

# Painting with Crabapples

*The Next Generation of Ornamental Display  
in New York City's Parks*

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Parks & Recreation**



**Michael R. Bloomberg, Mayor  
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### **PUTTING IN THE SEED**

You come to fetch me from my work tonight  
When supper's on the table, and we'll see  
If I can leave off burying the white  
Soft petals fallen from the apple tree  
(Soft petals, yes, but not so barren quite,  
Mingled with these, smooth bean and wrinkled pea);  
And go along with you ere you lose sight  
Of what you came for and become like me,  
Slave to a springtime passion for the earth.  
How Love burns through the Putting in the Seed  
On through the watching for that early birth  
When, just as the soil tarnishes with weed,  
The sturdy seedling with arched body comes  
Shouldering its way and shedding the earth crumbs.

*—Robert Frost*



## Executive Summary

The goal of this project is to learn more about the ornamental crabapples that were planted in the early and mid 20th century in parks across New York City, and to set forth a plan for their augmentation and eventual replacement with particular attention to species and form. Because crabapple identification is so difficult, the first step was to search for old planting plans from park construction projects in the 1930s and 1940s. These plans not only yielded a treasure trove of information on the species that were in use at that time, but they also revealed the sizes, shapes, and multi-stemmed branching habits of the trees that were ultimately planted. The next step was to visit the sites on the plans to see if any of the crabapple trees were still there (these steps were reversed in the case of Riverside and Central Parks). Finally, it was necessary to delve into the rarified and chummy world of crabapple hybridization and testing, to get expert opinions on which crabapples, old and new, are truly disease resistant and worthy of planting in our parks.

With this information in hand, we can select the precise types of crabapples for replanting that will reinforce the aesthetic--in terms of tree shape and flower color--of our historic park landscapes. Then we must determine the best route for propagating and cultivating these trees.

### Challenges include:

- ✦ We do not know the species or varieties of many existing crabapples.
- ✦ There is no inventory of their location, age, or condition.
- ✦ Many of the older species and varieties are very susceptible to disease, and must be ruled out from consideration. Others may still have merit, but have fallen from commercial availability for other reasons.
- ✦ Most nurseries train crabapples with single stems and rounded 'heads.' Only a few nurseries train them with the multi-stemmed or low branching growth habit that produced the vintage crabapple specimens that survive today.
- ✦ Although there is a wealth of research in the subject, crabapple disease resistance varies significantly by climate and region, and there is very little research for the Northeast.

### Findings include:

- ✦ There are some wonderful vintage crabapples growing in New York City parks; some are landscape specimens and some have gone completely to seed.
- ✦ Most of the multi-stemmed crabapples that were planted in the Moses era were significantly larger at the time of transplanting than the single stem specimens we plant today.
- ✦ Multi-stemmed crabapples have more maintenance needs in the early years than do single stemmed specimens, in order to ensure best form at maturity (although one species, *M. hupahensis* should never be pruned at all or its unusual form will be marred).
- ✦ Clump form crabapples (multiple branches within a foot of the ground) are readily located at nurseries in the state of Illinois.
- ✦ There is an active group of crabapple enthusiasts and experts called the International Ornamental Crabapple Society (IOCS). The current president comes to New York City periodically and would like to see our crabapples and lend a hand in identifying them, if he can.
- ✦ The crabapples that we select for the next generation can be a mix of old species and varieties as well as new hybrids with rounded, upright spreading habits. Any of these can be trained to have multiple stems.
- ✦ Some crabapples are propagated from seed in nurseries but sold as clones--i.e. identical replicates of the parent

plant—when they are not. This is the case for *M. × zumi* 'Calocarpa', a vintage crab that is still popular today. The best way to actually get this variety is by asexual reproduction from an authentic arboretum plant. This can also happen with *M. sargentii*, Sargent crab, although this type is one of the rare few that does more frequently come true from seed.

✦ The nation's only living apple museum—a Noah's Ark of apple germplasm—is in Geneva, New York. This institution, a collaboration of the Agriculture Research Service of the USDA and Cornell University, has 1,500 different types (and 3,000 specimens) of apples. Each year, this living "library" distributes 6,000 samples of plant material to be used in propagation.

✦ Although many nurseries are not interested in specialty projects such as contract growing, there is at least one, Hopewell Nursery in New Jersey, that is willing to explore the concept with Parks.

### Recommendations:

✦ Inventory our existing crabapples and assess their condition and maintenance requirements.

✦ Identify future planting sites and replacement sites. Evaluate near- and long-term capital projects for suitability as new or replacement sites for crabapples.

✦ Diversify our crabapple population by selecting a varied mix of old and new types.

✦ Consider becoming a Northeast site for the National Crabapple Evaluation Program, run by the IOCS, which provides all the trees for free (at a relatively small size that would need further cultivation). The program requires a minimum commitment of space, evaluation time, and maintenance for 144 trees (three samples each of 48 species). There are educational and public relations dimensions to doing this as well.

✦ Explore the use of DNA fingerprinting to identify the second species in the Conservatory Garden allee, as well as other magnificent and unidentifiable specimens.

✦ Buy young crabapple seedlings from select suppliers that specialize in *Malus*, for further cultivation at a nursery.

✦ Select a few trees (the biggest, showiest, strongest, etc.) now growing in our parks to clone. Propagate these trees (a) from cuttings—self-root some of these cuttings (as we have done for the carmine and Sargent crabs at the Citywide nursery), and graft others onto the best varieties of rootstock—and (b) from tissue culture, if a reasonably priced laboratory can be found to do it. These seedlings will also need to be further cultivated at a nursery.

✦ Contract with a nursery to grow these trees in multi-stemmed form until they are large enough to be planted in parks (an estimated three to five years).

✦ Buy some crabapples in clump form for planting in current projects (either from a nursery in Illinois for a large capital job, for instance, or from a local nursery if one can be found that sells an appropriate species).

✦ Offer a training course for designers on using crabapples for best effect in the landscape, including information on how to avoid cedar-apple rust through plant selection.

✦ Develop collections of crabapples. Select a few special sites and inventory, label, and retain records on all plantings.

✦ Seek a grant to fund all of the above.



*A very large specimen of M. 'Fuji' at the New York Botanical Garden.*



French 18th century botanical drawing of Siberian crabapple.

## Introduction

The apple tree is a study in opposites. Left to reproduce on its own, which it does prolifically, it will create a new variety from each and every seed. Yet exact reproduction can be assured with a snip and a cut, yielding generations of sameness in the pursuit of pomological perfection. Humans have spent hundreds, if not thousands, of years engaged in the apple's domestication, yet in its true genetic temperament the species is as variable as we are. "Without the techniques of grafting (or of rooting a branch), each tree in the world would constitute its own variety, distinct from every other," says one botanical authority<sup>1</sup>. Over the centuries, as a result of human manipulation and natural processes, the apple's gene pool and geographic range has spread to all the temperate regions of the globe.

## Cultivated vs. Crab Apple

The difference between an apple (wild or cultivated) and a crabapple is the size of the fruit. Both are members of the *Rosaceae* family in the genus *Malus*. On a sliding scale from apple to crabapple, a tree with fruit less than two inches in diameter is considered a crabapple. All apple fruits are edible, but most uncultivated varieties (including crabapples) are not palatable except in cider or preserves. These fruits are "...sour enough to set a squirrel's teeth on edge and make a jay scream," Henry David Thoreau memorably wrote in his essay *Wild Apples*<sup>2</sup>.

The crab traditionally has been regarded as the poor cousin of the apple for its small fruit. Literary references attest to this popular assumption, as in Robert Browning's 1878 phrase "Weak fruits of idle hours, these crabs of mine I dare lay at thy feet, O Muse divine?"<sup>3</sup> But if crabapples were disdained by some, they still had promise to others. Writing of the crabapple in the early 19th century, French botanist Francois Andre Michaux says: "If, on being cultivated, it does not yield new and palatable varieties, it will at least be celebrated for the beauty of its flowers, and for the sweetness of its perfume."

Crabapples are ornamental trees with year-round interest, including an often spectacular spring bloom, abundant and colorful autumn fruit, and an interesting and varied growth habit. Buds and flowers vary in color from dark carmine to pink to white, and bloom time can last for almost two weeks if the spring weather complies. The flowers of some types are especially fragrant, including many of the older varieties as well as the native *Malus coronaria*, called "the lilac of crabapples."<sup>4</sup> Fruits are on best display in the fall, but can persist well into winter. Crabapples are relatively small trees, rarely exceeding 40 feet in height, and have four basic growth forms: rounded upright/spreading, shrubby/spreading, columnar/vase-shaped, or weeping.

## Malus Origins

All domesticated apples are thought to have originated from a species of wild apple, *Malus sieversii*, found in the mountains of Kazakstan. Here, forests of apple trees still grow along the major east-west route of the Old World's Silk Road. These apples are thought to be the progenitors of cultivated varieties throughout Europe and Asia (*Malus x domestica*). References in Greek and Roman texts affirm that apple cultivation was an ancient art. In the first century A.D., Pliny the Elder wrote in his *Historia Naturalis* of 37 varieties of apple being cultivated by the Romans, and some of these were probably brought to England during the expansion of the Roman Empire. Today, researchers value these mountainous apple forests as a precious repository of genetic diversity.



The mountainous region near the town of Alma-Ata, Kazakstan. Alma-Ata means "father of the apple."



Map of Kazakstan showing sites of collection trips to catalogue and preserve the gene pool of the apple.



*A nineteenth century apple orchard.*

Although most members of the genus *Malus* now growing in North America have ancestral origins elsewhere, there are at least three species of crabapple, *M. coronaria*, *M. fusca*, and *M. ioensis*, native to this country. All other crabapple species that have prospered here are native to Europe and Asia, or are descendants, crosses, varieties, or clones of the above. The native crabapples do not hybridize well with their Asian counterparts.

### **America's Great Apple Rush**

There was a time in North America when apple trees were ubiquitous in the landscape. From farm to frontier, these trees were an essential part of colonial existence. Carried as seed or cuttings to the New World by European settlers, apples were planted singly and in orchards to provide some of the comforts of the Old World. These comforts included a cultivated landscape, food for harvest, and spirits. By the mid 17th century, there were over 60 varieties of domesticated apples (i.e cultivated from grafts).<sup>5</sup> In the wild there were probably thousands more varieties, however, because the tree hybridizes freely from seed. "In the case of the apple, the fruit nearly always falls far from the tree" writes Michael Pollan in *The Botany of Desire*.<sup>6</sup> He goes on to describe the search for a new, luscious apple variety from these infinitely different apple specimens as a "nationwide hunt" in which the odds were 80,000 to one. At the peak of the frenzy in the late 18th century there were hundreds and hundreds of named apple cultivars in production. The Newtown Pippin, a variety so popular that it had spread to Europe by 1781, was actually first discovered in a Newtown, New York (present day Elmhurst, Queens), cider orchard.<sup>6a</sup> The Baldwin, on the other hand, was a lone self-seeded volunteer found by chance growing along a canal in Boston.

The gamble to discover the next edible apple was an avid sideline to the real point of apple planting in America, which was for cider. Towards this end, apples were planted from seed in vast quantities. The results of these plantings were mostly too sour to eat (they were called "spitters") but served their primary purpose with great success. "An intoxicating harvest of drink," writes Pollan, describing the fermented yield of these orchards.

The icon of this practice in America was Johnny Appleseed, a man by the name of John Chapman who lived from 1774 to 1845. A facile outdoorsman, Chapman traveled west from his home in Massachusetts in 1797 with little more than his apple seeds, stopping at frontier outposts to plant orchards and sell trees to settlers. He moved west to Ohio in this way, leaving his orchards in the hands of others as soon as they were established and setting out in search of new properties and customers. Pollan's riveting analysis calls Chapman the American Dionysius and debunks the revisionist notion of Johnny Appleseed as a symbol of health and purity. Chapman died a wealthy man, and his living was made bringing alcohol to the frontier.



*Charles Sprague Sargent (1841-1927), first director of the Arnold Arboretum of Harvard University.*

### **The Rise of the Crabapple**

By the mid 1800s the cider orchards in the eastern United States were already in decline, due in part to the emergence of the temperance movement and the increasing availability of sugar for distilling other alcoholic beverages. This meant fewer apples grown from seed, less variety, and little expectation of new genetic stock. Thoreau lamented this state of affairs, writing wistfully in 1862 of "...a century ago, when those vast straggling cider-orchards were planted, when men both ate and drank apples..."<sup>7</sup> Even the domesticated apple varieties declined in number as other sweet edibles entered the marketplace around the turn of the century. The marketing slogan 'an apple a day keeps the doctor away' was developed in response to this competition (and with more than a nod to the temperance movement). The relatively few edible apple offerings of today were botanically selected from the thousands of grafted varieties in production during the early nineteenth century for their smooth colorfast skin, ease of transport, and sweet, almost saccharin, taste.

Thoreau wrote his essay on the waning fortunes of the apple in 1862, the same year that the Japanese flowering crabapple, *Malus floribunda*, is said to have been introduced into the United States.<sup>8</sup> One of the most beautiful, popular, and enduring ornamental crabs, *Malus floribunda* was widely planted in arboreta, parks, and large private estates over the course of the proceeding century and is still very much in use today. The Japanese flowering crab set a high standard for subsequent introductions, which gathered speed in the closing decades of the 19th century with the work of plant explorers such as E. H. Wilson and Charles Sprague Sargent, both of Harvard University's Arnold Arboretum. Other notable introductions of the late 19th century include the Arnold crabapple (*M. arnoldiana*) in 1883; the carmine crab (*M. x atrosanguinea*) in 1889; the redbud crabapple (*M. sieboldii* 'Calocarpa') in 1892,<sup>8</sup> and Sargent's crabapple (*M. sargentii*) from Japan in 1892. All these species were eventually planted in New York City parks in the first half of the 20th century.



*Malus sargentii* in fall of 2000 at the Brooklyn Botanic Garden.

The century closed with a discovery that briefly (and symbolically) reunited the diminished apple with the upwardly mobile crab. In 1897 a clone of the common apple, *Malus pumila* (the most commercially produced species in the world), was discovered in the mountains of Kazakstan, home to its relative the wild apple *Malus sieversii*. This particular specimen had fruit just small enough to be classified as a crabapple, and was set apart by the redness of its buds, flowers, fruit, bark, and wood. The clone, *M. pumila* 'Niedzwetzkyana,' was named for the local resident who discovered it, and was subsequently used in the hybridization of a whole group of ornamental crabs called the Rosybloom hybrids.

More introductions followed in the early 20th century, including the tea crabapple (*M. bupahensis*), which was brought from China by E.H. Wilson in 1908. The new discoveries and profusion of clones led to naming confusions (some of which still persist to this day) and a "race to breed new hybrids."<sup>10</sup> These interspecific hybrids (the term for a crossing of two species) often yielded outstanding individual trees which were then named and cloned. Like some apples before them but in arboreta rather than orchards, a few of the best new individuals, like the Arnold crab at the Arnold Arboretum, arose as chance seedlings from open-pollinated trees. The age of the ornamental crabapple had arrived.

Unlike the case of the apple, there was no temperance movement to blow a chill wind through the spreading limbs of the crabs. Nor was there serious competition from other ornamental trees. "Crabapples are considerably hardier than Japanese Cherries and often longer-lived," wrote Donald Wyman, the father of an eponymous crabapple hybrid and a horticulturist at the Arnold Arboretum from 1935 to 1970.<sup>11</sup> The apple's popularity peaked in the exuberant 18th century Apple Rush and shrunk with the 19th century forces of moderation and modernization. The 20th century just as clearly belonged to the crabapple, thanks in great part to the groundwork laid by the botanical explor-



The crabapple grove in Riverside Park near 91st Street and Riverside Drive in full flower. The species in the grove, according to the 1937 design plans for the park, are Japanese flowering, Sargent, Arnold, and carmine crab.



The flowers of the Japanese flowering crab, above, and the Arnold crab, below.

ers in the late 1800s. The story of the crabapple and the apple in America is the story of the transcendence of sobriety over sustenance, ornament over utility, and beauty over taste.

### Crabapple Confusion

The enthusiasm and excitement for ornamental crabapples led to widespread specimen plantings in landscapes across the country in the first decades of the 20th century. By 1943 there were already hundreds of varieties being grown for scientific, commercial, and display purposes.<sup>12</sup> Today there are hundreds more, perhaps as many as 700, although more than half have never been commercially available.<sup>13</sup> "The flowering crabapples have become sophisticated inbreds of modern horticulture," writes Fr. John, L. Fiala in his book Flowering Crabapples: The Genus Malus. Trees that are the progeny of two hybrids should be called multibrids, he says, noting that some multibrids (i.e. "deccabrids") are so intercrossed it is impossible to determine their progenitors.

This taxonomic confusion means that certain species, varietal, and clonal names have changed over time. For example, *M. × arnoldiana* was once considered a variety of *M. floribunda*. Likewise, *M. bupahensis*, or Tea crabapple, was called *M. theifera* for many years in the early 20th century until it was returned to its original 1910 description and name. Modern hybrids frequently have multiple names, as clones that were thought to be unique have been reclassified as in fact identical to each other.

This dynamic nomenclature, as well as the sheer number of crabapple types in existence, makes individual tree differentiation very difficult--if not impossible--in many circumstances. Often the best way to approach identifying a tree is to look for planting records or other supporting documentation. In the case of mature crabapples growing in New York City parks, the documents that are readily available are planting plans from park construction projects. Of course, these plans may not actually reflect what was planted when it came time for construction. What the planting plans do reveal is those species and varieties that were commonly available for purchase at the time the plans were drawn up. They also reveal the tree sizes and forms that were in use, as well as how landscape designers used the color, variety, and shape of the crab for best effect in the landscape.

### Crabapples in New York City--A Unique Growth Form

The crabapples planted in the 1930s in New York City parks graced generations of New Yorkers with their stunning spring floral displays, bright autumnal fruit, and picturesque branching forms. The goal of this research effort is to plan for the eventual replacement of the remaining significant stands of these trees, as well as to broaden the use of ornamental crabapples in the park landscapes. The challenge is to do so in a way that retains the look and feel of our historic park landscapes. Many of the older varieties of crabapples that were planted in the 1930s have fallen from use due to disease susceptibility or lack of commercial availability. For example, *M. arnoldiana*, which is highly susceptible to apple scab, and *M. × atrosanguinea*, which is extremely difficult to find, were both planted in parks in that era (and still grow in Riverside Park today). Yet these species have important ornamental characteristics that some modern hybrids may be able to replicate. Other species from this era, such as *M. floribunda* and *M. sar-*



Trunk architecture of *M. floribunda* at Central Park's Conservatory Gardens, Fifth Avenue and 104th Street.

*gentii*, are still readily available today.

One singular characteristic to almost all these “vintage” crabs is their shape--branched very low to the ground with multiple trunks or stems spreading gradually upward and outwards. This distinctive growth form is a result of the way trees are shaped and pruned when they are very young. By the time these trees are transplanted from the nurseries to park landscapes, their shape at maturity has already been determined. For some reason, however, local nurseries no longer practice this type of cultivation. Perhaps there was a drop in demand for this form after transplant. Today's crabapple trees, like other tree species, are trained with a single stem with the first branches occurring at four or five feet from the ground, or higher. This bland “lollipop” form is a marked contrast to the dynamic and beautiful shape of a wide-limbed, low branching specimen.

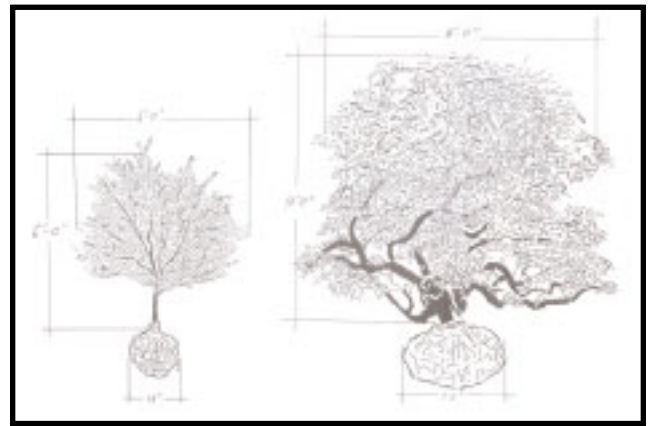
Almost any species with an upright, spreading growth form can be trained as a multi-stemmed specimen. The trick is in how the tree is trained in its early life. The plant list on a drawing for a section of Flushing Meadow Corona Park's 1939 World's Fair landscaping (East Service Drive Q-L-99-150) reveals the dimensions of the crabapple trees that the landscape designer expected to obtain from the local nurseries. All trees were to have "symmetrical well-branched tops," and a specific height, root ball diameter, and spread. The larger specimens had low branching requirements as set forth below:

<i>Malus x atrosanguinea</i>		<b>Carmines crab</b>		
8-10' high	B&P	Min. diam. ball 30"	6-7' spread.	Branched not more than 4' from the ground. Heavy.
<i>Malus floribunda</i>		<b>Japanese flowering crab</b>	[two sizes]	
6-8' high	B&B	Min. diam. ball 20"	4-5' spread.	Heavy.
10-12' high	B&P	Min. diam. ball 42"	8-10' spread.	Branched not more than 4' from the ground. Heavy.
<i>Malus sargentii</i>		<b>Sargent crab</b>		
5-6' high	B&B	Min. diam ball 24"	6-7' spread.	Low spreading type. Heavy.
<i>Malus scheidckeri</i>		<b>Scheidcker crab</b>		
6-8' high	B&B	Min. diam ball 20"	4-5' spread.	Branched not more than 4' from the ground. Heavy.

The above description is the recipe for multi-stemmed crabapples. It describes trees such as the large Japanese flowering crab listed above that are almost as wide as they are tall. These trees were so wide, in fact, that their massive 42-inch root balls had to be supported with wooden platforms to keep them intact (termed B&P, or "balled and platformed").<sup>15</sup> The six foot-tall Sargent crabs specified above are expected to have a *greater* width than height, with "low spreading" branches out to as much as seven feet. The plant lists from these 1930s projects reflect the cultural practices of nurseries at that time, and give us the exact language that yielded the picturesque multi-stemmed trees that survive today.

### On the Trail of Vintage Crabs

Many of these remaining mature crabapples were planted as part of



Comparative sketch of the dimensions of a crabapple under current contract specifications (left) and for a *M. floribunda* specification from 1939 (right).

#### A Remarkable Shape

*"Malus floribunda is most spectacular when pruned...with spreading branches artistically trained from near ground level. Pruned in this manner it is a work of art in the winter landscape."*<sup>14</sup>



This massive crabapple in the south of the Conservatory Gardens was very large when it was planted, perhaps as tall as 20 feet.



*Quirky branching habit of a tree in Riverside Park's Crabapple Grove, at 91st Street and Riverside Drive.*



*A crabapple beside the Northern Blvd. exit ramp off the Grand Central Parkway. Could this be a *M. floribunda* from the original World's Fair planting of East Service Drive?*

significant park construction projects under Commissioner Robert Moses and his consulting landscape architect, Gilmore Clarke. There is no inventory of these crabapples, and certainly no centralized records of where crabapples were once planted. The best way to learn the species and age of extant populations is to find planting plans for each park where they are currently known to be growing. This has been done for Riverside and Central Parks in Manhattan and parts of Flushing Meadows-Corona Park in Queens. Another approach is to check for crabapples on original drawings during the background research for current park reconstruction projects. Plans for the reconstruction of a section of Shore Parkway will now restore crabapples to this landscape. Furthermore, research into the designs for parks that were built in the Moses era but do not currently have crabapples might reveal that the plans originally included them. This can involve some detective work and a certain amount of luck, as happened with Bensonhurst Park in Brooklyn.

The 1937 planting plans for the construction of Riverside Park specify four of the earliest introduced crabapple species: Japanese Flowering, Carmine, Arnold, and Sargent's crab. Riverside Park in the spring even now is a riotous mix of blooms, from deep carmine (Carmine crab) to pale pink (Arnold and Japanese Flowering) to white (Sargent). In one landscape designer's view, Riverside Park is "painted with crabapples."<sup>16</sup> Many of the original plantings have been lost to disease, drought, or physical injury over the years, but those that remain are now almost 70 years old. In spring 2000 the restoration of the Crabapple Grove included the planting of young Sargent and Japanese flowering crabs,



*Inset: Crabapple plantings at the Willow Lake Arboretum on the 1937 plans. Each color represents a different species of crab.*

*The site of the Arboretum today, with the 1937 plan overlay. Crabapples are just northeast of the Van Wyck Expressway. Some of the original crabapples escaped damage during the road construction in the 1960s. These trees and many generations of open pollinated seedlings dominate the understory of this overgrown wooded area today.*

as well as a number of newer crabapple hybrids.<sup>17</sup>

Likewise, landscape plans for Shore Parkway from 1939 indicate two species of crabapple, *M. floribunda* and *M. arnoldiana*, were used for that project.<sup>18</sup> A New York Times article from 1942 reveals that crabapples were planted in Bensonhurst Park when it was created.<sup>19</sup> Inspection of the planting plans for this project confirms this. Species included Japanese and Chinese flowering crabs (*M. floribunda* and *M. spectabilis*), as well as *M. scheideckerii* and *M. theifera* (now known as *M. hupahensis*, or Tea crabapple)<sup>20</sup>. These crabs do not survive today.

Two designs from 1937 reveal the use of crabapples in the landscape that was to be the site of the 1939 World's Fair in Flushing Meadows-Corona Park (FMCP). Gilmore Clarke was part of this effort as well, as a member of the Board of Design overseeing the planning and construction for the Fair.<sup>21</sup> Plans for landscaping the East Service Drive called for the following crabapple types: Carmine, Japanese Flowering, Sargent, and Scheidecker (*M. scheideckerii*), a small pale pink flowering tree with showy yellow-orange fruit.<sup>22</sup> The location is very near the Olmsted Center, along the Drive and on either side of the Northern Blvd. exit ramp off the Grand Central Parkway, and around the rotunda in front of what is now the Shea Stadium parking lot. Here, crabs were combined with six varieties of dogwoods and hawthornes to create what must have been a visually stunning and seasonally interesting entrance approach to the Fair. Perhaps one individual, as well as a few open pollinated seedlings from these plantings, survives today.

The World's Fair landscaping also included an arboretum at Willow Lake, with 109 different types of trees. Of these, 21 were different taxa of crabapple, including three native species *M. ioensis*, *M. coronaria*, and *M. fusca*.<sup>23</sup> The plan shows crabapples clustered near the northwest shore of the lake, with a backdrop of canopy trees which include hemlock, red and sugar maple, many species of oak, yellowwood, and white pine.<sup>24</sup> The crabapple trees were a mix of sizes from two to three foot specimens (for the smaller species) to six to eight and eight to ten foot specimens for species that have larger mature heights. According to the plan, they were grouped in masses of two to three trees of each species. Spring on the banks of Willow Lake during the World's Fair and for many years after would have been a vision of pastel clouds drifting high and low across the landscape.

In the 1960s the Van Wyck Expressway was built, severing a small spit of land from the Lake and the rest of the park. On paper at least, it looked as if the Arboretum had been razed for the road construction. But searching for a trace of apples near Willow Lake yielded a surprise discovery. There, on the forgotten shoulder of land, and vastly altered, was the Arboretum--a remnant stand of ornamental plantings turned into an mixed woodland with a canopy of oak, pine, ailanthus, and black cherry, and an understory made up almost entirely of apple trees. In the open, sunny area next to the highway the apples dominate completely. Invasive rose (*Rosa multiflora*) pervades the site, one indication of the profound disturbance that must have been caused by the road construction.

The apples range from small seedlings, to rounded clumped young trees, to some large, twisted and contorted trees that have mostly lost the competition for light to the larger trees. Some long-abandoned



Crabapple in the understory of the site of the Willow Lake arboretum.



Pink flowers of an open pollinated crabapple seedling at the Willow Lake arboretum site.



Crabapple progeny at the site of the former Arboretum, now at the Van Wyck Expressway.



Canopy and branches of the south allée at the Conservatory Garden. *M. floribunda* is on the right, the type on the left is unknown. Above, dark pink flowers of the unknown species.



The trees on either side of the fountain were not part of the original plan for the Conservatory Gardens and may be *M. 'Hyslop'*. A close-up of the tree on the left (above).

cars rest in the shade. The vegetation is periodically laced with poison ivy. It is not a pretty site, and it is somewhat physically treacherous. But the sight of this remnant population gone completely to seed in this scrappy woodland is remarkable. There are so many progeny of the original crabapples that the genetic variety must be enormous. There are bright red buds and dark leaves, light green leaves with no ornament at all, and strange and crazy mixes, such as a plant with both yellow and red buds on adjacent twigs (likely the rootstock asserting itself). The place is a cornucopia of apple germplasm, a glorious mix of the gene pool of the 21 original types that were planted there. It is New York City's Kazakhstan, a forest of wild apples right in the heart of Queens.

### The Mystery of the Conservatory Crabs

Perhaps the most magnificent stand of extant “vintage” crabapple trees in New York City parks grows in the Conservatory Gardens of Central Park. Here, two allées (comprising 44 out of an original 48 trees) form the spines of a triptych of formal gardens, each panel with a distinctive style and heritage. The trees are nearly 30 feet tall and form an arching canopy above the stone walkway and benches beneath. In the winter and early spring, the branches reveal their twisted, craggy, encompassing architecture. In the spring and summer the space beneath the allées is like a tunnel, where sound and light are muted and air is stilled by the surrounding biota of blossoms, flowers, or leaves. And during those few days in late spring when the petals rain gently down, covering everything beneath them with a soft blanket of rosy bloom, it is almost impossible not to join Frost in feeling like a "Slave to a springtime passion for the earth."

As flamboyantly revealing as they are, the Conservatory crabs still have their secrets. The secret here is one of germplasm. One of the two rows in each allée is *M. floribunda*. The taxa of the other rows, while clearly each the same as the other, is a mystery. Even Michael Dirr, a respected plant authority and author, was unable to identify the second species when he visited the park in the mid 1980s. And the original planting plan for the Garden is no more revealing, calling for “*Malus* fruiting or flowering crabapple.”<sup>25</sup> It is as if the designers, Gilmore Clarke and his wife, Mary B. Sprout, knew that the market was producing new hybrids so rapidly at the time the plan was drawn up in January 1936 that they put off the final species selection until the Garden went into construction more than a year later. The ceremonial opening of the garden was on September 18, 1937.<sup>26</sup> The trees, which appear quite large in aerial photos of the new garden, would have been planted sometime before this date (hopefully in the prior spring of that year or before rather than in early September 1937, given the temporal dictates of the planting seasons).

The only readily obtained contemporaneous document relating to the species of crabapples in the Conservatory Gardens indicates that the trees growing there now may not be the original planting. The document, an article from *The New York Times*, is about the crabapple trees in the Gardens [see box at right]. "New Garden Given to Public

Today" the headline proclaims, and then below: "Sylvan Gift in Central Park is Featured by 60 Flowering Crabapple Trees." In the article, the unnamed writer tells the story of crabapple trees that were shipped down the Hudson River on a barge from an orchard in Tivoli, New York, a town almost 100 miles upriver from New York City. As the trees were dug for transplanting, the author relates, the plantsman in charge discovered a robin's nest and a wildly excited mother bird in the branches of one of the trees. The tree was handled so carefully that the baby birds were said to have hatched on their nautical journey and made it safely to their new home in Central Park.

The story of the birds may be apocryphal, but much was made in the article of the species of the 60 crabapples, which were described as "fruiting Hyslops [with] huge bouquets of shell-pink blooms" that "...change its pink flowers to snow white after a few days." *M. 'Hyslop'* is a clone of *M. x adstringens*, a hybrid of *M. baccata* (Siberian crabapple) and *M. pumila* (the Common apple of cultivation fame). Introduced from China in 1910, *M. x adstringens* (no common name) has pinkish flowers and large fruit, up to 2 inches in diameter. The 'Hyslops' of the New York Times article were also described as having fruit large enough to be edible: "...as the fruit ripens, park police may have to mass against an invasion of pilfering boys. Bright red crabapples will hang temptingly."

The problem is, the crabapple allées in the Conservatory Gardens are not Hyslops. They are *M. floribunda* and a similarly small-fruited crab. There are two trees in the Gardens, however, that may well be *M. 'Hyslop'*. These two trees are planted, like two sentries, on the north and southwest ends of the lawn of the central garden, in front of the wisteria-covered pergola. They are known not to have been part of the original design, and in fact are regarded as a sort of disfigurement of the elegant formal geometry of the central garden. An ill-advised pollarding of the trees by the park's gardeners decades ago has left them poorly shaped. Are these two trees Hyslops from a first planting of the allées? According to Central Park managers, they do have very large fruit and are like no others in the Gardens.<sup>27</sup> Perhaps they were moved from the allées—either as sole survivors or as representatives of what once was—when the current trees were planted.

It seems like the first trees in the allées were very large. Another news article from the opening day ceremony of the Gardens described the crabapple trees as "mature," and indeed they are quite visible from an aerial photograph of the site, which would be unusual for newly planted trees today.<sup>28</sup> The plans for the garden specify enormous trees for the allée: 25 feet high by 20 feet wide. Yet elsewhere on the plant list of the same plan the "fruiting or flowering crabs" are required to be slightly smaller: 16-20 feet with a spread of 18 feet.<sup>29</sup> Whichever the real size was, these were big trees. The Hyslop was known to be very susceptible to "...rather severe infestations of fire blight..." as Donald Wyman put it in a 1943 *New York Times* column on crabapple types useful for making jelly.<sup>30</sup> Current references rarely mention the Hyslop, but go into great detail on the many "...leaf blights, scab, rusts, and other diseases that mostly disfigure the leaves..." of the species, *M. x adstringens* and its parents the Siberian crabapple and Common apple.<sup>31</sup>

If Hyslops were the original planting, it is a matter of conjecture whether

## NEW GARDEN GIVEN TO PUBLIC TODAY

Sylvan Gift in Central Park Is  
Featured by 60 Flowering  
Crabapple Trees

### BABY ROBINS IN A TREE

They Were Brought by Barge in  
Hudson in Transplanting  
From Tivoli, N. Y.

With the opening of the Conservatory Garden in Central Park at Fifth Avenue and 106th Street today by Park Commissioner Robert Moses, New York City will receive a sylvan gift that is expected to rival Washington's cherry blossom show on the Potomac next Spring for color and beauty.

When Spring reaches the garden early in April its sixty crabapple trees, fruiting Hyslops, will be transformed into huge bouquets of shell-pink blooms. In selecting a flowering tree, the Park Department announced yesterday, it followed a popular trend led by Brooklyn's Botanic Garden and by Washington and Philadelphia. As for the Japanese cherry tree, some experts said yesterday that the fruiting Hyslop is far prettier by individual comparison.

Through inadvertence, it was reported in yesterday's *Times* that the formal opening of the garden would be held yesterday. The ceremony, however, will take place at 12:30 P. M. today. Commissioner Moses and Dr. John H. Finley are the scheduled speakers, but somewhere along the two lanes of Hyslops three baby robins and their mothers may chirp a thanksgiving for their preservation.

Not long ago the baby birds were just tiny eggs and men began to dig at the roots of the home tree in a Tivoli (N. Y.) orchard. Mother robin got excited and summoned the robin police. They fluttered their wings, flew in crazy circles and chirped wildly until the men noticed the nest.

Richard E. Comley, president of the Outpost Nurseries, who was in charge of the transplanting, took in the situation. The nest was left intact and on a New York-bound barge the youngsters were hatched. As godfather, Mr. Comley saw to it that they were safely carried to Central Park.

The trees are planted on the north and south sides of the garden's large central panel. Most fragrant of the crabapple family, the Hyslop changes its pink flowers to snow white after a few days. They are more numerous than the blossoms of cherry trees, giving the Hyslop the appearance of a gigantic, solid bunch. Mr. Comley asserted the tree lives about a century, or about twice the life span of the cherry.

The thousands of flowers will make a poet's paradise for three weeks. Then, as the fruit ripens, park police may have to mass against an invasion of pilfering boys. Bright red crabapples will hang temptingly. (Mr. Comley confided that the Hyslop's fruit makes the best jelly.)

Three integral gardens with pools and a triple terrace complete the geometrical arrangement of the Conservatory Garden. In the south wing is the bronze bird bath memorial to Mrs. Frances Hodgson Burnett, author of "Little Lord Fauntleroy."

*The New York Times*, September 18, 1937.

## COMMON DISEASES AND PESTS OF APPLES

### SCAB

Caused by the fungus *Venturia inaequalis*. Infected leaves show dull, graying areas early in the season, which gradually expand to form brown, slightly raised velvety spots before leaves yellow and fall off in the late summer. Infected fruit has darkened, leathery spots. Scab is worsened by warm and moist climatic conditions. The dormant fungus overwinters in fallen leaves, making leaf sanitation important in control. In addition, the fungus is variable and can mutate, causing once-disease-resistant crabapples to be no longer.



### FIREBLIGHT

Caused by the bacterium *Erwinia amylovora*, which can survive from year to year in cankers on infected trees. Tips of branches look as if they were scorched by fire, with the leaves turning brown and hanging dead and dry on branches. Blighted shoot is curved at tip and is commonly called a "shepherd's crook." Disease can be very destructive, spreading to the main branches and trunk from the tip cankers as rain washes the bacteria downwards. Bacteria can also be spread by aphids, leaf hoppers, and even bees. Wet, warm spring weather worsens disease. Prune out diseased shoots and disinfect shears between cuts.

tertia downwards. Bacteria can also be spread by aphids, leaf hoppers, and even bees. Wet, warm spring weather worsens disease. Prune out diseased shoots and disinfect shears between cuts.

### CEDAR APPLE RUST

Caused by the fungus *Gymnosporangium juniperi-virginiana*. Mostly attacks native crabapples and their hybrids; Asiatic varieties are resistant (NCEP; Dirr). Yellow-orange leaf spots in May later enlarge and may cause leaf drop. Fungus alternates between hosts of crabapples or hawthorns and red cedars (*Juniperus virginiana*, *J. horizontalis* and *J. scopulorum*). Galls on red cedars produce spores that later infect apple trees. Rust needs two hosts to complete its life cycle. Do not plant juniper within 500 feet of crabapples. Severe infection can result in early leaf drop.



Cedar apple rust on leaf, above, and cedar gall, below.



### POWDERY MILDEW

Caused by the fungus *Podosphaera leucotricha*. Mildew covers the leaves and fruits with a dull grayish coating, making the tree look slightly dirty and dusty. Common on crabapples in warm, humid summer climates. Siting trees in locations with adequate air movement is important to limit this disease.

### FROGEYE LEAF SPOT

Perhaps the least damaging. Caused by the fungus *Botryosphaeria obtusa*. Appears as small, dark brown spots with purple outline. Fungal spores can attack branches, fruit and leaves. Remove dead and dying branches when it appears.



### INSECTS

Insects also affect crabapples, but less so than the pathogens listed above. Leaf discoloration can be caused by mites, which are too small to see without a hand lens. Aphids can infest branch tips. Fall webworm and tent caterpillar make nests or tents on the branches which can be pruned out and properly disposed of. Scales can be controlled with dormant oil in the spring before budbreak.



Fall Webworm

Apple, pear, and other fruit trees were at first thought to be host to the Asian Longhorned beetle, but research has not born that out, and they have been removed from the U.S. Department of Agriculture's official host list.

they failed from disease, because they were too large to survive transplant, or perhaps they were planted out of season. Or perhaps they were removed from some kind of buyer's remorse on account of the messiness of such large fruit falling in a public place. What is clear is that the first planting of 60 crabapple trees did not last long. Except, perhaps, for the two trees now growing in the central lawn. As early as 1941 there is a reference to *M. floribunda* "embroidering the skies" of the Conservatory Gardens with their flowers, although the original plan did include this species in the woodland borders of the Garden.<sup>32</sup> The trees there now, at something like 30 feet high, are approaching the upper height limit of most mature crabapples. Two of the rows are *M. floribunda*, and two of the rows are still a mystery.

## Diseases of Crabapples

Unfortunately *M. 'Hyslop'* is not the only apple to fall victim to an onslaught of pathogenic attackers. In the case of ornamental crabapples, it has sometimes seemed as if beauty was directly correlated to vulnerability. In the first half of the 20th century hybridizers raced to develop new genetic mixes and ornamental traits, heedless of the resistance of each new tree to the common but devastating diseases of the apple. "Perhaps 60 to 70 percent of all crabs should never have been introduced," writes Fiala, noting the importance of careful hybridization in bringing new trees to market.<sup>33</sup> Other crabapples that were once widely planted but are now ruled out because of disease susceptibility include *M. x arnoldiana*, *M. coronaria*, *M. ioensis*, *M. 'Hopa'*, *M. 'Van Eseltine'* and the other early Rosyblossoms, *M. robusta*, *M. toringoides*, and *M. tschonoski*. And a good number of modern hybrids are also on the "do not plant" list of those in the know; even a good number of the ones that are still commercially available [see box at right].<sup>34</sup>

The most common diseases of crabapples are fireblight, cedar apple rust, apple scab, mildew and leaf spot [see box at left]. They can negatively impact the aesthetic value of a tree, as well weaken or kill it. Fireblight is perhaps the most severe, as it can kill a tree rapidly. More common is apple scab, which will leave unsightly blemishes on the leaves and fruit and completely defoliate a tree in late summer, depending on the severity of the infection. Cedar apple rust causes brownish orange spots on leaves, and may also cause leaves to fall prematurely. Powdery mildew coats leaves with white powder inhibiting biological processes and weakening the tree. The severity and spread of these fungal diseases varies greatly with region and seasonal weather conditions.

For this reason, ratings of crabapples for disease susceptibility are most accurate within the geographic area where the testing has occurred. Not surprisingly the State of Ohio, the home of John Chapman a.k.a Johnny Appleseed, is still the leader in crabapple research. The International Ornamental Crabapple Society (IOCS) started a program in 1983 to test the disease resistance of the major varieties of crabapple over disparate geographic ranges. The National Crabapple Evaluation Program, or NCEP as it is called, currently has 19 sites in the U.S. and Canada, comprising universities, arboreta, botanical gardens, and large wholesale nurseries. All sites evaluate their crabapple collections annually or more frequently for disease resistance. Because of the regional variations of disease resistance, it is best to have data from a site with similar growing conditions to those where a tree will be planted. The only site in the Northeast is at Cornell University in Ithaca, New York, where 87 crab cultivars and species are monitored. The Cornell site is new, however, and the data is only three years old.

Leaders of the IOCS acknowledge that there is a paucity of crabapple evaluation sites in the East, making selection decisions difficult. [In fact, they have encouraged New York City Parks & Recreation to join the evaluation program.] Nevertheless, interviews with authorities from Cornell, Chicago, and Ohio have yielded a list of species good for planting in New York City parks [see box at right].<sup>35</sup> All of the types listed can be grown as multi-stemmed specimens. There are other crabapple varieties that are also highly recommended but are not included on the list because they are weeping or very upright forms. Some of the old varieties at right, as well as some of the newer hybrids, are very difficult to locate commercially but are deserving of wider use (see Nursery Contact list at end). Often some cultivars that are perfectly fine--if not outstanding--are not longer available because of competition from less desirable but more enticingly-named hybrids. This fate befell *M.* 'Ormiston Roy', for example, which is a white blooming crab with bright red fruits that is similar to though far superior than *M.* 'Snowdrift'.<sup>36</sup>

### Propagating and Cultivating Heritage Crabapples

Bringing back some of the older and newer but hard-to-find crabapple taxa requires a variety of propagative approaches. Almost all crabapple propagation is done asexually, through stem cuttings, grafting, or micropropagation. The result of asexual reproduction is a clone, a plant identical in all respects to the parent plant. In order to produce a clone, of course, it is necessary to have a source of genetic material. This material can be a cutting, a bud, or, in the case of micropropagation, even just a cell. In all cases, the parent plant should be a good specimen worth replicating.<sup>37</sup>

**Stem Cuttings.** One easy way to propagate a crabapple is to take a stem cutting in late summer, when there is good new growth after a moist period. The wound at the site of the cutting forms a callous, and the cells reorganize themselves to form roots. The cutting is dipped into a rooting hormone, and grown further. This method is called own-root or self-propagation because the cutting is made to form its own roots rather than attaching it to rootstock of a different tree. Parks has a nursery in Van

## THE EXPERTS' "PICKS"\*\*\*

### HERITAGE VARIETIES

*M. x atrosanguinea*\*  
*M. baccata*\*  
*M. floribunda*  
*M. hupabensis*  
*M. sargentii*  
*M. scheideckeri*  
*M. zumi* 'calocarpa'  
*M. zumi*

### NEWER HYBRIDS

*M. baccata* 'Jackii'  
*M.* 'Birdland'  
*M.* 'Bob White'  
*M.* 'David'  
*M.* 'Holiday Gold'  
*M. hupabensis* 'Wayne Douglas'  
*M.* 'Indian Summer'  
*M.* 'Ormiston Roy'  
*M.* 'Prairie Fire'  
*M.* 'Prairie Maid'  
*M.* 'Professor Sprenger'  
*M.* 'Red Jade'\*  
*M.* 'Red Jewel'\*  
*M. sargentii* 'Candy mint'  
*M. sargentii* 'Mary Potter'  
*M.* 'Strawberry Parfait'  
*M.* 'Sugar Tyme'  
*M. x zumi* 'Wooster'

\*Opinions differ on the wisdom of planting these taxa.

### ...AND AVOID

*M.* 'Charlottae' (and all other clones of *M. coonaria*)  
*M.* 'Donald Wyman'  
*M.* 'Golden Raindrops'  
*M.* 'Hopa'  
*M.* 'Indian Magic'  
*M.* 'Profusion'  
*M.* 'Radiant'  
*M.* 'Red Baron'  
*M.* 'Silver Moon'  
*M.* 'Snowdrift'  
*M.* 'Van Eseltine'  
*M.* 'Velvet Pillar'  
*M.* 'White Cascade'

\*\*\*see charts at back for more details.



*The rootstock (green leaves) of this pink flowering crabapple in Central Park was allowed to sucker; one shoot grew into a large stem which now towers above the rest of the tree.*



*This albino foliage may be a result of a cellular chimera. This trait arose by chance on an open pollinated crabapple seedling on the former site of the Willow Lake Arboretum.*

unusual cells is sometimes visible in the plant, such as the case with variegated foliage. Visible mutations are called chimeras; micropropagation can search for non-visible cellular alterations such as cold hardiness or disease resistance, and produce altered plant progeny selected for these traits. Finally, through micropropagation, individual cells can be stripped of their walls and fused to other cells, of different species of plants. This technique is called somatic hybridization, and may be a little far-fetched at this point in time, but it has great potential. For example, it may get around the natural reluctance of *M. coronaria*, the fragrant blossomed but disease susceptible species, to hybridize with any number of Asiatic crabapple species. Micropropagation is expensive, and is generally only employed when taking a cutting would cause harm to the parent plant, as in the case of orchids or lilies.<sup>37</sup> Even large commercial nurseries use standard propagation methods to grow stock of most plants, including crabapples.

There is merit, however, in clonally propagating some of our best heritage crabapples. These living specimens may have subtle genetic strengths that differentiate them from individuals of the same species or variety propagated elsewhere. Dr. Stephen Handel, of the Rutgers University Center for Urban Restoration Ecology, specializes in the study of plant genotypes that are unique to urban habitats. He is willing to help us identify the varieties of some of our most resilient and magnificent trees through DNA fingerprinting, so that we can then replicate them for future park plantings. This may be the only way to finally learn the secrets of the Conservatory Crabapples.

Cortlandt Park in the Bronx that is currently cultivating 40 cuttings of Sargent and Carmine crabs from two parent trees in that park. The cuttings have rooted and are presently ten inches tall.

Grafting. Grafting is a process that connects the cambium layers of two plant specimens, the parent and the rootstock. The piece of the parent plant that is grafted onto the rootstock of another plant is a stem, also called “scionwood”, or a bud. The scion is usually a branch tip. Most commercially available crabapples are grafted onto different rootstocks. The rootstock can change (for the better) the hardiness of the eventual tree, its tolerances to heat, cold, soil compaction, and other factors. It can also pass along pathogens and weaknesses, such as susceptibility to disease. The rootstock also suppresses the height of the tree, and can yield significant suckering at the base, as the donor genes attempt to break out of their biological prison. There are new rootstocks, however, that are almost sucker-free, and grafting is the preferred propagation method of most commercial nurseries.

Micropropagation. This method of cloning plant material takes a very small sample of tissue from the parent plant, and adds this sample to a tissue culture in a laboratory setting to produce many shoots of the original plant. These “microcuttings” are then rooted and grown in the standard way as an own-rooted cutting. Micropropagation has great potential for improving plants, as it allows for controlled cellular manipulations of genetic material. For example, there is significant variability in the cells of a single plant. Some of these cells have particular qualities that when isolated and replicated, will produce superior traits.

This is the microbiological version of the Great Apple Rush, prospecting for cells rather than for trees. The existence of these altered or



*A sampling of apple fruit from the National Germplasm Repository in Geneva, New York shows the gradation of size between apple and crabapple. This center is the largest living library of apples in the country and distributes over 3,000 scions each year to plant researchers.*

## Malus Species Descriptions--New York City's Heritage Crabapples

This list comprises species that were found on planting plans from the 1930s. Some of these species are still growing in New York parks today and continue to be recommended for planting. Others have fallen out of market circulation but may be worth a second look. The rest did not stand the test of time due to extreme susceptibility to disease. With few exceptions they are upright spreading trees that are particularly suited to cultivation as multi-stemmed specimens. Many of these species if encouraged in this way will have a greater spread than height at maturity.



### *M. x arnoldiana* Arnold Crabapple

Large, upright spreading tree wider than it is tall at maturity, with "long pendulous branches" (Fiala). Buds are dark red on long stems; leaf edges have a very small wave. Large abundant flowers 2 inches across, pink fading to white-pink. Fruit oval, yellow with a faint blush of pink. Originated as a chance seedling at the Arnold Arboretum in 1883. Parentage is *M. bacata* × *M. floribunda*.

The Arnold crabapple is subject to disease, and is not available in the trade today. Fiala admires how floriferous it is, however, and suggests those with large a growing space and attentive care regime retain "this venerable matriarch that has been used extensively in hybridization." Progeny includes *M.* 'Van Eseltine' (see below).

Used in: Riverside Park, Shore Parkway  
Not for planting today.



### *M. x atosanguinea* Carmine crab

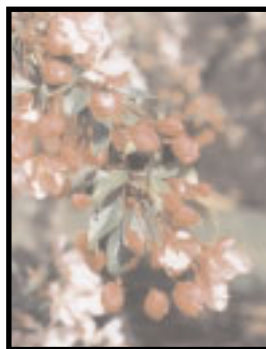
A medium sized tree that will grow wider than it is tall at maturity. Natural hybrid of *M. halliana* and *M. toringo*, introduced into this country by the Arnold Arboretum in 1889. Buds are deep carmine opening to abundant rose-to-light pink flowers. Fruit is small, reddish yellow (or greenish yellow) and not particularly showy. Leaves very dark green.

"One of the cherished older crabapples....with very picturesque branching if it is allowed multiple trunks." (Fiala, p. 118).

"Springtime show of magnificent blossoms makes this tree a standard specimen crabapple." Fiala also says it is resistant to most diseases, except moderate scab. Tree is not available in the trade today, although the crabapple expert at J. Frank Schmidt Nursery in Boring Oregon does not think the industry "had a strong case for dropping the hybrid about twenty years ago."



The dark pink color of a budding crabapple with white pine in the background, at the Olmsted Center, FMCP, Queens.



Buds, tree form, and flower of Arnold crabapple. Flower and tree photo taken at the New York Botanical Garden.



Fruit, buds, and flowers of the Carmine crabapple.



Used in: Riverside Park, East Service Drive (FMCP)  
May be disease resistant enough to plant today.



***M. baccata***  
Siberian crabapple

Named by Carl Linnaeus in 1767; introduced into Europe from Siberia in 1784 by the Royal Botanic Gardens, Kew, England. Separate introduction from Manchuria to U.S. in 1934 by U.S. Department of Agriculture. A large, upright tree as tall as its spreading branches are wide. Buds are pink opening to very profuse pure white "delightfully fragrant" flowers on abundant fruiting spurs. Fruit red or yellowish brown. Young shoots are entirely smooth.



Native to eastern Siberia down into northern China, it is the most northerly flowering crabapple and the hardiest of all species in the genus *Malus*. It is also "highly" disease resistant except for moderate scab. It has been used extensively in hybridization, although there is some confusion because of the many varietal forms, hybrids, and clones that have been associated with *M. baccata*. Crossed with *M. pumila* 'Niedzwetzkyana' it is a parent of the Rosybloom hybrids. There are over 140 named clones of this species, among them *M.* 'Van Eseltine'.



*Flowers and bright red fruit of the Siberian crabapple.*

Used in: Willow Lake (FMCP)  
Can be planted today.



***M. coronaria***  
American crabapple, Wild sweet crabapple

Native to the eastern half of the U.S. A large tree with limbs growing as wide as it is tall. Deep pink buds opening to light or salmon-pink flowers. Late bloomers, they have "a unique, strong fragrance not found in any other species" (Fiala). Fruits are greenish, not at all showy as is characteristic of the native crabapples. Species and its forms are highly susceptible to scab and cedar-apple rust. "Research should be directed to improving and saving this truly unique North American species, which is fast disappearing from the countryside and is found only in the largest arboretum collections." (Fiala) Does not hybridize well with the Asiatic species. There are currently no disease-resistant clones.



*The fragrant, salmon pink flowers of the American crabapple.*

*M. glaucescens* (also called *M. coronaria* var. *glaucescens*) was also used in the Willow Lake Arboretum. It is, as the name implies, a varietal form of *M. coronaria*. Buds open to pink fragrant flowers. Fruit is yellow-green. Susceptible to cedar-apple rust. A shrub or small, rounded tree, "This variety is of no particular horticultural value..."(Fiala).

Used in: Willow Lake (FMCP)  
Not for planting today.



*Dark pink buds, pale pink blooms, and yellow fruit of the Japanese flowering crab.*



### ***M. floribunda***

Japanese flowering crabapple

One of the oldest crabapple species in cultivation, its origins are murky but it is thought to have been introduced to the U.S. in 1862. Never been found in the wild. One of the best all around crabapples with beautiful flowers, form, and fruit. Very disease resistant, this medium, broadly spreading tree grows wider than it does tall. Deep carmine buds open to pale pink, almost white flowers. Abundant fruit is yellowish with a rusty flush and very attractive to birds.

"No other species has produced so many outstanding hybrids or achieved an equal level of landscaping excellence. It is indeed a crabapple for all seasons." (Fiala)

Used in: Bensonhurst Park, Riverside Park, Shore Parkway, Conservatory Gardens in Central Park, FMCP (East Service Drive and Willow Lake).

An excellent crabapple that is commercially available.



*The Oregon crab has small white flowers and is not very ornamental.*



### ***M. fusca***

Oregon crabapple

The only North American species native to the Pacific northwest, from Alaska to Northern California. Very cold hardy and disease resistant, it is a large upright spreading tree that tolerates moist soils more than other crabs. Unfortunately, its white flowers and yellowish fruit are not very ornamental and it is said to bloom only every other year (alternate blooming).

Used in: Willow Lake (FMCP)

The only native species (but native to the Northwest) that could still be used today; however it is not at all ornamental.



*Carmine flowers and tree form of M. 'Hopa'.*



### ***M. 'Hopa'***

Synonyms: M. 'Hansen's Red Leaf Crabapple', M. 'Hoppa', M. 'Hoppi', M. 'Sunburst', M. 'Pink Sunburst'.

A Rosybloom hybrid from *M. baccata* and *M. pumila* 'Niedzwetzkyana', with carmine buds and flowers and bright red fruit. A large spreading tree, M. 'Hopa' "...should be on the discard list because of extreme disease susceptibility, especially to apple scab..." (Dirr). In areas of low rainfall and humidity (i.e. the southwest) it may not do as badly as in the rest of the country.

Used in: Willow Lake (FMCP)

Not for planting today, although still offered by some nurseries.



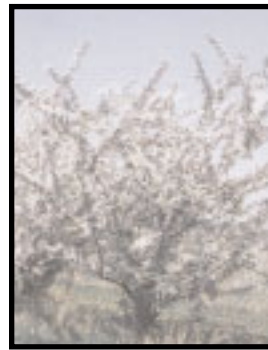
***M. hupahensis***

Tea crabapple

Called *M. theifera* for many years. Introduced into the U.S. by Arnold Arboretum by seed collected by E. H. Wilson in 1892 in China. Tree has open, upright spreading shape that will grow wider than it is tall. Medium sized, with unusual lateral twigs that flowers form on studding the trunk to the tips of branches. Buds deep pink opening to white, fragrant flowers. Fruit is green-yellow. Good disease resistance. Can be propagated from seed with almost no variation from parent. Trees should not be pruned because it would force double branches at cut, eliminating the vase shape form.

Fiala says: "Because of its unique branches, this tree appears to have a widely spreading vase-shaped form. Each season it reaches out in spread. It is extremely picturesque in the landscape, especially in wintertime, and a mature tree is a splendid focal point when used as a single specimen in the landscape. In Old China the long branches, which can extend as far as 40 feet from the trunk if left undisturbed and unpruned, were propped up by supports and the spreading canopy used as a shade for tea tables" (p. 133).

Used in: Bensonhurst Park, Willow Lake (FMCP)  
Could be planted today.



*Form, fruit, and flower of the tea crabapple. Young trees at top right are growing in New York City's Central Park.*



***M. ioensis***

Iowa crabapple

Native to Iowa and the surrounding states of Minnesota, Wisconsin, Nebraska, and Kansas, extending to parts of upper Texas. Not found in the wild anymore due to urbanization. Species and its clones are highly susceptible to apple scab and cedar apple rust. Flowers white and fragrant; berries green.

Used in: Willow Lake (FMCP)  
Not for planting today.



***M. x robusta***

Cherry crabapple

A group of hybrid crabapples with varying characteristics. Identification is hazardous. Generally, flowers are white or pinkish; berries are red or yellow. Alternate bloomer. Susceptible to fireblight and mild scab.

Used in: Willow Lake (FMCP)  
Not for planting today.



*M. x robusta.*



The dark red fruit and white flowers of the Sargent crab, top. Above, the spreading, often shrub-like form of this small tree.



***M. x robusta fastigiata***

syn. *M. x robusta* 'Erecta'

Grown from seed sent by C.S. Sargent from Beijing, China to the Arnold Arboretum in 1904. Upright tree with white and pink-edged buds opening to white flowers. Fruit is yellow or red. Tree is an alternate year bloomer. Subject to mild scab and fireblight

Used on: Willow Lake (FMCP)

Not for planting today.



***M. sargentii***

Sargent Crab

Introduced into the U.S. from seed collected in Japan in 1892 by C.S. Sargent of the Arnold Arboretum. The smallest species of crabapple; grows almost twice as wide as it does high. Grows low and spreading, with no attempt to form a leader. Lateral branches grow at nearly right angles from branches. Flowers are profuse and pure white. Fruit is dark red to purple and persists in the winter. Very disease resistant.

Fiala says "an excellent smaller crabapple that is always outstanding with a great variety of landscape uses."

Used in: Riverside Park, FMCP (East Service Drive and Willow Lake)

Very popular and commercially available.



***M. x scheideckeri***

Scheidecker Crab

Originated in late 19th century in Scheidecker Nursery, Munich, Germany. Introduced to the U.S. by the Arnold Arboretum in 1889. A small, upright tree rose red buds opening to semi-double pale rose pink flowers and yellow-orange fruit. Fiala says moderately susceptible to fire blight and scab, although Chatfield and Bristol think not. Plant can be pruned and trained to desired form. Because of distinctive flowering, where flowers emerge in dense clusters all along the branches, Fiala thinks the tree should be used more in landscaping and in hybridizing.

Used in: Bensonhurst Park, FMCP (East Service Drive and Willow Lake)

Could be planted today, if located.



Small upright form (top) and pale pink semi-double blossoms of the Scheidecker crab.



### ***M. sieboldii* 'Calocarpa'**

Redbud crabapple

Also known as *M. zumi* 'Calocarpa'

A selected seedling clone introduced into the U.S. by the Arnold Arboretum from seed sent from Japan in 1890 by William S. Bigelow. A dense, upright to spreading small tree, as high as it is wide. A little smaller than its parent species *M. x zumi* (see below). Deep red buds opening to fragrant pink-white flowers. Bright red fruit is very small and persistent. Some literature suggests slight disease susceptibility, but for Fiala, and for Cornell Plantations, has shown complete disease resistance.

Fiala is very enthusiastic: "One of the most beautiful of all the ornamental crabapples both in bloom and in fruit" (p. 147). Plant is a clone that must be asexually propagated. Many nurseries have often propagated from seed, and these seedlings are a mixed bag that are not as "fine as the parent, although they are all sold with the label *M. sieboldii* 'Calocarpa'. Fiala recommends only using plants that are asexually propagated from an authentic arboretum plant.

Used in: Willow Lake (FMCP)

Can be planted today



*Flower and fruit of the redbud crabapple.*



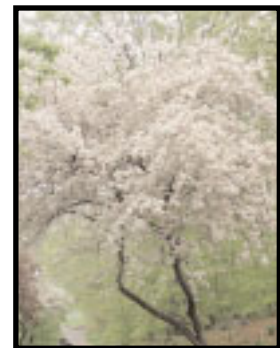
### ***M. spectabilis***

Chinese flowering crab

Introduced before 1780 from China, but never known in the wild. Probably a hybrid. A broadly spreading tree with rosy red buds opening to pale pink flowers. Fruit is a dull yellow and not ornamental. Variable susceptibility to scab.

Used in: Bensonhurst Park

Not for use today.



*M. spectabilis in full bloom at the New York Botanical Garden.*



### ***M. x zumi***

Also called: *M. sieboldii* var *zumi*, *M. x sieboldii*

Introduced into the U.S. by Arnold Arboretum by seed collected by C.S. Sargent in 1892 in Japan. Small to medium sized, rounded tree. Slow growing. Buds are carmine, opening to abundant white flowers. Fruit is red and showy, very attractive to birds. Disease resistant.

Fiala is extremely enthusiastic: "This is a species whose possibilities have not yet been exhausted by hybridizers. It is just now being appreciated as one of the finest, perhaps the best, of all the crabapple species" (p 147).

Used in: Willow Lake (FMCP)

Can be planted today.



*White flowers of M. x zumi.*



*M. baccata 'Jackii' in bloom at the New York Botanical Garden.*



*M. 'Bob White' in full bloom, above, and with golden yellow leaves and berries in the fall, right.*



*Dark red fruit of M. 'David'.*



*M. 'Holiday Gold' is a medium tree (top), with pale pink buds opening to white flowers, and golden yellow fruit in the fall (above).*



## Hybrid Crabs (old and new) for New York City



### *M. baccata* 'Jackii'

This cultivar is grown from scions collected in Seoul, Korea and sent to J.G. Jack at the Arnold Arboretum in 1905. It is considered a successful and hardy clone in the *baccata* series. Some consider it the "callery pear" of the *Malus* genus, for its glossy, green leaves (Chatfield). It is a broad, rounded tree that is as tall as it is wide, about 20 feet. The fruit is long stemmed and burgundy red. The buds are white with a pink tinge.



### *M. 'Birdland'*

Introduced by a nursery in Wisconsin. Named because fruit is very attractive to birds, especially cedar waxwing and robin, who will finish off all fruit that persists until spring. A medium sized tree with pink buds opening to white, fragrant flowers. Fruit is yellow-red and very persistent.



### *M. 'Bob White'*

Introduced by the Arnold Arboretum before 1876. A medium sized rounded tree with pink buds, white flowers, and yellow fruit that persists late into winter. Dirr says tree is disease susceptible, but the IOCS thinks this is just a mis-report and heartily endorses this tree.



### *M. 'David'*

A small rounded tree, with light pink buds, and snow white flowers - a showy tree with scarlet fruit. Chatfield considers fruit "tremendous." Can be an alternate year bearer.



### *M. 'Holiday Gold'*

This medium-sized open spreading tree has white flowers and golden-yellow fruits. It is a relatively new variety that is "our favorite golden crab" (Chatfield).



### *M. hupahensis* 'Wayne Douglas'

A hybrid seedling from Martha's Vineyard, MA, with a form more rounded than the species, although still a medium-sized spreading tree. Buds are pale pink and open to white flowers. Fruit is purple.



### *M. 'Indian Summer'*

A medium-sized rounded tree with purple buds opening to rose-

red flowers with bright red fruit that persists into winter. "A very fine crabapple" (Fiala).



### ***M.* 'Ormiston Roy'**

Named after a landscape architect from Montreal. This tree is wider than taller, with rose red buds that turn a pale pink, white flowers, and orange blush fruit that is persistent throughout the winter. Fiala says it is "excellent for all-purpose landscaping," in part because it is greatly disease resistant. Hirschfeld describes the tree as having a "graceful, low branching, wide-headed habit." The cumbersome name seems to keep this tree from becoming more popular.

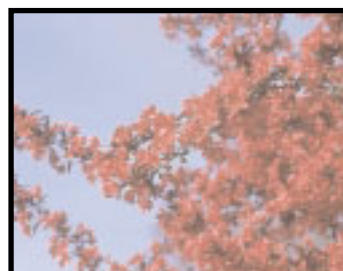
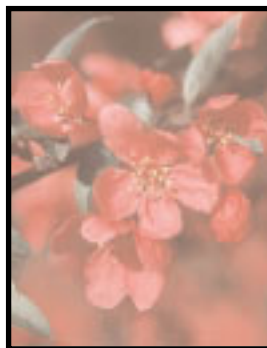


*M.* 'Indian Summer' at the New York Botanical Garden.



### ***M.* 'Prairie Fire'**

Approximately 20 feet tall and wide, with young leaves that are red-maroon that matures to a deep green. Red-purple buds lead to red-purple flowers. The fruit is a purple-red. This is a reliable newer clone that, according to Fiala, should be better known for its elegant blossom color. He says, "Should be excellent in hybridizing."



Branch, flower and fruit of *M.* 'Prairie Fire'.



### ***M.* 'Prairie Maid'**

This tree is a hybrid of *M.*  $\times$  *zumi* 'Calocarpa' and *M.* 'Van Eseltine'. It is a rounded tree with deep pink flowers and abundant clusters of rosy-red fruit. New foliage is burgundy red. This tree might work well as multi-stemmed specimen (Chatfield, pers. conversation).



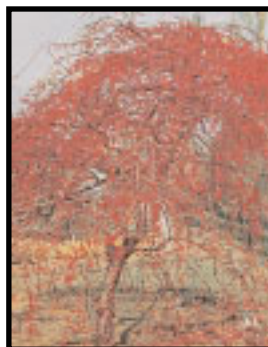
### ***M.* 'Professor Sprenger'**

Named for a Dutch horticulturist, this upright spreading tree is a clone of *M.* *seiboldii*. With deep rose pink buds opening to very fragrant, white flowers and orange-red fruit. Birds do not like fruit so will persist in winter. "The name, like most crabapple names to honor men, adds sales resistance" (Fiala).



### ***M.* 'Red Jade'**

This is a chance seedling of *M.* *floribunda* 'Excellenz Theil'. It was found growing in the Brooklyn Botanic Garden in 1935 by George M. Reed. Almost double as wide as tall, the leaves are a glossy green, the buds red, and the single flowers white. The fruit is bright red, persisting until mid-winter. Fiala says, "It is an excellent, outstanding ornamental, the first really fine weeping crabapple." Ohio State Extension says it has a "graceful, arching, spreading growth habit." Because of its long branches it needs a lot of space to grow.



White flower, red berries, and downwards spreading form of *M.* 'Red Jade'. Flowering tree photo taken at the New York Botanical Garden.



*Pink buds, white flowers, and red berries of *M. sargentii* 'Mary Potter'.*



*Recently planted *M.* 'Strawberry Parfait' at the New York Botanical Garden.*



*White flowers of *M.* 'Sugar Tyme' (top). Its red berries persist into winter.*



### ***M.* 'Red Jewel'**

Upright pyramidal tree with white flowers and very persistent cherry red fruit. "Tree form is somewhat upright and ungainly" (Ohio State Extension).



### ***M. sargentii* 'Candymint'**

Introduced by Simpson Nursery in Indiana. A small, horizontally spreading tree with carmine buds opening to showy flowers with pink petals edged with red. Fruit is deep purple.



### ***M. sargentii* 'Mary Potter'**

Said to come true from seed, this low-growing, broadly spreading tree is densely-branched with pink buds opening to fragrant, white flowers. Fruit is red, persistent, and attractive to birds.



### ***M.* 'Strawberry Parfait'**

Grown and found at Princeton (New Jersey) Nursery, this medium-sized tree has an open spreading form. Early leaves are purple-red turning green. Buds are red, opening to pink flowers that grow in clusters. Fruit is yellow-red. It has tremendous blooms and fruits from late July through March, and an "unusual growth form" (Ohio State Extension).



### ***M.* 'Sugar Tyme'**

Introduced by Lake County nursery, this is a medium upright rounded tree with standard equal width and height. Buds are pale pink that open to a fragrant white flower. The fruit is red and persists into the winter. Tree was the Long Island Horticultural Society's 2002 Gold Medal Plant Award Winner.



### ***M. x zumi* 'Wooster'**

Also called *M.* 'Slansky's Red Fruited'

Grown from open pollinated seed in Ohio by Fr. John Fiala in 1949. A small tree as high as it is wide, it has bright carmine buds and white flowers, with early orange-red fruit. Has been used widely in hybridizing because it is so disease resistant. Differs from *M. x zumi* 'Calocarpa' in that slightly smaller fruit colors a few weeks earlier, and is more orange than red.

## ENDNOTES

- <sup>1</sup>Dr. Hans Herman Behr, nineteenth century botanist.
- <sup>2</sup>Hyde, Lewis, ed. The Essays of Henry D. Thoreau. New York: Farrar, Straus and Giroux, 2002.
- <sup>3</sup>Browning, Robert. *The Two Poets of Croisic*. Line 10. 1878.
- <sup>4</sup>Fiala, John L. Fr. Flowering Crabapples: The Genus Malus. Portland, Oregon: Timber Press, 1994. 273 p.
- <sup>5</sup>Allen, Zel and Reuben. *Vegetarians In Paradise, A Los Angeles Monthly Web Magazine*. "An Apple a Day Keeps the Doctor Away", September/October 2001. www.vegparadise.com.
- <sup>6</sup>Pollan, Michael. The Botany of Desire: A Plant's-eye View of the World. New York: Random House, 2001.
- <sup>6a</sup>"Famous Apple Trees from Colonial Days brought back to Elmhurst". First Presbyterian Church of Newtown Press Release, April 1, 2002.
- <sup>7</sup>Hyde, Lewis, ed.. page 312.
- <sup>8</sup>Crabapple introductions to the U.S. that preceded *M. floribunda* include the Chinese flowering crab (*M. spectabilis*) in 1780; the plumleaf crabapple (*M. prunifolia*) from China in 1831; the Kaido and Toringo crabapples (*M. micromalus* and *M. toringo*) from Japan in 1856; and *M. halliana*, a species cultivated in Japan and China, in 1861.
- <sup>9</sup>This is the crabapple also known as *M. sieboldii* var *zumi* 'Calocarpa', later known as *M. x zumi* 'Calocarpa'. Fiala (1994) proposes returning to original name.
- <sup>10</sup>Fiala, John L. Fr. Ibid.
- <sup>11</sup>Wyman, Donald. "Ornamental Crabapples: Their Unsurpassed Spring Beauty is Later Followed by Highly Decorative Fruits", *The New York Times*. New York, NY; May 9, 1937; p. 91.
- <sup>12</sup>Wyman, Donald. "Crabapples for Jelly: A Small Group of Trees Usually Grown For Ornament Produce Useful Fruits", *The New York Times*. New York, NY; August 15, 1943; p. X14.
- <sup>13</sup>Dirr, Michael A. The Interactive Manual of Woody Landscape Plants. The Educated Gardener, Vol. II. Arlington, Virginia: PlantAmerica, Inc. www.plantamerica.com.
- <sup>14</sup>Fiala, page 128.
- <sup>15</sup>As distinguished from balled and burlapped (B&B). For explanation of the B&P term, I asked a long-time planting contractor who said it was traditionally applied to trees, such as hawthorne, that were gathered from the wild. The platform was a wooden structure put beneath and around the root ball to support it. Robert Bello, personal communication, 4/22/03.
- <sup>16</sup>Gail Wittwer-Laird, personal communication.
- <sup>17</sup>A new generation of crabapples was planted in the restoration of the Riverside Park Crabapple Grove, near 91st Street, in spring 2000. Designed by Wittwer-Laird, species included the original Japanese flowering and Sargent crabs, as well as Siberian crabapple (*Malus baccata*), and modern hybrids including *Malus* 'Prairiefire', *Malus* 'Indian Magic', *Malus* 'Candy Mint', and *Malus x zumi* 'Calocarpa'. Some trees were obtained in multi-stem form from a nursery but they were quite small. Others were planted with two saplings in the same planting site so that they would eventually appear as a single, multi-trunked specimen.
- <sup>18</sup>Plans titled "Shore Parkway: Borough of Brooklyn, Planting Plan." Number PS-39-11. Sixteen sheets, one for each segment of roadway. Plans dated 9/7/39. Olmsted Center mapfile.

## NEW GARDEN RISES IN CENTRAL PARK

Area Formerly Occupied by  
Conservatories Is Being  
Extensively Developed

EXPANDED TO SIX ACRES

Formal Opening Next Month  
Will Reveal Wide Variety of  
Shrubs and Flowers

The conservatory garden, one of the newest beauty spots in Central Park, is nearing completion and the Department of Parks tentatively plans its formal opening the first week in September, it was learned yesterday.

The newly landscaped area is opposite 105th Street and Fifth Avenue. The site was occupied until two years ago by the old conservatories, which finally were razed because of the excessive cost of heating and maintaining them.

When the glass conservatories were razed it was planned at first to develop the four-acre site as a formal garden, the work to be done largely by WPA workers. As the plan progressed the area was enlarged, so that the garden now covers about six acres.

### How Garden Is Laid Out

A tour of the conservatory garden revealed that it comprises roughly three plots, arranged in horseshoe shape. At the northern end is a sunken garden and at the southern end a pool. On the west side is a large semi-circular metal arbor for wistaria.

In the sunken garden, bordered by a taxus hedge, are perennials. In the northern plot there is a colorful collection of zinnias and phlox. The central plot, which is rectangular, has flowering fruit trees, such as apple and Japanese cherry, as well as flowering shrubs, including magnolias.

The beds are separated by walks and low boxwood hedges. Two existing brick buildings have been utilized for overlooks.

When plans for the conservatory garden were first announced two years ago, they contemplated the inclusion of the Burnett Memorial, a bronze fountain group presented to the city by the Frances Hodgson Burnett Memorial Association.

### "Story-Teller's Seat" Urged

This fountain group, the work of Mrs. Bessie Vonnob, shows a boy playing a flute at the feet of a little girl holding a bowl from which water flows. It has been suggested that a "story-teller's seat" should be built around the fountain so that children might go there to have stories told to them.

In the absence of Commissioner Robert Moses, members of his staff were unwilling to release any designs of the conservatory garden or give any details of its arrangement.

When the plan for the garden was adopted spokesmen for the Park Department predicted it would attract a far greater number of visitors than had the old conservatories. They also pointed out that the maintenance of the garden would cost a great deal less than the conservatories.

Annuals for the garden will be transplanted from hothouses in other parks throughout the city.

*New York Times, August 17, 1937.*

- 19" Bensonhurst Park Ready in Brooklyn; Greatly Enlarged Area has Many Recreation Facilities." *New York Times*. New York, NY; March 16, 1942; pg. 18.
- 20" Drawing titled "Bensonhurst Park: Bay Parkway-Crospy Ave-21st Ave, Borough of Brooklyn" Drawing Number B-L-7-104. Dated 7/23/1940. From Document Services at the Olmsted Center.
- 21" Board of Design is Named for Fair". *New York Times*. New York, NY 1937?. This was undoubtedly a mark of prestige for Clarke: Frederick Law Olmsted was in charge of the landscape design for the Chicago World's Fair of 1897.
- 22" Drawings titled "Flushing Meadow Park, Queens: Planting Plan East Service Drive." Drawing Number Q-L-99-150, Sheets 3 and 4. Dated January 1937. From Document Services at the Olmsted Center. The multi-stemmed crabapples in Calvert Circle behind the Olmsted Center may well date back to this time. I did not locate a plan for this site, although the above plan came tantalizingly close.
- 23" The other apple species at the Willow Lake Arboretum were *M. x arnoldiana*, *M. baccata*, *M. floribunda*, *x atosanguinea*, *M. glaucescens*, *M. hopya*, *M. micromalus*, *M. robusta*, *M. robusta fastigiata*, *M. sargentii*, *M. schiedeckeri*, *M. sieboldi* 'calocarpa', *M. spectabilis*, *M. theifera*, *M. theifera* 'Rosea', *M. toringoides*, *M. tschonoski*, and *M. xzumi*.
- 24" Drawing titled "Flushing Meadow Park, Borough of Queens: Willow Lake-Section III Planting Plan." Drawing Number Q-L-99-147, Sheet 2. Dated September 1, 1937. From Document Services at the Olmsted Center.
- 25" Drawing titled "Conservatory Garden, Central Park, Manhattan: General Planting Plan." Drawing Number M-L-10-2035. Dated January, 1936. From Document Services at the Olmsted Center. A note on the Revision box of the plan is signed: "June 16 '36-Revisions in plan and list to utilize material available."
- 26" New Garden Rises in Central Park: Area Formerly Occupied by Conservatories is Being Extensively Developed," *The New York Times*. New York, NY; August 17, 1937.



- 27" Neal Calvanese, personal communication.
- 28" Garden Replacing Greenhouses in Central Park Opened by Moses." *New York Times*. New York, NY; September 19, 1937.
- 29" An excerpt from the plant list on the planting plan (Drawing Number M-L-10-2035) for the Conservatory Gardens showing 22 *Malus floribunda* (which were scattered about the informal outskirts of the garden, at least according to the plan), and 48 *Malus* "fruiting or flowering crabapple" (for the allees--four rows of 11 trees, each row with an additional tree across the east path).

TREES:			
1	FRAXINUS AMERICANA		
28	CRATAEGUS OXYCANTRA	10'-12'	
26	GLADSTONIA TRIACANTRO	5'-6' CAL	
	MAGNOLIA SOULANGEANA (FROM PARK)	18'-20'	
	MAGNOLIA SOULANGEANA	16-20x18	LISTED C
	MALUS (FRUITING CRABAPPLE)	10x12 PL	PLAN M-L-10-2035
22	MALUS FLORIBUNDA	16-20x18	Spread
48	MALUS (FRUITING OR FLOWERING CRABAPPLE)		
1	PRUNUS JAPONICA VARIETY		
19	QUERCUS COCCINEA	4'-5'	
26	" RUBRA	4'-5'	
18	YUCCA JAPONICA	6'-8'	PECIMEN

## CRAB APPLE BLOOM



George Kin Leung  
The Chinese species, flowering in  
Central Park, New York.

## Chinese Crab Apples Bloom in the City

By GEORGE KIN LEUNG

"A heaven of blossoms" the Chinese call their flowering crab apple, and they have accorded the tree the place of "God among flowers." At the moment, the skies are embroidered by flowering Chinese crab apples in the Conservatory Gardens, Fifth Avenue and 106th Street, and in both the Bronx and Brooklyn Botanical Gardens. These blossoms have come out early.

In China the popular pink *Malus floribunda* is valued not only for its poetic beauty but also as an ingredient of herbal prescriptions. The pink-flowered specimens growing here produce red or yellow berrylike fruit, while the white *Malus floribunda* bears larger crabapples.

American gardeners know that ripe crabs attract birds but in China they also attract people. The Chinese Tang-hulur are candied crab apples on a wand, about six or seven feet in length, the joy of children at the New Year festival. The Chinese confer on their flowering crab apples such names as Drooping Silk, Scarlet Ocean, Western Chamber, and so on.

An old botanical treatise dealing with the care of the plant gives the following instructions: "The pear tree is most often used onto which to graft the branches. In Winter, apply to the roots of the crab apple water mixed with the sediment of malt, that which has been left after distilling spirits. This will bring fresh, thick blooms. Pack dunged earth about the roots. Blooms in a vase live longer if kept in peppermint water."

The "*Malus* fruiting crabapples" of unspecified number listed above the *Malus floribunda* are referred to in another plan as being a group of four trees. These must be for around the fountain in the south garden. I was unable to determine the numerical significance of the 60 trees (the number of Hyslops said to have been planted in the New York Times article).

<sup>30</sup>Wyman, Donald. "Crabapples for Jelly: A Small Group of Trees Usually Grown For Ornament Produce Useful Fruits", *The New York Times*. New York, NY; August 15, 1943; p. X14.

<sup>31</sup>Fiala, Ibid. p. 117.

<sup>32</sup>Leung, George Kin. "Chinese Crab Apples Bloom in the City." *New York Times*. New York, NY; April 27, 1941.

<sup>33</sup>Fiala, Ibid. page 87.

<sup>34</sup>Jim Chatfield, President of the International Ornamental Crabapple Society (IOCS) and Assistant State Specialist of Horticulture for Ohio State University Extension, and Peter Bristol, Woody Plant Curator for the Chicago Botanic Garden, personal communications. IOCS is headquartered at Holden Arboretum in Kirtland, Ohio. For more information visit [www.malus.net](http://www.malus.net)

<sup>35</sup>Jim Chatfield, Peter Bristol, and Mary Hirshfeld of Cornell Plantations, [www.plantations.cornell.edu](http://www.plantations.cornell.edu).

<sup>36</sup>Jim Chatfield, personal communication.

<sup>37</sup>If parent material is not available for any of these methods of propagation, then one can always turn to the National Germplasm Repository at Geneva, New York (USDA). This remarkable resource is a library of apples, a living museum that has 3,000 specimens (called accessions) representing 1,500 different types of apples and crabapples. A collaboration between Cornell University and the U. S. Department of Agriculture's Agricultural Research Service (ARS), this institution distributes over 6,000 scions of apples and grapes (their other focus) each year. Their researchers have also traveled to Kazakstan to collect apple seed in the wild, in hopes of expanding the apple gene pool. For more information contact Phil Forstline, USDA, ARS, Cornell University, Plant Genetic Resources Unit, New York State Agricultural Exp., Station, Geneva, New York 14456-0462. Phone: (315) 787-2390. FAX: 315-787-2339. [www.ars-grin.gov/ars/NoAtlantic/Geneva](http://www.ars-grin.gov/ars/NoAtlantic/Geneva).

<sup>38</sup>Professor Steven Handel, Ph.D., Center for Urban Restoration Ecology, Rutgers University, New Brunswick, NJ, personal communication.



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607-255-3141  
mfh6@cornell.edu  
www.plantations.cornell.edu

The International Ornamental Crabapple Society  
(IOCS)  
www.malus.net

## **NURSERIES**

Keith Warren  
**J. Frank Schmidt & Son Nursery**  
P.O. Box 189  
Boring, OR 97009  
1-800-825-8202

Jeanne Mona  
**Hopewell Nursery**  
54 Harmony Road  
Bridgeton, NJ 08302  
1-800-639-1722

Beth Dekis  
**High Ridge Farms**  
Imlaystown, New Jersey  
609-259-9204  
*Sells some hard-to-find crabapple types, including single-stem M. zumi 'calocarpa', and M. atrosanguinea. Also sells a few types in clump form, such as M. 'Spring Snow' and the disease-prone M. 'Velvet Pillar'.*

**Arbor Village**  
P.O. box 227  
Holt, Missouri 64048  
816-264-3911  
Attn: Lanny Rodden  
*Mail order nursery specializing in rare and hard to find crabapples. Plants are two to three feet tall and are shipped as 3x whips via UPS for further cultivation.*

**Wilson Nurseries, Inc.**  
43W967 State Route 72  
Hampshire, IL 60140  
847-683-3700  
*Has a large selection of clump form crabapples.*

**Hinsdale Nurseries Inc.**  
7200 S. Madison Street  
Willowbrook, IL 60527  
630-323-1411  
*Has a large selection of clump form crabapples, but does not ship to the East coast.*

**Kankakee Nursery**  
PO box 288  
Aroma Park, IL 60910  
815-937-9358  
*Sells low branched Malus and has shipped to East coast. Specimens are branched at 10 inches or lower from the ground.*

**Lake County Nursery, Inc.**  
Route 84, Box 122  
Perry, Ohio 44081-0122  
Toll Free 800-522-5253  
www.lakecountynursery.com  
*Sells some clump form crabapples and has a very good web site with pictures of all varieties.*

**Poplar Farms Nursery**  
39W100 Main Street  
Batavia, IL  
1-630-879-7202

www.poplarfarms.com  
*Has good selection of clump form crabapples and ships to East coast. New York City Parks & Recreation ordered over 150 trees from Poplar Farms in fall 2003 and spring 2004.*

**Klehm and Sons Nursery**  
Route 5, box 197  
South Barrington, IL 60010  
1-708-551-3728

**King Nursery**  
6849 US Highway 34  
Oswego, IL 60543  
1-630-554-1171

**Web plant locator:**  
Ornamental Growers Association of Northern Illinois. [www.ogaoni.com](http://www.ogaoni.com)



*A crabapple growing along  
Central Park's West Drive near  
96th Street..*

## NEW YORK CITY'S HERITAGE CRABS

Scientific Name	Common Name	Origin	Parentage	Form	Size*	Bloom	Buds	Flowers	Fruit	Disease	Notes
<i>M. x atrosanguinea</i>	Carmine crab	Natural hybrid--Arnold Arboretum in 1889	<i>M. halliana</i> x <i>M. torringo</i>	Spreading	Medium		deep carmine	deep pink rose	yellow or greenish yellow	moderate scab	
<i>M. baccata</i>	Siberian crab	Europe; 1930 from Manchuria to US	---	Rounded, upright with spreading branches	Large	early	pink	pure white; "delightfully fragrant"	very small; red or yellow brown	very resistant except for moderate scab	
<i>M. floribunda</i>	Japanese flowering crab	Introduced in 1862	---	broadly spreading	Medium	early	deep carmine	pale pink, almost white	yellowish with rusty flush	very resistant	
<i>M. hupahensis</i>	Tea crab; formerly called <i>M. theifera</i>	China--seed collected in 1908	---	Open irregular spreading	Medium		deep pink	white	green-yellow	good resistance	Can be propagated from seed
<i>M. sargentii</i>	Sargent crab	From Japan in 1892 by the Arnold Arboretum	---	Wide spreading	Small	late	white	pure white	dark red	very resistant	
<i>M. scheideckeri</i>	---	From Scheidecker Nursery, Germany in 1889	<i>M. floribunda</i> x <i>M. prunifolia</i>	Upright	Small	late	rose red	pale rose pink	yellow-orange	scab. But Fiala says use more	flowers dense clusters along branches
<i>M. sieboldii</i> 'Calocarpa'	also called <i>M. x zumi</i>	From seed collected in Japan in 1892	---	Rounded spreader	Small	late	red	white	red or yellow, very small	very resistant	fruitand flowers very abundant
<i>M. x zumi</i>	also called <i>M. x sieboldii</i>	Introduced to the U.S. from seed collected in Japan in 1892	---	Rounded	Small		red	white	red or yellow	very resistant	fruitand flowers very abundant
<b>DO NOT PLANT</b>											
<i>M. x amoldiana</i>	Arnold crab	1883--chance seedling at Arnold Arboretum	<i>M. baccata</i> x <i>M. floribunda</i>	Upright spreading	Large		dark red	pink fading to white-pink	yellow with reddish blush	not resistant	
<i>M. coronaria</i>	American crab	Native to the eastern U.S.	---	Upright spreading	Large	late	deep pink	pink; extremely fragrant	greenish	highly susceptible to scab and cedar-apple rust	perhaps the most fragrant of crabs
<i>M. fusca</i>	Oregon crab	Native to the northwestern U.S.	---	Upright spreading	Large	early	white	white	Oblong fruit is yellowish	Very resistant	tolerates moist soil ; not very ornamental
<i>M. glaucescens</i>	---	Native to the eastern and southeastern U.S.	---	round headed shrubby	Small		pink	pink fading to white-pink	yellow green	Susceptible to cedar-apple rust	not ornamental
<i>M. hupahensis</i> 'rosea'	formerly called <i>M. theifera</i> 'Rosea'	Fiala says form is lost-- clones no longer are true	---	---	---	---	---	pale pink			
<i>M. hopa</i>	---	1920--South Dakota	<i>M. baccata</i> x <i>M. pumila</i> 'Niedzwezykiana'	Upright spreading	Large		carmine	carmine pink fading lighter	bright red	Very susceptible to leaf diseases and apple scab	Still available today but do not plant
<i>M. ioensis</i>	Iowa crab	Native to Iowa and Upper Mississippi Valley	---	Upright	Medium	mid	white	white; some cultivars are pink	green	highly susceptible to scab and cedar-apple rust	
<i>M. robusta</i>	Cherry crab	hybridized in 1920; also called <i>M. cerasifera</i>	<i>M. baccata</i> x <i>M. prunifolia</i>	n/a	Medium	early	white	white or white pink	red or yellow	very susceptible to fire blight	Name is of large group of hybrids; I.d. is hard
<i>M. robusta</i> 'fastigiata'	also called <i>M. robusta</i> 'Erecta'	From China by Arnold Arboretum in 1904	Named clone of <i>M. x robusta</i>	Upright	Medium	early	white with pink edged	white	red or yellow	fireblight and scab	
<i>M. spectabilis</i>	Chinese flowering crab	From China before 1780	---	Wide spreading	Large		rosy red	pale pink	yellow; poor	variable to scab	Can be propagated from seed
<i>M. torringoides</i>	Cutleaf crab	From China in 1908	---	Upright spreading	medium	late	pure white	pure white	yellow-red	scab and fire blight	
<i>M. tschonoskii</i>	Tschonoski crab	From Japan in 1892 by the Arnold Arboretum	---	Upright pyramidal	Large		slight pink	slight pink	yellow-green	very susceptible to fire blight	Silvery gray leaves stand out

\* Small (8 to 15 feet), medium (15to 25 feet), large (25 to 40 feet)

## MODERN HYBRID CRABAPPLES FOR NEW YORK CITY

	Origins/Introduction	Size	Shape	Buds	Flowers	Fruit
<i>M. baccata</i> 'Jackii'	Seoul, Korea in 1905	large	upright-spreading	white	white, fragrant, early	deep red, purple
<i>M. Birdland</i> '	Wisconsin nursery	medium		pink	white, fragrant	yellow-red, very persistent
<i>M. Bob White</i> '	Arnold Arboretum before 1896	medium	rounded	pink	white	yellow-green, persistent
<i>M. David</i> '	Morton Arboretum in 1940	small	rounded	light pink	pink-white	scarlet red, persistent
<i>M. Holiday gold</i> '	---	medium	open spreading	---	white	golden-yellow
<i>M. hupahensis</i> 'Wayne Douglas'	Martha's Vineyard, MA	medium	upright-rounded	pale pink	white	purple
<i>M. 'Indian Summer</i> '	---	small	rounded open	purple	rose red	bright red, persistent
<i>M. 'Ormiston Roy</i> '	Canada in 1954	medium	upright-spreading	rose to pink	white	orange, persistent
<i>M. 'Prairie Fire</i> '	University of Illinois in 1982	medium	upright-spreading	crimson	reddish-purple	orange-red, persistent
<i>M. 'Prairie Maid</i> '	Simpson Nursery, IN	medium	rounded	---	deep pink	rosy-red
<i>M. 'Professor Sprenger</i> '	Holland	medium	upright-spreading	pink	white, fragrant	orange-red, persistent
<i>M. 'Red Jade</i> '	Brooklyn Botanic Garden in 1935	medium	weeper spreader	deep pink	white	bright red
<i>M. 'Red Jewel</i> '	Nursery in Ohio in 1972	medium	upright-spreading	pink to white	white	cherry red, persistent
<i>M. saegerii</i> 'Candy mint'	Simpson Nursery, IN	small	horizontal spreading	carmine	pink petals with red edging	deep purple
<i>M. saegerii</i> 'Mary Potter'	Arnold Arboretum in 1947	small	broad-spreading	reddish pink	white, fragrant	red
<i>M. 'Strawberry Parfait</i> '	Princeton Nursery, NJ	medium	open spreading	red	pink, large	yellow
<i>M. 'Sugar Tyne</i> '	Lake County nursery	medium	rounded	pink	white, fragrant	red, persistent
<i>M. x zumi</i> 'Wooster'	Ohio in 1949 by Fr. Faia	small	spreading	carmine red	white	orange red, early

**AND STAY AWAY FROM (Opinions of Keith Warren, Jim Chatfield, Peter Bristol, or Mary Hirschfeld) (see contact list at back)**

- M.* 'Charlotte' (and all other clones of *M. coronata*)--risks complete defoliation from scab in late summer (Bristol)
- M.* 'Donald Wymant'--"I'd pick *M. xzumi* 'Calicoapa' over this" (Warren). "We're starting to see some problems" (Hirschfeld)
- M.* 'Golden Raindrops'--new hybrid but starting to see fireblight susceptibility.
- M.* 'Hopa'--still sold at nurseries but all literature says do not plant
- M.* 'Indian Magic'--"pretty good, but will defoliate from scab late in season" (Warren) "Looks garbage-y" (Hirschfeld)
- M.* 'Profusion'--too much scab (Chatfield)
- M.* 'Radiant'--scab (Ohio Extension)
- M.* 'Red Baron'--"horrendous scab" (Chatfield)
- M.* 'Silver Moon'--gets fireblight like other late bloomers, also scab (Bristol, Chatfield)
- M.* 'Snowdrift'--can be scab susceptible (Chatfield)
- M.* 'Van Eseltine'--"absolutely not" (Chatfield) "Has a bad rap but we think quite good overall" (Hirschfeld). "Only if you spray" (Bristol)
- M.* 'Velvet Pillar'--"Don't touch this--defoliation from scab guaranteed!!!" (Chatfield)
- M.* 'White Cascade'--"gets dingy from scab" (Chatfield)



*Written and designed by*  
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