New England Botanical Club – Minutes of the 1015th Meeting
3 March 2006
Karen Lombard, Recording Secretary

The 788th meeting of the New England Botanical Club, being the 1015th since its original organization, was held on Friday, March 3, 2006, in the Lecture Room of the Fairchild Biochemistry Building, Divinity Avenue, Cambridge, MA. There were 47 members and guests in attendance. President Art Gilman chaired the annual meeting, which included reports from active committees. Ray Angelo reported that the vascular plant committee continued the merging of the NEBC collection with Harvard's this year. The committee processed a backlog of unaccessioned material, mounted 212 specimens, and added 207 specimens to the collection for a total of 253,474 specimens in the collection. Elizabeth Kneiper reported that the non-vascular plant committee has primarily been repacking specimens. Harold Brotzman reported for the finance committee that finances were in good shape and that this year's tax information has been sent to the accountant. Pat Swain listed that last year's recipients of the Graduate Student Award were David Ellum of Yale University, David Hewitt of Harvard University's Farlow Herbarium and Sara Scanga of the State University of New York College of Environment, Science and Forestry. Robert Bertin stated that last year's recipients of the Fernald Award were Walter S. Judd and Darin S. Penneys for their article in Volume 106 (2004) entitled "Taxonomic studies in the Miconieae (Melastomataceae). VIII. A revision of the species in the *Miconia desportesii* complex on Hispaniola." Judy Warnement of the library committee reported that the library bought one book last year, volume 5 of *Flora of North America*. Alice Schori announced the full slate of officers nominated by the nominating committee, and the full slate was voted in for next year. Art Gilman thanked all councillors for their work this year and for their support of the club during his tenure as president. He especially recognized outgoing councillors Paul Somers and Julie Richburg.

Vice President Karen Searcy announced the evening's speaker, outgoing president Art Gilman. His talk was titled: "The Enigmatic Ophioglossales." This group is not well understood, as the order Ophioglossales is far removed from other orders and is not related to progymnosperms or cycads as was hypothesized recently. Rather, it is basal to the fern clade. However, its sister group is unknown and it is also not known from whence the group arose. The only fossil, the Paleocene (65 mya) *Botrychium wightonii*, looks like a modern plant, with leaves and spores essentially identical to modern species. The whole group is distinguished by bipartite megaphylls, megasporangia (similar to the genus *Osmunda*), subterranean gametophytes, a eustele, and anomalies such as circular bordered pits and secondary xylem. Within Ophioglossales, there are two well-supported clades, the ophioglossids and the botrychids, which together make up the Ophioglossaceae. In the ophioglossids, there are at least two clades, an African clade and an African-plus-American clade. *Ophioglossum* itself is well known for having the largest number of chromosomes of any plant species (n = ca. 660, 2n=1320).

The Ophioglossaceae occur in tropical and temperate habitats extending into the low arctic. Most species grow in early successional habitats that are the result of either human or natural disturbance; some tropical species are epiphytes. A typical member of the family is *Botrychium lunaria*, known from just a few stations in New England. Originally this species was thought to confer invisibility because the spores (called "fern seed" by Shakespeare) are "invisible" – being so small. The plant body is made up of a leaf in two parts: the trophophore, with laminar tissue, and the sporophore, with spores in megasporangia.

The genus *Ophioglossum* has one species in New England. Characteristics of this genus include sporangia sunken into sporophore tissue and reticulate venation of the leaf, which is thought to be an expanded midrib. *Botrychium* is harder to resolve, with several groups that are not well understood. The grapeferns are one such group. This group has a large, ternately divided trophophore, which diverges at ground level from the sporophore. Isozyme analysis has not been successful in resolving relationships, as many species are not distinctive chemically. There are four taxa in New England, including *B. oneidense*, which is quite rare. With its rounded, short pinnules, it was long thought to be a variety of *B. dissectum*. However, the variation in *B. dissectum*, while substantial, is not as much as often stated, and does not include *B. oneidense*.

The moonworts are a better understood group within *Botrychium*. The late Herb Wagner from the University of Michigan described about 15 new species, including *B. alaskense*, which is found only on a few gravel bars in Alaska. Other new moonworts shown included the peculiar hybrid, *B.* × *watertonesis* from the Rocky Mountains, an as-yet undescribed species, "*B. adnatum"* from Glacier National Park, and *B. yaaxudakeit* from Alaska. *Botrychium pallidum*, with a whitish cast to the sporophore, was originally known only from an herbarium sheet until living populations were discovered by Herb Wagner. Art recently found a new station for this species in Maine.

The final enigma in this group is the recent discovery of a new genus, *Mankyua*, in Korea. It is similar to *Ophioglossum* with sporangia sunken into the linear sporophore, but its trophophore and rhizome system are much like *Helminthostachys*, a genus in the botrychioid clade.