The Magnolia Breeding Program at Brooklyn Botanic Garden

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The Brooklyn Botanic Garden (BBG) breeding program began in the mid-fifties, when Evamaria Sperber, then the plant breeder, cross pollinated a large number of foremost woody ornamentals. The results of that effort were most successful with magnolias. From the numerous hybrids that resulted from this work six magnolia hybrids were selected to be named and registered.

The first hybrid, introduced in 1972, was *Magnolia* × *brooklynensis* 'Evamaria.' The parentage is *M. acuminata* as seed parent and *M. liliiflora* as pollen parent. This was the first cross between an American and an Asian species; both parents were tetraploid. All progeny of a same cross are given the grex name × *brooklynensis*, 'Evamaria' being the type clone. Due to the heterozygosity of *M. liliiflora* however, there is a great variability among the offspring. The characteristics of 'Evamaria' flowers are described by George Kalmbacher as follows:

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M. 'Evamaria.' This hybrid, made in 1956, was named Evamaria after its creator and was granted plant patent No. 2820.

The plant is very floriferous, the large flowers have six petals (tepals) arranged in two whorls of three. These petals (tepals) are spatulate, the tips are broadly rounded, varying from 3.9 to 4.5 inches (10.1 to 11.5 cm) in length and 1.8 to 2.1 inches (4.5 to 5.4 cm) in width. The colors of the outside of the blossoms involve three shades of magenta rose and diffused with pale orange-yellow ochre. The inner side is pale pink.

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Eventually, *M.* × *brooklynensis* 'Evamaria' and most of the subsequent hybrid seedlings were planted in a fenced, two acre area at the Brooklyn Botanic Garden Research Center in Westchester County, N.Y. known as Kitchawan. Most of the trees still stand there. The research center however, no longer exists in its original form.

In 1972 several yellow blooming magnolia hybrids were observed in the magnolia "nursery" at Kitchawan. While Ms. Elizabeth Scholz was the director of BBG, she recognized the potential of these yellow blooming trees and furthered their evaluation and development, which began in 1975. These hybrids were the result of an intersectional cross made in 1956 by Evamaria Sperber between *M. acuminata* (seed parent) and *M. denudata* (pollen parent). The seedlings were planted in Kitchawan in different locations of the nursery. In 1977, the tree in plot No. 391 was selected to be named and introduced after successful propagation. A plant patent was granted in November 1977 (patent No. 391) and it was registered in October 1978. The magnolia was named *M.* 'Elizabeth' in honor of Elizabeth Van Brunt, a well known plant person and benefactor of the Brooklyn Botanic Garden. (Refer to *Magnolia*, "The Woman behind the Name" Issue 67, p. 27.)

Magnolia 'Elizabeth' was the first yellow blooming hybrid of that parentage and gained instant popularity. The slightly undulate tepals are light yellow in color and vary in size from 2.8 to 3.5 inches (7 to 9 cm) in length and 1 to 2 inches (2.5 to 5 cm) in width. The

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Top: *Magnolia* 'Elizabeth' was one of the first yellow blooming hybrids and gained instant popularity.

Bottom: *Magnolia* 'Yellow Bird' was the second yellow blooming magnolia developed and introduced by the Brooklyn Botanic Garden.

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Top: *Magnolia* 'Hattie Carthan' was named and introduced by the BBG in 1984.

Bottom: *Magnolia* 'Marillyn' was named, registered, and introduced in March 1989.

filaments show a bright red color and the anthers are dark yellow. The floriferous nature of this tree was one of the criteria for its selection among its siblings. Cytogenetically, *M.* 'Elizabeth' is pentaploid (2n=95). The original *M.* 'Elizabeth' has never fruited. This suggests that it is at least partially sterile. Propagation is very successful by softwood cuttings.

Magnolia 'Yellow Bird' was the second yellow blooming magnolia developed and introduced by the Brooklyn Botanic Garden. It was named and registered in 1981. Not as showy as *M.* 'Elizabeth' but with darker yellow flowers, it is a very dependable bloomer. The flowers appear simultaneously with the leaves but the color is sufficiently intense to be conspicuous. The later blooming time lets it escape the late damaging frost in colder climates The slight greenish tinge on the outer tepals mostly disappears as the blossoms open. The tepals are 2.75 to 3.5 inches (7 to 9 cm) long and 1.5 to 2.5 inches (4 to 6 cm) wide. The flowers hold their tapered erect shape during the entire blooming period. Frequently the tree produces flowers through the whole summer. *M.* 'Yellow Bird' is a backcross of *M.* × *brooklynensis* 'Evamaria' to its seed parent *M. acuminata*. This cross was made by Doris Stone in 1967, plant breeder at the Brooklyn Botanic Garden at that time. Propagation of

Magnolia 'Yellow Bird' by softwood cuttings is very difficult, grafting would be the method of choice.

Magnolia 'Hattie Carthan' was named and introduced by the BBG in 1984. It was selected from a number of seedlings derived from a cross pollination of *M.* × *brooklynensis* 'Evamaria' and *M.* × *brooklynensis* No. 209 (BBG test number) as pollen parent. This makes *M.* 'Hattie Carthan' the second generation (F2) *M.* × *brooklynensis*. In contrast to most *M.* × *brooklynensis* hybrids, the predominant color of the tepals of this hybrid is yellow, with magenta-rose veins ascending from the base of the tepals. Only the outer whorl of tepals shows a slight greenish tinge, The tepals have a length of 4 to 4.5 inches (10 to 12 cm) and 2.4 to 3 inches (6 to 8 cm) width. The cross was made by Doris Stone in 1965.

It was most appropriate to name this magnolia in honor of a very deserving lady. Hattie Carthan was the founder of the Magnolia Tree Earth Center in Brooklyn, New York. She was dedicated to the rescue of her neighborhood, Bedford-Stuyvesant, and was determined to protect it from further neglect. When the Bedford-Stuyvesant Restoration Corporation was formed as one of the "Great Society" programs she was appointed president, an office she held for fifteen years. This was the vehicle through which Mrs. Carthan began an extensive program of neighborhood restoration and tree planting. Her initial achievement involved preserving a tall, possibly hundred-year-old *Magnolia grandiflora* that was saved from destruction through her relentless efforts. The tree was designated by the City Landmark Preservation Commission a 'Living Landmark.' Among other awards she was also presented with the Jefferson Award by the American Institute for Public Service. Hattie Carthan also served on the Board of Trustees of Brooklyn Botanic Garden. She died at the age of 83.

Magnolia 'Marillyn' was named, registered and introduced in March 1989. It is named for Mrs. Marillyn Wilson, a very active friend and great benefactor of BBG. She also served on the Board of Trustees. *M.* 'Marillyn' is a dark magenta-rose flowering tree. The outside color of the tepals corresponds to the Royal Horticultural Color Chart No. 70 A-C; the inside of the tepals is a dark pink color with purplish veins originating from the base of the flower. The tepals are about 4.75 inches (12 cm) long and 1.2–2.4 inches (4-6 cm) wide. Their number is mostly six. The flowers are upright tulip-shaped and keep this shape well into the blooming period, which lasts over four weeks. *M.* 'Marillyn' is a hybrid between *M. liliiflora* 'Nigra' as a seed parent and *M. kobus* as pollen parent. The cross was made at BBG by Evamaria Sperber in 1954. The resulting seedlings were also planted at Kitchawan where *M.* 'Marillyn' was assigned No.149.

The close resemblance of *M.* 'Marillyn' flowers to *M. liliiflora* and also to the Kosar Hybrids (little girls) is clearly evident. The differences are in growth habit and, most importantly, in the great hardiness that *M.* 'Marillyn' has demonstrated over a long period of time in various cold locations like Wisconsin, USA, and Nova Scotia, Canada. Cytologically *M.* 'Marillyn' is a triploid with 2n=57 chromosomes. No seeds are produced; propagation is successful with softwood cuttings.

Magnolia 'Lois' is an intense yellow blooming tree, hybridized by the author. The seed parent is *M.* × *acuminata,* the pollen parent is a sibling of *M.* 'Elizabeth' with BBG No. 850 *(M. acuminata* × *M. denudata).* The latter was never named or introduced. The hybrid *M.* 'Lois' was planted in the test plot close to the former research building in Kitchawan with test No. 11/60, where it blooms profusely every year. It was registered in 1998. The tree was named by BBG in honor of Mrs. Lois Carswell, the chairperson of the BBG Board of Trustees from 1990 to 1998. In addition, she is chairperson of the Steering Committee for the Coalition of Living Museums and does extensive volunteer work in many areas of BBG.

Magnolia 'Lois' was the final addition to the now discontinued Magnolia Breeding Program at BBG. After the closing of the Research Center in Kitchawan in June 1991 all work on magnolia hybridization has ceased. The original hybrid trees are spread over several locations. The two acre magnolia nursery at Kitchawan reverted to its original owner, the Cochran-Van Brunt family. Some trees were planted next to the former research building, which now belongs to the Kitchawan Institute, and several of the hybrids were moved to the Lasdon Arboretum in Katonah, Westchester County, New York.

Considering the success of the pioneering magnolia breeding work it is very regrettable indeed that the program had to come to an end.

Corrections...

Issue 67, page 16, the photo credit for *M.* 'Madison' should be given to S. Christopher Early. Tom Dodd gave the *plant* to Mr. Early, not the photo.