. Petroleum geologists love it (some of Alberta’s best oil and gas fields are hosted in porous and permeable dolostone formations), but it’s bad news for palaeontologists.

Our specimen somewhat contradicts the foregoing discussion, because the snail shell itself is still calcite. The dolomitization process can be selective. The originally fine grained, porous and permeable lime mud matrix can become preferentially dolomitized thanks to its fine grain size. This speeds the chemical reaction, and matrix permeability lets the magnesium-rich dolomitizing fluids percolate through the sediment. In this setting, larger, denser fossil fragments may remain relatively intact. However, they are seldom unscathed, and our gastropod has a rough, plainly altered surface to which the dolostone matrix is firmly cemented.

The specimen was donated by Life Member **Leslie**

Adler in the early days of the Society. He apparently received it from a third party, which often means—as in this case—that its documentation is sketchy. Our records give its age as Middle Devonian, from “Yukon or NWT,” which covers a pretty big area.

APS.2004.32 (scale bar = 2 cm)



It's doubtful that any fossil betokens a particular period in Alberta's geological history more than belemnites. If you come across an exposure of black shale anywhere in the Foothills or Front Ranges of the Rockies and you see belemnites, you can be assured that you're looking at Jurassic rocks. Although they've been reported from various places around the world in rocks ranging in age from Carboniferous (doubtfully; Clarkson, 1979, pp. 184–186) to Paleogene, in Alberta they occur only in the Jurassic Fernie Formation, and very often in great abundance. Beds packed solid with the bullet-shaped fossils are referred to as “belemnite battlefields” (see the cover of the September 2004 *Bulletin*).

Belemnites are an extinct group of cephalopod molluscs related to the squids and ammonites. Their skeletons consisted of an internal shell, comprising three parts: the guard (the solid, bullet-shaped part we see here—the pointy end was toward the rear); the phragmocone, a short, multi-chambered cone that grew at the wide end of the guard; and the proostracum, a very thin “blade” that projected forward from the phragmocone, perhaps acting as a shield for the animal's belly. The solid parts were all contained in an animal that looked very much like a modern squid. The guard is generally the only part of the skeleton that's preserved; it's solid, build of radially crystalline calcite and would have acted as a counterweight to balance the gas-filled phragmocone that

the belemnite animal used to control its buoyancy. The phragmocone and pro-ostracum were built of very thin shell material and are almost never found as fossils.

Our specimens were donated by **Keith Mychaluk** and were probably collected on a 2004 APS field trip to the Jurassic exposures at Limestone Mountain, in the foothills west of Sundre.



Cross section of a belemnite guard, showing radially crystalline calcite and concentric growth lines; the central cavity, now filled with green (glauconite) sandstone is where the phragmocone would have been. Jurassic “Green Beds” member, Fernie Fm., Alberta. Width = 25 mm. Thin section in author's collection.

APS.2006.29 (Scale bar = 1 cm)



Here's another specimen we inherited from the collection of the late **Hope Johnson** (Tanke, 2011; Tanke, in prep.), the well-known amateur palaeontologist, naturalist and artist from the Medicine Hat area. It's a toe bone from an ornithomimid

(“bird-mimic”) dinosaur. If we consult Hope’s drawings in the 2009 APS book (Fig. 71, p. 112), we see that it compares favourably to the second phalanx bone of digit IV of the pes (hind foot).

Looking at the specimen more closely, we can see some of Hope’s handiwork. The bone was apparently collected in a delicately friable condition and needed repair, as many of the pits and cracks are filled with a chalky white material—probably plaster—most of which has been painted over with a heavy, grey paint. On the bottom (plantar surface; not visible in the photo) is a sample of Hope’s familiar handwriting: “WRC Ornithomimid pes” in ballpoint pen. This puts a modicum of doubt into the locality data recorded in the APS collection catalogue: the locality is recorded as “Red Rock Coulee,” a well-known locality southwest of Medicine Hat. But the “WRC” almost certainly stands for White Rock Coulee, another of Hope’s happy hunting grounds, northeast of Medicine Hat. Its true provenance will probably remain a mystery, but our specimen stands as a valued reminder of this inspiring lady.



APS.1999.22 (Scale bar = 1 cm)

These peculiar little objects would probably challenge the knowledge of many palaeontologists, so we’re lucky to have had them identified by their donor, who once again is **Les Adler**, one of our collection’s most generous benefactors. They are—have you guessed it?—sponges! Les collected these himself, from his native Australia. He reports that they belong to the Class Demospongia, whose skeletons (Clarkson, 1979, pp. 51–53) are composed of siliceous spicules. Most of the demosponges have loosely arranged spicules and fall to pieces after death; our specimens are still intact and hard, leading me to guess that they are probably “lithistid” demosponges, with interlocking spicules forming a rigid structure.

Apart from this fortuitous (for us) property, our

little sponges pretty much conform to the sponge stereotype: little round sacks or balls perforated by fine pores, with a single large hole—the *osculum*—at the top. Sponges make their living by drawing water through the fine pores and sending it out the osculum, thereby filtering edible particles from the water.

Les records that the specimens were collected from the Batesford Limestone, a Miocene formation exposed at “Fyansford Quarry, approx. 5 miles west of Geelong, Victoria, Australia.” Google Earth shows the huge, glaring white quarry, just west of the rapidly expanding suburbs of Geelong, across Port Phillip Bay from Melbourne. According to the Batesford Quarry company’s website, the quarry has produced limestone and sand for over 100 years. It supplied a cement plant at nearby Fyansford until the plant closed in 2001. It’s probably lucky that Les collected these sponge specimens when he did, because by the look of the suburban sprawl visible in the satellite images, the old plant and quarry will be completely overrun by residential properties in a few years. □

APS, 2009. Guide to common vertebrate fossils from the Cretaceous of Alberta. Calgary, 234 pp.

Clarkson, E.N.K. 1979. Invertebrate palaeontology and evolution. George Allen & Unwin, London, 323 pp.

Tanke, D.H. 2011. Hope Johnson LLD (1916–2010): An extraordinary Albertan amateur vertebrate palaeontologist. Alberta Palaeontological Society, 15th Annual Symposium, Abstracts. Mount Royal University, Calgary, pp. 16–26.

Tanke, D.H. (in preparation). Remember me: Hope Johnson LLD (1916–2010)—Now there was a lady! Alberta Palaeontological Society.

Fossils in the News

Calgary Herald online, January 11, 2017

New Burgess Shale fossil discovery helps solve extinct creatures’ identity crisis

Another of the perennial “problematica” of palaeontology that had languished in taxonomic limbo for more than 175 years has finally been given a place on the family tree of life. Hyoliths are small cone-shaped shells found in rocks ranging in age from Early Cambrian to Late Permian. They are common in the Burgess Shale among other places. For years they were pigeonholed into the Phylum Mollusca. Now, a group of researchers led by Dr. Jean-Bernard Caron (Royal Ontario Museum) and University of Toronto grad student Joseph Moysiuk have described specimens from the Marble Canyon locality in Kootenay National Park with preserved

soft-parts, revealing that they are more closely related to the brachiopods. The fossils show remains of a lophophore, a loop of tentacles used as a feeding organ. Lophophores are characteristic of the brachiopods and the bryozoans. See Burgess Shale hyoliths here: <http://www.burgess-shale.rom.on.ca/en/fossil-gallery/view-species.php?id=63&ref=a&> (ironically, this ROM page still has the hyoliths questionably assigned to the mollusca). The paper (paywalled) describing their results is here: <http://www.nature.com/nature/journal/v541/n7637/full/nature20804.html#>

Calgary Herald online, January 12, 2017

Canada returns two 200 million-year-old marine fossils smuggled from China

This article documents cases of smugglers caught with illegally exported Chinese fossils, including two that were uncovered in Alberta. In a 2009 case, a fossil fish (*Saurichthyes*, Triassic, from Guizhou Province) was caught in Edmonton, being imported as a “stone carving.” A fossil ichthyosaur (also Triassic, from Anhui Province) was intercepted in Calgary in 2013. Both specimens have now been returned to China. Just last year (2016) a BC man was caught trying to flog dinosaur fossils at a gem and mineral show in Arizona. Another repatriation of fossils, 35 fossils of various types from Liaoning, took place in 2010. <http://www.calgaryherald.com/technology/> (search the title).

University of Texas at Austin news release, January 25, 2017

Exceptionally preserved Jurassic sea life found in new fossil site

Alberta is home to another Burgess Shale-type fossil deposit, but this one opens a window into the Jurassic seas. Researchers from Harvard, Virginia Tech and Florida State University have been excavating a new “Konservat-Lagerstätte”—a rare fossil deposit that preserves soft-tissues—in the Fernie Formation at the Yahatinda Ranch. This was the venue of a recent APS field trip (*Bulletin*, September 2014). While our field trip revealed fossils typical of the Fernie Fm. (ammonites, belemnites), the US researchers lucked onto a number of soft-bodied remains: shrimp, squids, lobsters, fish, and parts of ichthyosaurs. The only other Lagerstätte sites known from Lower Jurassic rocks are all in Europe. <http://www.jsug.utexas.edu/news/2017/01/exceptionally->

[preserved-jurassic-sea-life-found-in-new-fossil-site/](http://www.jsug.utexas.edu/news/2017/01/exceptionally-preserved-jurassic-sea-life-found-in-new-fossil-site/). Open-access paper available here: <http://geology.gsapubs.org/content/early/2017/01/09/G38808.1.abstract>

University of Rochester news release, December 16, 2016

New prehistoric bird species discovered

Remains of a Late Cretaceous fossil bird that represents a new genus and species have been found on Axel Heiberg Island in the high Arctic. The fossils include three bone fragments from the wing of a bird they’ve named *Tingmiatornis arctica*. It was like “a cross between a large seagull and a diving bird like a cormorant, but likely had teeth,” according to team leader John Tarduno. Along with other fossils found in the area, the discovery suggests that the climate here during the Turonian age (about 90 million years ago) was equivalent to modern northern Florida, with probably no ice at any time of the year. <http://www.rochester.edu/newscenter/new-bird-species-discovered-205692/> The research paper is open access: <http://www.nature.com/articles/srep38876>

CBC News online, January 25, 2017

“A cross between a hallucinogenic dream and your worst nightmare”: Rare dinosaur prints found in BC

A team led by Richard McCrea of the Peace Region Palaeontology Research Centre, in Tumbler Ridge, has announced the discovery of unusual dinosaur tracks at a new site in the Gething Formation (Lower Cretaceous) of northeastern BC. The footprints preserve the traces of a large theropod dinosaur with four—rather than the usual three—functional toes. This is a first for tracksites anywhere in the world. Dr. McCrea thinks the tracks were made by a therizinosaur, a strange and poorly-known type of theropod that he describes in the evocative terms quoted in the article headline. Work at the large Six Peaks tracksite, west of Hudson’s Hope, is ongoing and promises to reveal even more surprises. The article includes links to a video and a radio interview with Dr. McCrea. <http://www.cbc.ca/news/canada/british-columbia/a-cross-between-a-hallucinogenic-dream-and-your-worst-nightmare-rare-dinosaur-prints-found-in-b-c-1.3952479> □

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