Some Old and New Interspecific Magnolia Hybrids

by STEPHEN A. SPONGBERG

In 1820, John Sims described a new variety of the native American sweet-bay, *Magnolia virginiana*, and presented an illustration of the new plant in Curtis's Botanical Magazine under *t. 2164* (Figure 1). Sims named the plant var. *major* due to the larger size of its leaves and flowers, and in a brief discussion he suggested that the plant was similar in several respects to *M. tripetala*, the umbrella-tree, another American species. The plant on which Sims based his new variety was growing and flowering in the nursery of Archibald Thompson (sometimes spelled Thomson) at Mile End, near London, and had been grown from seed collected by Thompson in 1808 from a plant of *M. virginiana* growing in his nursery. Thompson also grew *M. tripetala*, and the intermediate appearance of the new plant obviously suggested that it might be a hybrid or "mule" between the two American species.

Despite this circumstantial evidence and the intermediate appearance of the plant, the English horticulturist J. C. Loudon, in 1838, persisted in considering it as a large-flowered variety of *Magnolia virginiana.* However, he referred to the plant as var. *Thompsoniana,* since Thompson had been distributing propagated plants under that name. Finally, in 1876, C. de Vos was convinced that the plant represented a hybrid between *M. virginiana* and *M. tripetala*, and, as a result, he gave it a species name, *M.* × *Thompsoniana.* Only recently, however, has the hybrid status of *M.* × *Thompsoniana* been proven more or less conclusively. Dr. J. C. McDaniel, a noted authority on Magnolias at the University of Illinois, has made deliberate cross-pollinations between the two suspected parental species and obtained viable seed. Plants he has grown from this seed in Illinois are almost identical with the plant Sims described as var. *major*, and photographs of McDaniel's plants in flower match the illustration in the Botanical Magazine.

It may seem somewhat ironic that *Magnolia* × *Thompsoniana*, a hybrid between two American species of *Magnolia* and the first *Magnolia* hybrid to be suspected and described, originated across the Atlantic in the nursery of an English plantsman. An important as-

Figure 1. Magnolia × Thompsoniana *as it was illustrated in* Curtis's Botanical Magazine, *t. 2164, in the year 1820.*

pect of the origin of *M.* × *Thompsoniana*, however, is the fact that the two parental species were growing in close proximity to one another *in cultivation.* Unlike species of numerous genera of flowering plants that are known or strongly suspected to hybridize freely in nature, I know of no reports of Magnolias that are considered to represent hybrids that have arisen in nature. More than likely, the absence of natural hybrids in the genus is due to the fact that within any geographical region where species of *Magnolia* occur in the native flora,

the different species occupy different habitats or have developed other barriers to hybridization, such as different blooming periods or genetic blocks that prevent fertilization or that result in inviable hybrid seed.

However, once the ornamental value of Magnolias was recognized and gardeners and horticulturists began to assemble collections of these desirable trees and shrubs, the natural barriers of habitat and geography were no longer present, and several spontaneous hybrids have originated in gardens, while horticulturists, anxious to combine characters of one species with those of another, have aided the process with paint brush, forceps, and paper bags.

That species often hybridize in gardens and arboreta is a well known fact, and many of the most highly prized woody ornamentals have originated in cultivation by means of interspecific hybridization. One only need to bring to mind *Daphne* × *Burkwoodii*, *Hamamelis* × *intermedia*, *Platanus* × *acerifolia*, *Rhododendron* PJM hybrids as well as a multitude of other *Rhododendron* hybrids, the large and popular group of hybrid-tea roses, and numerous other examples to realize the importance of interspecific hybridization to modern horticulture. Some extreme examples of hybridization are found in the orchid family where a particular hybrid plant may be the result of a series of crosses that eventually involved species of as many as five different genera. But the object of this article is to discuss briefly and call attention to some of the older and newer hybrids in the genus *Magnolia*.

Before discussing these *Magnolia* hybrids, however, a few comments concerning hybrids in general are appropriate since the terminology surrounding hybrids is potentially confusing. While geneticists may use the term hybrid interchangeably, they usually use it to refer to the progeny that result when any two genetically different organisms are mated sexually. Genetic hybrids can be produced between individuals of the same or different taxa. As an example, the plants resulting from the natural process of reproduction through cross-pollination and seed formation would, to the geneticist, constitute hybrids, since the new plants are genetically different from the two parental plants. In contrast, offspring resulting from self-pollination or matings of genetically identical individuals would constitute non-hybrids or "pure lines."

To the taxonomist and horticulturist concerned with woody ornamentals, plant hybrids consist of offspring resulting from the sexual union of plants belonging to different taxa, and this is the sense in which the term is used in this paper. Thus, *Magnolia* × *Thompsoniana* is an *inter*specific hybrid because the two parental taxa, *M. virginiana* and *M. tripetala*, belong to different species. Hybrids between two different varieties of the same species, or between a subspecies and a variety of the same species, are referred to as *intra*specific hybrids. If

breeding is carried out within a single taxon, such as cross-pollinations between red- and white-flowered plants of the same species or variety to produce a desired pink-flowered plant, the resulting plants are usually referred to as "crosses."

The names that apply to hybrids can also be rather confusing, inasmuch as some have received species names, while others are known by a formula name, and many others of horticultural importance are known chiefly by cultivar names. In general practice, taxonomists refer to interspecific hybrids by a formula that consists of the names of the two parental species linked by the sign of multiplication. The sign of multiplication is used to indicate the hybrid nature of the group, and if it can be determined, the name of the seed parent is given first. Therefore, the *Magnolia* that originated in Thompson's Mile End nursery could be assigned to *M. virginiana* × *M. tripetala* (or more usually as *M. virginiana* × *tripetala*). But, provision is made in the Code of Botanical Nomenclature for giving a hybrid a less cumbersome species, subspecies, or varietal name if, for ease of communication, one is merited. In that case, as in *M.* × *Thompsoniana*, the generic name and the species epithet (the *"Thompsoniana"* part of the species name) are linked by the sign of multiplication, again to indicate the hybrid nature of the plants. A species name has the advantage of being more easily remembered, yet the formula name has the advantage of indicating the parental species of the hybrid group. If the hybrids are the result of intraspecific cross-pollinations, the group can be recognized as a variety or subspecies, but the rank given the group can be no higher than the highest ranking parental taxon, and the connecting × is not used. Obviously, hybrids between different varieties of the same species can also be indicated by a formula name.

Another provision of the Code of Botanical Nomenclature states that once a botanical name has been given to a hybrid group, that name is a collective epithet and all hybrids, past, present, and future, between the two parental taxa, fall under that name. This provision holds, despite the fact that hybrids between particular plants of two species, subspecies, varieties, etc., may appear quite different than hybrids between other plants of the same two taxa.

In most instances, not all the plants that result from hybridization between two taxa are of horticultural merit, and often only one or two hybrid plants are outstanding additions to the ornamental flora. These plants are often given cultivar or fancy names to distinguish them from their siblings, and if these cultivars are used as stock to propagate clonal offspring, their genetically identical plants carry the same cultivar name. Cultivars may be selected from hybrid groups that otherwise are known by a formula name or by a species, subspecies, or varietal name. But in either case, the formula or other botanical

name is often omitted when reference is made to a particular cultivar. Thus, one often encounters *Magnolia* 'Charles Coates' in nursery catalogs and plant lists without reference to its botanical or formula name. It should be noted that not all cultivars are selected from hybrid groups.

Returning to *Magnolia*, one of the intriguing biological aspects that has been noted concerning interspecific hybrids is the fact that none is known between species of the two subgenera into which taxonomists customarily divide the genus. This phenomenon appears to be maintained despite the fact that in cultivation species of the two subgenera are often grown in the same collection. Apparently, in addition to the geographical and habitat differences that prevent hybrids in nature, strong genetic barriers to compatibility exist between certain species. The fact that hybrids are not known between species of the two subgenera has strengthened the validity and naturalness of the division of the genus. These two groups are briefly characterized as follows:

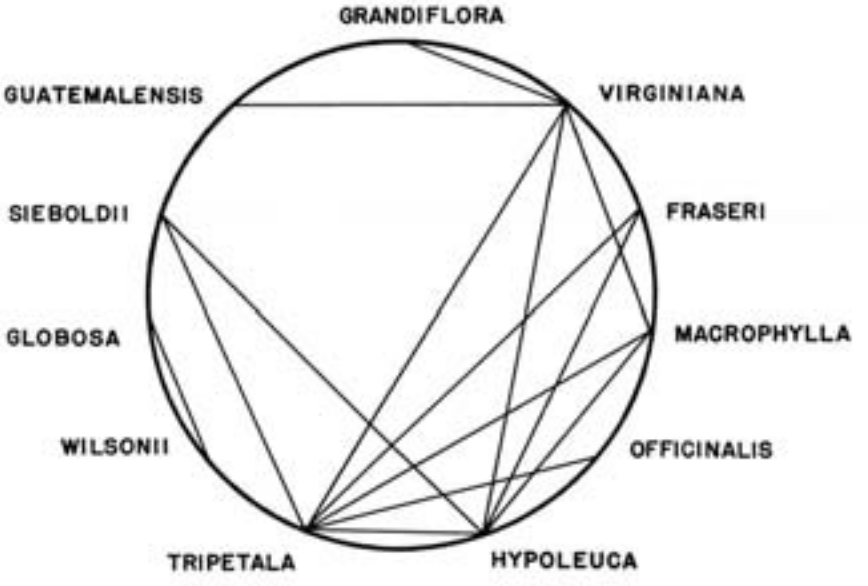
Magnolia subgenus MAGNOLIA: Evergreen or deciduous trees or shrubs, the flowers appearing with the leaves; tepals subsimilar, the outer whorl like the inner whorls, never reduced in size and sepal-like; anther sacs introrsely dehiscent.

Magnolia subgenus YULANIA: Deciduous trees and shrubs, the flowers appearing before the leaves or with the leaves; the outer whorl of tepals sometimes reduced in size and sepal-like; anther sacs laterally or sublaterally dehiscent.

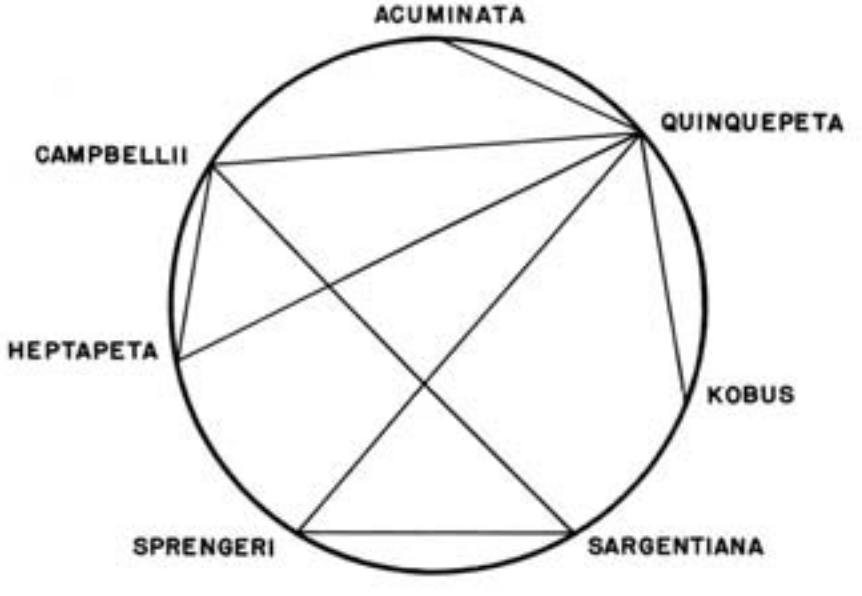
While both of these subgenera are further divided into a number of sections (each comprised of one to several species), within subgenera there appear to be weaker barriers to interspecific hybridization between species of different sections, while within sections hybrids are relatively common or easily obtained by intentional cross-pollinations. Figure 2 presents, in a diagrammatic fashion, the interspecific hybrids that are known or suspected in subgenus MAGNOLIA and subgenus YULANIA, respectively.[1] The lines connecting the species names that appear on the periphery of the circles indicate that interspecific hybrids are known or strongly suspected between the species so linked. Many of these hybrids have been produced in recent years as the results of intentional cross-pollinations by *Magnolia* enthusiasts, and most are currently of very limited distribution in cultivation and are not available commercially. As a result, the

[1] The species and interspecific hybrids indicated in these diagrams are those accepted in my treatment of the cultivated Magnoliaceae that is scheduled to appear in the July, 1976, number of the *Journal of the Arnold Arboretum*. In that treatment the status of several previously recognized hybrid groups that are not included here are rejected and the reasons discussed.

SUBGENUS MAGNOLIA



SUBGENUS YULANIA



notes that follow concern some of the interspecific hybrids that are available from nurseries specializing in Magnolias, and these notes are followed by a short list of nurseries I know of that offer these plants for sale. Following the discussion of each hybrid, those nurseries offering plants of that hybrid for sale are listed by abbreviations explained in the nursery list.

Interspecific Hybrids of Subgenus Magnolia

Magnolia* × *Thompsoniana (Loudon) C. de Vos, Nederl. Fl. & Pomon. 131. *t.* 43. 1876.

While most aspects of this hybrid between *Magnolia virginiana* of sect. Magnolia and *M. tripetala* of sect. Rytidospermum have already been discussed, it deserves mention here that in all probability old plants of this hybrid have been derived from Thompson's original plant by clonal propagation. To my knowledge, Dr. McDaniel's plants have become available commercially only recently and are not widespread in cultivation. While *M.* × *Thompsoniana* has been considered as precariously hardy in the Philadelphia area, the new plants of this hybrid produced by Dr. McDaniel may prove hardier, since he took great care to use plants of *M. virginiana* and *M. tripetala* from northern populations as seed and pollen parents, respectively.

Usually forming large deciduous shrubs or small trees, often of ungainly habit if not pruned, plants of *Magnolia* × *Thompsoniana* are noted for their large leaves that are markedly glaucous on the undersurfaces and for their creamy white, fragrant flowers that are showier than those of either of its parents. Most easily confused with plants of *M. virginiana*, plants of the hybrid can be distinguished at any time of year by the incompletely septate pith of its young branchlets. The pith of *M. virginiana* is completely septate while young branchlets of *M. tripetala* have a continuous pith. (GF; H; T.)

Magnolia virginiana* × *M. grandiflora O. M. Freeman, Natl. Hort. Mag. 16: 161, 162. 1937.

This is another hybrid group, like *Magnolia* × *Thompsoniana*, that involves *M. virginiana* as the seed parent and an additional American species, *M. grandiflora* of sect. Theorhodon, as the pollen parent. Despite the great horticultural potential of this group, it has never been given a botanical name, although it is often referred to informally as the Freeman hybrids, after O. M. Freeman of the United States National Arboretum, who first produced plants of this parentage. Freeman made cross-pollinations between *M. virginiana* and *M. grandiflora*, the bull-bay that is native to the Coastal Plain of the southeastern United States from North Carolina to central Florida

Figure 2. Documented or strongly suspected interspecific hybrids of Magnolia *species of subgenus* Magnolia *and subgenus* Yulania.

and west to eastern Texas, in 1930 and 1931. Despite the documented influence of *M. virginiana,* plants of this evergreen hybrid resemble *M. grandiflora* most closely. The overall resemblance of the hybrid plants to *M. grandiflora* is so great that difficulty might be encountered in distinguishing the hybrid plants without resorting to technical botanical characters. The fact that the petioles of *M. grandiflora* lack stipule scars is diagnostic for that species. Petioles of *M. virginiana,* however, have large stipule scars that are prominent along the upper sides of the petioles. The hybrid plants, like *M. virginiana,* also have the stipules attached to the petioles in bud, and as the leaves expand the stipules fall off, leaving scars on the petioles. However, the scars are very small and often obscured by the pubescence of the petioles. Careful observation of the petiole base, however, will indicate the presence of a stipule scar and will distinguish the hybrids from *M. grandiflora.*

Two cultivars, 'Freeman' and 'Maryland', have been selected from the hybrids grown at the National Arboretum and represent the group in cultivation elsewhere. 'Freeman' is a plant of upright, columnar habit, while 'Maryland' is of spreading habit, and both clones are reported to propagate fairly easily from cuttings. At the Arnold Arboretum we have several small plants of *Magnolia virginiana* × *M. grandiflora* in the nursery. While the plants have suffered during some of our recent winters, most of them withstood the rigors of this past winter with little or no die-back. Further testing for hardiness within this hybrid group might eventually provide New England with a *Magnolia* that has the overall appearance and the attributes of *M. grandiflora.* (H; T.)

Magnolia* × *Wieseneri Carrière, Rev. Hort. 62: 406. 1890.

Plants of this hybrid (Figure 3) are currently referred to in nursery catalogs and in the horticultural literature as *Magnolia* × *Watsonii* J. D. Hooker. However, Carrière's name for these hybrids was published a few months before Hooker's name and description appeared in Curtis's Botanical Magazine (**117:** *t. 7157*), and under the rule of priority in the Code of Botanical Nomenclature, Carrière's name has precedence and is the correct name for this group. First introduced into western horticulture by the Japanese in 1889 at the International Exposition held that year in Paris, *M.* × *Wieseneri* is considered to constitute a hybrid of garden origin between two native Japanese Magnolias, *M. Sieboldii* of sect. Oyama, and *M. hypoleuca* of sect. Rytidospermum. The plants exhibited by the Japanese were purchased by the Royal Botanic Gardens, Kew, and some plants of *M.* × *Wieseneri* in cultivation are undoubtedly derived from this original importation. Other plants may have been imported directly into this country from Japan.

Figure 3. Magnolia × Wieseneri, *a hybrid between* M. Sieboldii *and* M. hypoleuca, *of garden origin in Japan.*

Magnolia hypoleuca, the Japanese white-leaf Magnolia, is a large tree that is closely related to the American *M. tripetala*, and like *M. tripetala*, has its very large leaves clustered in false whorls near the ends of branchlets. This leaf arrangement gives the appearance of an open umbrella, the prominent midveins of the leaves appearing as the supporting ribs, and the blades of the leaves as the fabric. The other presumed parental species, *M. Sieboldii*, is a large shrub or small tree with distinctly alternate, only moderately-sized leaves, and its beautiful white flowers are held nodding or pendent on the branchlets. Moreover, the stamens are a beautiful crimson red and contrast markedly with the white tepals. By contrast, the waxy white flowers of *M. hypoleuca* are held more-or-less upright on the branchlets, and the stamens are red only at the base. Plants of *M.* × *Wieseneri* known to me are deciduous shrubs that are intermediate in most respects between the two parental species, but they have inherited the crimson stamens of *M. Sieboldii* while the upright pose of the flowers is indicative of the influence of *M. hypoleuca*. The leaves are sometimes

crowded at the ends of branchlets, and the plants usually develop into small, bushy trees. Unfortunately, this beautiful hybrid, which commences to bloom in June, is not known to me to be cultivated outside the collections of one or two botanical gardens and arboreta. It is deserving of much wider planting, particularly since it blooms after the majority of spring-flowering shrubs and because it would be appropriate for small garden areas. (H; T.)

***Magnolia* 'Charles Coates'** R. J. Sealy, Gard. Chron. III. 152: 77. 1962.

Magnolia 'Charles Coates' (Figure 4) is a putative hybrid between the Asiatic *M. Sieboldii* and the American *M. tripetala.* Its cultivar name honors Mr. C. F. Coates, former foreman-propagator in the Arboretum at the Royal Botanic Garden, Kew. In 1946 or 1947 Mr. Coates discovered three small, self-sown seedlings in the *Magnolia* collection at Kew and suspected that they might prove to be hybrids. He removed the seedlings to the nursery, and when they first flowered in 1958, the hybrid nature of the plants was confirmed.

Like *Magnolia* × *Wieseneri, M.* 'Charles Coates' has inherited from *M. Sieboldii* the beautiful crimson stamens that contrast with the creamy-white tepals of the flowers, while in vegetative aspects the plants most closely resemble the sect. Rytidospermum parent, *M. tripetala.* The large leaves are somewhat smaller than those of *M. tripetala,* but, like the leaves of that parent, they are often clustered in false whorls at the ends of branchlets. The most attractive feature of *M.* 'Charles Coates' are the large, upward-facing flowers; the creamy-white tepals, unlike those of other Magnolias, are wavy margined. The plants I have seen form small trees or large shrubs that bloom in May and June, and judging from the hardiness of the two presumed parents, *M.* 'Charles Coates' should prove hardy at least as far north as the Boston region. (H; T.)

Interspecific Hybrids of Subgenus Yulania

Magnolia* × *Soulangiana C. E. Soulange-Bodin, Mém. Soc. Linn. Paris 1826: 269. 1826; Ann. Soc. Hort. Paris 1: 90. 1827.

The saucer Magnolias, *Magnolia* × *Soulangiana* (Figure 5), are to many people synonymous with *Magnolia,* and because of their widespread use in ornamental plantings probably need no description here. This hybrid group, which was first raised by Chevalier Soulange-Bodin at Fromant, near Paris, between 1820 and 1840, is undoubtedly the most widely cultivated and popular of all Magnolias in temperate regions. Moreover, it serves as a good example of the variability characteristic of some hybrid groups. The plants classed under *M.* × *Soulangiana* include a complex array of hybrid plants

Figure 4. **Magnolia** *'Charles Coates', a chance hybrid discovered at the Royal Botanic Gardens, Kew.*

between two Asiatic species, *M. heptapeta* (syn. *M. denudata*) of sect. Yulania, and *M. quinquepeta* (syn. *M. liliflora*) of sect. Tulipastrum, which are also widely cultivated, both in China and Japan as well as in western gardens. Soulange-Bodin's original plants of *M.* × *Soulangiana* were produced as a result of intentional pollination of *M. heptapeta* flowers with *M. quinquepeta* pollen.

Undoubtedly, part of the reason that plants of *Magnolia* × *Soulangiana* are variable is because the parental species themselves exhibit variation. But the situation within this hybrid group is complicated

by still another factor. The *Magnolia* hybrids that have been discussed under subgenus MAGNOLIA represent first generation plants that have been maintained by asexual propagation. As a result, the plants in cultivation exhibit only minor differences that are associated with local environmental or climatic factors. The situation in *M.* × *Soulangiana*, however, is more complex. Despite the fact that most plants of the group are partially sterile, seed is occasionally produced and it appears that a hybrid "swarm" has developed in cultivation that includes not only first generation plants but plants of succeeding generations as well. Plants of the succeeding generations display variation due to genetic segregation, a phenomenon first explained by Gregor Mendel based on experiments he conducted with the common garden pea. Still other variants of *M.* × *Soulangiana* have undoubtedly resulted from crosses between hybrid plants and both parental species; this type of cross is known as a backcross. The consequence is a continuum of variation between *M. heptapeta* and *M.* × *Soulangiana* on the one hand and *M.* × *Soulangiana* and *M. quinquepeta* on the other.

Because many of these crosses between hybrid plants as well as the backcrosses to the parental taxa are undocumented, precise knowledge of the origin or genetic background of most plants of *Magnolia* × *Soulangiana* is lacking. However, numerous individual plants of horticultural value have been selected from the array of variability, and they have been given cultivar names. One hundred and three cultivars of *Magnolia* × *Soulangiana* are listed by Fogg and McDaniel (1975) in their checklist of *Magnolia* cultivars, and since those available commercially from reputable nurseries are propagated asexually, the gardener is assured of obtaining the particular variant he wants to grow.

Magnolia* × *Veitchii W. J. Bean in Veitch, Jour. Roy. Hort. Soc. 46: 321. 1921.

More widely grown in England, the country of its origin, than in the United States, *Magnolia* × *Veitchii* (Figure 6) combines *M. heptapeta* and *M. Campbellii*, both of sect. Yulania. Peter Veitch of the Royal Nurseries, Exeter, attempted a series of cross-pollinations between *M. Campbellii* and *M. heptapeta* in 1907, yet only one cross resulted in a fruit cone with viable seed. The successful cross had employed *M. Campbellii* as the pollen parent and *M. heptapeta* as the seed parent.

The resulting hybrid plants proved variable in flower color. Of five plants raised from the seed obtained, four eventually produced white flowers, while the fifth plant produced pink flowers, and two cultivars have been designated, 'Peter Veitch' with pink, and 'Isca' with white flowers. Plants of *Magnolia* × *Veitchii* are extremely vigorous trees that have attained over 80 feet in height in Cornwall in

Figure 5. Magnolia × Soulangiana, *the saucer Magnolia, the most widespread* Magnolia *hybrid in cultivation. Photo: P. Chvany.*

southwestern England; in this country the plants are hardy at least as far north as the Philadelphia region (Zone VI), but the plants I know of have not yet attained great heights.

Aside from the abundantly produced large flowers that have the inner whorl of tepals held somewhat erect, partially enclosing the stamens and carpels in the center of the flowers, the plants are noted for their large, glossy green leaves. Both of these characteristics are indicative of the genetic influence of *Magnolia Campbellii.* For eastern areas of the United States, where the spectacular Himalayan *M. Campbellii* unfortunately has not proved, except in rare instances,

Figure 6. The beautiful large flowers of Magnolia × Veitchii, *a hybrid between* M. Campbellii *and* M. heptapeta.

to adapt to the climatic conditions, *M.* × *Veitchii* is an alternative plant that deserves wider use in ornamental plantings. (GF; H; T.)

Magnolia quinquepeta × ***M. kobus*** **var. *stellata*** T. R. Dudley & W. F. Kosar, Morris Arb. Bull. 19: 26–29. 1968.

Often referred to as the Kosar hybrids, plants of the above parentage are represented in cultivation by a series of eight cultivars ('Betty', 'Susan', 'Pinkie', 'Jane', 'Ann', 'Judy', 'Randy', and 'Ricki') that were selected from the F_1 generation. The results of intentional cross-pollinations made by William Kosar and Francis de Vos, the hybrid plants were produced at the National Arboretum in 1955 and 1956 using the early-flowering star Magnolia, *Magnolia kobus* var. *stellata*, and two of its cultivars as pollen parents and the later-flowering *M. quinquepeta* 'Nigra' and 'Reflorescens' as the seed parents. One of the objectives of this hybridization program was to produce plants that

bloom later in spring than the star Magnolia in order that the flowers might escape damage by hard spring frosts.

Like other members of sect. Buergeria, of which it is a member, *Magnolia kobus* var. *stellata* is a diploid with 38 chromosomes, while *M. quinquepeta,* the Asiatic species of sect. Tulipastrum, is a tetraploid with $2n=76$. As a result of crossing diploid with tetraploid plants, the hybrid progeny are triploids with 57 chromosomes in somatic cells, and because of this unbalanced chromosome number, the hybrid plants are sterile.

Generally intermediate between the two parental taxa, plants of *Magnolia quinquepeta* × *M. kobus* var. *stellata* are erect, multiple-stemmed shrubs of rounded or conical form that grow to six to ten feet. Like both parents, the hybrid plants are deciduous, but the leaves are most similar to those of the seed parent, *M. quinquepeta.* At the Arnold Arboretum the eight cultivars have bloomed while still young, opening their flowers after the star Magnolia, depending upon the season, about the first or second week of May. The greatest variability encountered in the hybrids, and the major reason eight selections were made, is in flower color and in the number of tepals comprising the perianth. Tepal color ranges from dark reddish-purple through varying shades of light purple or magenta to pinkish, while in number, the tepals vary from six to nineteen per flower. These excellent shrubs, which are as hardy as both parents, should be welcome additions and useful spring-flowering plants in small gardens where space is limited. (GF; H.)

Magnolia* × *brooklynensis G. Kalmbacher, Newsl. Am. *Magnolia* Soc. 8(2): 7. 1972.

Magnolia × *brooklynensis* is the name that has recently been given to hybrids between *Magnolia acuminata*, the native American cucumber-tree, and *M. quinquepeta* (syn. *M. liliflora*), a species widely cultivated in China and Japan and judged to be native to the former country. These two species are the only species that comprise sect. Tulipastrum, and the hybrids between the American and Asiatic members of the section were originally produced by Mrs. Evamaria Sparber at the Brooklyn Botanic Garden. Both parental species are tetraploids with 78 somatic chromosomes, and the hybrids, produced by pollination of *M. acuminata* flowers with *M. quinquepeta* pollen, are fertile and produce viable seed.

Two cultivars of *Magnolia* × *brooklynensis* have been named. The first, 'Evamaria', honors Mrs. Sparber, but it has not yet become available commercially. The second cultivar, 'Woodsman', was named by Dr. J. C. McDaniel and was selected from plants of *M.* × *brooklynensis* that he produced through cross pollinations in Illinois. This cultivar has recently become available commercially.

Although I have not seen plants of 'Woodsman', Dr. McDaniel (1975) reports that it has inherited the tree habit of *Magnolia acuminata,* as well as the hardiness of that species. The seed parent, *M. acuminata,* is widely distributed in eastern North America and is the only *Magnolia* native to Canada. Although the flowers of 'Woodsman' are similar in shape to flowers of *M.* × *Soulangiana,* their coloration is unique for a *Magnolia.* The tepals grade from dark purple through pink and yellow to green. Another asset of this hybrid is the fact that the unusual flowers appear late in spring and thereby avoid being damaged by frosts. Inasmuch as the hybrids are fertile, future generations of gardeners and horticulturists may enjoy variation that will assuredly become apparent as succeeding generations of *M.* × *brooklynensis* (as well as yet unknown backcrosses to the parental species) are raised, selected, and grown more widely. (GF.)

A cursory glance at Figure 2 will indicate that the interspecific *Magnolia* hybrids that have been discussed above are but a few of those that have been obtained. Moreover, it is obvious that not all of the possible hybrids that might be synthesized have been achieved. Undoubtedly, some crosses have been attempted and have failed, but others remain to be tried, and there is always the possibility of new hybrids arising in cultivation without the interference of the hybridizer, and many may prove to be of horticultural significance.

While this article has been limited to those hybrids between two species available commercially, another group of *Magnolia* hybrids already exists that consists of some spectacular ornamentals. These plants are tri-hybrids, involving some of the di-hybrids discussed above as one parent and other species (other than species involved as a parent of the di-hybrid) as the second parent. Thus, these hybrids are combinations of three species. These tri-hybrids are largely unknown in the United States, and most are of limited distribution in the nurseries or gardens where they originated. We all can look forward to these tri- and new di-hybrids becoming better known in American gardens and arboreta.

Nurseries Selling Magnolia Hybrids

Unfortunately, two of the nurseries listed below are in England, and importation of plants will be necessary. Nurseries other than those listed below may offer plants of these hybrids for sale, and omission of their names from this list is unintentional. No sources are listed for *Magnolia* × *Soulangiana* since it is almost universally available in all sections of the country.

The nurseries are:

Gossler Farms Nursery, 1200 Weaver Road, Springfield, Oregon, 97477. Abbreviated GF; catalog available for small charge.
Hillier & Sons, Winchester, Hampshire, England. Abbreviated H; price lists available.
Treseders' Nurseries (Truro) Ltd., Truro, Cornwall, England. Abbreviated T; special *Magnolia* catalog available.

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