

ARNOLDIA



A continuation of the
BULLETIN OF POPULAR INFORMATION
of the Arnold Arboretum, Harvard University

VOLUME 24

SEPTEMBER 18, 1964

NUMBER 9

THE CHINESE BUSH CHERRY — *PRUNUS TOMENTOSA*

FOR over a century northeastern China has served as an experimental garden from which visiting explorers have selected ornamental flowering and fruiting plants for use in North America. One plant well known in the gardens of north China has been tried in North America but not in other temperate areas. Even in the United States it has dropped from serious consideration, yet it does deserve a re-examination.

The Chinese bush cherry, *Prunus tomentosa*, has a natural distribution from Korea through northern and western China and Tibet into the northern Himalayan portion of India. Long ago it was introduced into Japan and it was from one plant in Japan that Thunberg described the species as the downy cherry. Being both hardy and useful, its cultivation was increased until today it occurs through the whole of the Russian Far East including Amurland and Transbaikalia, into northern Kazakhstan and the mountainous regions of western China. In Manchuria *Prunus tomentosa* has escaped from cultivation into the Liaotung Peninsula and it is found spontaneous along roads in the area surrounding Kirin or east of Harbin. The Chinese have called this plant ying-t'ao (cherry), while in Manchuria it is known as the Shanghai cherry, in Amurland as the "ando cherry." Around Peking it is the "mountain cherry" while the introduced plants have been named Manchu cherry, Nanking cherry, Chinese bush cherry or Chinese dwarf cherry in the U.S. and in Canada. The Russian horticulturist Skvortzov suggested "Chinese cherry" as the most appropriate name but Woeikoff preferred a direct translation of its scientific name and used "downy cherry."

In the northern parts of Asia *Prunus tomentosa* is an important fruiting shrub. It tolerates cold and dry climates in areas where the winters are long and snowless and the temperatures regularly reached 31° F below zero. Grown near or in the protection of houses, the plant is long-lived and fruitful. Generally it is a vigorous twiggy shrub which becomes wider than tall in outline and averages 5-6 ft. in height. The dark reddish black bark is lustrous and the young branches

and leaves densely soft tomentose pubescent. The flower buds open before the leaves, are white or pink with a red calyx, and are borne in clusters on bright red pedicels. The regular habit of annual flowering coupled with its dependable profusion of blossoms makes *Prunus tomentosa* a conspicuous and a desirable ornamental shrub. The flowers are followed by fruits which are equally abundant, generally globose but rarely oblong in outline. In wild plants one quarter to one half inch is the average fruit size but strains have been reported with fruits to one inch in diameter. In Asia the plants are valued for the abundance of fruit, sweet yet tart, brilliant in color, maturing in July and with moderate keeping qualities. As a cultivated plant it does best on well drained soils which are slightly acid and in locations which are protected. Frost damage is common to this plant in Asia when it is grown in wet areas and poor results can be expected in alkaline locations. It is, however, the most tolerant of drought of all the cherries.

The first introduction of this species to the United States is credited to the Arnold Arboretum in 1882 when Bretschneider sent seeds collected in the area of Peking to Charles Sargent. The United States Department of Agriculture records of plant introductions list 49 introductions of *Prunus tomentosa* and its varieties between 1903 (39201) and 1953 (207515), the latest listing available. Thirty-three of these introductions were from outside North America, e.g., Tokyo, China, Chinese Turkestan, Italy, Manchuria, Korea, India and Afghanistan. In addition, there have been introductions by arboreta, state departments of agriculture, and private nurserymen in the U.S. and in Canada which are not recorded in the USDA lists. Considering these many introductions, the present record of the distribution of *Prunus tomentosa* in cultivation in the U.S. is incomplete. A check of five major herbaria reveals specimens only from plants cultivated in the New England states, New York, Pennsylvania, Ohio, Illinois, Georgia and California. The species is also offered only by nurserymen in these same states, yet unsubstantiated distribution records in various publications cite Iowa, Minnesota, the Dakotas and Montana as areas of cultivation. In Canada the species has been grown in Alberta, Saskatchewan, Manitoba, Ontario, Quebec and Labrador, but recent information supplied by F. L. Skinner and W. A. Cumming indicates that only selected strains are to be recommended for such areas as Saskatchewan and Alberta. The work of these men indicates that seedlings from stock obtained in northern Manchuria are more suitable for Canadian horticulture than plants originating from farther south in Asia.

After its first introductions, the Chinese bush cherry seemed assured of a real place in American horticulture. It was praised in many horticultural magazines by many writers and in 1931 H. Lloyd Haupt, editor of the National Nurseryman, devoted editorial comment and most of the text of the issue of January 15th to the praise of this species. Haupt was so sure of the future of *Prunus tomentosa* that he noted the many introductions and suggested, "Just who is going to take the final credit is hard to say."



PLATE VIII

Top: *Prunus tomentosa*, fruiting branch. Bottom: *Prunus tomentosa* in flower.

The horticultural uses of *Prunus tomentosa* are numerous and varied. In the Boston area it is one of the earliest flowering cherries, blooming at the end of April. The plants grow well as specimen plants or in a group. Although records are available of plants 30 to 50 years of age in Manchuria, the experience in the Boston area indicates the plant has outlived its attractiveness in 20 or 25 years. A Wilson introduction of 1907 is still alive in our collections and propagations from the original Bretschneider introduction are maintained. The oldest single specimen is in Highland Park, Rochester, New York, and is a plant obtained from the Arnold Arboretum in 1892. In 1931 Haupt reported this plant as 8 feet tall and 25 feet in diameter and Harkness (*Plants and Gardens* 19: 13. 1963) indicated the correct size is today 10 by 12 feet. He also suggested its longevity and vigor may have been aided by the fact that it has never borne fruit. *Prunus tomentosa* is grown as a hedge plant in Manchuria and is used also as a wind break. At the Arnold Arboretum hedge test plots, *Prunus tomentosa* has not proven successful when subjected to pruning twice a year. Gerling's illustration (*Plants and Gardens* 19: 33. 1963) of the Nanking Cherry as an upright branching tree is certainly the result of pruning.

Although varieties of *Prunus tomentosa* have been described often on minor botanical characteristics, some of these must be considered as cultivars.

Prunus tomentosa 'Graebneriana'. Described by Koehne (*Plantae Wilsonae* 2: 268-79. 1912) as a botanical variety but based on material cultivated near the botanical garden of Berlin Dahlem.

Prunus tomentosa 'Insularis'. Described as a variety by Koehne (l.c.) who cited material from Japan and material from cultivated plants in Korea. Hedrick (*The Cherries of New York* 22. 1915) cited this variety as in cultivation in Japan.

Prunus tomentosa 'Spaethiana'. Koehne states this new variety was cultivated in European gardens but the only specimen cited was a Thompson collection, a sterile species in the Herb. Ind. Or. of Hooker and Thompson from Kashmir. The remaining varieties described by Koehne are based on wild specimens collected in China.

Rehder described *Prunus tomentosa* forma *leucocarpa* (*Jour. Arnold Arb.* 20: 99. 1939) and Krüssman (*Handbuch der Laub Geholze* 2: 277. 1961) has recognized this as cultivar 'Leucocarpa'. The holotype of Rehder's form was taken from a plant in the living collections of the Arnold Arboretum donated by Harlan P. Kelsey. Mr. Seth Kelsey has checked the records available and reports the plant was one of a dozen white fruited forms grown from seed obtained directly from Manchuria in 1930. Professor G. L. Slate has indicated that light fruited seedlings are not rare and, in fact, of 148 seeds planted he had 64 germinate, among which were 7 albinos (*Proc. Am. Soc. Hort. Sci.* 28: 112-113. 1931). *Prunus tomentosa* 'Leucocarpa' is no longer offered commercially.

There have been many attempts to improve the Chinese bush cherry by breeding and selection. Rehder (Bibliogr. Cult. Trees & Shrubs 331. 1949) listed some of the hybrids reported involving *P. tomentosa*. K. Yashiroda reported from Japan on "*Prunus tomentosa* and its improvement" (Gard. Chron. 3rd ser. 88: 109. 1930) and concluded "happily, it is a self-fertile cherry." Slate (l.c.), in an article entitled "*Self-unfruitfulness in Prunus tomentosa*" clearly demonstrated that the majority of strains of this species are instead self-sterile and that less than 6 per cent of open pollinated seedlings were satisfactory as ornamental or fruit-producing plants. Professor Slate was able to select strains for habit and for fruit size. The two best strains were named and distributed as "Geneva" and "Monroe" along with several numbered strains. The selections were also distributed by the New York State Fruit Testing Cooperative Association. Regrettably, these names were never published. The plants received of these selections by the Arnold Arboretum grew, and herbarium specimens were made recording these cultivar names and numbers.

The Dominion Experimental Station, Morden, Manitoba, Canada (Results of Experiments 1931-1937: 55. 1938) named a selection of *Prunus tomentosa* as the Drilea Cherry. *Prunus tomentosa* 'Drilea' was described as "a seedling of a pale yellow Nanking Cherry that has stood up productively on the dry leas during seasons when most of its kin suffered. Bush upright and spreading, vigorous, annual bearer, fruit round, from $\frac{1}{2}$ to $\frac{5}{8}$ inch across, bright red, flesh firm, tender, sweet sprightly, pit small, season mid-July, quality good as dessert, canned, jelly or jam."

In 1946, W. H. Alderman reported the development of three new varieties of Nanking Cherry (Minnesota Horticulturist 74: 28. 1946) given designation as Minnesota No. 41 "Large roundish fruit, requires a pollinizer," Minnesota No. 63 "Very vigorous, large oval fruit, self fertile," and Minnesota No. 64 "Similar to No. 63." In 1949 (Minnesota Horticulturist 77: 37. 1949) the selection Minnesota No. 63 was named 'Orient' and its origin noted to be self-pollinated seed from a self fertile strain of Nanking Cherry obtained in 1925 from O. M. Jensen of Albert Lea, Minnesota. The description is general and unique only for the self fertile characteristic. In 1957 *P. tomentosa* 'Orient' was described again by Alderman, Wilcox and Weir (Minn. Agr. Station Bulletin 441: 12. 1957). *Prunus* 'Orient' was distributed in 1949 and the largest plants had reached a height of seven feet as a bush or small tree.

Not one of these cultivars can be located by name in modern nursery catalogues.

Prunus tomentosa deserves another trial and additional horticultural consideration. The specimens grown at the Case Estates of the Arnold Arboretum are truly handsome shrubs in flower, in foliage and in fruit. The pink flowered strains appeal to more people than do the white flowered forms. The moderate sized fruits are tasty eaten out of hand and make one of the most brilliantly colored jellies. Although the plants are susceptible to peach borer and brown rot fungus, both

afflictions can be controlled without difficulty. The species is used as an indicator plant for indexing certain viruses, but this sensitivity does not impair its life or its beauty.

R. A. HOWARD

A. I. BARANOV

Propagation of *Prunus tomentosa*

Collection, cleaning and storage of seeds.

The fruits of *Prunus tomentosa* are sufficiently mature in the last week of June in the Arnold Arboretum and can be harvested. Once fully ripe, the fruits are enticing to birds and to men, and the crop disappears quickly. Ripe fruits are placed in a small amount of water to allow the pulp to separate from the endocarp generally referred to as the "seed." Finally, cleaning can be done by hand with the aid of a sieve or a strong jet of water. Although it is not good practice to hold seeds of *Prunus* in dry storage for long periods, experimental lots of *Prunus tomentosa* germinated without loss of viability after storage in an unsealed polyethylene bag in a heated room for 21 months. A second lot stored under comparable conditions but in a cloth bag for 45 months produced a 52 per cent germination.

The natural dormancy of *Prunus tomentosa* seeds can be broken down by cold treatment. Seeds sown without cold treatment have not germinated unless well aged. A three month treatment of cold stratification will produce about 98 per cent germination.

Seeds sown in the fall out of doors germinate in the spring. The seeds, however, are attractive to rodents and must be protected with wire mesh. Artificial stratification can be accomplished by placing the seeds in a medium of equal parts sand and peat moss. This, in a plastic bag tightly sealed to be vapor proof, can be placed in a refrigerator at 40 degrees for 3 months. The contents of the bag can then be sown and full germination will occur within a week of sowing. In the Boston area fruits collected in June are stored dry until February, then subjected to cold stratification and sowed directly in mid-May. A stratification beginning in December allows planting in flats in greenhouses in March for transplanting to field locations during the summer.

Cuttings.

Prunus tomentosa rooted readily from softwood cuttings taken in the Boston area in mid-June. A root-inducing substance should then be used and the cutting placed in a polyethylene chamber or under mist.