

The "Hope of Spring" Magnolia Finally Flowers in Boston

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After a difficult start, *Magnolia biondii* from China flowered in the Arboretum for the first time in March of 1991.

The spring and early summer of 1991 at the Arnold Arboretum were extraordinary with regard to the heavy flowering of many of the trees and shrubs within the Arboretum's collections. Nor was this phenomenon restricted to the confines of the Arboretum, for across the Northeast crabapples, flowering dogwoods, and other ornamental trees and shrubs produced an abundance of bloom that marked the season as outstanding. The relatively mild winter of 1990-1991 and the abundant rainfall that fell during the summer of 1990 combined to make the spring of 1991 an exceptionally floriferous one.

Not only was there an abundance of bloom, but many of the newer accessions at the Arboretum, some of which have been considered only marginally hardy in our location, also flowered for the first time. Included in this group were two species of *Sinojackia* (*S. rehderiana* and *S. xylocarpa*), rare members of the *Styrax* family from China, *Liquidambar acaylcina*, a recently described species of sweetgum, also from China, and *Fortunearia sinensis*, a little-known genus in the witch hazel family named to honor the well-known nineteenth-century plant hunter, Robert Fortune. Several members of the magnolia family also flowered for the first time, including a hybrid tulip tree that combines the American and Chinese species (*Liriodendron chinensis* x *L. tulipifera*), *Magnolia officinalis* var.

biloba, and *Magnolia biondii*. While we were eager to examine each of these in turn, and to document their flowering with voucher herbarium specimens and photographs, the first flowering of the last-named magnolia presented us with the opportunity to examine the flowers of this species and to fix its position in the classification of the genus *Magnolia*.

Early History of the Species

Magnolia biondii was first described by the Italian botanist Renato Pampanini in 1910 based on specimens collected in Hubei Province in central China in 1906 by the Italian missionary and naturalist, P. C. Silvestri. The plant was next collected in 1907, also in Hubei Province, by E. H. Wilson, who was traveling in China on his first expedition sponsored by the Arnold Arboretum. Wilson's specimens, one of which was in fruit, were studied by Arboretum taxonomist Alfred Rehder, and the two men named another new species, *M. aulacosperma*, based on Wilson's collections. This new species was described and published in *Plantae Wilsonianae* in 1913, with the added note that it formed "a shapely tree with many rather slender and spreading branches and wealth of leaves."

However, the late James E. Dandy of the British Museum, a noted English authority on the genus, determined that Rehder and Wil-



Blooming for the very first time at the Arnold Arboretum, the delicate, creamy-white flowers of Magnolia biondii (AA #1216-77-B) were photographed on 29 March 1991. Photo by Rácz and Debreczy.

son's *Magnolia aulacosperma* was the same species collected by Silvestri and originally named by Pampanini in 1910. As a consequence of his earlier description, Pampanini's name, *M. biondii*, is the correct one for this central and northern Chinese species, which is now known to occur in eastern Sichuan, Honan, and Shensi provinces, as well as in western Hubei, where it was first encountered by both Silvestri and Wilson. Nowhere a common tree and apparently occurring only as widely scattered individual specimens, it has the northernmost distribution of any Chinese magnolia with the exception of *M. sieboldii*, a species that occurs in eastern and northern China and also in Japan and Korea. Its Chinese common name, *wan chun hwa*, means "hope for spring flower," and refers to its early flowering in late winter to early spring (Ting, 1977).

Silvestri's collection consisted of flowering specimens, and although Wilson procured sufficient fruits so that seeds were processed at the Arnold Arboretum greenhouses, neither man successfully introduced the species into cultivation in western gardens. Rehder (1927, 1940) nonetheless listed its year of introduction as 1908, but the seeds entrusted to Jackson Dawson at the Arboretum greenhouses either failed to germinate or the young plants failed to grow in the Arboretum nurseries, and there is no record of the plants having been added to the Arboretum's collections. In this regard, sometime before 1927 Wilson wrote to J. G. Millais, another noted English authority on the genus, "It is the only *Magnolia* I found in China which I failed to introduce into gardens" (Millais, 1927, p.85).

Following Wilson's failure, the introduction of *Magnolia biondii* into cultivation in Europe and North America became clouded by speculation, inasmuch as unsubstantiated rumors of its existence in the nursery trade in England and its inclusion in collections in Canada, the United States, and Germany were occasionally reported (Savage, 1974; Kehr, 1986). Apparently, these erroneous reports were based on the confusion of *Magnolia*

cylindrica, a similar Chinese species, with *M. biondii*.

First Successful Introduction

To our knowledge, *Magnolia biondii* was first successfully introduced into cultivation in North America by Professor Y. C. Ting of Boston College in 1977 when he traveled to Honan Province to visit his homeland and relatives (Ting, 1977). Professor Ting had been encouraged to obtain seeds of this elusive *Magnolia* by members of the American Magnolia Society, and on returning home to Boston after a successful trip—a similar journey the previous year had been curtailed by a severe earthquake—he kindly gave half the seeds he had obtained to members of that Society and half to the Arnold Arboretum. These seeds, accessioned as #1216-77, germinated in the Arboretum greenhouses in the spring of 1978, and twenty-seven seedlings resulted. Cuttings taken from these plants were rooted in the summer of 1981 and distributed to members of the American Magnolia Society in the spring of 1982 (Dei Tredici and Alexander, 1981).

The plant that flowered for the first time in the spring of 1991 was one of the original seedlings from lot #1216-77. It now stands nearly four meters tall and three meters wide. While it has a central leader at this point, there are also several secondary trunks that will probably become codominant, suggesting that this particular individual will eventually become a multistemmed tree. We cannot say whether this condition is due to the genetics of the species or to the fact that this specimen was somewhat stunted in its development by virtue of being grown in a container until 1984, when it was finally planted in the magnolia collection adjacent to the Hunnewell building.

Taxonomy

Based on Pampanini's original description, *Magnolia biondii* has been thought to belong to the *Buergeria* section of the genus *Magno-*



Magnolia biondii in bloom on 29 March 1991. The plant is just over four meters (ten feet) tall and looks as if it will become multistemmed over time. Photo by Rácz and Debreczy.

lia, a group of five species restricted to eastern Asia characterized by the precocious appearance of the flowers in spring before the foliage and by an outer whorl of three very small, often early-deciduous, sepal-like tepals. However, the lack of flowering specimens of *M. biondii* in western herbaria (other than Silvestri's in the herbarium in Florence, Italy) has left the question of sectional placement tentative. While most magnolia enthusiasts have accepted Pampanini's description as correct, uncertainty has remained, especially on the part of those who prefer to see evidence firsthand. This uncertainty was compounded when August Kehr reported that scion material of *M. biondii* that he had received from the Magnolia Society distribution had flowered in his North Carolina garden in the spring of 1986, undoubtedly the first time the species produced flowers outside of its native China. It turns out that Kehr had grafted the scion onto a mature specimen of *M. kobus*, and that he could not detect the expected outer whorl of small sepal-like tepals on the flowers produced by the grafted branch (Kehr, 1986).

As a consequence, it was with great interest that we inspected the morphology of the flowers produced by the Arnold Arboretum plant for the first time on March 27, 1991. Suffice it to say that these flowers corresponded to the requirements for placement of *Magnolia biondii* in section Buergeria: a whorl of three, linear, greenish-white tepals, each measuring about 10 millimeters in length by about 4 millimeters in width, comprises the outermost whorl of tepals. By contrast, the tepals of the inner two whorls (each consisting of three tepals) measure 50 millimeters in length and 25 millimeters in width, and these obovate to spatulate tepals are white with the bases tinged purplish. The small tepals of the outer whorl, however, were seen to fall from many flowers along with the protective bud scales as the flowers opened, and unless only partially opened flowers are inspected, the small tepals may not be found.



A view of the stamens and gynoecium of *Magnolia biondii*. Photo by Peter Del Tredici.

Occasionally, the three small tepals do persist after the woolly bud scales have fallen, but rarely do they persist for more than a day or two. This fact easily explains Dr. Kehr's observations of the flowers produced in his garden in the spring of 1986.

Other characteristics of species of section Buergeria (particularly *Magnolia salicifolia*, the so-called anise-leaved or willow-leaved magnolia) are shared by the Arnold Arboretum plant of *M. biondii* and combine to confirm its sectional placement. These features include the yellowish-green coloration of the young twigs and a pronounced lemony or anise-like odor emitted when the fresh twigs are broken or otherwise bruised. Now that a flowering specimen of *M. biondii* is growing in the Arnold Arboretum, comparisons between it and the other members of section Buergeria, which include the above-named *M. salicifolia* from Japan, *M. kobus* and *M. stellata* also from Japan, as well as a second Chinese species, *M. cylindrica*, can be easily facilitated in our collections. As of this writ-

ing, the Arboretum plant of *M. biondii* has numerous large flower buds, which promise that the plant will flower again in the spring of 1992. The fact that its flowers opened very early in the spring of 1991 (March 27) suggests that the species is a prime candidate for damage from late frosts. By coincidence, *M. biondii* opened its flowers on exactly the same date as another early-blooming magnolia recently introduced from China, *M. zenii* (Del Tredici and Spongberg, 1989). Whether this curious synchrony will occur again this year remains to be seen.

In order to determine the limits of hardiness of *Magnolia biondii*, as well as to learn more about the length of time necessary for the species to reach sexual maturity, the authors would like to hear from anyone who received one of the distribution cuttings in 1982.

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