

New England Botanical Club – Minutes of the 971st Meeting

4 October 2001 Karen Searcy, Recording Secretary *pro tempore*

The 744th meeting of the New England Botanical Club, Inc., being the 971st meeting since the original organization, met in the Main Lecture Hall of the Biological Laboratories, Harvard University, Cambridge, Massachusetts, on Friday, 4 October 2001. President Lisa Standley called the meeting to order at 7:05 PM with 37 members and guests present. Nine new members were announced. Lisa then read a synopsis of the September meeting on Cape Cod. Sadly, Lisa also noted that Rolla M. Tryon, President of the NEBC from 1986-1988 and Editor of *Rhodora* from 1977-1982, died August 21st. She read a short obituary written by David Conant. Other announcements: the Torrey Botanical Society will be hosting a series of six talks entitled “A History of Botany in North America;” the CD version of Robert Bertin's *A Vascular Flora of Worcester, Massachusetts* is now available for \$12.00. Barre Hellquist informed us that Gene C. Ogden recently passed away; he was the State Botanist for New York for many years and had also worked at the University of Maine.

Lisa then introduced Dr. Kanchi Gandhi, Gray Herbarium Card Index Bibliographer and Database Manager and Editor of the International Plant Name Index for Harvard University. Gandhi spoke to us on “The Phytogeography of India.” To familiarize the audience with the subcontinent, Gandhi presented a series of slides showing the geographical, geological, and political India. British India at one time included Sri Lanka (Ceylon) and Myanmar (Burma), as well as what is now Pakistan, part of Afghanistan, and Bangladesh. In 1907 J. D. Hooker divided what was then India and Malaysia into nine phytogeographical provinces. Of these, Sri Lanka, Myanmar, and Malaysia represent three provinces, whereas the remaining six provinces encompass what is now recognized as India: (1) the Eastern Himalayan Province (including Nepal) receives 100-600 in. rain/year and the vegetation is lush; (2) the Western Himalayan Province is relatively drier than its eastern counterpart; (3) the Indus Plain is dry, with desert areas and thorny vegetation; (4) the Gangetic Plain receives moderate rainfall and is characterized by dry deciduous forest; (5) the Malabar Province (Western Ghats) along the southwestern coast receives 75-200 in. rain/year with rainfall declining markedly as one moves east, and it supports a variety of forest types; and (6) the Deccan Province on the eastern side of Indian peninsula is drier and is characterized by a dry deciduous forest.

Gandhi then showed slides of plants that occur in most parts of India. These included *Ficus religiosa*, commonly called the Bo-tree because Buddha was sitting under this tree when he received enlightenment. It is native in the Himalayas but is planted throughout India, especially in temples. *Ficus benghalensis*, the banyan tree, is a common shade tree; it keeps producing prop roots and can extend over a large area if undisturbed. Others are widely planted because of their economic or medicinal value. Examples included: *Azadirachta indica* (neem); *Mangifera indica* (mango); *Tamarindus indicus* (tamarind); *Musa* (banana); *Artocarpus* (Jack fruit); and *Moringa oleifera* (called the miracle plant because of the high vitamin and mineral content of its leaves and fruits). Gandhi also mentioned several other common plants including succulent members of the Euphorbiaceae found in the scrub area of the Deccan phytogeographic province and some common aquatics such as *Trapa*, *Nymphaea*, *Nelumbo*, and *Ottelia*.

Next, Gandhi described some of the regional diversity in India, focusing first on the Eastern Himalayan region and its botanical affinities with China. Some genera the region has in common with eastern Asia are *Reevesia*, *Dillenia*, *Adina*, and *Alnus*. In contrast, he described a sort of transect of the vegetation in Hassan, which is representative of the diversity in the state of Karnataka on the Arabian Sea. Southwestern Hassan is characterized by moist deciduous forest, rainforest, and semi-evergreen forest typical of the Malabar phytogeographic province. This end of the spectrum receives between 100-200 in. rain/year and one can find species of *Drosera*, *Garcinia*, *Costus*, *Arisaema*, and *Strobilanthus* as well as *Piper nigrum* and several species of palms. In northeastern Hassan the rainfall is only 15-25 in./year and the vegetation is similar to that of the Deccan phytogeographic province: scrub and dry deciduous forest. Some notable plants of this area are *Gloriosa superba* (a lily with tendril-like leaf tips), *Dodonaea viscosa* (varnish leaf), *Pterocarpus marsupium*, *Tectona grandis* (teak), and *Santalum album* (the fragrant sandalwood tree).

Once we had some idea of the diversity of the Indian flora, Gandhi went back to the theme of phytogeography. He stated that the broad divisions of Hooker were modified in 1939 by Chatterjee and in 1955 by Razi; the latter identified 21 phytogeographic regions within present-day India. Although India is about 1/3 the size of the United States, it has a relatively diverse angiosperm flora of about 17,000 species compared with 25,000 for the U.S. Hooker commented that India was a “meeting place” for plants from surrounding regions and suggested that it had no recognizable indigenous species. Subsequent work has shown this to be an overstatement; although India has no endemic families, about 140 genera and 5100 species (ca. 30% of the flora) are endemic. Three areas of endemism are identified, with most of the endemics occurring in the Himalayas (3500 spp.) and the Malabar province (1500 spp.). These two regions of high endemism are separated by the largely sedimentary Gangetic Plain, resulting in a second type of unique distribution: disjunct genera. For example, 75 species of *Impatiens* are found only in the Malabar Province and 100 in the Himalayas, while none occur in the Gangetic Plain. Another disjunct genus is *Rhododendron*, with one species in the south and over 100 in the Himalayan region. Gandhi said there were two hypotheses to explain the disjunct distributions: long distance dispersal and Pleistocene glaciation that once covered southern India. Gandhi concluded his presentation by showing slides representing families and genera with disjunct or endemic distributions within India. The meeting adjourned at 8:20 for conversation and refreshments.