

as a distinct species, *M. biloba* (Rehder & Wilson) Cheng. This combination appears in the Chinese publication, *Iconographia Cormophytorum Sinicorum* 1: 787. 1972, yet the change in rank must have been made by Cheng in an earlier publication since the basionym is not given. The descriptions of *M. biloba* and *M. officinalis* given in this work (in Chinese) lack other, truly diagnostic characters, but it is of interest that seedlings and young trees of *M. biloba* are stated to produce leaves with rounded apices. *Magnolia biloba* is listed as growing in warm, damp, fertile acid soils in Fukien, Chekiang, Anhwei, Kiangsi, and Hunan provinces, while *M. officinalis* is reported as growing in more northern areas along the Yangtze River and in Shensi and Kansu Provinces.

Both species are said to be used medicinally, the bark and flower buds being of value. (The name *officinalis* apparently was given to indicate this use.) Wilson wrote that he located only cultivated plants of both *M. officinalis* var. *officinalis* and var. *biloba* in China, adding, "The removal of bark causes the death of the tree and this would account for its disappearance from the forests."

The importance of the bilobed leaf apex as a criterion of var. *biloba* and the taxonomic status of that taxon have been questioned by W. P. Fang (1942) and Johnstone (1955), both of whom observed that bilobed leaves occasionally occur on plants of var. *officinalis*. As a result, both

Fang and Johnstone have suggested that var. *biloba*, which was stated by Rehder and Wilson to be otherwise identical to var. *officinalis*, should not be recognized. In discussing the perplexing relationships between *Magnolia hypoleuca* and *M. officinalis*, Johnstone speculated that hybrids between the two species might be expected in gardens "where both are of flowering age." He hypothesized further that hybridization may have occurred in Asia between these two taxa, and he writes that this possibility "would seem to explain so much of the confusion which exists between these two very similar magnolias, by the possibility that some of what we now regard as examples of *M. officinalis* are in fact hybrids, introduced as seeds, between this and *M. obovata* [*hypoleuca*]."

That hybridization between these two closely related species might explain the taxonomic difficulties seemed remote to me in 1976, even though Joseph Witt of the University of Washington Arboretum in Seattle had kindly sent me cultivated material of *Magnolia officinalis* that in certain characters did not correspond with the herbarium specimens I had studied. It was not until I was in Korea in October of 1977 that I began to think Johnstone's hypothesis seemed plausible.

Traveling with Dr. Richard E. Weaver, Jr., also of the Arnold Arboretum, my wife Happy, and our host in Korea, Carl Ferris Miller, we were collecting seeds of woody plants for trial

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at the Arnold Arboretum. On October 4, en route to Seoul from Carl's Chollipo Arboretum, we stopped in the town of Taean in the province of Chungchong-Namdo, where Carl took us to an old garden to see an exceptionally fine specimen of an unexpected American native, *Taxodium distichum*. Spotting a magnificent *Magnolia* nearby, which we had automatically assumed to be *M. hypoleuca*, we were astounded to see numerous bilobed leaves indicative of *M. officinalis* var. *biloba*. There were, however, at least an equal number of unlobed leaves (Figure 2), and I could only suggest that this tree, which we estimated to be slightly in excess of 50 feet in height, is an example of *M. officinalis* var. *officinalis* with some bilobed leaves.

Apparently *Magnolia officinalis* has not been recorded for Korea before; yet we located several additional young trees with bilobed leaves in other areas of the country. *Magnolia hypoleuca* is not an uncommon cultivated tree in the Republic of South Korea, and its presence there is undoubtedly partially explained by the former long-standing influence upon and occupation of the

country by the Japanese. Taean is not far distant from the town of Anhung on the Yellow Sea and once was the Korean terminus of the trade route between Tientsin, near Peking, in China. It may have been over this ancient sea route that *M. officinalis* was first introduced into Korea.

With the kind assistance of the garden's owner, we were successful in obtaining fruit aggregates from the Taean tree, and I was surprised again to note that the basal follicles were concave and that the aggregates had attenuate bases like those of *M. hypoleuca*.

The presence of leaves with acute, rounded, and bilobed apices and fruit aggregates with *hypoleuca*-like bases does suggest that the Taean tree (and others like it in cultivation in western gardens) could be a hybrid between a parent with bilobed leaf apices and another parent with rounded or abruptly acute apices. The attenuate base of the fruit aggregates produced on the Taean tree weakens my contention that *M. officinalis* is characterized by aggregates with rounded bases; yet if that tree is



FIGURE 2. Variation in leaf apices from a single tree of *Magnolia officinalis* var. *officinalis* found growing in Taean, Korea, in October 1977. Note acute-tipped leaves (lower right and upper right), rounded leaf (lower left), and bilobed leaves. (Photo by S. A. Sponberg from a color transparency.)



a hybrid the *hypoleuca*-like aggregates might be more easily explained. The obvious candidate for one of the hypothetical parents is *M. hypoleuca*, while *M. officinalis* var. *biloba* (or *M. biloba*) is the other circumstantial parent of the putative hybrid.

Numerous questions concerning the morphological variability of the Chinese plants and *Magnolia hypoleuca* come to mind, answers to which would help determine if the hybridization hypothesis is tenable:

1. If plants with all leaves bilobed (*Magnolia officinalis* var. *biloba* in the strict sense) comprise the "species" that is distinct from *M. hypoleuca*, does it occupy a natural range in China?
2. Are there additional characters of the plants with all bilobed leaves that separate them from plants of *M. hypoleuca* and that would also provide characters useful in the detection of hybrids between these two taxa?
3. Are there plants with both bilobed and *hypoleuca*-type leaf apices with rounded, *officinalis*-like fruit aggregates, or do all plants with both leaf types consistently produce *hypoleuca*-like fruit aggregates?
4. Conversely, are there plants with *hypoleuca*-like leaf apices (rounded or abruptly acute) that produce *officinalis*-like fruit aggregates with rounded bases?

Answers to these and other questions, based on herbarium material at my disposal, are not readily forthcoming, and one may never be for question one. As a result, I would be most appreciative to receive observations about living plants of this complex cultivated by members of

the American Magnolia Society that would be of value in solving this problem. Furthermore, I would like to propose that artificial hybridization between *Magnolia hypoleuca*,  $2n = 38$ , and *M. officinalis* var. *biloba*, also probably  $2n = 38$ , might be the key to the solution of this problem. While such a program would undoubtedly require years before the resulting evidence could be observed and brought to bear, it is probably the most direct way to determine if plants now grown as *M. officinalis* var. *officinalis* are hybrids between *M. hypoleuca* and *M. officinalis* var. *biloba*. In addition to solving a taxonomic puzzle, it might explain why Wilson observed *M. officinalis* var. *officinalis* only as a cultivated tree in China.

*Stephen Spongberg is a taxonomist at the Arnold Arboretum of Harvard University and has over the past several years made significant studies and important observations concerning relationships in the genus Magnolia.*

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- Ken Durio (Robin No. 4) writes of a basal fungus attacking large portions of the lower trunk and roots of larger size magnolias. Ken also writes persuasively of the need for us all to "persist in trying to educate and promote" so that others will appreciate the singular beauty of magnolias and will grow them. He himself donates plants to churches and schools so people will see them and want

them. — Harry Heineman.

- Dick Figlar (Robin No. 4), writing from his new home base in St. Louis, notes that *M. grandiflora* is used extensively in both public and private plantings there, much to his surprise. It's the most popular magnolia in the St. Louis area, as is *M. × soulangiana* where he recently lived in New Jersey. — Harry Heineman.

## Hellbox

Wherein the editor, erring often and human always, contritely owns to commissions and omissions in past issues, humbly and tardily attempts restitution, begs forgiveness for misleading readers and misprinting authors, shrives himself, delivers homily and opinion and incidental intelligence, and sheds sundry weights from his conscience.

In Walter Flory's magnolia chromosomes article in fall-winter 1977 issue (vol. XIII No. 2), page 9, Table 2, the chromosome number preceding "septaploid" should be 133 instead of 122. Apologies to Walter. Joe McDaniel notes concerning the article that *Magnolia*  $\times$  *soulangiana* 'Lombardy Rose,' referred to in the article as "second generation," is considered a seedling of *M.*  $\times$  s. 'Lennei,' which itself is thought to be second generation. Two others thought to be seedlings of 'Lennei' are 'Grace McDade' and 'Rustica (Rubra).'

In Joe McDaniel's review of *Hortus Third* (page 5), the first paragraph should say that the original *Standard Cyclopaedia of Horticulture* was published in six volumes, the first two in 1914. Apologies to Joe.

In the editor's greed to fudge more information into fewer pages, he used too much tiny type known to printers as six point, forgetting that the last time he dabbled with such small type was long ago when he was brighter eyed and specless. So put away your reading glass. Henceforth we'll be sparing with six point. . . . We also apologize for rashly promising a Newsletter in December and not getting it into the mail till February 2. One reason was the sidetracking of a package of articles between us and the printer's for three weeks during the Christmas mail rush, which compounded the problem because we lost our place in the line of customers at the printer. Since there is no Christmas in the forepart of 1978 we are going to be hard put to come up with an alibi if we're late again!

In this issue we resume notes taken from the folksy exchange of round robin letters among

members. You'll see them sprinkled here and there.

In this issue too, we are printing a reasonably up to date list of members with their addresses.

If in future issues you discern even more heavy handedness and light headedness it may be because the editor has just bought a modest farm of 20-odd acres in Frederick County, Maryland, and not a magnolia on it anywhere and few enough trees of any kind, but we hope to remedy that. The premises will be occupied year-round on or before August 1, 1978.

It's too late to mend matters but the editor must say that in Vol. XIII No. 2, he lost an asterisk in recopying Perry Narten's list of seed availabilities, the result being that the seed of *Magnolia denudata* (heptapeta) 'Japanese Clone' were not marked as being scarce and (says Perry) just about everybody's order requested some of them, and practically everybody will be disappointed. We regret this boner. We'd like also to acknowledge here that we received seed of *M. tripetala*, *acuminata*, and *virginiana* from Jack Alexander, propagator at Arnold Arboretum, too late to list in the printed offering, but they'll be distributed to those who didn't specify seed sources.

We announce with profound regret that Ginnie Melnick has been forced to resign as secretary-treasurer because of current poor health, and we hope that when she gets her blood pressure down she'll take on whatever other tasks she feels like handling for our society. Ginnie has been the person largely responsible for keeping us solvent by getting after us for those tardy dues and by missionarying for new members in the U.S. and overseas. She's also the originator of and den mother for the series of Round Robin correspondences among members, and when she hasn't been busy with all that has grown a magnolia or two. We'll miss her fine hand in our affairs and her trenchant comments on raising magnolias.

Dick Figlar, author of a couple of articles in recent issues, has volunteered to take over the offices of secretary-treasurer. Dick is now in the St. Louis area occupying a new home there; up front, you'll find his mailing address for PAYMENT OF THOSE DUES! And, of course, other society business.