

THE  
BRODIE  
CLUB



ROYAL ONTARIO  
MUSEUM OF ZOOLOGY

### **THE 1,030th MEETING OF THE BRODIE CLUB**

The 1,030th meeting of the Brodie Club was held at 7:30 pm on May 5, 2009 in Room 432 of the Ramsay Wright Laboratories of the University of Toronto.

Chairman: Rosemary Addison  
Secretary: Oliver Bertin

The meeting was attended by 22 members and four guests:

- Dorothy Andrews, wife of Fred Bodsworth
- Richard Aaron, guest of Bruce and Ann Falls
- Betty Speakman, guest of John Speakman
- Terry Marescaux, guest of Oliver Bertin

#### **NEW BUSINESS:**

- Ed Addison distributed material provided by Ontario Nature.
- The annual field day will be held on June 13 at the home of Glenn Coady in Thicksen's Woods, the last remnant of old-growth white pines on the north shore of Lake Ontario. Glenn's address is 330 Crystal Beach Boul., Whitby. +1 905-571-5708 or [glenn\\_coady@hotmail.com](mailto:glenn_coady@hotmail.com). His house is easy to get to. Just take the 401 to Thicksen Road South. Go all the way down to the bottom and turn left. Meet at 8:00 a.m. or 10:00 a.m., depending on how keen you are. And bring a picnic lunch. See you there!
- David Tomlinson will host an open house at his lovely English garden at 181 Centre Cres., Aurora, Ont., from 10 am to 5 pm, May 9. There will further open houses on the second Saturday in June (June 13) and the first Saturday in July (July 4). The garden is one block north and west of the corner of Wellington St./Aurora SR and Industrial Parkway. His telephone is 905 727-8979.

#### **SPEAKER:**

The speaker was Chris Darling, senior curator of entomology at the Royal Ontario Museum. He studied at Queen's University in Kingston before taking his PhD in the systematics and taxonomy of parasitic wasps at Cornell University. He has been at the ROM for nearly 25 years, with a cross-appointment to the University of Toronto, where he is a popular lecturer, famous for his student trips to Viet Nam.

### **Charles Darwin & the Nature of the Naturalist**

Part of the job of a senior curator at the Royal Ontario Museum is interacting with the public, often through public exhibitions. When the Charles Darwin exhibit came to the ROM last year, it was Darling's turn to take the lead role as the public face of the museum.

The exhibition was a prelude to the huge number of exhibitions held in 2009 to celebrate the 200th anniversary of the birth of Charles Darwin in 1809 and the 150th anniversary of the publication in 1859 of *The Origin of Species*.

Darwin has indeed become a popular figure this year, the Year of Darwinmania, even though some would argue that the accolades are not entirely deserved. Darwin was finally pushed to publish his ideas after receiving a manuscript from Alfred Russel Wallace in 1858, in which he also hit on natural selection as the mechanism for evolutionary change. Evolution continued to be bandied about by many naturalists, including Lamarck and Darwin's grandfather, Erasmus Darwin.

And Darwin and Wallace were not the first persons to propose natural selection. William Wells (in 1813) and Patrick Matthew (in 1831), published their ideas of natural selection before either Darwin or Wallace. Darwin didn't even mention the term "survival of the fittest" until his fifth edition, long after it was used by Herbert Spencer (in 1864). Until then, Darwin had only used the term "natural selection".

Darwin's original paper on evolution at the Linnaean Society didn't create much of a stir when it was read in 1858. What made Darwin a household word was his book, *The Origin of Species*, which came out a year later, in 1859, complete with mounds of data and evidence that backed up a theory that at least three other people had already discussed.

"It was the book that made Darwin famous, not the theory," Darling said.

The University of Toronto had an indirect role to play in Darwin's ascendancy, although it was not a proud one. In 1851, Thomas H. Huxley (1825-1895) applied to be first chairman of Natural History at UofT, with a printed recommendation by Charles Darwin. Fortunately, somebody else got the job and Huxley remained in England where he played a major role in the defence of Darwin's theory.

That job eventually went to William Hinks, the brother of the premier of the province of Canada (sic), whose claim to fame was his staunch defence of the Quinarian System of Taxonomy, which argued that the animal and plant kingdoms were divided into neat systems of five units.

ROM led the way last year with its Darwin exhibition. This year, there will be many celebrations, including a symposium in May at McMaster University and a celebratory conference at UofT's Institute for the History and Philosophy of Science and Technology. The discussion will focus on the impact of Darwin's theories, while few people will look at the origins of his ideas.

The root of Darwin's theories lay in the study of natural history, a field which is sometimes dismissed as a superficial hobby of nature lovers. Douglas Futuyma published a paper in 1991 on the demise of natural history, a field he described as based on "a deep and broad familiarity with groups of organisms."

Certainly, some of the most famous biologists had their roots in natural history. Ernst Mayr, was an ornithologist who had a deep and intimate knowledge of birds before

he moved into interdisciplinary topics and developed the field of evolutionary biology. His experience in natural history clearly laid the foundation for his later career.

Herbert Baker and Ledyard Stebbins studied population biology based on their knowledge of natural history of plants, while Spencer Barrett, an eminent UofT professor, also built his career from a deep understanding of plants. Evolutionary biologists William D. Hamilton and E.O. Wilson, the father of island biogeography and sociobiology, both started in natural history. Louis Agassiz who, by the by, never really believed in evolution, once said "No man is fit to be a naturalist who does not know how to take care of specimens."

Richard Spruce, the father of ethnobotany, spent 15 years in the field. Wallace spent many years on the Malay Archipelago, many of them with Henry Walter Bates, while Darwin spent just shy of five years on HMS Beagle voyaging around the world, of which one month was on the Galapagos Islands. Wallace, by the way, lost all his notes when his ship sank on the voyage home from South America and was forced to rely on Bates' notes.

And, of course, William Brodie, founder of the Brodie Club, was a keen naturalist who donated a wealth of material to the Royal Ontario Museum, of which much is still in the ROM natural history collections.

Darling lamented the current trend away from a solid knowledge of natural history to publish-or-perish, fly-in/fly-out targeted research. "Now there is no time for comprehensive manuscripts, no time to think or discover new things," he said.

Some of the old-time naturalists suffered for their science. Darwin may have contracted a chronic illness, Chagas Disease, possibly when bitten by an assassin bug in South America. Wallace is said to have come up with his theory of natural selection while suffering from a bout of malarial fever in Tenerife, and William Hamilton died as a result of complications from malaria after a trip to the Congo.

Darling characterized naturalists as those who ask questions about the organism:

- What is it? Carolus Linnaeus wrote a hugely influential book on taxonomy in 1758 in which he organized a massive amount of species information into a hierarchical system, laying the roots of our current taxonomic hierarchy. Taxonomy was the most highly regarded branch of natural history at the time and scientists who wanted to establish their reputations often wrote a treatise on some particular group of organisms. Darwin chose barnacles. He spent seven years studying this reasonably obscure group, and wrote three books that made his name as a credible scientist.

- Where does it live? Naturalists have found lots of organisms not found anywhere else. Natural history and conservation biology have been revolutionized by the development of global positioning systems (GPS), which allow researchers to locate their finds very accurately and to provide all biologists with access to the distributional data housed in natural history collections.

- How is it related? This is a fundamental question with an answer that nowadays often incorporates DNA and other modern techniques.

People have been studying natural history for a very long time. Robert Huxley, wrote *The Great Naturalists* in 2007, a very good biography of famous naturalists from Aristotle to Darwin. Aristotle (384 BC-322 BC) was perhaps the first great naturalist and a great influence on Darwin, who stated in a letter to Aristotle biographer William Olge in 1882 that "I had a high notion of Aristotle's merits but I had not the most remote

notion what a wonderful man he was. Linnaeus and Cuvier have been my two gods, though in very different ways, but they were mere school-boys to old Aristotle.”

The Romans were more pragmatic than the Greeks. Pliny the Elder was the first great compiler, with his compendium of natural history in 79 AD. He summarized all the earlier writings on natural history, thankfully because his writings lasted while many of the earlier ones have been lost. He died in the Vesuvius eruption that year, but his son escaped and recorded the event.

Erasmus Darwin, Charles Darwin’s grandfather, had an inkling of evolution, but he did not have the mechanism. The personal narratives of Alexander von Humboldt also influenced Charles Darwin.

Wallace is often considered the father of biogeography with his studies of the Amazon, Australia and the Malay Peninsula. He recognized Darwin as the expert in the field and sent his manuscript to Darwin in 1858. When Darwin saw Wallace’s paper, he realized he had been ”scooped”. He was reluctant to act because his son was dying, so he sent the Wallace manuscript to Joseph Hooker and Charles Lyell and told them “to do with it as they wished.” They recommended a joint paper to the Linnaean Society at a meeting scheduled for July 1858.

Darwin didn’t have time to pull together a manuscript so Hooker suggested he publish the draft of a letter he had written the year before to Harvard naturalist, Asa Gray, explaining his theories. It turns out that Darwin’s penmanship was so bad that he usually hired a secretary to draw up a clean copy. The draft was still extant, and was the basis for the paper that was presented to the Linnaean Society meeting.

In many ways, conservation biology has taken on the trappings of the study of natural history. It has become one of the biggest growth areas of biology, thanks to its founder, Michael Soulé, a herpetologist/ecologist then at Berkeley.

Naturalists have also taken a leading role in museums, zoos and herbariums, ecology and evolution, as well as education. Naturalists clubs play a key role in supporting public institutions and the development of the next generation of naturalists. The ROM is taking a major role in this process with the recent opening of the Schad Gallery of Biodiversity.

#### QUESTIONS:

- Trudy Rising noted that the new schools curricula tend to de-emphasize natural history. Darling agreed, but referred to two good examples. The Open University in England has an active program that relates animal habitats, temperature, banding patterns and GPS co-ordinates to gain a bigger picture. Also, people are tagging butterflies in the Monarch Watch program and uploading the information into bigger systems. He said we may be able to do similar projects with the new ROM Schad Gallery.

- Ed Addison said many universities are moving away from field trips because of health issues. Darling referred to the virulent A. cryptosporidian virus on Vancouver Island. “Perhaps we know too much. We didn’t know about the dangers before.”

- Fred Bodsworth asked what would have happened if Darwin had never lived. Darling said Wallace was close behind, but didn’t have the support system in place. It would not have been long before other people came up with the idea. The idea of evolution was out there and the fixity of species was being debated, but they did not know the mechanism of change.

- John Speakman asked whether Darwin believed in the purpose of life and life after death. Darling said Darwin did not believe in life after death, but his wife Emma was a devout Christian. There was a great separation in their ideas and that delayed the publication of his book.

- Speakman said he couldn't understand why the theories of creationism are so widespread. Darling pointed to the educational system, saying we needed to believe in a rational explanatory system rather than a supernatural system where we don't need evidence to back up our ideas.

- Bruce Falls said the field of conservation biology may lead to an increase in the number of graduate students who have a background in natural history.

- Jock McAndrews reminded members of the Joker's Hill field station near Newmarket where UofT students can study natural history.

- David Hussell compared the fields of wildlife management and conservation biology, but Darling said they were similar but different. One is basic science and the other is closer to applied science.

- McAndrews noted that people are losing their appreciation for the outdoors. Now 50 per cent of the world population lives in cities, and that has led to a decline in natural history.

The speaker was thanked by Jim Rising.

#### NOTES & OBSERVATIONS:

- Jock McAndrews said he will visit the Creation Museum in Kentucky, across the Ohio River from Cincinnati. "It costs more than the ROM," he said. He said after the trip that the museum has a wonderful display of dinosaurs and states that Noah took a pair of each species on his ark. According to the museum website, tickets cost \$21.95 (U.S.) for adults and \$11.95 (U.S.) for children. The museum claims 10,000 members.

- David Tomlinson has seen a bumblebee with a bright orange band around its abdomen. This species is similar to those found in the Hudson Bay Lowlands.

- Harry Lumsden said he saw only orange-banded bumblebees in the Barrens.

- Chris Darling said there has been a decline in bumblebees, which is apparent from the museum collections. There are about 30 bumblebee species, and many species are being pushed out.

- Sandra Eadie recommended *Origins: The evolution of continents, oceans and life* by Ron Redfern, published by Weidenfeld and Nicolson 2002 paperback (originally published by Cassell & Co. U.K. 2000). The book is a wonderful history of the earth in text, panoramic photographs and graphics. It combines academic thoroughness and beauty in one.

- Ann Falls saw a vulture standing on the ledge of a mirrored building, eyeing itself in the glass.

- Enid Machin saw a Golden-crowned Sparrow and Sandhill Cranes displaying to each other at the George C. Reifel Migratory Bird Sanctuary near Vancouver.

- Jim Rising said Jarrett Diamond wears two hats. He is a fine physiologist at UCLA in California but also dabbles in natural history on the side.

- Fred Bodsworth said his daughter saw a Merlin near Uxbridge. The birds exhibited courtship behaviour in her backyard for 10 days and started building a nest.

Then they suddenly disappeared around May 2. John Speakman observed a similar behaviour at his cottage near Beaverton.

- David Tomlinson said a pair of Merlins raised two young on the outskirts of a suburb in Aurora.

The meeting adjourned at 9:25 pm.

#### Annual Field Day:

- This was the last meeting until September. The annual field day will be held on June 13 at the home of Glenn Coady in Thickson's Woods, the last remnant of old-growth white pines on the north shore of Lake Ontario. Glenn's address is 330 Crystal Beach Boul., Whitby. +1 905-571-5708 or [glenn\\_coady@hotmail.com](mailto:glenn_coady@hotmail.com). His house is easy to get to. Just take the 401 to Thickson Road South. Go all the way down to the bottom and turn left. Meet at 8:00 a.m. or 10:00 a.m., depending on how keen you are. And bring a picnic lunch. See you there!

#### Trees in British Columbia

**By Yorke Edwards**

#### **Our Western Correspondent**

There are many kinds of trees in the forests of British Columbia, most on low and flat lands while others live high up on the mountains.

On some places on our mountains, there are small groups of **Whitebark Pine**. Most are a few feet high, but some are a bit higher.

**Ponderosa Pine** live beside B.C.'s small bit of dry desert, at the USA's edge. Those pines are tall, and the bark has a reddish colour.

**Sitka Spruce** trees live in forests about 50 miles inland from the sea. In the past world war, sitka wood was used for making aircraft.

**Alpine Fir** trees are scattered only high up on the B.C. mountains. Up there, they are just small alpine bushes that live in a few small places.

**Yellow Cedar** trees live miles inland from the sea. For hundreds of years, the First People's have built homes, boats and many other things of cedar.

**Dwarf Junipers** are scattered shrubs that sometimes live along on the ground. These trees live around the northern world.

**Garry Oak** trees in Canada live only on the south end of our Vancouver Island. Just a few are scattered about in our dry and almost treeless area.

**Arbutus** (Madona in USA) is a small tree with a smooth red trunk of thin bark that falls away from its wood. The bark has a rare medicine for us.

**Red Alder** trees were used by First People because its orange wood and bark were good for making homes, canoes, paddles, dishes and many other things.

**Western Hemlock** trees live far up into southern Alaska. Young ones grow from seeds fallen into old stumps or logs that keep soft and wet.

**Cascara** is a small tree with large leaves and small red berries. In its bark is a drug, Cascara Sagrada, that is much used. Not many are in B.C.

**Douglas Maple**, trees are scattered about in B.C. They make poor apples, but their leaves are the shape of the "Maple Leaf of Canada."

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