

The foliage dies down in summer but comes up again in early spring or late winter, where the climate is mild. Apparently withstands zero temperatures. Collected in pockets of humus soil beneath tall trees on a rocky mountain slope at an elevation of over 2,000 feet above sea level. May possibly be hardy at Washington, D.C." (Meyer.)

*Malus theifera* (Malaceae), 45681. From Jamaica Plain, Massachusetts. Presented by the Arnold Arboretum. A small handsome tree with stiff spreading branches, resembling a cherry tree when in bloom. The fragrant flowers are white or light pink with purple calyx, and the young leaves are purplish. The fruit is globose, light greenish yellow with reddish cheek, ripening in Massachusetts in October. The tree is Asiatic in origin, ranging from China to Assam. (Adapted from Rehder, and also Bailey, Standard Cyclopedia of Horticulture, p. 2872.)

*Pavetta zimmermanniana* (Rubiaceae), 45554. From Buitenzorg, Java. Presented by the Director of the Botanic Gardens. A small rubiaceaceous tree or shrub, with opposite, nearly elliptic leaves and clusters of small, slender-tubed white flowers. "The remarkable researches of Zimmerman and Faber, detailed in the Jahrbücher für Wissenschaftliche Botanik, vol. 51, p. 285, 1912, and vol. 54, p. 243, 1914, make this species of unusual interest. Faber has proved that the leaves of this and several other species of *Pavetta*, *Psychotria*, and possibly other genera of the Rubiaceae contain colonies of a non-motile, nitrogen-fixing bacterium which he names *Myco-bacterium rubiacearum*. The bacteria of this species almost invariably inhabit the micropyle of the young seed and, when the seed germinates, grow through certain stomata of the very young leaves and into the intra-cellular spaces formed in the leaf tissues around these stomata. Cavities are formed through the growth of the epidermal cells which later close entirely and make bacterial nodules which are deeply imbedded in the leaf tissues. A single leaf may have several dozen of these symbiotic bacterial nodules. Faber was able, by treating the seeds with hot water and a solution of sublimate to kill the inhabiting myco-bacteria and, later, to infect part of the seedlings grown from these seeds with pure cultures of the bacterium. The artificially infected seedlings grown in soil free from combined nitrogen, grew well