2016 Annual ROM Research Colloquium

Program - February 23, 9am to 4:30pm

9.00-9.15am
Introduction by Mark Engstrom, Interim Director & CEO
Sessions chaired by Chen Shen, Interim Deputy Director, Collections & Research

9.15-10.15am - **Natural History in the Field**

Jean-Bernard Caron, Curator of Invertebrate Palaeontology
- Madame *Waptia*; first evidence of broodcare from the Burgess Shale

Burton Lim, Assistant Curator of Mammalogy
- Tropical paradise for bats but not many other mammals: biodiversity and extinction in the Caribbean

Hernán López-Fernández, Curator of Ichthyology
- From fossils to genomes: building the tree of life and the timeline of evolution in a modern museum

Simona Margaritescu, Technician of Mycology
- A comparison of fungal diversity between temperate and tropical regions

10.15-10.45am - **Break**

10.45-11.45am - **Natural History in the collections/lab**

Oliver Haddrath, Technician of Natural History & Mark Engstrom, Interim Director & CEO
- Preliminary report on the Blue Whale Genomes: Evolution and historical population dynamics of the largest species that ever lived

Sebastian Kvist, Associate Curator of Invertebrate Zoology
- Using evolutionary genomics and phylogeographic analyses to guide potential conservation efforts of the North American medicinal leech, *Macrobdella decora*

Tim Dickinson, Curator Emeritus of Botany
- Testing phylogenetic hypotheses concerning hybrid hawthorns with next-generation DNA sequence data

David Evans, James and Louise Temerty Chair of Vertebrate Palaeontology
- The ROM Triceratops Project

11.45am - 1.00pm **Lunch (on your own)**

1.00-2.00pm **Panel Discussion: *Climate changes culture changes climate***

How do the fields of ecology, law, policy and archaeology intersect around the topic of climate change? What were the key findings from the Paris Climate talks in November 2015, and what does future multidisciplinary research look like?

Featuring:

Rowan Sage, Ecology and Evolutionary Biology, University of Toronto
Jutta Brunee, Faculty of Law, University of Toronto
Doug Currie, Curator of Entomology, Royal Ontario Museum
Chen Shen, Curator of East Asian Archaeology, Royal Ontario Museum

Moderated by:

Sascha Priewe & Dave Ireland, Managing Directors, Royal Ontario Museum

2.00-3.00pm **World Cultures in the collections/lab**

Laura Lipscei, Senior Conservator, Ceramics, Stone and Glass

- The Real Deal? Investigation the Mysteries of a Zapotec Urn in the Royal Ontario Museum

Paul Denis, Assistant Curator of Greek, Etruscan, Roman & Byzantine

- Beautiful money

Peter Kaellgren, Curator Emeritus, European

- Biblical Admonitions on Early English Pottery

Ken Lister, Assistant Curator of Anthropology

- “a lot of damned curios”: Robert Flaherty’s Proposal

3.00-3.30pm **Break**

3.30-4.30pm **World Cultures in the field**

Silvia Forni, Curator of African Cultures

- Competitive iconography: Asafo Imagery from Festivals to the Art World

Justin Jennings, Curator of New World Archaeology

- How to create a sacred site in Pre-Columbian Peru: Lessons from Quilcapampa

Ed Keall, Curator Emeritus, Ancient & Islamic Near East

- Warlord on the Silk Road. A ROM archaeological project in Iran

Alexandra Palmer, Senior Curator, Nora E. Vaughan Fashion Costume Curatorship

- Introducing the man in draped clothing: Raymond Duncan (1874-1966)

4.30 **End with opportunity to continue discussions**

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7.00-8.00pm **2016 Annual Vaughan Lecture (separately ticketed event)**

David Rudkin, Assistant Curator of Invertebrate Palaeontology

- From the mountains of British Columbia, to the Newfoundland coast, to the shores of Hudson Bay - David Rudkin shares a first hand account of exploring Canada's extraordinary reord of ancient life.

[link to registration - https://www.rom.on.ca/en/whats-on/2016-vaughan-lecture]

8.30pm and onward - **Informal reception at Duke of York**

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2016 Annual ROM Research Colloquium

Full Speaker Abstracts

Jean-Bernard Caron, Curator of Invertebrate Palaeontology

- Madame *Waptia*; first evidence of broodcare from the Burgess Shale

The origin and evolution of brooding is poorly known. Here I describe eggs with preserved embryos of the arthropod *Waptia fieldensis* from the middle Cambrian (ca. 508 mya) Burgess Shale, Canada. This discovery suggest that a carapace might have played a key role in the early evolution of brooding strategies during the Cambrian explosion.

Paul Denis, Assistant Curator of Greek, Etruscan, Roman & Byzantine

- Beautiful money

Today we know the names of many of the artists and die engravers who designed our currency. However, we only know the names of a very few of the engravers who created the coins used in antiquity. For example, between 425 - 390 BC, the die engravers in the Greek city of Syracuse on the island of Sicily proudly signed their coins. They produced some of the most beautiful money ever minted.

My talk will briefly discuss these Syracusan engravers, especially the artist Kimon. His name appears on a silver dekadrachm that was recently acquired by the ROM through the generosity of the Mona Campbell Endowment Fund.

Tim Dickinson, Curator Emeritus of Botany

- Testing phylogenetic hypotheses concerning hybrid hawthorns with next-generation DNA sequence data

Hawthorns are shrubs and small trees with thorns, and small apple-like fruits in which the seeds are enclosed in little wooden containers, much like peach or cherry pits. It's only recently that it has become apparent that many of the hawthorns found in North America are probably hybrids. Data from DNA sequence variation have suggested that this is the case, but the evidence has been limited, up to now. So-called "Next-generation" DNA sequencing (NGS) can change that, because of the much greater number of gene sequences that are made available. The challenge that hawthorns present is that hybrids by definition incorporate multiple genomes from more than one species. In the welter of data provided by NGS methods, how is the researcher to know which sequence represents which parent? We suggest a method by which this can be done, and demonstrate it with data from hawthorns whose relationships we think we already understand.

David Evans, James and Louise Temerty Chair of Vertebrate Palaeontology

- The ROM Triceratops Project

The three-horned plant-eater Triceratops is one of the most recognizable dinosaurs, but relatively complete fossil skeletons are very rare. Learn how a ROM team uncovered and excavated an excellent skeleton of this iconic dinosaur in the Hell Creek Formation badlands of South Dakota over the last two summers.

Silvia Forni, Curator of African Cultures

- Competitive iconography: Asafo Imagery from Festivals to the Art World

My talk explores the ripples that Asafo flags have had in other fields of visual communication and artistic production. Alongside their specific local relevance and function within Asafo performances and displays, flags have been circulating as images in Ghana and abroad for a very long time. This paper looks at some of the creations inspired by Asafo flags produced by contemporary artists or designers in Africa and beyond.

Oliver Haddrath, Technician of Natural History & **Mark Engstrom**, Interim Director & CEO

- Preliminary report on the Blue Whale Genomes: Evolution and historical population dynamics of the largest species that ever lived

More than just the bones and heart were collected from the ROM expedition to the site in Newfoundland where two blue whales had washed ashore in May 2014. Tissues that were also sampled have provided DNA that was first used to show how the two whales were related to each other and has now been sequenced to provide the first genome of a blue whale. We present an early sneak peek at the first draft of a blue whale genome and discuss what can be learned, including insights on the population dynamics of the North Atlantic blue whale population, which is the smallest blue whale population worldwide

Justin Jennings, Curator of New World Archaeology

- How to create a sacred site in Pre-Columbian Peru: Lessons from Quilcapampa

In the seventh century AD, the settlement of Quilcapampa was founded atop a cliff face overlooking the Sihuas River in southern Peru. Travellers had walked by these cliffs for centuries, etching enigmatic figures into the cliffs before climbing one of the few ridge tops that took them out of the valley. The founders of Quilcapampa re-channelled these travellers both through a novel site of monumental, exotic architecture and also through a re-inscribed surrounding landscape that celebrated connections with hitherto far-off worlds. This talk, incorporating satellite, drone, excavation, and surface survey data, provides an example of how sacred place were created in the early Andes.

Peter Kaellgren, Curator Emeritus, European

- Biblical Admonitions on Early English Pottery

Thanks to Dr. Currelly, the Royal Ontario Museum owns the best collection of English Medieval and Tudor pottery outside of Britain. This includes a small mug of lead-glazed brown earthenware with “FEARE GOD” written in white slip around the side (Accession no. 927.28.62; excavated a Garlick Hill, London). Historians often describe inscriptions on these “Metropolitan Wares” excavated in London as simply expressions of Christian piety. This paper explores the potential for a wider range of interpretations based on the culture of the early 1600s.

Ed Keall, Curator Emeritus, Ancient & Islamic Near East

- Warlord on the Silk Road. A ROM archaeological project in Iran

Before coming to Canada, in 1965, Ed Keall pioneered an archaeological investigation of a legendary site in Iran called Yazdigird’s Castle. From his ROM curatorial base, in 1975, Ed mounted four major expeditions to the site before abrupt termination of the project due to Khomeini’s Iranian Revolution in 1979. The story was partly told in ROM’s 1983 Silk Roads China Ships exhibition. A new version of the story is currently on display in the ROM’s Wirth Gallery of the Middle East, a topic covered currently in ROM Insite. Ed will also talk at the Colloquium about the results of a recent Iranian revival of an archaeological program at Yazdigird’s Castle.

Sebastian Kvist, Associate Curator of Invertebrate Zoology

- Using evolutionary genomics and phylogeographic analyses to guide potential conservation efforts of the North American medicinal leech, *Macrobdella decora*

Once thought to be a cure for a variety of ailments such as fever, hysteria, obesity, insomnia, ulcers and an imbalance of the four humours (blood, phlegm, choler and melancholy), hematophagous leeches have been utilized for human phlebotomy for millennia (Sawyer, 1981; Min et al., 2010; Phillips and Siddall, 2009). Indeed, the high demand for *Hirudo medicinalis* Linnaeus 1758, the European medicinal leech, in Europe during the 18th and 19th centuries could not be met by natural populations and the repercussions of overharvesting these

populations led to the endangered status for this species (this status was lifted by CITES in 2014). This project aims to shed light on the following questions: **(i)** how many separately evolving lineages exist within the range of the North American medicinal leech, *Macrobdella decora*; **(ii)** what are the geographic barriers that may have influenced gene flow and separated populations leading to divergent lineages within this complex **(iii)** are any of the divergent lineages endangered with respect to number of individuals, geographic confinement or decline of suitable habitats or prey and **(iv)** is the Mexican population of *M. decora* a relic of the ancestral population that gave rise to the northern radiation?

Burton Lim, Assistant Curator of Mammalogy

- Tropical paradise for bats but not many other mammals: biodiversity and extinction in the Caribbean

Since the end of the Pleistocene ice age about 12,000 years ago, almost half (45%) of the mammal species of the Greater Antillean islands of the western Caribbean have gone extinct. But the rate of extinction in non-flying mammals has been four times as high as that for bats. Environmental change associated with warming in the Early Holocene and later arrival of humans during the Middle Holocene (~6,000 years ago) is implicated in the loss of biodiversity of large mammals. By contrast, bats managed to escape relatively unscathed perhaps because of their greater ability to disperse. But more recent human disturbance in historical times is threatening local extirpations on some islands. DNA barcoding is one method of assessing the genetic diversity of bats across the Caribbean and monitoring their conservation status.

Laura Lipscei, Senior Conservator, Ceramics, Stone and Glass

- The Real Deal? Investigation the Mysteries of a Zapotec Urn in the Royal Ontario Museum

From an ancient tomb in the Oaxaca valley to the cutting edge laboratories of the ROM, the presentation "The Real Deal: Investigation of a Zapotec urn" will present the work to date of a team of expert conservators, curators, scientists and archaeologists working together in their quest to determine whether or not a Zapotec urn from the ROM collection is real, fake …or a pastiche of both. The latest discoveries in research together with the results of various analytical techniques, such as multispectral imaging (using ultraviolet light, x rays and CT scans), thermoluminescence (TL) dating, thin section petrography and elemental analysis using X ray fluorescence (XRF) will be presented.

Ken Lister, Assistant Curator of Anthropology (Arctic, Subarctic, Great Lakes, Northwest Coast, Paul Kane collection)

- “a lot of damned curios”: Robert Flaherty’s Proposal

Robert J. Flaherty began his career as a geologist and in 1910 he set out to explore the iron-ore deposits along the east side of Hudson Bay. By 1922, though, he had changed his profession to that of filmmaker gaining international recognition with of his Arctic film, *Nanook of the North.*

Following the film’s debut, the name Robert Flaherty was associated with film. It is little known, however, that Flaherty was also a collector. In 1913 he proposed to his sponsor— Sir William

Mackenzie—that the cost of future geological exploration could be defrayed by the sale of “furs, ivory, whalebone and moving pictures obtained on the cruise.” Although the result of Flaherty’s proposal did not realize its perceived financial benefits and earned Mackenzie’s characterization as “a lot of damned curios,” his efforts created a remarkable collection documenting Inuit culture during a period of transition.

Hernán López-Fernández, Curator of Ichthyology

- From fossils to genomes: building the tree of life and the timeline of evolution in a modern museum

Ongoing research on South and Central American cichlid fishes illustrates how modern collection-based research provides unprecedented insight into evolution by combining the fossil record, collection specimens and genomic data.

Simona Margaritescu, Technician of Mycology

- A comparison of fungal diversity between temperate and tropical regions

It has been well established that the tropics harbor higher species diversity of plants and animals, but is this also true for macrofungi? Also, does higher fungal species diversity correspond to higher genetic and functional diversity (e.g., plant symbionts and decomposers)? In this presentation we will investigate these complex questions by comparing macrofungi from Ontario with collections from recent field expeditions in little explored areas in the Brazilian Amazon and the island of Borneo in South East Asia.

Alexandra Palmer, Senior Curator, Nora E. Vaughan Fashion Costume Curatorship

- Introducing the man in draped clothing: Raymond Duncan (1874-1966)

This paper begins to trace the work of the forgotten American artist, musician, designer, printer, poet and actor, Raymond Duncan. Duncan is best known for wearing draped ancient Greek-style robes that he spun and wove and as the brother of his renowned and adored sister, Isadora. His extraordinary appearance on the streets of Paris, Berlin, and New York coupled with his outspoken manner, has completely overshadowed his important oeuvre and politics. This research originated with the acquisition of Duncan textiles for the ROM and has transformed into a large project with intertwined tendrils into unforeseen histories around the world.


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