

Magnolia Officinalis: Some Questions

by Stephen A. Spongberg

To suggest that all the taxonomic problems in the genus *Magnolia* have been or are about to be resolved would be far from accurate, and even though some apparently are willing to adopt my recent treatment of the cultivated species of *Magnolia* (Spongberg, 1976), I would like to stress that I am hopeful that my study will stimulate further discussions and investigations of the limits and relationships of the species of *Magnolia*, and that it will receive a critical reading by those who perhaps know the genus best, the people who grow magnolias.

While some problems have been resolved, others (some unexpectedly) have come to light and require further study. In my own mind, more questions remain unanswered than before I began exploring this fascinating genus. This article is intended to point out one of these problems, to suggest some questions and a possible explanation and, I hope, enlist the help of members of the AMS in its solution.

Certainly one of the most interesting groups within *Magnolia* is Sec. *Rytidospermum*, comprised of five or six North American taxa and four eastern Asiatic taxa, all characterized by large, deciduous leaves in false whorls at the ends of branchlets but alternate and widely spaced on new shoots. Although the North American members of this group (including *M. tripetala* L., *M. macrophylla* Michx. and its subsp. *ashei* (Weatherby) Spongberg, *M. fraseri* Walt. and its subsp. *pyramidata* (Bart.) Pampanini, and *M. dealbata* Zucc.) are relatively well known, the Asiatic taxa are less understood. Traditionally three species have been recognized in eastern Asia, viz. *M. rostrata* W. W. Smith, of China, Tibet, and Upper Burma; *M. officinalis* Rehder & Wilson, also of China; and *M. hypoleuca* Sieb. & Zucc., of the southern Kurile Islands, Japan and the Ryukyu Islands.

In North America *Magnolia hypoleuca* is occasionally cultivated in botanical gardens, arboreta, and private collections, and it is undoubtedly the Asiatic species of Sec.

Rytidospermum most widely known to horticulturists and botanists in the West. *Magnolia officinalis*, on the other hand, is only infrequently encountered in western gardens, even though it was introduced into western horticulture by E. H. Wilson as long ago as 1900 during his travels in China sponsored by the Veitch nursery firm and again in 1906 by the Arnold Arboretum.

When it was first introduced, the Veitch firm referred to *M. officinalis* as the Chinese *M. hypoleuca*, and it was not until 1913, after Wilson had returned to China on behalf of the Arnold Arboretum, that it was distinguished from the Japanese species and named by Rehder and Wilson in volume one, part three of *Plantae Wilsonianae*. In the same publication, Rehder and Wilson also named *M. officinalis* var. *biloba*, distinguishing it from the type by its leaves, which are all deeply notched or bilobed at the apex. Not until 1936, however, was *M. officinalis* var. *biloba* introduced into western horticulture when seeds offered by the Lushan Botanic Garden, Kiukiang, China, were obtained by western horticulturists and nurserymen. To this day var. *biloba* remains rare in cultivation.

In my study of the variation of *Magnolia hypoleuca*, *M. officinalis* var. *officinalis*, and *M. officinalis* var. *biloba*, it became obvious that the extremely close relationships of the three taxa are confusing and in need of clarification. It also became understandable that the Veitch nursery firm had considered the Chinese plants to be mainland forms of *M. hypoleuca*, and at the time I was preparing the manuscript for the treatment of the cultivated Magnolias, my instinct was to place *M. officinalis* at some subspecific rank under *M. hypoleuca* to reflect taxonomically their extremely close relationships. But I was hesitant to follow my instinct, largely because I had limited herbarium material on which to base my judgments, and I was not familiar with *M. officinalis* in cultivation. I had seen only plants of *M. officinalis* var. *biloba* in cultivation at the Hillier Arboretum in England.

In the end I satisfied my misgivings by pointing out in a discussion under *Magnolia officinalis* that the differences between that species and *M. hypoleuca* are few and largely subjective. The only consistent difference I found to separate the two taxa is the shape of the mature fruit aggregates. In *M. hypoleuca* the lowermost follicles are concave and decurrent along the floral axis, giving the aggregate an attenuate base (Figure 1a), while in *M. officinalis* the basal follicles are convex and the aggregate has a rounded base (Figure 1b). Other reputed differences between the two species relating to the color of young shoots and petioles are less well defined and are probably subject to environmental modification, causing them to be of little or no value in determining dried, herbarium specimens.

The identity of specimens I was studying that had been collected in Asia, however, could be

partially resolved by the geographic locale from which they had been collected; Japanese-collected material could be assigned to *M. hypoleuca*, while Chinese materials could be referred to *M. officinalis*. For cultivated specimens, this geographical information is rarely known unless the plant is of documented origin, yet species determinations based on geography alone are, to my mind, usually indicative of taxonomic problems.

Magnolia officinalis var. *biloba*, on the other hand, appeared at once to be easily identifiable due to the characteristic bilobed or deeply notched leaf apices (Figure 1c), as compared to those of both *M. officinalis* var. *officinalis* and *M. hypoleuca*, which are recorded as having rounded (Figure 1d) or abruptly acute (Figure 1e) apices. This apex feature is so unique that W. C. Cheng of the Institute of Forest Science, Peking, China, has recently treated var. *biloba*

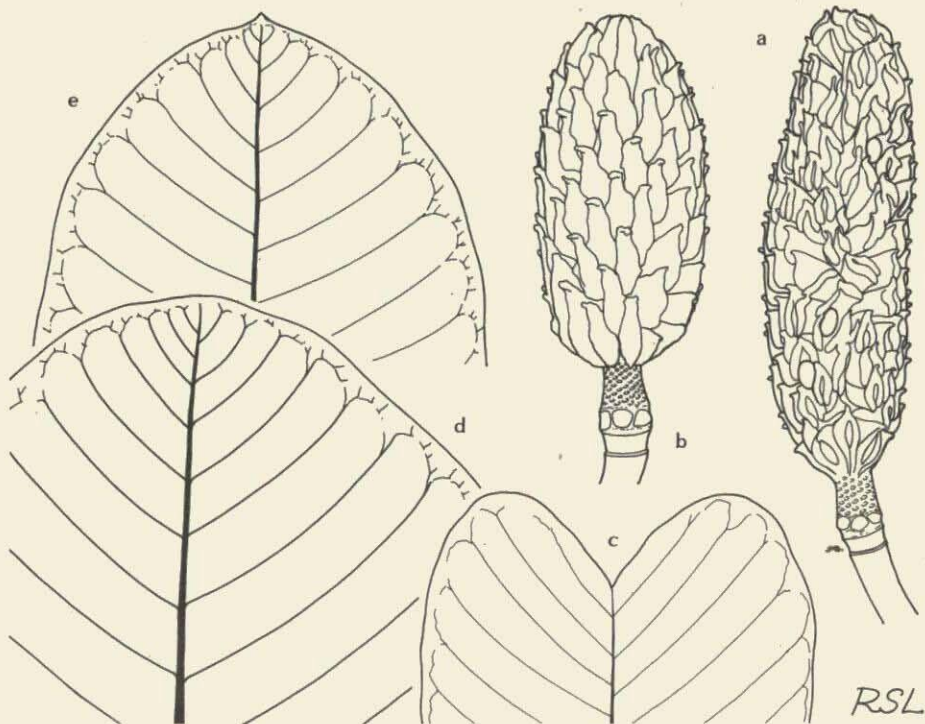


FIGURE 1. Fruit aggregates and leaf apices of *Magnolia hypoleuca* and *M. officinalis*: a—fruit aggregate of *M. hypoleuca*, $\times \frac{1}{4}$; b—fruit aggregate of *M. officinalis*, probably of var. *biloba*, $\times \frac{1}{4}$; c—bilobed leaf apex of *M. officinalis* var. *biloba*, $\times \frac{1}{4}$; d—rounded leaf apex of *M. hypoleuca*, $\times \frac{1}{4}$; e—abruptly acute leaf apex of *M. hypoleuca*, $\times \frac{1}{4}$. (Drawings by Robin S. Lefberg.)