THE BRODIE CLUB

Established 1921

Website: http://thebrodieclub.eeb.utoronto.ca/

THE 1,074th MEETING OF THE BRODIE CLUB

The 1,074th meeting of the Brodie Club was held on Tuesday, 15 April, 2014 in Room 432 of the Ramsay Wright Laboratories of the University of Toronto.

Chair: Bob Curry
Secretary: George Bryant

The meeting was called to order at 7:30 pm and was attended by 28; 25 members and 3 guests.

Roll Call:

Present: E. Addison, R. Addison, Bertin, Bousfield, Bryant, Currie, Curry, Daniels, Dunn, Eadie, A. Falls, B. Falls, D. Hussell, J. Hussell, Iron, Johnson, Lumsden, Machin, Martyn, Muller, McAndrews, Pittaway, T. Rising, Tomlinson, Zoladeski

Guests: We were pleased to have Don Jackson, new chair of the Department of Ecology and Evolutionary (Brodie link with University of Toronto). Other guests: Marjorie Bousfield (guest of Bousfield), Sharon Hick (McAndrews),

Regrets: Carley, Obbard, J. Rising, Slessor, Sutherland

Minutes:

Moved by Trudi Rising, seconded by Ed Addison, minutes of the March meeting, as amended according to emailed comments, were unanimously approved.

Committee Reports:

Program:

B. Falls reminded members that the May 6 meeting will feature member Chris Zoladeski, who will compare the floras of North America and Asia. The September meeting will be members' night. The committee will meet shortly to plan 2014-2015 programs.

Ontario Nature

Last year the Brodie Club generously sponsored a student to attend the annual youth summit for biodiversity. Bob Curry asked members to do so again this year, with a suggested $10 per member. Those in attendance contributed $210, and a further request will be made next month to see if we can reach the $300 total needed for a full sponsorship.

Field Trip

Bryant, speaking for committee members Curry and Currie, reported that the annual field trip will be June 15, 2014 at Carden. Details will be distributed.

Web

Dunn noted that Zoladeski had contributed some nice photos for banner headings on the Brodie webite. Additional nature-oriented pictures are still welcome.

Announcements:

- Bruce Falls solicited sponsors for his annual Birdathon in support of Bird Studies Canada.
- Long-time Brodie member, Norm Martin, passed away March 24 during his 90th year. Bruce Falls presented a remembrance of Norm, one of his oldest friends (see **Correspondence**).

SPEAKER: Falls introduced the speaker, member Ed Bousfield. As a Brodie member Bousfield needs no introduction, but Falls noted that he and Bousfield graduated together in 1948 from U of T in a class of six. Bousfield then obtained his PhD from Harvard, studying barnacles. J. R. Dymond pointed him to an opening at the National Museum, for which he successfully applied, and he remained there until retirement in 1984. Bousfield continues to this day as a Research Associate with the ROM, and is considered the world authority on North American amphipods.

Unable to find a recent photo of Ed, we offer this one from ca. 1946

Falls had been told that Bousfield's talk would be a discussion of shrimps without shells -- as presented by an old crab! However, the speaker was gracious throughout, and began by expressing pleasure at the turnout for a technical subject, despite the inclement weather.

Amphipods are a large group of invertebrate animals (9,000 species described to date), classified into 120 families and 40 superfamilies. They are aquatic arthropods (i.e., crustaceans), differing conspicuously from calcareous shelled mollusks. Most species are marine or freshwater aquatic, but there is one terrestrial superfamily. Amphipods occur worldwide from tropics to the poles, from marine inter-tidal to the abyss, and in virtually all permanent freshwater. The fossil record extends back to the Triassic. Amphipods are the most common crustacean seen in the tidal zone in the boreal and antiboreal hemispheres.

Bousfield compared the smaller, more primitive, Entomostraca with the larger, more advanced, Malacostraca. Differences include size, presence vs. absence of carapace, features of thoracic limbs, and larval development.

Gammarus is one of the most abundant and familiar of amphipod groups

The main features that are unique to amphipods:

1) Body vertically ovoid (fishlike), hydrodynamically modified for rapid forward swimming

2) Lateral thoracic plates

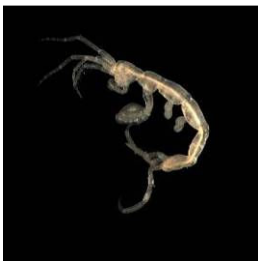
3) Abdominal appendages which include three pairs of pleopods (swimming legs) and three pairs of uropods (stiff backwards-pushing legs). This contrasts with isopods and decapods, which have five pairs of pleopods and one pair of uropods.

Amphipods are either fast-forward swimmers (unusual for larger crustaceans such as lobsters, which move backwards with a trail flip) or are crawlers and burrowers in benthic and subterranean habitats. They have a variety of lifestyles. Some are commensal with sponges, corals, worms and/or algae. Some build tubes, or are wood-boring. Others are ectoparasitic on fish, marine turtles and mammals (whale lice on cetaceans, sirenians). Steller's Sea Cow, a sirenian now extinct, was

known to be covered in amphipods. Amphipods are not endoparasitic (internally parasitic) as are some isopods, copepods and cirripedes.

Feeding in amphipods is also varied. Most superfamilies are omnivorous, detritivorous, and scavenging. Several are predaceous and carnivorous while a few are plankton-feeding.

Bousfield followed these remarks with a slide presentation showing variations in form and colour of representative species, genera, families, and super families. As expected, species living in shallow water, exposed to light, are more colourful than those in abyssal marine or freshwater cave waters, wherein body colour is pale and the head lacks pigmented eyes.



Pariambus typicus illustrates variety of form

RESPONSES TO QUESTIONS:

E. Addison: Do living species of manatee host amphipods? There are five species of manatee / dugong, and the Steller's sea cow was the only one known to have amphipods. Manatees move between salt and freshwater, and that may prevent infestations.

Bryant asked for a thumb-nail distinction between isopods and amphipods. Isopods have an flat body in cross-section (e.g., sow bugs), amphipods are oval-shaped (e.g. tide pools scuds)

Bruce Falls has seen large masses of "sea lice" on a dead Bowhead Whale carcass. These are amphipods in the *Gammarus* genus. General discussion of "sea lice" indicated that the term is applied loosely to a variety of unrelated species.

Clare Muller asked how amphipods handle eggs. Eggs are maintained in a brood pouch and carried until hatched, either as a transformative larval stage (in the Entomostraca) or as a young adult (Malacostraca).

Rose Addison—does anything eat amphipods? Every fish in the sea eats amphipods! Terrestrial amphipods are consumed by centipedes and spiders. The immense tidal flats of the Bay of Fundy abound with amphipods; migrating shorebirds fuel up on them before migrating to South America.

The speaker was thanked by Bob Curry.

LITERATURE REVIEW

David Hussell commented on a 1954 book he recently re-read with interest:" The Challenge of Man's Future," by Harrison Brown. He read out a passage indicating that agricultural output could be doubled by tripling the amount of CO_2 in the atmosphere—something the author seemed to think would be a good idea, but which would be impractical to achieve. (CO_2 levels have increased ca. 20-25% since the early 50's). The book covered many "future" scenarios, but climate change was not among them.

Ed Addison recommended "Extinction: Bad Genes or Bad Luck" by David M. Raup, 1991, as a good primer for appreciating extinctions.

OBSERVATIONS

Bob Curry has observed ten species of herptiles to date, including Jefferson's and Spotted Salamanders in a vernal pond near Aldershot. Each Jefferson had a different pattern of spotting.

David Tomlinson has been monitoring nesting bird species in Aurora for many years. He was pleased to see that a Red-shouldered Hawk was nesting in the same pine in a 50-acre woodlot as was used by a pair 30 years ago.

Sid Daniels checked his favourite salamander pond in Speyside. On his first visit, the ice was solid and you could walk on it. Six nights later there was no sign of any ice – a remarkably fast transition.

ADJOURNMENT

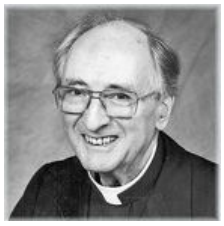
The meeting was adjourned at 9:25 p.m.

NEXT MEETING

The next meeting will be held Tuesday, 6 May at 7:30 pm in Room 432 of the Ramsay Wright Zoological Laboratories. Member Chris Zoladeski will speak on "The Miocene Legacy: Phylogenetic and biogeographic affinities between the floras of Eastern North America and East Asia"

CORRESPONDENCE

Bruce Falls contributed the following remembrance of Norm Martin:



Norman Duncan Martin, a member of the Brodie Club since the 1950's, passed away peacefully surrounded by his family on March 24, 2014. He was in his 90th year. Norman is survived by his two daughters and their families as well as Norma, his wife for 64 years, who is also a member of our club. Ann and I and Sharon and Jock attended his funeral service at St George's Anglican Church in Trenton.

Norm was one of my oldest friends. We met about 1942 in Jim Baillie's office at the Royal Ontario Museum, a gathering place for young birders. After starting university we both joined the services in 1943. Norman was with the Army Medical Corps working at the Victoria Hospital in Montreal. After the war we both returned to study biology at U of T. In 1946 Norm got a summer job as a Park Naturalist in Algonquin Park under the direction of Professor J. R. Dymond, who was a mentor. I joined Norm in the Park the following summer.

Norman met Norma, who was a camp counselor in the park, and they married in 1950. They both completed Master's degrees. Norm's thesis was about Screech Owls that he had worked on with the late Reg James. The Martins went to the University of Illinois where Norman began doctoral studies under Professor Charles Kendeigh, a leading ecologist at the time. They moved back and forth between Illinois and Algonquin Park where Norm conducted his field work. This brought Norm and me into contact again. Norman finished his PhD in the 1950's. His thesis dealt with bird populations in relation to forest succession in Algonquin Park. He then obtained a position as assistant professor at Acadia University. However his career soon changed.

Norman was a deeply religious man and he enrolled in theology at Wycliffe College at U of T. He obtained a parish with several churches in the Rice Lake area and was ordained an Anglican priest in 1960. He and Norma set up their home for the next 31 years in the rectory at Gore's Landing. Over the years Norm declined offers of more prestigious pulpits because he liked the rural life on the beautiful Rice Lake Plains. I see him as following the tradition set by the English clergyman Gilbert White, pursuing his ministry while enjoying and studying nature. For several years he and Norma taught biology courses at Richmond College on a part-time basis. The Martins frequently attended Brodie Club meetings and the club held its annual picnic at Gore's Landing in 1986. Norma, who had just co-authored a book on the history of the area, took us on a tour of the village.

In 1988 Norman retired, and he and Norma moved to Belleville where they had a comfortable apartment overlooking the Bay of Quinte at the mouth of the Moira River. They continued to commute to Brodie Club meetings for many more years. During his long retirement Norm continued to pursue his dual interests. It was here that he and Norma published their book, 'Biotic Forest Communities of Ontario.' Perusal of the contents reveals the depth of their studies. Norman's approach followed the Clements and Shelford school of bioecology in which he was trained at the University of Illinois. Norman was a strong monarchist. He attributed his biological work to the Commonwealth Laboratory. As far as I could tell, this referred to a truck that he used for his expeditions which had that name on the side - but I am sure it had larger implications for him. He also wrote everything in purple ink, and even Norma doesn't know the significance of this. While pursuing his biological interests Norm served as an honorary assistant at St. Georges Church. He was also chaplain to the Legion at Bewdley and Belleville.

Norm Martin was a good and happy man. If you asked him how he was he always replied "things couldn't be better." I never heard him speak ill of others. With his passing the Brodie Club has lost a very interesting member. Some of us have lost an old friend. I am sure we all send our best wishes to Norma, and hope that she will be able to attend the Brodie Club again.

Twenty-five years ago: In April 1989, John Reynolds spoke to the Brodie Club on Sexual selection in Trinidadian guppies.

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