

New England Botanical Club – Minutes of the 925th Meeting

7 February 1997 Prepared by Lisa A. Standley, Recording Secretary

The 698th meeting of the New England Botanical Club, Inc., being the 925th since the original organization, met on Friday, February 7, 1997 at the Harvard Biological Laboratories with 63 members and guests present.

Following the reading of the minutes, President Hudson read the names of new members and reminded Committee chairs that annual reports are due at the March Annual Meeting. He called for the introduction of guests, followed by a request for old or new business, announcements or gossip. Dr. Barre Hellquist read the report of the Nominating Committee. Dr. Don Hudson noted that applications for the Graduate Student Research Award are due on March 15th. He asked members who have not received membership renewal forms to see him after the meeting and reported that a symposium committee is being formed to organize a symposium scheduled for spring, 1998. Dr. Lisa Standley asked for ideas or leaders for summer field trips. Dr. Don Hudson announced that the Council had voted to continue the 6:45 PM meeting time indefinitely. Photographs of the Centennial Banquet will be on display during refreshments and prints are available on request. George Newman reported that, contrary to previous statements, nursery-propagated seedlings of *Cypripedium* are commercially available and proved it by showing flasks of seedlings of *C. kentuckiense* and *C. candidum*. Judy Warnement reported that she had received a note from former member John Barrett, now in Port Angeles, Washington, who invited the club to schedule a field trip to the Pacific Northwest. Dr. Don Hudson announced that Wade Davis, author of a new biography of Dr. Richard Evans Schultes, would be appearing at a lecture and book signing on February 10th.

Dr. David Conant introduced the evening's speaker, Elizabeth Kneiper, President of the Friends of the Farlow, who spoke on "Boston Lichens: Then and Now." Ms. Kneiper began by providing an overview of the biological diversity and biology of lichens, a taxonomic group much overlooked by most botanists despite their diversity and ecological importance. Lichens occur virtually everywhere, at all latitudes and on almost all substrates. There are 18-20,000 named species world-wide, with approximately 3600 taxa in North America and over 300 species in Massachusetts. A state checklist is currently being prepared.

Lichen habitats include the familiar stone walls and tree trunks as well as sand dunes, shell heaps, intertidal areas, fences, gravestones, and the concrete piers of the Sagamore Bridge, as well as on other lichens. Houses provide a multifarious set of microhabitats capable of supporting a significant number of species.

Lichens have a complex symbiotic biology, and lichen partnerships have evolved independently in several groups of fungi and algae. The fungal partner is most commonly an ascomycete, but basidiomycetes and other fungi also form lichens. Similarly, the photosynthetic component is generally a green alga, but some lichens are formed with nitrogen-fixing cyanobacteria as the photosynthetic partner. Lichens also include a wide range of growth forms, from simple crusts to large branching thalli. Shape seems to be controlled by the algal partner. Ms. Kneiper suggested

that we will never look at a tree again without recognizing it for what it really is - a lichen substrate!

Lichen ecology is also complex and poorly understood. Species distribution depends on substrate type, chemistry, moisture, and exposure, as well as the dispersal ability and growth rates of individual species. Lichen communities exhibit distinct successional patterns, and pioneer communities can be distinguished from "climax" communities. Lichens are well known as indicators of air quality, that respond to a wide range of pollutants depending on their physiological state, thallus morphology, and substrate chemistry. Lichens growing on acid substrates, with wettable surfaces, or with cyanobacterial partners appear to be most sensitive, as are the larger foliose lichens.

Ms. Kneiper described the results of a study she completed in 1978 and 1979, comparing current lichen diversity in the Boston area with historical diversity during the late 1800's. She developed a historical checklist based on the published and archival records of the many amateur and professional lichenologists who worked in the Boston area in the last century, particularly Edward Tuckerman and Clara Cummings. For this study, she performed lichen inventories in natural areas, parks, cemeteries, coastal areas, vacant lots, and residential neighborhoods within the Route 128 belt.

Results of the study show a dramatic change in lichen biodiversity over the 100-year interval, with a 50 percent reduction from 237 species in 105 genera to only 124 species in 62 genera. *Peltigera* was reduced to a single species from six; the *Lobaria* complex, a climax community of mature woodlands, had disappeared; the epiphytic fruticose lichens including *Usnea* and *Ramellina* had virtually vanished, although these were still present outside of the Boston area and in the Berkshires. The remaining species tended to be those demonstrated to be tolerant of poor air quality and crustose species found on calcareous habitats such as concrete and mortar. Recent data from Britain indicate that with air quality improvements, sensitive species are making a comeback.

Elizabeth's recent Boston inventories show that species not recorded in 1978-79, particularly foliose and crustose species, are now present in the area. Also it may be that rare species located in the 1978-1979 study were pioneer recolonizers, rather than relict holdouts. Boston lichen diversity may also benefit from experimental (and unintentional) transplants. The new Japanese Garden at the Museum of Fine Arts imported lichen-covered rocks from Cape Ann that may introduce new spores. The lichens on the trunks of the municipal Christmas trees imported from Nova Scotia may also have an effect on local biodiversity!

Ms. Kneiper closed with a plea for continued monitoring and asked chroniclers of their local flora to include lichens along with the vascular taxa. She invited club members to attend the Friends of the Farlow' Clara Cummings Walk in Miles Standish State Forest on April 27th to focus on the lichens of that area.

The meeting adjourned at 8:00 PM for refreshments and conversation.