



THE 998<sup>TH</sup> MEETING OF THE BRODIE CLUB

The 998<sup>th</sup> meeting of The Brodie Club was held on Dec. 13, 2005 in Rm. 432 of the Ramsay Wright Zoological Laboratories at the University of Toronto.

Chairman: Helen Juhola

Secretary: Oliver Bertin

There were 22 members and six guests  
Julie Berger and John Tyacke, guests of Jean Iron  
Brenda Gibson and John Sparling, guests of the Falls  
Jeremy Hussell, guest of Ed Addison  
Sharon Hick, guest of Jock McAndrews

The minutes of the 997th meeting were approved without change.

NEW BUSINESS:

Ann Falls welcomed new member Rosemary Addison to The Brodie Club.

Trudy Rising reported on her recent meeting with Nature Ontario, formerly named the Federation of Ontario Naturalists. The club is sponsoring a writing challenge for Grade 7 and 8 students to celebrate its 75<sup>th</sup> anniversary. Nature Ontario is working to preserve a green belt around the Golden Horseshoe, from Windsor to Cornwall and north to Algonquin Park, and it is trying to drum up new members, particularly among the younger generation.

*OnNature*, the magazine of Nature Ontario, included a four-page write-up of The Brodie Club in its current issue, with several photographs of members. It is reproduced in the printed version of the minutes.

The Nature Conservancy is offering nature calendars to people who donate \$35 to the club. Member John Speakman was photographed for the month of June.

Kevin Seymour and Sandra Eadie of the 1,000<sup>th</sup> anniversary committee estimate the celebratory dinner will cost about \$55 per person. Ed Addison suggested the club donate \$100 to the anniversary fund, a motion that was carried. Sandra has been communicating with many former members all over North America. Many have expressed an interest in coming, but a few live too far away to attend.

Walter Tovell, a longstanding member of The Brodie Club, died on Dec. 30 in his 90<sup>th</sup> year. He received numerous government, naturalist, and conservation awards during his lifetime and was considered a leading authority on glacial geology. He was member of the faculty of the Dept. of Geological Sciences at U of T, a pioneer in exploration geology using helicopters and a staff member of the Royal Ontario Museum for 35 years,

finally as its director. Tovell was also a member of the Metropolitan Toronto Region Conservation Authority, author of the *Guide to the Geology of the Niagara Escarpment*, a life member of the Prospectors and Developers Association of Canada, a member of the Federation of Ontario Naturalists and Upper Credit Naturalists, a former board member of the Niagara Escarpment Commission and Canada Trust's Friends of the Environment and a former director of the Coalition on the Niagara Escarpment.

SPEAKER:

Jim Rising introduced the speaker, his friend and colleague Dan Brooks, a UofT faculty member and an expert on parasitology, biodiversity and historical biogeography. Brooks was educated at the Universities of Nebraska and Mississippi before joining UofT in 1989. He has co-authored four scholarly books and is a member of the Royal Society of Canada.

PRESERVING NATURAL HISTORY:  
IS THERE ANY VALUE TO SOCIETY IN NATURAL HISTORY?

Brooks gave an impassioned talk on the slow death of natural history studies at Canadian universities. Fields such as biodiversity are fundamental to life, but they are getting minimal support from governments, the United Nations and universities.

Universities are more interested in raising their short-term profit margins, he said, while fund-raising institutions are following the current fashion for molecular biology and physiology, forgetting that natural history is fundamental to the life sciences.

Brooks said the move away from natural history is wrong-headed, short-term thinking. The biodiversity crisis is more than just extinctions of obscure species. It is also a crisis of introduced species and emerging infectious diseases.

"They are all wrong," he said, referring to the modern thinkers. Anybody who dismisses natural history should visit a typical village in the tropics, a place where every resident is probably infested with parasites and 30 per cent of the children die from malaria.

Parasites are everywhere in these villages, in the water, sewage and mud. Raw sewage goes into open drains and into rivers where people drink the water, swim and wash their clothes. One-third of the graves in one Brazilian cemetery he visited are those of babies, he noted. "This hasn't been a reality in Canada for two or three generations," he said.

Parasites and pathogens of all sorts are being moved around the world with increasing speed, causing untold damage. Yet people understand very little about them. Most pathogens are unknown, and there are huge gaps in our knowledge of parasite life cycles, breeding and hosts. It takes months of intense work to fill in the gaps in our knowledge, and granting bodies are often unwilling to make the necessary investment.

Institutions often prefer to "manage" crises, rather than solve them, he said. They would rather tolerate "an acceptable death rate" from malaria or some other disease, instead of taking the steps to understand and eradicate the problem. "It's a boon for

pharmaceutical companies," Brooks said, but thousands of people die from diseases that can easily be controlled with some knowledge of natural history.

He referred to cases where people are inadvertently spreading dangerous parasites because they simply do not understand the species they are carrying. Eco-tourists have apparently carried North American deer ticks — and possibly Lyme disease — to Costa Rica.

Another parasite of deer affects the brains of moose, causing so-called drunken moose disease. It has spread from the United States or Canada to Costa Rica, where it threatens to infect llamas and alpacas, possibly leading to serious economic damage to the local population.

The obvious solution in these cases is to keep deer apart from alpacas and llamas, but that will only be done if the authorities understand the implications of the disease, and understand the life cycle and natural history of the parasite. That, in turn, requires an understanding of biodiversity and natural history.

There are many other benefits that could stem from a better understanding of biodiversity. Brooks dissected a road-kill jaguar in Costa Rica and found an abundance of nematodes in its stomach. He also found plant material in the stomach, leading him to ask whether the plant contained some special ingredient that the jaguar was using to control its nematode infestation.

The answer to that question could lead to the development of an important parasite drug. But that drug will not be found unless pharmaceutical researchers come out of their labs and learn more about animals and plants in their natural environment.

Ironically, the rapid movement of people around the world has made the study of natural history more important at a time when grants are being cut. New, unfamiliar parasites and infectious diseases are being carried all over the world, to countries where they are unknown, to populations that have no immunity. And they are killing people.

Climate change could also foster an explosion in infectious diseases. Pathogens tend to flourish with change, partly because the hosts need time to build immunities. "EIDs (emerging infectious diseases) often come with climate change," he said. "This happens over and over again."

The dangers associated with these new, mobile pathogens are greater than ever before, but natural history has better tools to understand them.

The use of genetic bar codes to identify species offers considerable promise in the fight against parasites. The purchase of a bar-code reader for \$7.99 at Radio Shack and a wireless hook up device will soon enable tropical biologists to identify parasites easily, enabling them to track and control them before they become a menace.

But such techniques can only happen with a change of thinking, Brooks said. Scientists must come out of the labs and universities, hire qualified naturalists and give them the resources they need to study natural history. And bodies such as the United Nations must move from crisis management to problem solution.

"Crisis response is not a sustainable management approach," he said.

The fundamental problem, he said, is not the extinction of species. It is the extinction of naturalists. In 100 years time, we will still have 50 per cent of the species, he said. But we will have lost 100 per cent of the naturalists.

The problem goes beyond universities and granting agencies. Children have no interest in nature nowadays. They don't go camping, they don't go bird-watching and they don't go on winter bird counts.

This move away from natural history has lasted so long that the new generation of teachers have little appreciation for natural history. They are not teaching natural history to the younger generations. Universities are not hiring natural history people. And the big conservation groups have become huge bureaucracies that sometimes forget why they were created.

The only groups that still take an interest in natural history, Brooks said, are the small public organizations, the small universities and the small conservation groups. They hold the key to the revival of natural history studies. "They are the groups that we need to teach our grandchildren about natural history," he said.

#### QUESTIONS:

- Bruce Falls noted that universities no longer seem interested in hiring natural history people. He looked back at the days when everybody wanted to be a marine biologist. Now they want to study DNA. But he said there is a lot of natural history on television, in animal documentaries. Brooks answered that television documentaries are not good biology. "There's too much Walt Disney," he said. Film-makers produce sanitized material. "You never see a lion jumping on the back of a baby zebra, breaking its neck and tearing it open, but that's what predators do," he said. "If you watched television you'd think that lions were vegetarians."
- Eadie asked why Brooks didn't talk about ecology. He answered that ecology was just one artificial subdivision of natural history, along with taxonomy and systematics. "They are all subsets of natural history," he said. "They are not natural history."

The speaker was thanked by Paul Aird.

#### NOTES & OBSERVATIONS:

- Ed Addison saw a Western Tanager at Rattlesnake Point on Nov. 25. Last year, he saw an Oregon Junco.
- Falls showed a painting of A.F. Coventry, a early member of The Brodie Club.
- Ellen Larsen reported seeing a tapir in Costa Rica on a recent trip.
- Seymour recently returned from the Yucatan Peninsula, an area that has recently been devastated by hurricanes. There are no big trees, no flowers and no fruit but virtually every bird seemed to have survived. He saw twice as many species on this trip than he did two years ago.

The meeting adjourned at 9:25 pm.

### NEXT MEETING:

The next meeting will be held on Jan. 17 at 7:30 pm in Rm 432 of the Ramsay Wright Zoological Laboratories of the University of Toronto. The speaker will be Jim Eckenwalder, professor in the UofT Department of Botany, who will talk on poplars.

### DDT

By Yorke Edwards  
from Our Western Correspondent

In 1945, it seemed that DDT was being used everywhere. But some people were beginning to wonder whether the miracle pesticide might also be a dangerous poison.

It was a good insect killer, but it also appeared to be a killer of birds, mammals and plants. In the USA, they were dropping DDT into towns to kill mosquitoes, and in Nova Scotia and New Brunswick they were spraying DDT into large evergreen forests to kill insects that were eating up their trees.

So the Ontario Government decided to find out whether DDT was more dangerous than useful.

Doug Clarke of the Ontario government brought Dr. Charles Kendeigh from the University of Illinois to see what happens when DDT is sprayed onto forests and their animals. He worked that summer in Ontario and I went to help him.

We were south of Lake Nipigon for three weeks marking four large square forest areas to be sprayed. In the mornings, we would hear songs of many birds but they were mostly

high in the evergreen trees. But on my last day, the bird chorus was silent. As I walked through the quiet forest, a small warbler came tumbling down, past me to the ground.

The use of DDT ended after the publication of a big book by the well-known author Rachel Carson. The well-written book had 368 pages and five large printings. Her last 55 pages were filled by 70 research sources from other books and publications that had printed details about DDT's dangers.

Carson gave many examples of DDT's effects. She mentioned a British man who applied DDT on his skin. He reported heaviness and aching limbs, muscular weakness and spasms of extremely nervous tension. He took a holiday and improved, but on his return his condition deteriorated. He spent three weeks in bed, made miserable by constant aching in limbs, insomnia, nervous tension and feelings of acute anxiety. At times, tremors shook his whole body, a symptom that was all too familiar with birds poisoned by DDT. — Y

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