



Bulletin of the MPE

The exhibition "Québec: a sea of fossils" returns to Montréal



After spending three summers (2014-2016) at the Musée québécois d'archéologie de Pointe-du-Buisson near Beauharnois, Québec, our exhibition on the Ordovician fossils of the St. Lawrence Lowlands returns to Montréal. It is open from September 9 to January 7 at the Maison de la Culture in Pointe-aux-Trembles at 14001 Notre-Dame Street East. Admission is free.

Its presence in the network of the City of Montreal's cultural centres should increase its visibility considerably. You will notice that since the first presentation of this exhibition back in 2011 texts and graphics have been reviewed and improved by professionals and new fossils have been added, thanks to the donations and legacy of our friends sadly now deceased.



"Québec: a sea of fossils" (cont.)



Left picture: the introductory panels illustrating the basics of the topic. A large limestone slab filled with fossils that visitors can touch opens the exhibition.
Right picture: in the back, the new panels on the Mingan Archipelago, and on the right, the Frank Habets trilobite collection.

A partnership with the Mingan Archipelago National Park Reserve

A section has been added to the exhibition, which features fossils from the Mingan Islands region. Two panels with display cases explain the geology and paleontology of the Mingan Archipelago National Park Reserve (MANPR), which is part of the Parks Canada network. Produced in collaboration with the MANPR, these panels fill an important gap in our exhibition. In addition, the MANPR has lent us several fossils representative of their region. This represents a new and important partnership for the MPE. We await great numbers of you. Do not hesitate to encourage your friends to come too: they will be impressed.

J.-P. G. and M. C.



Left picture: the two new panels introducing the geology and paleontology of Ordovician rocks found at the Mingan Archipelago National Park Reserve.
Right picture: some of the fossils that Parks Canada has lent us to accompany the panels.

Donation of the Concordia University paleontological collection

During the spring of 2017, Concordia University donated to the MPE a collection of fossils that was used in teaching geology. It should be noted that this university, located in Montreal, closed its geology department in 2003. In recent years, the University had disposed of its minerals and economic geology collections. They still had their paleontology collection.

A member of the Museum, notorious for his generosity and sense of propriety, Professor Michel A. Bouchard, is to be thanked for putting us in touch with Concordia's Department of Geography, which was then in charge of the collection. Most of the donation consists of a taxonomic collection with probably more than 5000 specimens (this figure is provisional, since there are 2621 samples, which in many cases contain several fossils). The specimens are all well preserved, identified and well documented geographically and stratigraphically. The MPE will catalog this collection while preserving it as an entity in its own right, since it is a taxonomic collection, unlike that of the MPE, which is locality and geological age based. The MPE has signed an agreement with Concordia University to preserve the integrity of this collection and to give priority to the University in borrowing specimens for teaching purposes. Other samples not included in the main inventory remain to be cataloged.

J.-P. G. and M. C.



Picture top left: the whole collection installed in the laboratory of the MPE.

Picture top right: a drawer with trilobite fossils.

Picture bottom left: a cabinet with specimens of brachiopods, ammonites and other cephalopods.

Picture bottom right: a cabinet with specimens of crinoids and sea urchins.



The ACFAS congress at McGill University

At the end of the summer of 2016, we felt like making a new symposium at the annual Association francophone pour le savoir (ACFAS) congress, like the one we had in 2014 at Concordia University (see issue of August 12th 2014). We therefore undertook all the procedures for organizing a symposium and on the 10th, 11th and 12th of May 2017 everything was ready, including coffee breaks. The 2017 ACFAS Congress was held at McGill University. This time, instead of a theme, we chose a very broad title: "Views on the history of life and the biosphere". The aim was to bring together as many people as possible with research subjects containing the word "paleo".

Three days were planned for the symposium: one for a museum session and two for scientific sessions. Twenty-four scientific lecturers were expected, but at the last minute, 4 withdrew, which was not excessive, particularly as one of them was able to have his lecture given by another participant. We had been spoiled in 2014 when only 2 people had cancelled.



Left picture: Lyna Lapointe-Elmrabti talks about her cataloging experience of the Allen Petryk collection at the MPE. Center photo: Cynthia Deschênes, a student of Richard Cloutier (UQAR) presents her work on the Devonian Placoderm fish fossils of New York. Right picture: François Therrien of the Royal Tyrrell Museum of Paleontology discusses the extinction of dinosaurs and other vertebrates at the end of the Cretaceous.

The surprise was that Richard Cloutier and his students and ex-students came *en masse*: 8 people in all came from Rimouski and Miguasha, compared to just one in 2014. Some researchers returned: Pierre Richard, Richard Léveillé, François Therrien and Michelle Drapeau. Several new ones came. In the late afternoon of May 10, Richard Cloutier spoke to us of the intellectual evolution of Charles Darwin; his lecture was followed by a "5 à 7", or happy hour, at the "Espace Radio-Canada" area set up at McGill University. On the evening of the 11th there was another "5 à 7", this time including a visit to the MPE's Laboratory of conservation and research on rue de la Congrégation in Montréal. J.-P. G.



Between oral presentation sessions, lively discussions and exchanges took place. Such symposiums, where researchers from different fields meet, often allow them to establish links that would otherwise not occur.



A general public lecture was given by Professor Richard Cloutier. It was entitled "Darwin and Fossils: Old Ideas, New Facts." Again, it was a full house.

The Pierre Groulx fossil collection donation

On February 9, 2016, Pierre Groulx left us. A long-time friend of the MPE, he had made numerous fossil donations in recent years. He was a private collector who made his passion his livelihood. He had traveled around the world several times to buy or exchange fossils and thus built a universal collection. In addition, he had learned to make casts and his collection contained several beautiful castings that he had made himself. Following his death, his family decided to donate his collection to the Musée de paléontologie et de l'évolution. This collection, comprising more than 400 specimens, is divided into two parts: one of which is international, with superb specimens of all ages and provenances, of inestimable value for the planning of exhibitions.



Top row: *Pleurocytites squamosus*, Ordovician cystoid, Ontario; *Maginitia labracoides*, plane tree leaf, Eocene of Utah, USA; *Macroelongatoolithus xixiaensis*, theropod dinosaur egg (possibly *Oviraptor*), Upper Cretaceous, China.

Middle row: *Euaspidoceras*, Upper Jurassic ammonite, Madagascar; cf. *Protospaleaster*, starfish, Ordovician, Morocco; *Stylemys nebrascensis*, Oligocene tortoise, South Dakota, USA

Bottom row: *Majungatholus*, dorsal vertebra of a theropod dinosaur, Upper Cretaceous, Madagascar; our friend Pierre Groulx, in the field, marking trace fossils of the Potsdam sandstones.



The Pierre Groulx fossil collection donation (cont.)

The other part of the collection, more bulky, consists of nearly a hundred blocks of sandstone preserving trace fossils from the Potsdam Group (Cambrian) from the Valleyfield region of Québec. It constitutes a real scientific heritage of great importance. This part of the collection contains, according to some colleagues with whom Pierre carried out research on the subject, several ichnotaxa new to science. Patrick R. Getty (Collin College, McKinney, Texas), James W. Hagadorn (Denver Museum of Nature and Science), Mario Lacelle and Paul Racicot (Montreal area avocational paleontologists) are the ones who will proceed to describe these specimens in peer-reviewed journals. Pierre had already taken part in scientific publications on the subject. An interesting detail: a few years ago, Pierre went to collect in northern Mali, very shortly before the present war began. He donated many fossils to us that he had collected then.

J.-P. G. and M. C.



Picture top left: *Climactichnites*, trace fossils (part and counterpart) left by molluscs; top right: *Protichnites*, trace fossils left by an arthropod; bottom left: cf. *Protichnites*, trace fossils left by an arthropod; below, in the center: *Climactichnites*, trace fossils left by a mollusc; bottom right: small indeterminate trace fossils. The specimens are all from the Beauharnois region of Quebec and are of Upper Cambrian age, Potsdam Geological Group.



Promotional video —« Je fais Mtl »

We announced a year ago that we had won a \$ 5000 prize to help us make a promotional video in the "*Je fais Mtl*" contest, thanks to your many votes. Well! The shooting of the video is now completed and we are in the final phase of the editing. Only the relative inactivity during summer slowed down the finishing work. This film, produced by Maxime Pilon-Lalande (www.contrastes.ca) and his colleagues, will be very useful during the coming fundraising campaign for our future exhibition at the Montréal Biodôme. J.-P. G. and M. C.



Our new Web site

In the course of the winter, the address www.mpe-fossiles.org has been replaced by www.mpe-fossiles.net and the site has been extensively redesigned. It now has a better architecture and most importantly, it is online. The computer problems that undermined the old web site are things of the past and we can now easily communicate with you. In addition to learning more about the MPE, you can also become a member (<http://mpe-fossiles.net/adhesion/>) and make a donation (<http://mpe-fossiles.net/donner/>). New photo galleries have been added, including one for the Christine Cadoux Collection showing fossils from France (<http://mpe-fossiles.net/la-collection-christine-cadoux-fossiles-provenant-de-france/>), and the Pierre Groulx Collection (<http://mpe-fossiles.net/la-collection-pierre-groulx-fossiles-du-monde-entier/>), an important donation received last year and described on pages 5 and 6 of this bulletin. In addition, a word cloud can be used to search for fossils by keywords. Please note that the translation is not finished, but we hope to have that done before year's end.



J.-P. G. and M. C.

24 hours of science

The abundant spring rains, together with the fact that the water pumping began very late at the ForTerra brickyard (formerly known as Hanson) in La Prairie, Québec, meant that the annual "24 hours of science" event could not take place as usual in early May. We rescheduled the event in October and several people have expressed interest. We must remember that visiting this quarry during the summer is not recommended, given the great heat. We encourage you to come during the fossil dig this fall because the brickyard is threatened by closure for an extended period and this may be the last time we can organize a group visit there for a long time.

J.-P. G.

Canada Summer Jobs 2017

Again this year, we received a grant from Canada Summer Jobs for hiring a student. This time it was Léa Peter who helped us in the cataloging of the collections. Last winter, Léa completed her bachelor's degree in geography at the University of Montreal and this autumn she will begin a master's degree in geography as well, under the direction of Olivier Blarquez. During the summer, Léa, and our director and manager of the laboratory, Mario Cournoyer, both cataloged the fossil donations from Messrs Pierre Gonin and Dave Sangster. Also, Léa pursued the numbering of specimens. It should be noted that despite all our efforts, the collection remains half-cataloged. This is due to the generosity of our members and friends who keep sending us more. We hope that their generosity will make it impossible for us to catalog everything. And it will give interesting work for students throughout a whole geological period! Here are some figures: we have cataloged, to date: 11 773 samples containing a total of 38 695 specimens, grouped in 1175 accessions. In addition, 290 locations are described in the database, mostly located in Canada.

J.-P. G. and M. C.



Left picture: Léa Peter entering information regarding donated specimens, in this case a small collection of pyritized ammonites from France. Right picture: all around Léa are the many boxes of fossils that are part of a donation given by Pierre Gonin, in 2014. The cataloging work is slowed down by the fact that it is mainly done during the summer season when students are hired. Nevertheless, work is progressing.

Société de paléontologie du Québec

Really sad news for many avocational paleontologists in Montreal and in the Province of Quebec was announced during the winter of 2017, when the Société de paléontologie du Québec (SPQ) ceased to exist due to a lack of new members. The SPQ was founded in Montreal in 1991 when members of the Montreal Mineralogical Club left the club's palaeontology section to form a new organization devoted solely to this science. It should also be noted that several members of the MPE were founding members of the SPQ.

The SPQ owned fossil collections received through donations over the years. They were also the owners of "Félix le béluga", a fossil beluga skeleton discovered back in the early 2000s at Saint-Félix-de-Valois. The latter, which was exhibited at the Montreal Biodome, was transferred to the Marine Mammals Interpretation Center in Tadoussac. Members of the SPQ who were responsible for dissolving the organization decided to transfer the fossil collections to the MPE. Among the specimens received are several marine mammal bones from the Champlain and Goldthwait seas. Over the next few months we will show you some of these fossils.

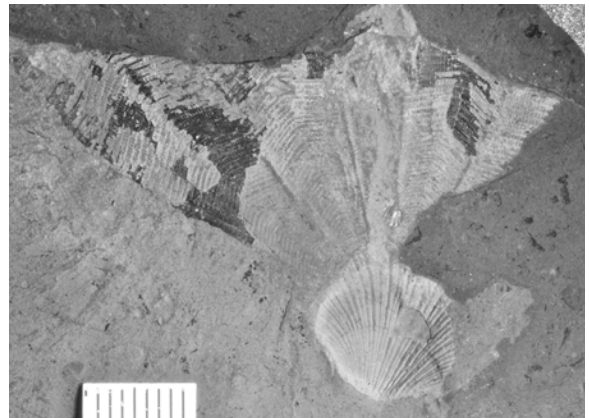
M. C.

Visit at the laboratory, from the United States and from China!

In early July 2017, we were visited by Professor Heyo Van Iten, who came to consult our Ordovician conularid fossils from Ontario. Why this keen interest in our fossils? Simply because they are in association with brachiopods, demonstrating that conularids, when alive, were anchored on brachiopod shells. These are the best known examples so far showing this phenomenon, and they help to better understand the way of life of the conularids. Heyo spent the day inspecting the brachiopods shells and valves, which served as substrate for the conularids. We are attempting to determine whether the conularids were attached to the brachiopods when these were alive or onto isolated valves of dead brachiopods.



Picture at the top left: Dr. Maoyan Zhu (left) and Professor Heyo Van Iten (right), inspecting specimens of conularids in association with brachiopods. Picture at the top right: Lively discussions about the various scenarios of lifestyles of the conularids who were attached to brachiopods. Picture at the bottom right: specimen MPEP368.25 showing an association between two conularids (triangular shells) attached to a brachiopod.



During his visit, Heyo was accompanied by Dr. Maoyan Zhu, from the Nanjing Institute of Geology and Paleontology, Chinese Academy of Sciences. Maoyan, was arriving from Newfoundland where he had just participated in the international symposium on the Ediacaran-Cambrian transition. He is interested in the origins of life and its early evolution. He also has a special interest in problematic life forms. Maoyan was very impressed with the organization of our laboratory, knowing that the MPE does not receive any subsidy to maintain the curation of our collections. He was also very impressed with the support that the MPE receives from researchers, including our research library that was built with many donations, conservation equipment, and so on. He took the opportunity to consult our Paleozoic conularid specimens because he is working on an oxygen isotope analysis project, the results of which will allow him to determine the temperature fluctuations during the lower Paleozoic. He therefore left with samples of some of our specimens for these analyses.

Maoyan will talk to his colleagues about our museum project, upon his return to China. He wants to cite the MPE as an example of an emerging citizen palaeontology museum project, and would like to eventually invite our director to China to explain the progress of the MPE.

M. C.

Visit at the laboratory (cont.)

On November 9, 2016, Dr. Robert Feranec came to visit our laboratory. Robert is curator of Pleistocene vertebrate fossils at the New York State Museum in Albany and is working on a research project describing the history of the invasion of marine mammals in the Champlain Sea. He was looking for specimens of vertebrates from the Champlain Sea on which he could carry out 14C datations. At the suggestion of Dr. Richard (Dick) Harrington of the Canadian Museum of Nature, he contacted us asking for permission to sample our vertebrate fossils.



Picture above: Robert Feranec preparing to take a bone sample for future 14C dating on a whale vertebra associated with the Daveluyville whale. Right picture: A vertebra from a beluga whale is about to be sampled by Robert. This fossil was discovered during the 1990s by Jean-Marc Morin, a famous collector from Saint-Césaire who specialized in the search for Champlain Sea fossils. At last, we will know the age of this fossil!

Readers are reminded that the MPE maintains an important collection of vertebrate fossils from the Champlain Sea from Saint-Nicolas, Québec: more than 300 bones collected during the past 23 years. Moreover, with recent donations (notably from the SPQ, Prof. Cyrille Barette (Université Laval), and others), the MPE has several bones of vertebrates from the postglacial seas of Quebec in its collections. This allowed Robert to take other samples for 14C dating, expanding the scope of his project to include not only marine mammals but also birds. For now, the datings will be compiled and after analysis will be published. During his visit, Robert took a dozen samples, and will return next year for more. Until now, the MPE had only two specimens that had undergone 14C dating, but with Robert's project, these numbers will explode!

M. C.

Lab on cladistics

During the winter session of 2017, the MPE laboratory received two groups of students doing their bachelor's degree from the Department of Anthropology at the Université de Montréal, to do an exercise on cladistics. Michelle Drapeau, a professor at the department and a member of the MPE, suggested doing this exercise at our laboratory using fossils other than hominids. With good reason, anthropology students normally use hominid specimens (or casts), fossil or modern, to learn more about the anatomy and evolution of a fossil group. This time, Michelle proposed using other types of fossils, in this case trilobites, to carry out this exercise on cladistics, which is the method of systematic classification of living beings according to their evolutionary relationships.

Obviously, in a simple exercise such as this, it was impossible for the students to arrive at tangible results, given the complexity of the subject and the limited time available. The ultimate goal of this exercise was to allow students to make anatomical observations on a group of animals they are not familiar with and to report on a grid, the features recognized for different species of trilobites. Once this work was completed, the data were transposed into a software that produced a cladistic analysis (a summary classification according to the data collected). According to Michelle, these sessions were a success, enabling students to learn more about methods of collecting anatomical data on real specimens and cladistic analyzes..

M. C.



Two groups of students work at recognizing the different anatomical features on trilobite fossils for their cladistic analysis grid. They were soon confronted with the harsh reality of observing anatomical details on real fossils. Each specimen of trilobite represents an individual in its own right, with its own degree of preservation. Although there was more than one example of the same species, the students soon realized that the fossils did not always preserve all the elements of their shell or that they were often distorted, thus complicating the collection of data.

Exhibition at the Montréal Biodôme

Following the visit of Mr Charles-Mathieu Brunelle, Director of *Espace pour la vie*, Mr Pierre Lacombe, Director of the Rio-Tinto-Alcan Planetarium and Ms Rachel Léger, at the MPE's Laboratory in March 2015, many things have happened concerning the future temporary exhibition project at the Biodôme. Some have progressed, others have slowed down, or even stopped temporarily.

Our planned temporary exhibition project at Espace pour la vie would serve four purposes: 1) to promote our museum project; 2) to make paleontology, particularly that of Quebec, better known; 3) to measure the public's interest in the birth of a new museum in Montreal that would address paleontology and evolution; and 4) to accumulate "votes" for this future museum. The exhibition was scheduled to open once the renovations at the Montréal Biodôme were completed by early 2018.

During the year 2016, members of the MPE, as well as people from the Montreal Biodôme attached to the exhibition project, worked on an exhibition concept. The project was led by Etienne Paquette, conceptor, and the design firm "La bande à Paul", who have often collaborated on projects at *Espace pour la vie*. After several weeks of consultations, meetings and exchanges of ideas, we arrived at an original exhibition concept, which would surely attract attention. In September 2016, we were about to launch our fundraising campaign for the development of the exhibition, but news of the halting of the Biodôme's renovation work brought the project to a standstill until we knew when work would resume and were given a re-opening date for the Biodome.

We now know that the work at the Biodôme will finally begin in early 2018 and that its reopening will take place in 2019, so we will be able to begin planning our major fundraiser for the exhibition. We have to raise at least \$ 280,000, as this exhibition will feature multimedia and design elements that will make it a very dynamic experience.

Unfortunately, we cannot show you much about the concept of the exhibition, but we will unveil it at the launch of the fundraising campaign, which will start in early 2018. Never fear we will solicit you and keep you informed of the progress of this superb project that will put the Musée de paléontologie et de l'évolution in the limelight. M. C.



Sketch taken from the concept of exhibition planned for the reopening of the Biodôme in 2019. We will not say more, wanting to stir your curiosity. We're going to announce everything early in 2018.

Paleontological Research Institution

There is a very interesting museum of natural history in Ithaca, New York, 100 km south of Syracuse, called "Museum of the Earth" (<https://www.priweb.org>). We had thought of visiting it, but it was a non-priority project until a colleague of Jean-Pierre Guilbault in Washington suggested we go, since the director, Warren Allmon, was a friend of his. As soon as we had the opportunity, we (Mario C. and Jean-Pierre G.) made an appointment with the members of the management, since there was no longer any question of going there just as tourists.

Ithaca is a small town (~ 50,000 inhabitants) known for its great university: Cornell. Associated with this university is an organization devoted to paleontological research: the Paleontological Research Institution (PRI). In the 1990s, the PRI, which until then was only oriented towards the academic world, decided to establish the Museum of the Earth, a public museum with a strong emphasis on paleontology and stratigraphy.



The room on the Devonian Period at the Museum of the Earth. The State of New York contains a large quantity and diversity of fossils from that period.

Excluding reserves and laboratories, the exhibition space is just over 8,000 square feet. The Museum of the Earth contains relatively little technology and may seem rather conventional. However, the art is to show the right fossil at the right time and in this, it is successful. The texts are relatively short: their museologists bring all the texts down to a maximum of about 50 words, which does not prevent the message from getting across. Unlike the ROM, which attempts to be universal and to eliminate any Ontario links, the Museum of the Earth, while universal in its content, shows a clear bias toward New York State and even more to the Devonian of this state, the city of Ithaca being built on Devonian rocks. This of course facilitates outdoor activities, excursions, etc., and the integration of the institution into local life.

Paleontological Research Institution (cont.)

Warren Allmon and his assistant Robert M. Ross gave us a complete tour of the premises and introduced us to key people in the institution. We then discussed problems they had encountered in the creation of the museum and the solutions they had arrived at. It soon became apparent that their problems were similar to ours, and that their solutions were also similar. On the question of how many specimens we possess (this is essential when we are soliciting funds), it turns out that our way of calculating is realistic and widely used by all museums. We can honestly announce that we curate 70 to 80,000 specimens without being charged with exaggeration, while the PRI has ... 2 to 3 million. The extensive PRI collection, maintained by Leslie Skibinski, has come from academic and industrial sources over several decades and contains reference material including holotypes. The scientific value of this collection means that its curation is funded by annual grants from the National Science Foundation.



Warren D. Allmon
Director of PRI



Robert M. Ross, Associate Director
of Public Outreach



Leslie Skibinski (right) discusses the PRI's collection with Jean-Pierre Guilbault.

When the Museum of the Earth was established in the 1990s, Warren and Rob and the other founders made extensive use of local funding either through solicitation of businesses, organizations, etc., or through public fundraising. They think that the vast population of the Montreal area should make our job easier compared to them in their small, though very academic town.

J.-P. G.

Descriptive card of the specimen

Specimen number: MPEP969.2
 Genus and species: *Alethopteris* sp. (leaves) and
Calamites sp. (stems)
 Identification : Slab with many plant fragments
 Age: Upper Pennsylvanian
 Lithologic unit: Llewellyn Formation
 Locality: St. Clair, Pennsylvania, USA

Pierre Groulx gave us several specimens of this classic among fossil plants. St. Clair is located in an area where anthracite was mined. Anthracite is a coal that has undergone a slight metamorphism: in fact, it must be understood that it is the entire formation, including shales, siltstones, etc., as well as the plant fossils that have undergone metamorphism. The slab we see here is not coal, but shale with plant fossils. Initially carbon-rich, plant remains were largely replaced after pyrite burial, and then, under the effect of metamorphism, that is, under the combined effect of heat and pressure, pyrite has been replaced by kaolinite, and finally pyrophyllite, which gives it this whitish color which contrasts with the black background. Here we have an example of complex fossilization where the initial substance of the organism has been successively replaced by different minerals, while preserving its original form. More than 100 species have been recorded in this formation, mostly plants and some insects, the most common being *Neuropteris*, *Alethopteris* and *Sphenophyllum* although we also see in this picture two stems of *Calamites*.



Memberships

Just as at the beginning of every year, we wish to inform you that your membership must be renewed. Attached to this newsletter, you will find a copy of the membership renewal form. Remember that you can also make a donation; the Museum is a charitable organization duly registered with the Canada Revenue Agency (No. 890282445RR0001) and therefore authorized to issue receipts for income tax purposes.

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