THE BRODIE CLUB

Minutes of the 906th meeting held in the Faunal Lab, Borden Building, University of Toronto, October 17, 1995

Chairman: Fred Bodsworth Secretary: David Fowle

Attendance

There were 20 members and four guests in attendance.
Guests: Mary Tasker, guest of Tasker; Mary McAndrews, guest of Bodsworth; Yvonne Bendell, guest of Bendell; Richard Cannings, guest of Falls.

Minutes

The Minutes of May 16 (904th Meeting) and Sept. 19 (905th Meeting) were reviewed and following a few minor corrections, approved.

Carrick recommended that in future minutes should be confined to two sheets of paper (4 pages) in order to minimize bulk and reduce mailing charges.

Business

* Moved by Falls, seconded by Tasker, that the December meeting be held on December 12. CARRIED.

* Howard asked if the Club should have refreshments after each meeting. It was agreed that refreshments were not necessary but if someone could be found to take care of them, they would be welcome.

* Moved by Speakman, seconded by Young, that the positions of Secretary and Treasurer be consolidated. CARRIED.
Carrick will fill the position of Secretary-Treasurer.

The Club expressed its appreciation of John Speakman for his services as Treasurer with a round of applause.

* Carrick introduced three new members: Janet Cooper, Hugh Currie, and Jock McAndrews.

Announcements

* Bryant drew attention to the new edition of Clive Goodwin's *"Bird Finding Guide to Ontario"*.

* Falls announced that a new organization, *"Bird Studies Canada" ("Canadian Centre for the Study and Preservation of Birds")*, had been organized under the sponsorship of the Long Point Bird Observatory to promote the establishment and operation of a system of bird observatories across the country. The first

meeting of the Council had been held this week in Toronto.

* Hussell announced that the fall meeting of LPBO would be held at the Royal Botanical Gardens on the afternoon of Sunday, Nov. 12. The featured speaker will be Dan Strickland from Algonquin Park who will speak on his long-term studies of the Gray Jay.

The speaker

Bruce Falls introduced the speaker, Dr. Jock McAndrews of the Royal Ontario Museum who is a botanist interested in paleobotany and palynology. He has been with the ROM for 28 years and has conducted a number of palynological and other studies in Ontario relating to changes in climate and vegetation.

In his talk entitled, "*Stump fences, White Pine and the Little Ice Age*", the speaker showed how palynological studies of sediment cores from ponds and lakes could reveal changes in local vegetation going back over thousands of years and then went on to discuss examples of differing interpretations of the causes of these changes, including human disturbance in clearing land, fire, and climatic fluctuations.

The technique for pollen studies was illustrated by the results of research on Crawford Lake, located in a limestone depression on the top of the Niagara Escarpment near Milton. This is a small deep lake (22.5 m plus 4 m of mud sediment) with minimal circulation and no fall turnover. Hence, the lower layer of water lacks oxygen and there are no organisms requiring oxygen in this zone or in the sediments. The sediments remain undisturbed.

In summer in the warmer upper layer calcium carbonate precipitates and sinks to form a thin white layer on the bottom. In winter the non-calciferous sediments continue to accumulate in a dark layer. The result is an alternation of white and dark layers which can be used to identify seasons as well a chronological sequence going back many years.

Cross sections of the sequence may be secured by forcing an aluminum tube filled with dry ice into the sediment which freezes to the side of the tube. After a short interval the tube can be drawn up for inspection and the removal of samples at different levels for pollen analysis. In addition to pollen, well-preserved specimens of leaves and needles are obtained.

The record for Crawford Lake showed that the earliest forest was mainly spruce (212 A.D.). Over time there was a gradual transition to a dominance of other species such as white pine and red oak. After a decline there was a resurgence of white pine after about 1850.

Land-clearing and farming by Indians is indicated by the occurrence of pollen from open field species such as ragweed, sheep sorrel, grasses and corn. Reduction in cedar pollen suggests use of this species by the Indians. Lands abandoned by Indian farmers filled in with red oak and white pine. With the arrival of European settlers, white pine decreased as the trees were harvested for lumber and masts for ships. Removal of white pine was followed by an increase in elm and beech. We are reminded of this succession when we see stump fences around fields formerly occupied by Indian corn plantations.

Discovery of an Indian village site near Crawford Lake yielded evidence of long houses, pottery and other artifacts including corn kernels and corn cobs, beans and squash seeds.

While the palynological evidence for changes in vegetation are clear, the reasons for the changes remain controversial. Factors to be considered include: the role of Indians in clearing land for agriculture; the possible role of fire; and the effect of the cooler climate during the "*Little Ice Age*" (1350-1850).

The evidence for the importance of fire comes from analysis of cores for charcoal. There are periods of peak abundance of charcoal around 1400 and 1600, suggesting large fires may have disrupted succession and changed the forest composition. However, there is no evidence that the Indians deliberately burned the forest.

The role of climate change is uncertain although held to be important by some. Cooler weather would shorten the growing season and influence the distribution of some species. We are now confronted with the prospect of a warming trend which could reduce abundance of pine and perhaps shift its northern limit.

The talk was an excellent illustration of the application of ingenious research techniques which yielded an interesting long-term perspective on the dynamics of forest cover and, as is so typical of many biological studies, opened the door to new questions and arguments about the meaning of the results.

Dr. McAndrew's presentation was followed by many questions and comments regarding the methods of dating, methods of estimating past temperatures, fluctuations in the production of pollen, and the role of trees in evaporating and transpiring water. Often when trees are removed the watertable rises and/or water is ponded on the surface.

Bryant's expression of the appreciation of the Club for an excellent talk was greeted with a hearty round of applause.

Notes and observations

* Mary Tasker reported a fox near her home. Huff reported another animal near the Summerhill Subway Station.

* Fowle commented on the abundance of conifer cones this year in Ontario and as he had observed them on a recent trip to Alberta. Others confirmed this observation. Aird pointed out that in seeking explanations of the abundance we had to look back two years to the time of cone initiation. Cannings said that White-winged Crossbills appeared to move about to take advantage of local abundance of cones while in the case of Red Crossbills a number of "species" had been recognized with localized distributions related to preference for particular conifer species. Crossbills breed in years of cone abundance.

* Huff reported on the salmon run in the river at Sydenham Dam and said that Mallard Ducks were scavenging the dead fish.

* Don Young described efforts to discourage squirrels from eating seed put out for birds. Application of cayenne pepper had apparently improved the flavour for squirrels.

* Bruce Falls referred to cone abundance and said that there were examples of correlations between seed initiation and temperature.

* Bendell reported that on a trip to Gogama on Sept. 15 he had found migrants such as Rusty Blackbirds, Longspurs and Pipits that he had not previously seen in the area.

* Howard in referring to Dr. McAndrews talk, emphasized the importance of the Crawford Lake varves for precise dating.

* Bryant reported on a recent excursion to Algonquin Park in which he had been gratified to receive a vigorous response to his first attempt at "wolf howling". He had also observed "bear nests" in cherry trees, the lichen, Lungwort, on Black Ash on the Whiskey Rapids Trail and a variety of animal tracks on an old mill site near Whitefish Lake.

* Carrick reported that some years ago he had become involved in a plan to make a movie of the life of Grey Owl and in that connection had held beaver in captivity for use in the film. The film was not produced but the beavers reproduced to the point where for some time he had a large colony. Numbers gradually diminished until again this year he was invited to contribute to a second attempt to make a film about Grey Owl. Again he secured beavers and was successful in producing a number of young in time for the filming, only to learn that this production had also been abandoned.

He also reported that William Lishman had two Sandhill Cranes which had now become well adapted to following an ultra-light aircraft. This species flew higher and longer than Canada Geese trained to follow the aircarft.

* McAndrews reported that beaver were felling Ash near the bridge in Humber Marsh.