

# New England Botanical Club – Minutes of the 966<sup>th</sup> Meeting

2 March 2001 Prepared by Don Hudson, Recording Secretary

The 739<sup>th</sup> meeting of the New England Botanical Club, Inc., being the 966<sup>th</sup> since the original organization, met in the Main Lecture Hall of the Biological Laboratories, Harvard University, and Cambridge, Massachusetts, on Friday, 2 March 2001. President Lisa Standley called the meeting to order at 7:01 PM with 59 members and guests present. After guests were introduced, the chairs of committees were called upon to make their annual reports. Curator of Non-Vascular Plants Nancy Reid reported that the consolidation of the club's cryptogamic herbarium with that of the Farlow is proceeding apace. Fifteen hundred packets were incorporated during the past year alone. Treasurer Harold Brotzman reported that expenses exceeded revenues by over \$11,000 during the past year, the balance being made up of earnings from the club's assets. Graduate Award Chair Pat Swain announced that last year there were two winners of the graduate student award, and that the deadline for the current year had just passed. Library Chair Les Mehrhoff reported on new acquisitions to the club's library. Curator of Vascular Plants Ray Angelo reported on additions to the club's herbarium. Les and Arthur Gilman are responsible for the bulk of the additional 202 specimens. The Nominating Committee chaired by David Conant was called upon to present this year's slate of councilors and officers, and it was adopted by the membership by acclamation. A bumper crop of new club members, including 9 via our business office at Allen Press, was next introduced before President Standley called for announcements. The New England Wild Flower Society will be traveling throughout the region March 31-April 5 with their centennial symposium, "Untaming the Land." The Pringle Herbarium of the UVM looks ahead to its centennial celebration in 2002. Pringle Herbarium Director David Barrington also announced that the Jocelyn Botanical Society would be holding its meeting at UVM in July – a rare event for the group from Maine.

The business of the club concluded, Vice President Paul Somers introduced the evening's speaker whose topic was "Hengduan Mountains, China: Hotspot of Biodiversity." Dr. David Boufford came to his position as Assistant Director of Collections in the Harvard University Herbaria from the Missouri Botanical Garden and Washington University of St. Louis via the Carnegie Museum of Natural History in Pittsburgh. The staff at Harvard has been interested in the flora of the Far East for nearly a century and a half, and David Boufford is no exception. David took his first trip to Japan in 1977, followed by a series of trips to China beginning in 1980, while he was at the Carnegie Museum. He currently serves on the editorial committees for the *Flora of China*, *Flora of Japan*, *Flora of Taiwan*, and the *Flora of Korea*. He will also serve for a few more months as the Executive Director of the *Flora of North America* project. He was invited to speak this evening about his most recent work and travels in China.

The Hengduan Mountains of southwestern China are one of the world's 25 designated "hotspots" for biodiversity. These 25 hotspots make up less than 4 percent of the world's land area, but are estimated to harbor more than 40 percent of the world's species. Most of the hotspots are in the tropics, but other designated areas include Cape Province of South Africa, the California Floristic Province, and the island of Madagascar. The Hengduan Mountain hotspot is one of the few, and the most diverse, in the north-temperate zone. This corner of the Tibetan Plateau in eastern Tibet and western Sichuan province supports more than 3500 endemic species of vascular plants. The remarkable diversity of the region was first revealed by the work of Joseph Rock, George Forrest, and various Russian explorers. The area was explored further in the early 1940s by Dr. Shiu Ying Hu of Harvard, the first woman to carry out field work in China, and more recently by Chinese botanists. The geology of the area has almost certainly been a major influence on the biota of the area.

The Qing-Zang Plateau (Qinghai and Xizang in Tibet) began to rise about 45 mya as several separate landmasses, and eventually the Indian subcontinent, plowed into the southern flank of Asia. The squeezing of the plateau to the southeast has resulted in a series of deep, parallel gorges on the eastern edge of the Himalayan range through which three of the world's great rivers, the Yangtze, Mekong and Salween, flow. At one point these rivers are only 70 kilometers from one another. The ridges above these rivers reach 6000 meters in places, from 1500 meters at the water's edge. Slightly farther to the west are also the Irrawaddy and the Yarlong Zangbo; the latter abruptly changes from an easterly flowing stream in southern Tibet to fall precipitously southward along the front edge of the Himalaya to become the Brahmaputra in India. The Hengduan region is the size of Texas, but supports somewhere between 9000 and 12,000 species of vascular plants, representing approximately one third of the entire flora of China. David painted a portrait of the Hengduan Mountains with a series of stunning photographs, and against that backdrop took us on a tour of the many and varied habitats of the region.

At 3500 to 3800 meters, a boreal forest of spruce, fir, pine, willow and poplar creates the landscape. The herbaceous flora of these woods and forest edges comprises some of the 1200 orchids of China, as well as genera such as *Lilium*, *Arisaema* (40 spp.), *Aconitum* (100 spp.), *Primula*, *Caltha*, and *Iris* grow in associated wet meadows. The recently discovered *Acanthochlamys bracteata* is rare in dry valleys in this area. Its classification has been puzzling, having first been described in the Amaryllidaceae, then put in the Velloziaceae, and more recently placed in its own family, the Acanthochlamydeae. Molecular evidence indicates a relationship with Velloziaceae, a family primarily of the southern hemisphere. If this placement is correct, *Acanthochlamys*, or an ancestor, may have been a passenger on the Indian raft as it traveled from the southern hemisphere to its present position. In grazed meadows at slightly higher elevation grow many plants that are distasteful, or poisonous, to cattle, such as *Stellera chamaejasme* (Thymelaeaceae) and *Podophyllum hexandrum* (Berberidaceae). At around 4000-4200 meters alpine meadows support a rich herbaceous flora, including a yellow *Cyananthus* (Campanulaceae) and numerous composites, such as *Saussurea* (more than 100 spp.), *Leontopodium*, or edelweiss (about 25 spp.), and *Anaphalis* (28 spp.) Also found in these high meadows are more than 100 species of gentians, one-third of all of China's gentians.

At the chilly heights of 4000 and more meters, a rhubarb, *Rheum alexandrae* (Polygonaceae), creates greenhouse-like temperatures for warming insects amongst the yellow bracts of its inflorescence. If the bracts are removed, pollen does not develop normally. The inflated bracts of several species of *Saussurea*, the calyx of *Przewalskia* of the Solanaceae, and the petals of species of *Lilium* clearly offer the same advantage to developing flowers. David continued the trek through the saddles between mountains and on to the mountain crests at 4600 meters. No woody vegetation can stand on the windward slopes, though *Rhododendron* thrives to leeward. The diversity of *Rhododendron* (224 spp.) found in these mountains is phenomenal, compared with 24 species for all of North America and 32 for Nepal. Significant hybridization has occurred within the group. Yellow-flowered species can be found in large numbers. Across slopes of shale that are hot in summer, cold in winter, and constantly moving, are found very hairy species of *Phyllophyton*, *Eriophyton*, and *Saussurea*, and plants with pale, light-reflective, glabrous leaves, such as in *Corydalis benecincta*. Up on the plateau itself buttercups grow at the edges of wet areas and lakes. These lakes trend from freshwater in the southeast to salty and alkaline in the desert-like interior of the plateau. Many are surrounded by thousands of yellow- or purple-flowered individuals of *Pedicularis*. Further images of *Pedicularis* (215 spp. in the Hengduan area), to show the range of variation in the genus, and *Euphrasia* rounded out this most memorable presentation of one of the world's most important botanical regions.

The meeting adjourned to dessert and refreshments at 8:45 PM.