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THE ORIENTAL
FLOWERING CHERRIES

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INTRODUCTION

There was a time when the return of spring brought to mind apple blossoms more than anything else, and, while their claims upon our affections are still secure, they have a fast-growing rival in the oriental cherries, which each year make a more glorious display in the land of their adoption. For him who has visited Japan in the spring, as he walks under the flower-laden boughs in the old plantings near the Potomac River in Washington, D.C., there come memories of the gay kimono-clad holiday crowds in the Japanese parks, the sound of geta (wooden sandals) on gravel-covered walks, staccato talk, and the venders' cries. Our American scene may soon come to this, for the public already knows the beauty of the park plantings, and gardeners are asking more and more each year about these exotic flowering trees.

It is to answer the questions that may arise in the minds of would-be growers of these trees, that this circular has been prepared, including all phases of information in regard to oriental flowering cherries, historical, cultural, botanical, and practical.

HISTORY

Among the many ornamental plants that have enriched the gardens of Japan since a very early date, none have occupied a higher place in the esteem of the people of that country than the flowering cherries, which are their national flower, symbolizing esthetic beauty and re-

¹ This circular is a revision and enlargement of Circular 31, Japanese Flowering Cherries, which was a brief general treatment of the subject, published in 1928. Drawings made by B. Y. Morrison, principal horticulturist, Division of Plant Exploration and Introduction.

flecting the spirit of Japanese chivalry. Since they are so widely distributed from north to south throughout the mountainous areas, where their blooming announces the coming of spring, they are known everywhere, and in any place where they may not grow naturally, they are quickly planted, with pine and bamboo, as outward signs of national expression.

As might be expected, Japanese folklore and literature abound in references to cherry trees and their blossoms. One of the best-known legends is that of the fairy *Ko-no-hana-sakuya-hime*, the "maiden who causes trees to bloom"; who is represented as hovering low in the spring sky, awakening the dormant trees to life with her delicate breath. Another legend likens the appearance of the cherry blossoms to five fairies who appeared in the spring moonlight to the Emperor *Temu* at the palace of *Yoshino* in the seventh century—*Yoshino* being the oldest and most famous cherry region in Japan.

In many other legends, and throughout Japanese poetry, references to the flowering cherries are frequently encountered, and the flowering cherry appears often in Japanese paintings.

In very ancient times only the wild single-flowered cherries were known, but as these were brought under cultivation in the gardens of the wealthy nobles, flowers with extra petals and of larger size began to appear. The tendency toward variation, which is particularly strong in the oriental cherries, was greatly accelerated and stimulated by more favorable growing conditions. The most attractive forms that appeared were given special attention and perpetuated by grafting, a method of propagation known to the Japanese since very early times. According to *Miyoshi (11, 13)*,² double-flowered varieties have been known in Japan for over a thousand years, and one variety, *Fugenzo*, was known in the time of Gen. *Yoshimitsu Ashikaga*, more than 500 years ago. As these different forms arose, the better ones were assembled at the imperial gardens in *Kyoto*, in temple grounds, and in the gardens of a few wealthy nobles. About the year 1800 a large collection was formed at *Kyoto* under the direction of the nobles of the court of the Emperor *Tokugawa*, and in 1886 a collection said to comprise nearly 80 varieties, numbering about 1,000 trees, was brought together at *Kohoku*, on the *Arakawa River*, by *Kengo Shimidsu*, magistrate of the town.

The region most noted for its wild cherries in Japan is *Yoshino*, where vast numbers of one type of the native single-flowered white cherry grow on the mountain slopes along the left bank of the *Yoshinogawa*. For more than a thousand years this place has been famed for these trees, which with subsequent renewals have persisted to the present time. It was here, among the white cherry blossoms, that the noted *Bashō* sat in his small hut and wrote his famous miniature poems. The next most famous collection of wild cherries in Japan is at *Koganei*, a distant suburb of *Tokyo*. Here may be seen a great number of native types brought from the mountains, but no forms improved by cultivation. What may be termed the sanctuary of cultivated cherry varieties is the avenue at *Kohoku*, mentioned previously as the collection started in 1886 by *Kengo Shimidsu*.

The earliest mention of the oriental flowering cherries in literature other than Japanese was in 1712, by the German traveler *Kaempfer* (?), who enumerates three types, including the double-flowered forms.

² Italic numbers in parentheses refer to Literature Cited, p. 69.

In 1784 the Swedish naturalist Thunberg (17) described two types of Japanese cherries, and Siebold (16), a German physician and traveler, mentioned three kinds of Japanese cherries in 1830. For over 30 years after that date almost nothing was published in western literature on this subject. Gray (4), in his account of the plants collected by Commodore Perry in Japan in 1854, mentioned "*Prunus pseudo-cerasus* Lindl., with single and double flowers, cultivated everywhere."

The first record of the introduction of a double-flowered oriental cherry into Europe appears to have been in 1822, when Samuel Brookes, a nurseryman at Ball's Pond, Newington Green, England, received from Canton, China, a cherry with double white flowers. The botanist Lindley (10, pp. 238-239) described this in 1830 as *Prunus serrulata*. A tree of a double-flowered cherry with pink petals, labeled "*Prunus pseudo-cerasus*", was received in France in the fall of 1832 by Jacques (6) through L. Parmentier. This may be the first record of the introduction of a double-flowered Japanese cherry into continental Europe. Although since that time several European nurseries have offered one or more varieties in their catalogs, flowering cherries are by no means common either in England or on the Continent. One of the largest varietal collections in Europe is that of Collingwood Ingram, at Benenden, Kent, England. At the Royal Botanic Gardens, Kew, England, several of the best varieties are also established.

The history of the introduction of these plants in the United States is not very different. *Cerasus pendula* is listed in the catalogs of Ellwanger & Barry, Rochester, N.Y., for the years 1846 and 1847, with the descriptive note: "Pretty, round, dense head and slender weeping branches." This probably was the pendulous form of *Prunus subhirtella*. In 1852 Parsons & Co., Flushing, Long Island, N.Y., listed *Cerasus serrulata plena*, which is the first mention of a double-flowered Japanese cherry in this country, assuming of course that the name was correctly used. This same nursery received 15 varieties of Japanese flowering cherries in March 1862 from George Rogers Hall (14). Seeds of the Yama-zakura (*P. sargentii* Rehder) were sent from Japan to the Arnold Arboretum in 1890 by Dr. William S. Bigelow.

In 1903 the Division of Foreign Plant Introduction of the Bureau of Plant Industry received from Japan, as a gift, through David Fairchild and the late Barbour Lathrop, 30 named varieties of flowering cherries. The following year a collection of 50 named varieties was imported through the Yokohama Nursery Co., Yokohama, Japan. The propagation and distribution of these and later importations made by the same division have been important factors in establishing the flowering cherries in this country. In 1906 David Fairchild brought in 25 of the better single- and double-flowered cherries from Japan and planted them at his residence in North Chevy Chase, Md., where many of them are still growing.

The most complete varietal collection in the United States is probably that assembled by the Department of Agriculture at the United States Plant Introduction Garden, Glenn Dale, Md. At the Plant Introduction Garden, Chico, Calif., this Department also has a somewhat smaller but representative planting. Another excellent varietal collection is that at the Arnold Arboretum, Jamaica Plain, Mass., and a number of the better forms are represented in Durand-Eastman Park, Rochester, N.Y. In Volunteer Park, Seattle, Wash.,

several of the better varieties are established. There are a few representative collections maintained by nurserymen; one in central California and one in Pennsylvania are probably the largest. Here and there throughout the country in certain private estates and city parks may be seen good examples of many of the better forms.

Probably the most popular and best-known collection, however, is that in Potomac Park, Washington, D.C. In 1912, through the generosity of the city of Tokyo, more than 2,000 trees, including several of the finest varieties known to Japanese horticulturists, were presented to the city of Washington by Yukio Ozaki, mayor of Tokyo, and planted there. The earliest flowering variety of this collection, the Yoshino, blooms usually late in March or early in April. For over a month the successive blooming of this and the other 10 varieties in Potomac Park make an almost continuous display.

At the present time there are a number of nurseries, not only in the East but also on the Pacific coast, that offer several of the better flowering cherries in their catalogs.

CULTURE AND PRUNING

The flowering cherries should thrive in any reasonably good, well-drained soil with average moisture. In general the same soil conditions should obtain under which peaches and sweet cherries do best. It is important to allow sufficient space between the trees, especially those of spreading habit; 30 feet apart would be a good distance for general practice. Plenty of sunlight is necessary for the best development of the trees.

Since they are grown primarily for the sake of the flowers, the only pruning recommended is the removal of dead branches or that required to train the tree into some particular habit of growth. Varieties with pendent flower clusters often show to best advantage when it is possible to walk beneath the branches and view the flowers from below. Again, it may seem desirable to have trunks free from branches to a reasonable height when the trees are to be used to border lanes or parkways.

Cultivation and fertilizing are well worth while, especially with young trees, and should be carried on in the same general way as with the cherries of fruiting types.

Planting in the early spring is recommended, although in sections of the country where the winters are mild and the ground generally does not freeze until very late, fall planting is satisfactory.

HARDINESS AND WINTER PROTECTION

Throughout the Eastern States, as far north as the southernmost portions of Maine, New Hampshire, Vermont, and central New York, the greater part of the flowering cherries can be expected to be winter hardy.

The presence of the Great Lakes makes it possible to grow flowering cherries satisfactorily in those parts of the Northern States where the tempering effect of these bodies of water is felt, while farther south, in parts of Ohio, Indiana, and Illinois particularly, reports of winter-killing are not infrequent. As far south as the middle of Georgia, Alabama, and Mississippi the flowering cherries appear to do well.

South of this area they do not appear to thrive, largely because of the mild, open winters that do not permit the trees to become thoroughly dormant, and also perhaps because of the generally long, hot summers. However, at scattered points, such as Gainesville, Fla., Poplarville, Miss., and Avery Island, La., trees have done fairly well during the last 3 years.

On the Pacific coast Japanese cherries thrive from Washington south to central California. In southern California they grow only moderately well in the interior valleys, under irrigation, but are unsatisfactory near the coast, probably because of the absence of a proper dormant season. The Taiwan cherry (*Prunus campanulata*) thrives in central California and farther south in that State than any other flowering cherry, and does especially well in the vicinity of Pasadena and Ontario.

In a general way the areas where Japanese cherries should thrive coincide with those where peaches can be grown satisfactorily. Peaches, however, will do well a little farther south than Japanese cherries, which on the other hand will endure somewhat lower temperatures than peaches.

In regard to the relative hardiness of the different flowering cherries, our present experience indicates that the Sargent cherry (*Prunus sargentii*) is the most hardy, while the Yoshino (*P. yedoensis*) often suffers from winter injury in the vicinity of Boston, Mass., to the extent of having its flower buds killed. Although the Taiwan cherry (*P. campanulata*) has been reported as being hardy near Philadelphia, young trees planted at the United States Plant Introduction Garden at Glenn Dale, Md., were severely injured by low temperatures during the winter of 1931-32. The remaining species and varieties are in general somewhat hardier than the peach, as mentioned above.

In certain sections of the United States where the winters are too severe for the commercial growing of peaches, such as Minnesota, Montana, and most of Maine, tests have been made with small lots of flowering cherries. The general result has been that the trees have either been killed outright by freezing or have been so injured that satisfactory growth was not possible.

Young trees in particular are sometimes seriously injured, or even killed, by what is known as "frost collar injury." When warm moist weather in the autumn retards the ripening of the wood and favors late growth, the cambium layer of the trunk may not yet have become dormant at the time of the first freezing weather. The injury at this time is largely in proportion to the extent and rapidity of the drop in temperature. A minimum of only a few degrees below freezing which has been immediately preceded by a relatively high maximum is likely to be most injurious. After the cambium layer is injured, the descending sap is impeded in its passage to the roots, or, if the trunk is completely girdled by dead cambium tissue, is entirely stopped. This results in the partial or complete starvation of the roots, and in the latter case the tree will die. This sometimes happens rather suddenly during the following summer, after the tree has bloomed and developed its foliage.

Until the tree is 4 or 5 years old, burlap or straw should be wrapped around the trunk in the autumn, after the leaves have fallen, and removed in the spring after the buds begin to swell. Winter injury of the type discussed above can be prevented in many cases by using

cover crops, sod, or dry mulch to retard the autumn growth of the tree.

If the trunk is so exposed that the sun's rays will strike it at right angles in the late afternoon, especially during the winter months, sun scald may result unless the trunk is shaded by something like burlap or straw.

PROPAGATION

SEEDS

All of the single-flowered Japanese cherries and many of the semi-double forms produce fruits under favorable conditions, small in size, consisting of a relatively large seed, very scanty flesh, and skin. The Yoshino cherry (*Prunus yedoensis*), the Sargent cherry (*P. sargentii*), and the Taiwan cherry (*P. campanulata*) may be expected to come true from seed, provided there is no danger from cross-pollination from other early-blooming cherries nearby. Seedlings of any of the forms of *P. subhirtella* are likely to show marked variations, especially when the growing conditions are very favorable, and among these seedlings there appear occasionally forms that merit further propagation. The chief value of the seedlings of any of the single-flowered cherries, however, is as stocks for desired varieties of the particular species from which the seedlings are derived.

CUTTINGS

Propagation of any of the flowering cherries by cuttings has not yet proved very successful. Hardwood and softwood cuttings of single-flowered varieties of ornamental merit gave only an occasional rooted plant, usually rather feeble; and none of the double-flowered varieties formed roots except Takasago (*Prunus sieboldii*), and that only occasionally. One single white form, which appears to be a form of Ariake, has rooted readily from hardwood cuttings at the United States Plant Introduction Garden at Chico, Calif., but the rooted cuttings have been used only as stocks for other varieties, since this strain is a shy bloomer at Chico and therefore of little ornamental value there. These rooted cuttings are apparently satisfactory as stocks in regions of mild winters but are not quite as easily obtained as mazzard seedlings, the use of which is discussed later. Hardwood cuttings of a small-flowered form of the Oshima-zakura, taken in February and planted in sand in outside unheated frames, gave a successful rooting of about 30 percent, while cuttings taken at the same time and put in sand in a cool greenhouse gave a rooting of 90 percent. These rooted cuttings, however, do not seem to have the vigor of seedlings.

LAYERING

Although layering is not commonly practiced in propagating flowering cherries in the United States, it has proved successful with one variety (Fuku-rokuju) at the Arlington Experiment Farm, Rosslyn, Va., and there is no reason to believe that it would not be equally successful with other varieties. It is especially useful where only a small number of plants are desired, and where varieties are wanted on their own roots.

BUDDING AND GRAFTING

Practically all propagation of Japanese flowering cherries is carried on by budding or grafting on seedling stocks. The time of budding varies with the weather, the locality, and the preference of the individual nurseryman. In central and south-central California budding is carried on from the middle of June to the middle of September. One nursery in Washington that makes a specialty of flowering cherries, buds in the spring, using previously cold-stored bud wood and waxing the inserted bud. Immediately after budding the stock is cut back a foot above the bud, and when the bud pushes, the stock is cut off just above the bud. In the East, when weather conditions are normal, budding is most satisfactory late in August or even early in September, for usually at this time the buds are well developed and the stock is still in good condition.

Grafting is perhaps even more commonly practiced than budding. The usual procedure is to bench graft on piece roots of mazzard or Japanese cherry. The pieces of root should be about 4 inches long, as large as or slightly larger than the scion, and may be taken from trees up to 5 years old, although best results are obtained from year-old seedlings. The grafting is done usually in February, sometimes as early as January or as late as early March, and the grafts are stored in damp sphagnum or other suitable medium. Callusing will develop most rapidly if the storage temperature is kept at about 65° F. for the first week, dropped to about 55° for the second week, and then kept at 40° to 45° until the grafts are planted out. The grafts should be examined occasionally, and if mold is discovered, re-stored in drier material. If the buds have started to push, the grafts should be stored in a cooler place or else planted. When the soil is workable in the spring, these grafts are planted out in nursery rows with the tops of the scions just above the surface of the ground. With the union thus buried, the scion generally develops its own root system after 2 or 3 years.

One double-flowered variety (Shiro-fugen) was successfully propagated at the Plant Introduction Garden at Glenn Dale by using Coffee's myrobalan as a nurse stock. This roots readily from stem cuttings and is commonly used in New Zealand as a stock for European plums and prunes. The scion was grafted on a stem cutting of this stock, and then stored in damp sphagnum, callused, and planted out in the same manner as the mazzard grafts discussed above. The callused myrobalan stem cuttings rooted very quickly, supporting the scion until roots were produced above the union, which took place in about 2 years.

STOCKS

The flowering cherries in Potomac Park, Washington, D.C., which were presented by the city of Tokyo in 1912, were grafted on the Yama-zakura (*Prunus serrulata*) of central Japan. The actual propagation was carried on at the Okitsu Horticultural Experiment Station, under the immediate supervision of Inokichi Kuwana, director of plant quarantine work at Yokohama. The most common practice, however, in propagating these cherries in Japan is to graft on a quick-growing rather shrubby cherry known as the Ma-zakura or Aohada, a more southern form of *P. serrulata* and less winter hardy, but popular with the Japanese because it roots readily from cuttings.

According to Wilson (18)—

In Japan the grafting is done in the open fields in March, chiefly by women and boys. The stock used is about the thickness of the third finger and the grafts are put in just above the ground. The upper part of the stock is cut off and inserted in the ground nearby; it quickly takes root and forms stock for the next season.

This Ma-zakura is reported to be a rather tender, short-lived, scrubby tree, particularly susceptible to injury from insect pests.

The most popular stock for these cherries in the United States at the present time is mazzard, for both budding and grafting. Seedlings of the single-flowered Japanese cherries are used to some extent but are not yet easily obtainable from domestic sources. It has not yet been established that seedlings of Japanese cherries are superior to mazzard as stocks.

For the vicinity of Washington, D.C., either mazzard or Japanese seedling stock appears satisfactory. More than 60 trees are now growing in a stock test at the Arlington Experiment Farm. These were budded about 8 years ago on three kinds of stock—mazzard and two types of Japanese seedlings, one the Yama-zakura of central Japan and the other the Oshima-zakura of southern Japan. At the present time there is no significant difference in the appearance of the three groups. The varieties represented in this test are the Yoshino, Ichiyo, Ariake, Kwanzan, Mikuruma-gaeshi, Taki-nioi, Fukurokuju, and Shiro-fugen. Stock tests with budded trees, or with those grafted above the ground, are more conclusive than those with root-grafted trees, since the latter tend to develop their own root systems within a few years.

The Yoshino cherry (*Prunus yedoensis*) may be worked on its own seedlings or on mazzard, but does not do quite so well on seedlings of *P. serrulata*. Varieties of *P. subhirtella* may be worked on their own seedlings or on mazzard, but, like the Yoshino, do not take as well on *P. serrulata* seedlings. One nurseryman in central Pennsylvania has found mazzard somewhat more congenial as a stock for varieties of *P. subhirtella*, under his conditions, than *P. subhirtella* seedlings. Takasago (*P. sieboldii*) may be worked on either mazzard or *P. serrulata* seedlings. The Sargent cherry (*P. sargentii*) and the Taiwan cherry (*P. campanulata*) may both be worked on mazzard stock or on seedlings of *P. serrulata*.

A number of Japanese nurseries offer seeds of each of the species of *Prunus* comprising the flowering cherries, including two types of *Prunus serrulata*. Seeds of the Sargent cherry, the hardiest of the group, are usually listed as *P. serrulata sachalinensis* or *P. sachalinensis*.

SUGGESTIONS FOR LANDSCAPE USE

In Japan, the flowering cherries are sometimes used as specimen trees in temple courtyards or as well-beloved individuals by the household gate, or they are planted in avenues like the famous one in Kohoku or those in Uyeno Park, Tokyo. They are most commonly used, however, in orchard or grovelike masses, which in the time of their flowering become the resort of hundreds, perhaps thousands, of flower viewers. Benches are set up beneath their branches, lanterns are hung in their boughs, and refreshment booths spring up on every side. The visitor walks through a world colored pink or white by the sky of flowers overhead.

In the United States, with its different use of all plant materials, suggestions from these native uses can still be found. Indiscriminate and general planting of Japanese cherries is not recommended. The double-flowered, relatively low-growing varieties are best grouped in front of evergreen trees or with some sort of dark background, such as a bank of rhododendrons. Small groups, say of 3 or 5, are apt to be more pleasing than larger ones. Individual trees of certain varieties often show to good advantage in a mixed planting on a large lawn. For such a location the double pink Kwanzan, or the single white fragrant Taki-nioi, would be fitting. Varieties that might be substituted for Kwanzan for similar effects include Takasago, Fugenzo, Oh-nanden, and Tanko-shinju, and in place of Taki-nioi one might use the more upright Washino-o or the somewhat larger Ojochin. In a more formal planting, whether on a small lot or in a large estate, the columnar Amanogawa, with its semidouble light-pink flowers, is particularly effective.

Along the margins of little lakes or small streams some of the single-flowered sorts may be planted with striking results. A good example of this may be seen in Washington, D.C., where the Tidal Basin, in Potomac Park, is nearly surrounded with trees of the pale-pink Yoshino. The tall-growing Sargent cherry has been suggested as an avenue tree by the late E. H. Wilson of the Arnold Arboretum, and for driveways and wider streets where shade is desired several of the more spreading single- or double-flowered forms would be suitable. Such trees, however, should be pruned high to allow passageway beneath.

The graceful Shidare-higan is at its best in a large park, where the pyramidal type should reach eventually a height of 40 feet or more. The standard or "mushroom" type develops such a broad crown with age that it would be out of place in a small area.

FORCING FOR WINTER FLOWERING

It is a rather common practice in Japan to bring small potted trees of Japanese cherries indoors at some time during the winter months and force them into bloom. This may be done at any time after a period of freezing weather has rendered the trees thoroughly dormant.

This practice is carried on to some extent also in England, more particularly for the purpose of having the trees in bloom for trade exhibitions. In the United States, however, at least at the present time, there is little or no attempt to force Japanese cherries.

Now that the camellia is again becoming popular as a cool-house plant for northern conservatories, it is not unlikely that other plants that will do well under these conditions will be considered. Acacias are well adapted for this sort of treatment, and Japanese cherries grown in tubs or large pots that can be kept out of doors in summer, sunk to the edges of the tubs in a cool border, should make a welcome addition to the midwinter collection. After flowering they might be moved into another cool house to give place to some later flowering plant and to mature their growth.

If the trees are forced into bloom too rapidly the flowers of the pink varieties are very likely to have a pale washed-out appearance. It is necessary to bring the trees into flower slowly in a relatively cool house if the normal color of the flowers is to be retained.

INSECT PESTS AND DISEASES

In general, the flowering cherries are subject to the same diseases and pests as other rosaceous woody plants, and similar control methods are advocated. White peach scale (*Aulacaspis pentagona* Targ.) has been reported by Dodge (1) as causing much damage to Japanese cherries in the vicinity of New York, and in Japan it is considered one of the most serious enemies of the cherry. The larvae of the oriental fruit moth (*Grapholitha molesta* Busck) frequently infest trees, blackening the ends of the branches, but otherwise not injuring the tree. The San Jose scale is often encountered, and when the trees have been weakened by drought the shot-hole borer (*Scolytus rugulosus* Ratz.) is able to gain access to the tree, with serious results. No injury from the peach borer (*Synanthedon exitiosa* Say) has been reported, even when peach trees in the immediate vicinity of the flowering cherries have been seriously affected.

A few of the trees in Potomac Park, Washington, D.C., have been found to be affected with a witches' broom (2, 3) caused by the fungus *Exoascus cerasi* (Fuckel) Sadebeck. This disease is not widespread, however, and can be easily controlled by cutting out and burning the diseased parts.

BOTANICAL CLASSIFICATION

A knowledge of the botanical relationships of the oriental flowering cherries is essential in understanding thoroughly some of the problems that arise in connection with their propagation and culture.

In 1916 Wilson (18) transferred *Cerasus lannesiana* Carrière to the genus *Prunus* under the name *Prunus lannesiana* (Carrière) Wilson. Under this name Wilson places certain of the cultivated Japanese cherries formerly referred to *P. serrulata* that have the following characters: Leaves unfolding green or slightly reddish above, pale green below; teeth long aristate; flowers pink or white, fragrant; bark smooth, pale gray. The single white-flowered wild cherry of the island of Oshima, described by Wilson as *P. lannesiana* f. *albida*, is, according to that authority, one of the ancestors of the greater number of the double-flowered Japanese cherries. This cherry, described later in this circular as Oshima-zakura, does resemble Jo-nioi, Washino-o, and a few others, and may well have had a part in the uncertain ancestry of the double-flowered forms.

Wilson admits that occasional trees of *P. serrulata* show leaves with long aristate teeth, and that it is possible that hybrids exist between that species and his *P. lannesiana*. It is impossible definitely to separate most of the cultivated varieties on the characters given by Wilson for *P. lannesiana*. In this work no attempt is made to indicate any relationship between the Oshima-zakura and the cultivated varieties.

Attempts to classify the Japanese cherries have been made also by Koidzumi (9) and by Koehne (8).

In all of the more important contributions to the subject of oriental flowering cherries that have been published, the authors have given each of the numerous horticultural varieties a pseudobotanical varietal name also. For example, Miyoshi designates the variety Hosokawa-nioi by the name *P. serrulata* f. *hosokawa-odora*. Wilson, for Shiro-fugen, coins the name *P. serrulata sachalinensis* f. *albo-rosea*.

Since no necessity exists for attempting to supply each horticultural variety with a Latin name, this practice will not be followed in the present work. The great majority of cultivated forms of Japanese cherries are considered in this circular to be derived from *Prunus serrulata* Lindl. Lindley based his original description on a white double-flowered cherry introduced into England in 1822 from Canton, China. This variety is not known to be in Japan, nor is it known to be in southeastern China at the present time. Lindley's type specimen, in the herbarium of the University of Cambridge, consists only of a twig with leaves. A number of botanists who have examined this specimen agree that Lindley's plant is identical with at least the greater part of the Japanese flowering cherries. A number of the ornamental cherries of Japanese origin, however, may be referred to five other species of *Prunus*.

By means of the following botanical key, a given variety may be placed under the proper species.

Key to the species of Prunus to which the Japanese flowering cherries are referred

Leaves densely pubescent on both sides.....	<i>P. sieboldii</i>
Leaves glabrous or only slightly pubescent:	
Flower clusters not stalked:	
Leaves and petioles glabrous, calyx tube cylindrical.....	<i>P. sargentii</i>
Leaves and petioles slightly pubescent; calyx tube more or less swollen at base.....	<i>P. subhirtella</i>
Flower clusters more or less stalked:	
Flowers campanulate, pendulous, deep rose, almost red, single.....	<i>P. campanulata</i>
Flowers cup-shaped with spreading petals, pink or white, single or double:	
Calyx tube cylindrical, usually pubescent; leaves green when unfolding.....	<i>P. yedoensis</i>
Calyx tube campanulate or obconical, glabrous; leaves usually reddish or brownish green when unfolding....	<i>P. serrulata</i>

All of these cherries are included in the subgenus *Cerasus*, section *Pseudocerasus*, of the genus *Prunus*, following the classification of Rehder (15). This group of deciduous trees may be characterized as follows:

Leaves conduplicate (folded along the midrib) in the bud, sharply and often doubly serrate and aristate; buds solitary; bud scales and bracts usually conspicuous at flowering time; flowers in sessile umbellike clusters or stalked few-flowered racemes; sepals upright or spreading, not reflexed.

The native single-flowered cherries of Japan in general, included in this section, have been placed by Miyoshi (11) under *Prunus sachalinensis* (Schmidt) Miyoshi, and *P. mutabilis* Miyoshi, the former for the northern mountain cherry (now called *P. sargentii* Rehder) and the latter for nearly all the wild cherries of central and southern Japan, a rather heterogeneous group, of more interest to the taxonomic botanist than to the horticulturist. Ingram (5, pt. 1) follows Miyoshi rather closely, except that he segregates from *P. mutabilis* the Oshima-zakura which he calls *P. speciosa* (Koidzumi) Ingram. Wilson (18) uses *P. serrulata sachalinensis* Wilson for the northern mountain cherry, *P. lannesiana albida* Wilson (see below) for the Oshima-zakura, and *P. serrulata spontanea* Wilson and *P. serrulata pubescens* Wilson for the other wild cherries of central and southern Japan. It is of interest to note here that Wilson considers that the distribution of the wild form of *P. serrulata* extends as far as western Hupeh in central China and as far north as Chosen.

SPECIES AND HORTICULTURAL VARIETIES

The flowering periods of the Japanese cherries are greatly affected each spring by seasonal conditions and weather fluctuations. A few unusually warm days in early spring will develop the flowers with amazing rapidity, while a sudden lowering of the temperature will hold the nearly opened flowers in check for several days. Within the group derived from a given species, however, there is not much difference between the blooming dates of the different varieties.

The flowers of the varieties of *Prunus yedoensis*, *P. subhirtella*, *P. sargentii*, and *P. campanulata* generally are borne on the leafless branches. The flowers of *P. sieboldii* and of *P. serrulata* open normally about the same time the young foliage makes its appearance. The following species and groups are arranged in general according to their order of blooming.

TAIWAN CHERRY, *PRUNUS CAMPANULATA*

Prunus campanulata Maxim., Bul. Acad. Sci. St. Petersburg 29: 103. 1883.

Small tree up to 20 feet high, somewhat bushy in habit; leaves ovate to ovate-oblong, 2 to 4 inches long, acuminate, closely and doubly or nearly simply serrate with the teeth pointing forward, glabrous; flowers single, campanulate, deep rose or red, about three fourths of an inch across, pendulous, solitary or in few-flowered clusters, appearing before the leaves; calyx tube slender, deep rose-purple, glabrous; fruit ovoid, red, nearly half an inch long. Native to southern Japan and Taiwan.

The Taiwan cherry, sometimes known also as the Kan-hi, the Benikan, and the Usu-kan cherry, is remarkable in having the reddest flowers of any cherry known, and in those parts of the United States where it is established it blooms 2 weeks before any of the other flowering cherries. In southern and central California this cherry appears to thrive, and 2 or 3 nurseries in that section list it in their catalogs. In Portland, Oreg., one nursery has discontinued propagation of the Taiwan cherry because in that vicinity it has proved a sparse bloomer. At Vancouver, Wash., it is usually injured by early frosts. Recently a nursery near Philadelphia, Pa., has found that this cherry apparently survives the winters of that locality. The Taiwan cherry is recommended as a specimen tree for the lawn or for small parks.

HIGAN CHERRY, *PRUNUS SUBHIRTELLA*

Prunus subhirtella Miq., Ann. Mus. Lugd.-Bat. 2: 91. 1866.

The varieties and forms of this species are known collectively as the higan (equinox) cherries, and along with the Yoshino cherry (*Prunus yedoensis*) and the Sargent cherry (*P. sargentii*) are the earliest of the flowering cherries to bloom. There is wide variation among the higan cherries, especially in the habit of growth of the tree and in the form and color of the flowers, which normally appear before the leaves in all the varieties. The young branchlets, petioles, lower surface of the leaves, and inflorescence are more or less pubescent.

BENI-HIGAN (PINK HIGAN)

Tree up to 60 feet high, upright, stout-branched; leaves oblong-ovate to oblong elliptic, 2 to 4 inches long, sharply and often doubly serrate, acuminate, pubescent on the veins beneath and on the petioles; flowers single, pale pink, less than half an inch across, in sessile few-flowered umbels; calyx tube more or less pubescent,

inflated at the base, usually cylindric, dull brownish red to reddish purple; anthers yellow; style normally pilose at the base; fruits globose, black, about one-third of an inch in diameter, with very scanty flesh.

This is considered to be the wild prototype of the species and is the least ornamental of the group. Because of its large size and rather stiffly upright habit it would be best suited for large parks. The Japanese also know it as the Shiro-higan (white higan) and Tachi-higan (upright higan), the former name referring to forms with very pale, nearly white flowers.

Wilson (18) found this tree growing spontaneously in parts of Hondo, Japan, on Quelpaert Island, Chosen, and also on the mainland, and in western Hupeh, central China. The wood was once in great demand in Japan for making printing blocks, and as a result spontaneous trees are now rare in that country.

HIGAN

A small bushy tree up to 25 feet high, usually less; bark gray; crown wide-spreading and low, often hiding the short, thick trunk; young shoots gray, becoming purple the second or third year; leaves smaller, more rounded and more glabrous than those of other higan cherries; flowers single, light pink, up to 1½ inches across, appearing before the leaves; petals rounded-elliptic, calyx reddish; style glabrous or slightly pilose near the base; fruit subglobose, black.

Probably the most floriferous of all the Japanese cherries, this is unknown in the wild state. It is, however, widely cultivated in western Japan from Hondo to south of Nagasaki in Kyushu, where it is also known as Ko-higan and Kizo-zakura. The flowers, the largest of any in this group, are borne in such profusion that the branches and trunk may be entirely hidden. For mass effect it is possible that this form may excel even the famous Yoshino cherry, and its behavior at the Arnold Arboretum indicates that it is more cold-resistant. In the United States it is still rare. Two excellent specimens which stand near the Forest Hills gate of the Arnold Arboretum are nearly 40 years old; the tips of their wide-spreading branches nearly touch the ground. These apparently are the oldest trees in cultivation outside of Japan and it was from the Arnold Arboretum that this variety found its way into England. Ingram (5, *pt. 1*) applies the name Beni-higan to this form, and also describes Usu-beni-higan, which differs only in having much paler, smaller flowers, and darker foliage.

JUGATSU-ZAKURA (OCTOBER BLOOMER)

Tree somewhat bushy in habit, up to 20 feet high, with a round-flattened crown; bark smooth, gray; flower buds narrow-ovoid, more or less pink; calyx more or less pubescent, varying in shape from tubular, slightly swollen below the middle in nearly single flowers, to campanulate-turbinate in more double flowers; sepals deep reddish brown, broadly triangular, more or less serrate; flowers more or less double, usually pale pink, sometimes almost white, about one half inch across, appearing in autumn as well as in spring, and occasionally intermittently during the winter months in mild seasons; fruits, sometimes produced in spring, similar to those of the other varieties in this group.

In Japan, the Jugatsu-zakura is grown extensively in the general vicinity of Tokyo, where it is known also as Chigo-higan, Chiyo-higan, and Yaye-higan. The Yae-shiki cherry also is probably this variety. Jugatsu-zakura was introduced into England about 1906, when a tree was planted at Borde Hill, Cuckfield, Sussex. Originally known as *Prunus miqueliana* in England, it was later changed to *P. microlepis*, and finally was recognized as a form of *P. subhirtella*.

In the United States it was first introduced just prior to 1909, when it bloomed at Topsfield, Mass., in the garden of T. E. Proctor. This is the only double-flowered form of *P. subhirtella* grown to any extent in the United States, and the only Japanese cherry that regularly bears flowers in both autumn and spring. The autumn flowers are paler than those borne in the spring; often they are white. If the autumn crop of flowers is large, the spring crop is likely to be small, and vice versa. No fruits are produced by the autumn flowers. The flowering season of Jugatsu is considerably longer than that of the other higan cherries, owing to the successive opening of the flower buds. A few of these trees have become established in California and a number in the Eastern States, but this variety has by no means attained the place it merits among ornamental trees.

The Aki-higan (autumn-higan) cherries imported from Japan in 1906 by David Fairchild and planted in North Chevy Chase, Md., have proved to be Jugatsu-zakura.

MOMI-JIGARI (EXCURSION TO VIEW RED AUTUMN MAPLE LEAVES)

A double-flowered variety generally similar to Jugatsu-zakura, except that it is not autumn blooming, and its red buds open into clear-pink flowers a little smaller and pinker. It is established in the collection of W. B. Clarke, at San Jose, Calif.

SHIDARE-HIGAN (PENDULOUS HIGAN)

Eventually a large tree, up to 50 feet or more high, with stout branches arching or spreading horizontally, and the slender branchlets hanging vertically or nearly so; bark smooth and gray, darker and rough with age; flowers single, variable in size, in color ranging from nearly white to deep pink, sometimes with a faint lavender cast; calyx tube swollen at base and more or less pubescent.

The Shidare-higan (figs. 1, 2, and 3) is the most popular and the best known of the higan cherries. Throughout Japan, in courtyards, temple grounds, and cemeteries, this variety may be found, and individual trees attain great age and large size. One tree near the town of Hachioji is reported to be nearly 70 feet tall, with a trunk more than 3 feet in diameter. Trees that have become decrepit and grotesquely gnarled with age find particular favor with the Japanese.

Two forms of the Shidare-higan are now grown in the United States—the pyramidal type, which tends to assume an upright habit, increasing in height with age, and the standard type, which is worked high on a bare stem, assuming a flat-topped mushroom habit, increasing in spread but little in height. The pyramidal type is considered by many to be more graceful, adapted to more general use, and longer lived if on its own roots. In order to be certain that a given tree will develop the pyramidal habit of growth, it is advisable to stake the young plant for 2 or 3 years, keeping the main trunk in an upright position. If seedlings of this variety are selected because of a pleasing habit of growth, when the tree reaches the blooming age (generally the third to fifth year from seed) the flowers may be decidedly unsatisfactory not only in color but also in quantity. The most satisfactory procedure is to graft or bud from known strains. The Shidare-higan was introduced into Europe by Von Siebold about 1862, according to Wilson (18), but had already found its way into the United States several years before, as noted on page 3.

Two locally developed forms, Park Weeping (from a tree in Golden Gate Park, San Francisco) and Eureka Weeping, have appeared on the Pacific coast in the last few years. The former is a strain with deep-pink flowers, and the latter appears to be the common pale-pink



FIGURE 1.—Shidare-higan, *Prunus subhirtella*, at North Chevy Chase, Md.

type. Ingram (5, pt. 2) mentions a variety which he saw in Japan, the Sendai-ito-zakura, with deep-pink double flowers. Miyoshi (12, pt. 1) also describes a double form of this variety. There is a tree of *Prunus subhirtella* in Volunteer Park, Seattle, Wash., which has pendulous branches and bears small double pink flowers in the spring only. No other double-flowered forms of *P. subhirtella* are



FIGURE 2.—Shidare-higan, *Prunus subhirtella*.



FIGURE 3.—Shidare-higan, *Prunus subhirtella*.

All parts illustrated in this figure and in figures 6 to 24, 26, and 28 to 32 are natural size, unless otherwise indicated. Each figure shows a dormant twig, mature leaf, flower cluster, fruiting cluster, and seeds. A series of bracts, the innermost at the left, is shown at the bottom of figures 10, 12, and 22 and numbered in figures 16 and 28.

known in the United States at present except the Jugatsu-zakura, described on p. 13.

Other Japanese names that have been applied by Japanese writers to this variety or to some slightly different form are Ake-ito-zakura, Beni-shidare, Ito-zakura, Kusai-zakura, Morioka-shidare, Shidare-zakura, Shiro-shidare, and Yae-beni-zakura.

In common with other Japanese cherries, this group has a very strong tendency toward variation, and new varieties and forms may be expected to appear from time to time. Miyoshi (*l. c.*, pt. 1) in a recent article describes several forms differing slightly from known varieties in color of flower, hairiness of certain flower parts, etc. These are Akebono-higan, Katte-zakura, Mure-higan, Shiki-zakura, Shirataki-zakura, Usu-ke-higan, and Yedo-higan.

Any of the varieties may bear a more or less abundant crop of seeds, which are of use chiefly as a source of seedlings on which to propagate the better forms.

YOSHINO CHERRY, *PRUNUS YEDOENSIS*

Prunus yedoensis Matsumura, Bot. Mag. [Tokyo] 15: 100. 1901

A wide-spreading tree up to about 45 feet high; bark smooth, pale gray, becoming darker and rough with age; leaves elliptic-ovate to obovate, 2 to 4½ inches long, sharply doubly serrate, acuminate, glabrous above and pubescent on the petiole and on the veins beneath; brownish when unfolding; flower buds light pink, slender ovoid; calyx viscid-hairy, red-tinged; sepals narrow, serrate, acuminate; flowers single, very pale pink to nearly white, an inch or slightly more across, faintly fragrant, in very short peduncled clusters of 2 to 5; pedicels pubescent.

The Yoshino cherry (figs. 4, 5, and 6) is not known in the wild state, for in spite of its varietal name it is quite distinct from the single white cherry that grows wild in the Yoshino district of the Province of Yamato, Japan. The oldest known cultivated trees, less than 60 years old, are in the Imperial Botanic Gardens, Tokyo. The original description of this species is based on these trees.

The greatest charm of the Yoshino lies in its early blooming, when the masses of flowers, with reddish calyxes and nearly white petals, cover the light-gray leafless branches with delicate pink. In the vicinity of Tokyo more than 50,000 trees have been planted in the parks, and their blooming has been made the occasion for annual spring festivals.

The largest collection of Yoshino trees outside of Japan is that in Potomac Park, Washington, D.C., where about 800 trees surround the Tidal Basin. Every spring, in late March or early April, great crowds of visitors come to the Capital expressly to view these cherry trees, the earliest to bloom of all the Potomac Park varieties. Planted in 1912 as part of the cherry collection presented by the mayor of Tokyo to the city of Washington, the Tidal Basin trees are now 20 to 30 feet high, vigorous, and in excellent condition. Located as they are close to the water's edge, countless reflections add to their beauty during the flowering period, which generally is nearly a week.

Where weather conditions and insect pollination are propitious, the Yoshino sets an abundant crop of small, round, shining black fruits. Seedlings grown from these fruits are practically identical with the parent tree, unless other single early-flowering cherries are nearby, when the influence of foreign pollen may alter the character of the seedlings.

Although the Yoshino appears generally to come true from seed under favorable conditions, some authorities believe it to be a hybrid, with *Prunus subhirtella* and *P. serrulata* as the parents. It is true that no unquestionably wild plants have been found.



FIGURE 4.—Yoshino, *Prunus yedoensis*, Tidal Basin, Washington, D.C.

The earliest introduction into the United States of which there is record is in 1902, when seeds were sent from Tokyo to the Arnold Arboretum. One tree raised from these seeds is still growing at the arboretum.

Other Japanese names for this cherry are said to be Somei-yoshino and Yamato-zakura, according to Koidzumi. Akebono (Daybreak) is a varietal name applied by W. B. Clarke, of San Jose, Calif., to a



FIGURE 5.—Yoshino, *Prunus yedoensis* (natural size).

cherry in his collection characterized by him as an improved form of Yoshino with masses of flowers pinker than those of Yoshino. Miyoshi (12, pt. 1) applied the name Akebono to a cherry with semidouble light-pink flowers, closely related to Yedo-zakura.

FIGURE 6.—Yoshino, *Prunus yedensis*.

SHIDARE-YOSHINO (PENDULOUS YOSHINO)

Shidare-yoshino differs from the typical Yoshino only in its habit of growth, which is decidedly pendulous. Although listed by 1 or 2 nurseries in this country, this pendulous form has been introduced into cultivation only recently, and is still rare. Because of its strong weeping habit, the Shidare-yoshino probably will do best as a standard, worked high on seedling Yoshino stock or on mazzard. Possibly it can be worked low and a central branch staked up for 2 or 3 years, so that the tree will assume a pyramidal habit. The famous Gionzakura at Kyoto, Japan, is said to be a pendulous form of the Yoshino.

SARGENT CHERRY, *PRUNUS SARGENTII*

Prunus sargentii Rehder, Mitt. Deut. Dendrol. Gesell. 17: 159. 1908.

Prunus serrulata sachalinensis (Schmidt) Wilson, Cherries of Japan. Pub. Arnold Arboretum no. 7, p. 35. 1916.

A large tree, up to 60 feet high; trunk up to 3 feet in diameter; bark smooth, dark brown; leaves rounded-ovate to narrow elliptic, 3 to 5 inches long, sharply and coarsely serrate but not aristate, glabrous, bright green above and gray green beneath; flowers single, usually clear pink, borne in great profusion before the leaves, 1 to 1 $\frac{3}{4}$ inches across, in sessile or nearly sessile few-flowered umbels subtended by reddish, glandular-toothed bracts; fruits ovoid-globose, two-fifths of an inch long.

The young foliage, when it first appears, is deep brownish red, and in the autumn the mature leaves turn to brilliant shades of scarlet and crimson.

The Yama-zakura (mountain cherry), or Sargent cherry (fig. 7), of northern Japan and southern Sakhalin is one of the handsomest and probably most cold-resistant of the native cherries of eastern Asia. In Japan it is rather plentiful in northern Hondo, but is not reported south of the vicinity of Lake Shoji, where it grows at 3,000 feet altitude. Not only was it introduced into Europe about 30 years ago, but at a much earlier date (1890) seeds were sent to the Arnold Arboretum from Japan by William S. Bigelow, from which trees were raised that are still growing. One of the trees at the arboretum is nearly 40 feet tall.

This cherry is by no means well known in the United States, but deserves to be planted extensively wherever it will grow. It is not definitely known to be on the Pacific coast. While its climatic limitations are not yet well known, it seems probable, judging from the low temperatures that occur in its native habitat, that the Sargent cherry will endure lower temperatures than any of the other flowering cherries.

At the Arnold Arboretum this cherry blooms profusely every spring, and the trees set an abundant crop of fruits. In England also it is reported to be free-blooming. However, at the Plant Introduction Garden at Glenn Dale, Md., more than 60 trees, raised from seed sent from the Arnold Arboretum in 1915, have been very backward in setting fruit. The trees average 17 feet in height and appear healthy, but not until the trees were 11 years old did any of them bloom, and at this date (1933) most of them have not yet borne flowers. Possibly they require a more northern habitat for best development.

Variations in the color and size of the flowers, shape of the petals, length of the inflorescence, etc., are not uncommon in the Sargent cherry, probably due in part to the somewhat different environments in which the trees are found. These variations have led to the descriptions of a number of varieties, mostly by Miyoshi, which are

FIGURE 7.—Sargent cherry, *Prunus sargentii*.

based on such slight differences that it is deemed sufficient merely to list them:

Akatsuki-zakura, Akebono-zakura, Benibana-zakura, Ezo-zakura, Hagoromo-zakura, Hatsuyuki-zakura, Hotei-zakura, Kobai-zakura, Komachi-zakura, Kuchinashi-zakura, Kurenai-zakura, Myojo-zakura, Nishiki-zakura, Nonaka-zakura, O-yama-zakura, Tokiwa-zakura, Uchiwa-zakura, and Yezo-yama-zakura.

TAKASAGO CHERRY, *PRUNUS SIEBOLDII*

Cerasus sieboldii Carrière, Rev. Hort. 37: 371. 1866.

Prunus sieboldii Wittmack, Gartenflora 51: 272. 1902.

Tree upright-spreading, up to 20 feet high; bark smooth, gray; branches stout; young twigs dark purplish red; young foliage yellowish brown to reddish bronze; leaves elliptic to ovate, $2\frac{1}{2}$ to $4\frac{1}{2}$ inches long, sharply and often slightly doubly serrate with small teeth, abruptly long-acuminate, densely pubescent on both surfaces; petioles pubescent; flowers fragrant, semidouble or occasionally single, a delicate pink or sometimes nearly white, somewhat paler toward the center, becoming carmine as flower ages, up to an inch and a half across, in short stiff clusters of 2 to 4, normally appearing before the leaves; calyx short-campanulate, reddish brown, pubescent; sepals ovate, obtuse; style usually hairy at base.

The dense pubescence of the foliage is a characteristic that distinguishes Takasago (fig. 8) at once from all the other flowering cherries, thus making identification possible in the absence of flowers. Occasionally the flowers and leaves develop at the same time, in which event the flowers are paler, almost white, and more nearly single, with longer peduncles. Under favorable conditions the flowers are produced in great abundance. In the vicinity of Washington, D.C., the Takasago is the earliest of the double pink cherries to bloom, flowering often only a few days after the Yoshino.

The name Takasago refers to a classical Japanese song that praises the cherry blossoms of Takasago Island. Takasago is a more or less mythical name for Taiwan (Formosa), applied in ancient times before the invention of the steamboat, when almost nothing was known of this island. This variety is also rather well known under the name of Naden. The latter name, however, is given by some authorities for an entirely distinct variety, so that to avoid confusion the name Takasago, used by Miyoshi, appears preferable. The name Mushazakura is also used for this cherry in central Japan, where it is commonly cultivated. A small-leaved, less hairy form, with more single flowers, is called Koha-zakura by Wilson, who also includes under this species a semidouble pink form, Yokihi. This form he admits is scarcely distinguishable from the best strains of Takasago. Miyoshi (11) also describes a variety Yokihi, which is semidouble, pink, but glabrous, and evidently a form of *Prunus serrulata*. A variety grown locally in Oregon under the name Brentwood is said to be identical with Takasago, and the variety Watereri of English nurseries is also identical with this form. Takasago is not yet a well-known variety in cultivation, although it is said to have been imported into Europe about 1864 by Von Siebold, and as early as 1880 the nursery of Ellwanger & Barry, Rochester, N.Y., lists *Cerasus sieboldii rubraplena*.

Although not known in the wild state, Takasago is made a distinct species of *Prunus* because of the pronounced and constant pubescence of its leaves and inflorescence. It has proved hardy as far north as the vicinity of Boston, Mass., and grows well on the Pacific coast.

Flowering branches of Takasago several feet long placed in large jars have been displayed in hotel lobbies and store windows in central



FIGURE 8.—Takasago, *Prunus sieboldii*.

California. Under such conditions the branches retain their attractiveness for several days. The buds that were showing color at the time the branch was cut, open up to take the places of the oldest flowers, whose petals start to fall after the first day.

ORIENTAL CHERRY, *PRUNUS SERRULATA*

Prunus serrulata Lindl., Trans. Hort. Soc. London 7: 238. 1830 (10).

The greater part of the cultivated varieties of Japanese flowering cherries are more or less arbitrarily referred to this species. With a few exceptions, they are medium-sized or low trees, usually spreading in habit, and their flowers appear slightly before or with the young foliage. In many cases the young foliage is reddish or brownish, losing this color as the leaves unfold. The bud scales, which expand and often persist for several days, are often large, reddish or brownish, and conspicuous, with the inner surface more or less hairy. The mature leaves are elliptic or oblong-elliptic, singly or doubly serrate, glabrous or slightly pubescent, and long-acuminate. From 1 to 4 small dark-brown glands occur somewhere on the petiole, often near the base of the leaf or even on the base near the petiole. The lanceolate, lacinate stipules, sometimes 2 or 3 inches long, often persist until the flowers are fully open and the foliage well advanced. The corymbose flower clusters are subtended at the base of the peduncle and pedicels by reddish or brownish glandular-toothed leafy bracts and bracteoles. These flower clusters are more or less upright or drooping, depending on the length and stoutness of the peduncle and pedicels. There is normally but one carpel, which may be longer or shorter than the numerous stamens. When, as is the case with a few varieties, there are two or more carpels, these generally are leafy and green. In one variety, Ichiyo, the carpel is single and leaflike in some of the flowers. The single-flowered or semidouble forms may bear fruits, which are small and black, with little or no flesh. In the autumn the leaves of many varieties become brilliant orange or red.

More than 120 distinct varieties are recognized by Japanese horticulturists, but of this number many are indistinguishable to the occidental observer. Miyoshi (11) applies the general name Sato-zakura (village cherry) to these cultivated forms. In the United States there are perhaps as many as 45 distinct varieties. The differences that separate many of these are very slight, however, and it is impossible to distinguish them satisfactorily in a formal key. They may be roughly grouped according to the habit of growth of the tree and the color and form of the flowers. Below are noted all the varieties now being grown to any extent in this country and in Europe, so far as definite information concerning them is available. Varieties of inferior value or those on which it is not possible to report at present are given in the supplementary lists following each group.

The general classification groups are as follows:

- Tree with pendulous branches
- Tree with fastigiate branches
- Tree with spreading or upright branches
 - Flowers greenish yellow
 - Flowers white, single or nearly so
 - Flowers white, semidouble or double
 - Flowers pink, single or nearly so
 - Flowers pink, semidouble or double

TREE WITH PENDULOUS BRANCHES

KIKU-SHIDARE (WEEPING CHRYSANTHEMUM)

(Also known as Cheal's Weeping, Shidare-zakura, Lidera Nova, Oriental weeping)

Branches arching or somewhat pendulous; twigs pale yellowish brown; young foliage green with a slightly brownish tinge; leaves sharply serrate, inclined to be somewhat narrower than those of other forms of *Prunus serrulata*; flower buds deep rosy pink; (sepals often apparently 10, due to sepaloids alternating with the true sepals); flowers densely double, with more than 50 petals, clear pink, about an inch across, borne freely in short-pedicelled clusters.

Because of the arching branches, Kiku-shidare (fig. 9) is commonly top-worked on a bare stem several feet high, although it could be worked low and a central leader staked up. In Japan the Kiku-shidare is not common, for some unknown reason, being reported by Miyoshi (13) from only two localities; but in England, under the name of Cheal's Weeping, it has been grown for more than 15 years and is rather well known. In the eastern part of the United States this variety is just beginning to appear, while in central California a number of good specimens are well established. Because of its rather stiffly arching branches it does not compare favorably with the Shidare-higan in point of gracefulness.

Kiku-shidare is said sometimes to be used in England in bush form to cover banks.

TREE WITH FASTIGIATE BRANCHES

AMANOGAWA (MILKY WAY)

Tree of characteristic fastigiate habit, up to 25 feet high; bark dark gray; young foliage brownish red; flower buds slender ovoid, deep pink; flowers semidouble, up to 1¼ inches across, light pink with the margins deeper pink, in stiff upright clusters of 2 to 4, usually 3.

The outstanding feature of the Amanogawa (fig. 10) is its stiffly upright habit, closely resembling that of the Lombardy poplar. This habit makes it especially suitable for more formal landscapes, although Amanogawa is not unattractive as a specimen tree for the lawn. It might also be planted as a repeat accent in a wide perennial border at intervals of about 20 feet. When seen in full bloom against a darker background the appropriateness of the Japanese name is readily comprehended. There is a white-flowered form, Tanabata, reported from Japan, but it has not yet appeared in the United States.

In the spring of 1906 David Fairchild introduced plants of this variety from Japan, and trees from this early introduction are still living in North Chevy Chase, Md. These are probably the oldest trees in the United States. A few nurseries in the East and 1 or 2 on the Pacific coast offer Amanogawa, but it is still relatively uncommon.

TREE WITH SPREADING OR UPRIGHT BRANCHES

FLOWERS GREENISH YELLOW

GYOIKO (IMPERIAL YELLOWISH COSTUME), sometimes given as Gioiko

Tree upright-spreading in habit, up to 20 feet high; twigs brown; bark dark gray; young foliage bronze green, appearing with flowers; flower buds pinkish; flowers semidouble, in moderately pendulous clusters of 3 to 5, with about 15 petals, about 1½ inches across, light greenish yellow striped irregularly with darker green, often with narrow deep-pink stripes running down the centers of the petals.



FIGURE 9.—Kiku-shidare, *Prunus serrulata*.



FIGURE 10.—Amanogawa, *Prunus serrulata*.

The flowers of this rather bizarre variety (fig. 11) assume a delicate pink color just before they fall. Although Gyoiko is fairly well known in both the Pacific and Eastern States, it is not in much demand, because of the color of the flowers.

KABA-ZAKURA (REDDISH-BROWN CHERRY)

A variety with semidouble or double flowers in somewhat bunched clusters. The outer petals are greenish, stained with vinous pink, while the inner petals are greenish cream-colored. The young leaves are copper-bronze.

These data are furnished by Ingram (*5, pt. 2*), who has a tree established at his place in Kent, England. Evidently there are a number of very closely related and scarcely distinguishable forms in this group, including Shin-nishiki and Kiriginu. One Japanese nursery spells this last name Kari-ginu.

A tree labeled Kaba-zakura at the Arnold Arboretum which has flowers that are semidouble and greenish with pink markings does not appear to be distinct from Gyoiko.

SHIBORI

Shibori, a rather curious form, is related to Gyoiko and may be a sport of that variety, although its origin is uncertain. It first appeared in the cherry collection at the Plant Introduction Garden, Chico, Calif., and is supposed to have been sent from Rochester, N. Y., in 1918, as scions, under the varietal name Kari-ginu, a name used in Japan for a cherry with single greenish flowers.

The flowers of Shibori differ from those of Gyoiko in being smaller, more double, with the petals more ruffled and with many petaloid stamens. The cerise-pink central stripe appears only when the flowers are about to fall. The Japanese name was given to this cherry by W. B. Clarke, of San Jose, Calif., in whose collection it is established. Shibori in Japanese means "a skein dyed various colors."

Outside of California, Shibori is not definitely known to be established, and it will probably appeal only to those who have a penchant for the unusual.

UKON (YELLOWISH)

The Ukon is in general aspect very similar to Shibori but is distinguished in having light greenish yellow flowers without the deeper green stripes or narrow pink stripes on the petals. Sometimes there is a pinkish tinge on the edges of the outermost petals. The flowers of Ukon tend to be a little larger than those of Gyoiko. The two varieties are often confused in nurseries.

Miyoshi (*11*) mentions a form of Ukon with lighter colored flowers known as Asagi (light green). The name Asagi frequently is applied to Ukon, and for all practical purposes the two are synonymous.

There is a striking tree of Ukon in the arboretum of the New York Botanical Garden on a knoll nearly surrounded by trees, many of them evergreens. When the late afternoon sun shines through the knoll, the effect of the pale greenish yellow against the dark background is superb.

FIGURE 11.—Gyoiko, *Prunus serrulata*.

FLOWERS WHITE, SINGLE OR NEARLY SO

A large number of varieties recognized by Japanese gardeners which would properly come within this group are in reality nothing more than slightly improved forms of the very variable wild mountain cherries of central Japan, to which Miyoshi (11) has applied the comprehensive name *Shiro-yama-zakura* (white mountain cherry). Most of these have little or no particular ornamental value judged by occidental standards, and the differences between the various forms are very slight. Frequently the white petals are slightly tinged with pink, especially in the bud. The following are considered worthy of mention:

ARIAKE (DAWN)

Tree up to 18 feet high, of rather open habit, with relatively few stout upright-spreading branches which arise from near the base of the trunk; bark smooth, brownish gray; young foliage bronze-green; leaves generally larger and more coarsely serrate than those of other varieties of *Prunus serrulata*; flower buds pinkish, slender; flowers single or with a few extra petals or petaloid stamens, up to 2 inches across, opening rather flat, in pendulous clusters of 2 to 4, involueral scales orange-red and sometimes 3-lobed.

Perhaps the earliest introduction of the Ariake (fig. 12) into this country was in 1912, as part of the Potomac Park collection in Washington, D.C. It is now established in a few places along the Pacific and Atlantic coasts, although it is probable that more than one form of large-flowered single white cherry is passing as this variety. In some ways it is very similar to Ojochin, but the latter has more wrinkled petals inclined to be slightly pinkish, is more floriferous, and the tree is of more compact habit.

At the Plant Introduction Garden at Chico, Calif., it has developed that the trees of this variety root rather readily from hardwood cuttings. The trees of Ariake at Chico, however, are very shy bloomers, and the rooted cuttings have been utilized as stocks for other varieties (p. 6).

HOSOKAWA (LORD HOSOKAWA, A JAPANESE NOBLE)

Tree of spreading habit, up to about 15 feet high; bark grayish; young foliage pale yellowish brown, soon becoming green; mature leaves with simple, long-aristate serrations; flower buds faintly pink, narrow-ovoid; calyx reddish green; sepals narrowly deltoid, sharply serrate; flowers single or with a few extra petals, pure white, fragrant, up to 1½ inches across, in rather long-stalked corymbose clusters of 3 to 6.

Hosokawa (fig. 13), also known as *Hosokawa-nioi*, is worthy of note as an excellent single white free-blooming sort with large fragrant flowers in graceful clusters. It is not a very distinctive variety, but could be used with advantage in a park or large estate. A few trees are established in the eastern part of the country, and this variety is growing at the Plant Introduction Garden at Glenn Dale, Md.; otherwise it is little known outside of Japan.

JO-NIOI (SUPREME FRAGRANCE)

Tree upright-spreading, becoming about 18 feet high, with a broad crown; bark gray or brownish gray, darkening with age; young foliage bronze green; bud scales mostly green; flower buds slender, pinkish; flowers single or with a few petaloid stamens, white, 1½ inches across, in short-peduncled clusters of 3 to 5.



FIGURE 12.—Ariake, *Prunus serrulata*.



FIGURE 13.—Hosokawa, *Prunus serrulata*.

The worth of this variety lies in the marked fragrance of its myriads of pure-white flowers, a fragrance that is more pronounced and more pervasive than that of any other flowering cherry. Aside from this, there is little to recommend Jo-nioi as a flowering tree. It is represented in the Potomac Park collection in Washington and at the Arnold Arboretum, but is not in the trade and apparently is not known on the Pacific coast.

Jo-nioi differs from Taki-nioi chiefly in the habit of growth and in having shorter flower clusters.

OJOCHIN (LARGE LANTERN)

Tree of wide-spreading habit, up to 20 feet high; bark grayish; young foliage brownish green; flower buds pink, ovoid; flowers usually single, sometimes with a few petaloid stamens, white or very faintly pinkish, about 2 inches across; petals orbicular and more or less wrinkled, giving the flower the appearance of being semidouble; flowers in pendulous clusters of 3 to 5 with long peduncles and pedicels.

The flowers of Ojochin (fig. 14) are scarcely distinguishable from those of Ariake, but Ojochin makes a better shaped tree, branching from 3 or 4 feet above the base and developing a broad, compact crown, and is much more floriferous. Although not common, this variety is established in a few places on the Pacific coast and in the East, and is well worth inclusion even in a small collection.

OSHIMA-ZAKURA (OSHIMA CHERRY)

(Also known as *Oh-yama-zakura* (large mountain cherry) and *Takigi-zakura* (firewood-cherry))

Tree large, wide-spreading, vigorous, up to 30 feet high; bark smooth, pale gray; young foliage green with a bronzy luster; leaves doubly serrate, long-acuminate; flower buds faintly pink, narrow-ovoid; flowers single, pure white, up to 1½ inches across, faintly fragrant, in stiff clusters of 3 to 7; fruits small, ovoid, shining black.

The Oshima-zakura (fig. 15) is the wild cherry of the island of Oshima which lies at the entrance to Sagami Sea, southwest of Tokyo. It is a fast-growing tree, but is of less ornamental value and also probably less winter-hardy than the other single-flowered cherries described in this group. Wilson (18) believed that this is the parent of the greater number of the double-flowered Japanese cherries, because of similarities in the color of the bark, leaf serrations, and the common possession of fragrance of the flowers.

SHIRAYUKI (SNOW WHITE)

Tree of erect, open habit, up to 20 feet high; bark dark brownish gray; young foliage pale brown; flower buds ovoid, pinkish; calyx reddish brown, glabrous; flowers single or rarely with 1 or 2 extra petals, pure white, up to 1½ inches across, in short-stalked stiff clusters of 2 to 4; peduncle and pedicels hairy.

Shirayuki is one of the more attractive single white forms, is usually very free-blooming, and may be distinguished easily from other white-flowered varieties by its hairy peduncle and pedicels. Yoshino, somewhat similar to this variety, differs in having the calyx also hairy, with smaller flowers, and blooms several days earlier. Shirayuki is established in Potomac Park, Washington, D.C., and at the Plant Introduction Garden, Chico, Calif. It is not known to be in the trade.



FIGURE 14.—Ojochin, *Prunus serrulata*.

FIGURE 15.—Oshima-zakura, *Prunus serrulata*.

TAI-HAKU-ZAKURA (GREAT WHITE CHERRY)

Tree upright-spreading, vigorous; young foliage; rich coppery red; calyx slender; sepals long, narrow; flowers single, white, about $2\frac{1}{2}$ inches across in clusters of 2 or 3.

The Tai-haku-zakura was part of a collection sent from Japan to England about 30 years ago without a name. At the suggestion of Prince Taka Tsukasa, of the Japanese Cherry Society, it was named Tai-haku by Collingwood Ingram, of Benenden, Kent, England. In Japan it has become extinct, but it appears to be identical with a cherry illustrated in an old kake-mono (hanging picture) in the possession of S. Funatsu, the great authority on Japanese cherries.

The great charm of Tai-haku lies in the delightful contrast between the coppery red young foliage and the large white flowers. Ingram (5, *pt.* 2) considers this the finest of all the single white cherries.

Outside of England, Tai-haku is established and represented only at the Plant Introduction Garden at Glenn Dale, Md.

TAKI-NIOI (FRAGRANT CASCADE)

Tree relatively small, much branched and usually not more than 12 feet high, with a rounded-flattened crown; bark dull brown; young foliage reddish brown, mature leaves narrowly ovate, coarsely and doubly serrate-aristate; flower buds narrow ovoid with the tips faintly pinkish; calyx often reddish, sepals rather large, narrow-triangular, entire or serrate; flowers single, pure white, up to $1\frac{1}{4}$ inches across, fragrant, with narrow petals, in rather stiff cluster of 3 to 6; fruits small, globose, black.

The flattened crown and numerous fragrant flowers are the chief points of interest in Taki-nioi (fig. 16). It is represented in the Potomac Park collection at Washington, D.C., and is offered by 1 or 2 nurseries on both coasts. In fragrance it is probably excelled by Jo-nioi. The trees in Potomac Park bear good crops of seed, from which seedlings for stock purposes may be raised; these are satisfactory for all but the northernmost range of Japanese cherry cultivation. In Japan another fragrant cherry known as Gozanoma-nioi is considered by Miyoshi to be identical with this form. Ozu-mako is another name for Gozanoma-nioi.

Taki-nioi generally blooms a little later in the season than other single white forms.

TORANO-O (TIGER'S TAIL)

Tree about 12 feet high, with long, slender upright branches; young foliage yellowish green; flower buds white or faintly pink; calyx and sepals dark reddish brown; flowers single or with a few petaloids, white, about $1\frac{1}{2}$ inches across, in rather loose clusters of 3 or 4.

Torano-o is established in the United States only at the Plant Introduction Garden at Glenn Dale, Md., but it is grown to some extent in England and is described and figured by Miyoshi. The long leafless branches covered with the numerous white flowers suggest tigers' tails to the Japanese; hence the name. Plants obtained from Japan by Ingram (5, *pt.* 2) under the name Hitomaro proved to be identical with his Torano-o. No published description of Hitomaro has been found, although one Japanese nursery catalog lists Hitomaru, evidently the same, as "pure white, single, medium flower with short pedicel." The same catalog lists Torano-o as semi-double, soft pink. Miyoshi (11) states that Torano-o may have either white or pinkish flowers, with a few petaloid stamens. Thus Hitomaro may indeed be a synonym of the somewhat variable Torano-o.

FIGURE 16.—Taki-nioi, *Prunus serrulata*.

WASHINO-O (EAGLE'S TAIL)

Tree stiffly upright with a rather broad crown, up to 20 feet high; bark gray; young foliage brownish green; flower buds ovoid, pinkish; flowers single or with 1 or 2 extra petals, pure white, up to 1½ or rarely 2 inches across, in short-peduncled rather stiff clusters of 2 to 5.

This variety may be briefly characterized as merely a slightly improved form of Oshima-zakura, with larger flowers and of somewhat smaller stature. It is not commonly grown in the United States, but trees are established on both coasts. There is a good specimen at the Arnold Arboretum, and the variety also is represented at the Plant Introduction Garden at Glenn Dale, Md.

The following single white varieties have appeared in works by Japanese, European, or American authors, or in nursery lists, but none of them, as far as it has been possible to ascertain, appear to merit description or comment. In many instances descriptive notes accompanying these names indicate that there is nothing distinctive about the variety. Some of the names in this list are identical with those used elsewhere for very different forms:

Akebono-nioi	Jurokunichi-zakura	Miyoshino-zakura	Suzume-zakura
Ao-zakura	Kaba-nioi	Mure-zakura	Suzunari-zakura
Ao-ke-zakura	Kaba-zakura	Nagae-zakura	Tagui-arashi
Aome-zakura	Kagami-zakura	Obana-zakura	Tai-min
Arakawa-nioi	Kagetsu-zakura	Ogawa-nioi	Tao-yoma-zakura
Awayuki-zakura	Kamiyono-zakura	Okina-zakura	Tomoye-zakura
Dairino-zakura	Kasumi-zakura	Oku-yama-zakura	Umebachi-zakura
Fudan-zakura	Ke-yama-zakura	O-shiba-no	Usu-kan-zakura
Futoeda-zakura	Koganei-nioi	Ouchi-yama	Usu-ke-zakura
Habutai	Kohuku-nioi	Sakae-zakura	Usuzumi
Hakkazen	Kokonoye-nioi	Sakon-no-zakura	Wakakino-zakura
Haru-arashi	Komme-zakura	Sakuragawa-nioi	Yamadori-zakura
Hata-zakura	Koyama-zakura	Senriko	Yamato-zakura
Hatazao-zakura	Mago-zakura	Shirakumo-zakura	Yatsubusa-zakura
Hatsu-zakura	Mangetsu	Shirobana-ma-zakura	Yatsubusa-ke-zakura
Hatsukasane-zakura	Meigetsu	Shiroko-fudan-zakura	Yoshino-nioi
Hina-zakura	Midsuho-zakura	Shoki-zakura	Zansetsu
Imajuku-zakura	Mina-kami	Sumizome	
Irihino-zakura	Miyai-zakura	Suragadai-nioi	

FLOWERS WHITE, DOUBLE OR SEMIDOUBLE

DOUBLE CHINESE CHERRY

Tree rather small, up to about 15 feet high, with wide-spreading, almost flat crown; bark dark brown; young foliage greenish brown; leaves with short-aristate teeth; flowers double, white, in small racemose corymbs, relatively small, up to 1¼ inches across, without fragrance.

The Double Chinese cherry has been in cultivation since 1822 in England, where it is sometimes called "variety Albo-Plena", but even now it is not commonly grown in that country. It appears to be unknown in Japan. In the United States it is represented at the Plant Introduction Garden at Glenn Dale, Md., and at the Arnold Arboretum, but is not definitely reported from other localities.

Although this variety is not known to be cultivated in Japan, it appears to agree specifically with the Japanese flowering cherries and is the variety on which the English botanist Lindley based his original description of *Prunus serrulata*.

SHIROTAI (SNOW WHITE)

(Also known as Mount Fuji and Sirotai)

Tree large, wide-spreading, branching from near the base of the trunk, up to 25 feet high; bark dark gray; young foliage green or slightly brownish, margins double-aristate; flower buds slender, pale pink; calyx reddish brown; sepals

deltoid-acuminate, coarsely serrate; flowers semidouble, with about 12 petals, up to 2 inches across, inclined to be campanulate, in somewhat pendulous clusters of 2 to 5.

The Shirotae (fig. 17) is probably the only double-flowered white Japanese cherry cultivated to any extent outside of Japan. Miyoshi (11) describes Amayadori, a semidouble form very similar to, possibly identical with, Shirotae. Wilson (18) also mentions Amayadori, but states that he had not seen it in bloom.

In younger trees the flowers often have fewer petals, even to the point of being single. Shirotae sometimes is confused with the double form of the sweet cherry (*Prunus avium*), but the sepals of the latter are decidedly reflexed, and the flowers are more double and smaller. Shirotae is one of the more common varieties in the trade, sometimes listed as Mount Fuji, as noted above. Trees at the Plant Introduction Garden, Chico, Calif., are more than 20 feet high, with broad crowns, and are decidedly handsome when in full bloom.

The name "Mount Fuji", given as an alternative name in some Japanese and American catalogs, has led in at least one instance to confusing this with the Fuji cherry (*Prunus incisa*), a small bush cherry which grows wild on the east slope of Mount Fuji.

In 1925 the variety Kojima (Japanese warrior of legendary fame) was described by Ingram (5, pt. 1) as a cherry with large, campanulate, pure-white flowers, usually single, but occasionally semidouble. Mr. Ingram has since stated that he considers Kojima merely a young stage of Shirotae. A variety known in Japan as Komatsu-nagi is, according to Ingram, doubtfully distinct from Shirotae.

The following names of semidouble and double white varieties have appeared in recent years, mostly in Japanese writings. None of them are known definitely to be in cultivation, even in Japan, and it is not possible at present to report on the horticultural merits of any of them:

Banriko, Horaisan, Kikuzaki-yama-zakura, Kunrinjo-shirotae, Seigan-zakura, Senriko, Shiragiku-zakura, Shirobana-ma-zakura, Shiro-nanden, Soban-zakura, Tamaboko, Yae-sakon-no-zakura, Yae-yama-zakura, and Yaye-oshima.

FLOWERS PINK, SINGLE OR NEARLY SO

Although in many parts of central Japan the wild mountain cherry shows little or no trace of pink in the white flowers, here and there are to be found individuals with pink tints, and in some instances, this coloring would justify the characterization of deep pink.

The occurrence of this deep-pink color among the more common white-flowered mountain cherries has been accounted for, in Japanese folklore, by a tragic legend, which, revealing as it does an essential part of the Japanese attitude toward these flowers, may properly be related here.

This legend has come down from the time of the Shogunate, when Japan was under the feudal system. In a secluded village, where in springtime the countryside was covered with the white of cherry blossoms, a young maiden named Masa lived with her old father. Baisen, the father, was the leader of a group of rebels who planned to overthrow the ruling family. Makito and Kurondo, two rival knights of the Shogunate court, fell desperately in love with the beautiful Masa, but Kurondo was a villainous wretch, and his advances were spurned by Masa. Eventually Kurondo accidentally discovered Baisen's connections with the rebels. At the point of the



FIGURE 17.—Shirotae, *Prunus serrulata*.

sword Kurondo forced the old man to agree to betray his rival Makito into his hands with the help of Masa. Masa was to induce Makito to go to their favorite trysting place under a cherry tree, become drunk with wine, and so render himself an easy victim for Kurondo. In order to save her father and her lover from death, Masa disguised herself as Makito, drank heavily of wine, and lay under the cherry tree. Here all too soon the keen blade of Kurondo proved the effectiveness of her disguise. The following spring, according to the legend, the cherry tree, which hitherto had borne only white flowers, covered itself with blossoms of deep pink, stained with the precious blood of the heroic maiden.

The only variety in this group which is grown in the United States at present is the following:

MIKURUMA-GAESHI (THE ROYAL CARRIAGE RETURNS)

Tree usually not more than 18 feet high, rather stiffly upright in habit; bark grayish with occasional reddish-brown patches; young twigs dark brown; young foliage brownish green; flower buds pink, slender-ovoid; calyx and sepals green or reddish; sepals narrowly oblong, entire, flowers single, with an occasional extra petal, very light pink above, pinker below, with the petals somewhat wrinkled, up to 2 inches across and finally opening quite flat; in short stiff clusters of 3 or 4.

Mikuruma-gaeshi (fig. 18) resembles Ariake to some extent, but is distinguished by the pinker, more uniformly single flowers with less wrinkled petals, and by the more upright habit of the tree.

Mikuruma-gaeshi blooms about midseason and, while perhaps not quite so vigorous nor as winter-hardy as Fugenzo or Kwanzan, is nevertheless a desirable variety for many sections of the country. It is not yet well-known in the United States, the name appearing in the lists of only 1 or 2 nurseries. Several trees are established in Potomac Park, Washington, and a few at the Arnold Arboretum.

The Japanese name Mikuruma-gaeshi refers to an ancient tradition, one of the versions of which is as follows: One of the early emperors, while enjoying a spring drive in the country, was so impressed by the beauty of a flowering cherry in full bloom as he passed by that he ordered his carriage to return to the spot, in order that he might once more gaze on its beauty. This tree, thereafter known as Mikuruma-gaeshi, has long since disappeared but is reputed to have been the ancestor of all of the trees of this variety.

Among the names included in the following list are many varieties which arbitrarily have been placed within the group of single-pink forms, even though the flowers may be partly white. Most of these names have been taken from the writings of Miyoshi, a very few from European and American works. Many are obviously only slight variants from the wild cherries of Japan, judging from their descriptions, and none are known to be of outstanding merit. It is not definitely known that any of these are actually in cultivation:

Akatsuki-zakura	Hiko-zakura	Koshio-yama	Shiba-yama
Akebanama-zakura	Hinodeno-zakura	Kuchibeni-nioi	Shinonome-zakura
Aoba	Hitoye-zakura	Kuchibeni-zakura	Shiratama-zakura
Arashi-yama	Homare-zakura	Miyuki-zakura	Taba-zakura
Asahi-zakura	Hoshi-zakura	Nirin-zakura	Tachi-ke-zakura
Azuma-zakura	Hozaki-zakura	Ogi-zakura	Takana-zakura
Banriko	Isobe-nioi	Onoe-zakura	Ukishima-zakura
Fujima-zakura	Kan-zakura	Otome-zakura	Usu-beni-kan-zakura
Fukiyose-zakura	Kirigaya	Oyane-zakura	Usu-beni-zakura
Fuyu-zakura	Kohina-zakura	Ranzan	Usuiro-kan-zakura
Genji-zakura	Koke-shimidsu	Rokuben-zakura	Yahiko-zakura
Hatsumi-zakura	Ko-kuchibeni-zakura	Ruiran	Yayoi-zakura
Hayazaki-zakura	Kongo-san	Setsubun	Yedaho-zakura



FIGURE 18.—Mikuruma-gaeshi, *Prunus serrulata*.

FLOWERS PINK, DOUBLE OR SEMIDouble

The most popular varieties of flowering cherries are found in this group, and because of that popularity, together with the strong tendency toward variation shown generally among these cherries, much confusion has existed as to varietal limitations and proper varietal names. It is hoped that most of this confusion, at least with respect to the more commonly grown varieties, will be cleared up in the following pages.

Flowers with 6 to 15 petals are classed arbitrarily as semidouble, while those with more than 15 petals are considered double. A few varieties will thus fall into both classes, since the number of petals may vary considerably in flowers even on the same tree.

ASANO (A NATIONAL HERO OF JAPAN)

Tree of upright habit; leaves narrowly ovate; flower buds pink, ovoid-truncate; flowers very double, mauve pink, in short-stalked clusters bunched in large masses.

This variety is known outside Japan only in the collection of Colingwood Ingram, in England, from whose publication (*5, pt. 2*) the above notes were taken. Mr. Ingram states further that Asano closely resembles Kiku-shidare (Cheal's Weeping), but differs in not having pendent branches. It is said to be a striking variety of real merit, and may be expected to appear in the United States in the near future.

BOTAN-ZAKURA (PEONY CHERRY)

Tree rather small, with a flat, spreading crown; young foliage bronze-green; mature leaves with simple, coarse, aristate serrations; flower buds pink, slender ovoid; calyx brownish; sepals decidedly serrate; flowers pale pink, semidouble, with 6 to 15 petals, up to 2 inches across, in short-stalked corymbs of 3 to 5.

Botan-zakura is reported to be growing at the Arnold Arboretum, and the name appears in the list of a Pennsylvania nurseryman; otherwise it does not appear to be known in the United States. One English nurseryman lists Moutan and indicates that it is synonymous with Botan-zakura.

DAIKOKU (JAPANESE GOD OF PROSPERITY)

Branchlets dark brown; young foliage yellowish green; flower buds purplish red, thick, truncate; flowers very double, with 40 or more petals, purplish pink, with a cluster of leafy carpels in the center, up to 2½ inches across, in long-stalked drooping clusters.

The above notes are furnished by Ingram (*5*), who found this cherry growing in a friend's garden, but was unable to find any published description to fit, and therefore gave it the above name. Daikoku, which is now represented at the Plant Introduction Garden at Glenn Dale, Md., has not proved a very free bloomer in England, but the size and character of the flowers warrant its being given a trial.

FUGENZO (GODDESS ON A WHITE ELEPHANT)

(Also known as James H. Veitch and Kofugen)

Tree up to 18 feet high, with a broad crown, often flattened and with the branches intercrossing horizontally; bark dark reddish brown; young foliage coppery brown, retaining this color until the leaves are fully grown; leaves rather coarsely serrate; flower buds ovoid-truncate, deep rose-pink, with the sepals curled characteristically over the end of the bud; sepals narrowly oblong, acu-

minate, more or less serrate; flowers double, with about 30 petals, rose-pink, becoming lighter with age but never white, up to 2 inches across, opening successively and rather flat, with two leafy carpels protruding from the center of the flower and occasional petaloid stamens appearing between these carpels; clusters 4- to 6-flowered, rather short-peduncled and stiff, sometimes with longer peduncles and drooping.

The Fugenzo (fig. 19) was known to the Japanese more than 500 years ago (11) in the time of Prince Yoshimitsu Ashikaga and is today still widely planted.

Fugenzo is not very common in this country. It has often been confused with other varieties, particularly Shiro-fugen, and it is doubtful whether many of the plants sold under the name of Fugenzo in the United States are actually that variety. Shiro-fugen is, of course, easily distinguished by its flowers becoming pure white with age. The several trees in the Potomac Park collection in Washington generally considered to be Fugenzo are in reality Shiro-fugen. On the Pacific coast, where there are several fine trees of this form, one nursery has Fugenzo under the name of Kofugen, while in England it seems to be better known under the name of James H. Veitch. There are young trees of the true Fugenzo now established at the Plant Introduction Garden at Glenn Dale, Md., and an excellent specimen is growing at the United States Soldiers' Home, Washington, D.C.

It was about 1892 that this variety was introduced into England by James H. Veitch. In 1901 the name *Cerasus* James H. Veitch first appears in the catalog of Ellwanger & Barry, Rochester, N.Y. There is a possibility, however, that Ellwanger & Barry's trees were not the true Fugenzo, but rather what are now called Shiro-fugen.

Mivoshi (11) states that a deeper pink strain of Fugenzo has been called Haku-fugen in Japan. Wilson (18) gives Benifugen as a synonym of Fugenzo.

As a specimen tree for the lawn Fugenzo is excellent; the flowers open rather late, usually about the same time as those of *Kwanzan*, and retain their pinkness with very little fading.

GIJO-ZAKURA (DANCING-GIRL CHERRY)

Tree relatively small, up to 12 feet high, of upright habit; bark dark gray; young foliage brownish green; mature leaves with margins long-aristate; outer bud scales deep brownish red; flower buds narrow-ovoid, deep pink; sepals reddish green, narrowly triangular, sharply serrate; inner surface of calyx tube beset with nectaries which secrete nectar in abundance; flowers semidouble, with about 10 irregularly notched petals, campanulate, very pale pink, about 1¼ inches across, in rather stiff clusters of 3 or 4.

Gijo-zakura (fig. 20) is little known outside of Japan, except for a few trees in the vicinity of Washington, D.C. While the tree is attractive, there are several other varieties in this class which excel it as ornamentals, and its appeal would be chiefly for the amateur who is interested in a varietal collection.

GOSHO-ZAKURA (5-STALKED CHERRY)

(Also known as Gozio-zakura)

Tree upright-spreading, up to 15 feet high; bark pale brown; young foliage slightly brownish red; scale leaves over half an inch long, green or brownish; flower buds ovoid-truncate, deep rosy red, calyx reddish brown, sepals entire, rather narrow, curled over end of bud; flowers double, with about 20 petals, pale pink, deeper at margins and beneath, up to 2 inches across, in short-stalked rather stiff clusters of 2 to 6, but commonly in fives, hence the Japanese name.

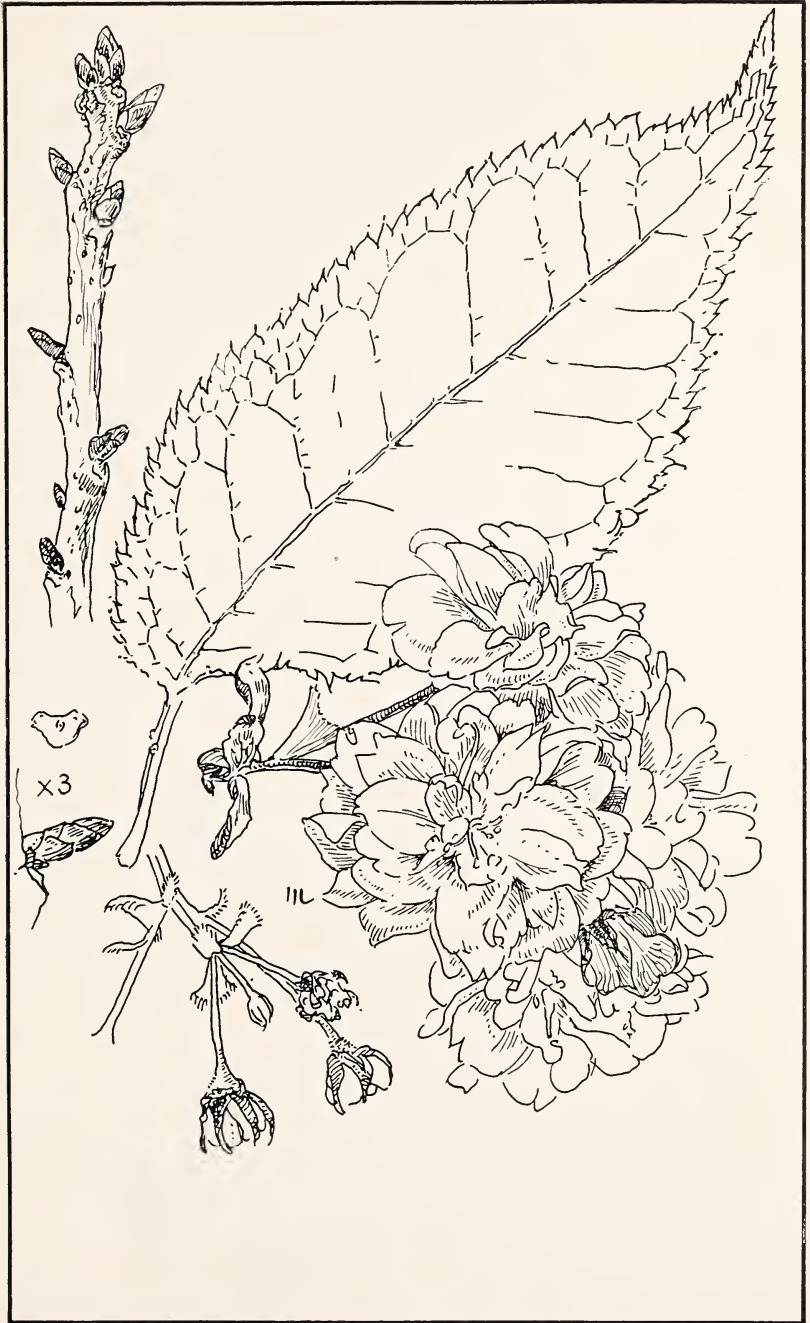


FIGURE 19.—Fugenzo, *Prunus serrulata*.



FIGURE 20.—Gijo-zakura, *Prunus serrulata*.

This variety is very similar to Tanko-shinju in general aspect. Goshō-zakura, however, has slightly smaller flowers which are a little more double, and the sepals are narrower and longer than those of Tanko-shinju.

Outside of central California and 1 or 2 places in the East, including the collection at Glenn Dale, Md., this variety is practically unknown. It is very attractive, but not noticeably distinct from Tanko-shinju, and possibly not quite so free-blooming.

Miyoshi (12, pt. 3) described another cherry in 1928 under a varietal name that appears identical in print, but is designated by a Japanese character that means Imperial palace cherry. This is a white semi-double cherry not known in the United States.

HIGURASHI (TWILIGHT)

Tree of upright habit, about 18 feet in maximum height; bark smooth, gray; young foliage brownish green; petioles brownish, becoming green; stipules green; mature leaves with simple or double aristate serrations, usually caudate-acuminate, at times with rounded tips; bud scales large, green or pinkish; flower buds deep pink, rounded truncate; calyx greenish or dull brown; sepals narrow deltoid, acuminate, curling over end of younger buds, entire or slightly serrate; flowers double, up to 2 inches across, with about 29 petals; petals rounded, slightly notched; center of flower very pale pink, almost white, margins deep pink; carpels not leaflike; peduncle and pedicels rather short and thick with 2 to 4 flowers in a cluster.

Higurashi (fig. 21) is reported to be in the collection at the Arnold Arboretum and is established at the Plant Introduction Garden at Glenn Dale, Md., but otherwise it is not known outside Japan. It suggests Yedo-zakura but has larger sepals and larger and more double flowers. The flowers do not open very flat, and toward the end of the flowering period the petals in the center tend to become bunched, somewhat like those of Kurama-yama, to which this variety is closely related. Higurashi is free-blooming, but is not sufficiently distinct from 2 or 3 other varieties to warrant its inclusion in a small collection.

HOKUSAI (FAMOUS JAPANESE ARTIST)

Tree up to 22 feet high, wide-spreading in habit; branchlets grayish brown; young foliage brownish bronze; flowers semidouble, with about 20 petals, pale pink, up to nearly 2 inches across, in rather loose clusters with long pedicels.

These notes are furnished by Ingram (5, pt. 1) who has given this new varietal name to a cherry that he claims has been grown for years by English nurserymen under the indefinite name *Cerasus roseo-pleno*. There are a number of semidouble pink forms, very closely related to this variety, but none appear to be identical. The variety Udzu-zakura is very close and may perhaps be identical with Hokusai, but Miyoshi states that Udzu-zakura has flowers $1\frac{1}{4}$ inches across, with up to 30 petals.

The only plants of Hokusai yet established outside of England under this name are at the Plant Introduction Garden at Glenn Dale, Md.

HORINJI (ANCIENT TEMPLE IN KYOTO)

Tree ultimately about 12 feet high, with stout upright branches; bark dark brownish gray; young foliage greenish brown; flower buds globose-truncate, pink; calyx and sepals vinous brown; flowers semidouble to double, with 12 to 20 petals, up to $1\frac{3}{4}$ inches across, opening rather flat, almost white in center with deeper pink margins, in pendulous clusters of 2 to 6.



FIGURE 21.—Higurashi, *Prunus serrulata*.

This excellent variety is at present definitely established only in the Arnold Arboretum and at the Plant Introduction Garden, Chico, Calif. It is distinguished by the vinous-brown calyx and sepals, rather flat flowers with pinker margins, and the upright habit of the tree.

ICHIYO (ONE-LEAVED)

Tree up to 18 feet high, of wide-spreading habit with a rounded crown; bark dark gray; twigs light brown; young foliage yellowish green at first, soon becoming green; flower buds ovoid-truncate, pink; sepals with occasional serrations; flowers double, with about 29 petals, pale pink at first, soon becoming pure white except for pink tinges on the margins and on the undersides of the petals, up to $1\frac{1}{2}$ inches across, opening so as to expose 1, or sometimes 2 or more carpels which exceed the stamens, and 1 or more of which are sometimes leaflike in small pendulous clusters of 2 or 3, with long slender pedicels.

The Japanese name refers to the single carpel, either normal or leaflike, which often is conspicuous in the center of the flower. The clear-green foliage making a pleasing background for the delicate pure-white pendulous flowers, with occasional pink buds showing, are the outstanding features of Ichiyo (fig. 22). Resembling Shiro-fugen in general, it has whiter flowers without the smudgy brown which tinges the undersides of the flowers of that variety, and has yellowish green instead of brown young foliage.

Only two nurserymen in the United States offer Ichiyo at present. There are a few trees in Potomac Park, Washington, D.C., which are now 20 years old and about 18 feet high and in excellent condition. The late E. H. Wilson (18) apparently included this variety in his *Cherries of Japan* under the name *Hi-zakura*, a name which is used in England for *Kwanzan*, and Koehne (8) gives *Shiro-fugen* as a name for a paler pink strain. *Shiro-fugen* is a very distinct variety.

KURAMA-YAMA (A JAPANESE MOUNTAIN)

Tree up to 20 feet high, of upright habit; bark dark brown; young foliage pale brownish green; mature leaves often with tips rounded or even retuse instead of acuminate; flower buds ovoid-truncate, deep pink; sepals large, acuminate, often sharply serrate; flowers double, with about 35 petals, clear pink, slightly paler in center, usually with about 7 petals curled up in a rounded tuft in the center of the flower so as to conceal the stamens, up to 2 inches across, in pendulous clusters of 3 or 4.

This excellent variety is established in California at the Plant Introduction Garden at Chico, also at San Jose, and is represented in the collection at Glenn Dale, Md. It is distinguished from other double pink forms chiefly by the central rounded tuft of petals (fig. 23). Other forms occasionally show a tendency for the petals to become tufted in this manner, particularly just before the flowers commence to fall. Leaves with rounded tips also are seen at times on other varieties.

Kurama-yama is perhaps a little too large for planting on a small place—it is better suited for a large park. Furthermore, its general similarity to a number of other double pink forms might warrant excluding it from a collection in which these other forms were represented.

KWANZAN (NAMED FOR A JAPANESE MOUNTAIN)

(Also known as *Kanzan*, *Sekizan*, and *Seki-yama*)

Tree upright-spreading, with a rounded crown, up to 20 feet high; bark dark reddish brown, smooth when young; young foliage bright coppery pink; petioles of younger leaves dark red; mature leaves with serrations simple or nearly so;



FIGURE 22.—Ichiyo, *Prunus serrulata*.

FIGURE 23.—Kurama-yama, *Prunus serrulata*.

bud scales dull red, persisting for a few days; flower buds ovoid truncate, rose-red; calyx more or less brown, sepals broad, entire or somewhat serrate; flowers double, with about 30 petals, sometimes more, clear pink and fading but little, up to 2½ inches across, with many more or less petaloid stamens often partly concealing the two green leafy carpels which protrude from the center of the flower, in pendulous clusters of 3 to 5.

In the opinion of many horticulturists Kwanzan (figs. 24 and 25) is the finest of the double-pink cherries—certainly it is one of the most popular varieties—and it is relatively well known.

Probably the finest display of Kwanzan is to be seen in Potomac Park, Washington, D.C., where more than 200 trees are grouped around Hains Point. These trees, planted in 1912, are now about 18 feet high, and in excellent condition. The flowers open at about the same time as those of Fugenzo and Shiro-fugen and form a striking contrast to the rose-pink and whitish flowers of these sorts.

A number of nurseries in the eastern part of the United States and also on the Pacific coast list this variety in their catalogs. Under the names of Naden (properly applied to *Prunus sieboldii*) and Yae-kanzan (double Kanzan) a few California nurseries have carried an unusually double type of Kwanzan.

Under the name of Kirin, Miyoshi describes a variety differing from Kwanzan in the more spreading habit of the tree, shorter-stemmed flower clusters, and slightly earlier time of blooming. It probably should not be separated from Kwanzan.

Miyoshi (11) also describes a variety, Naden, which he claims is distinguished from Kirin by the smaller number of petals and browner young foliage. Probably this also should be regarded as an abnormal form of Kwanzan. He explains in a footnote that this is not the Naden described by Makino. (See note under *Prunus sieboldii*.) This same authority states that a very closely related variety with lighter pink flowers and a somewhat different habit of growth is grown in Japan under the name of Masu-yama.

In England the name Hi-zakura has been persistently but wrongly applied to this variety. Hi-zakura is actually a synonym for Ichiyō. Rubra nova, Horinji, and New Red are other names for Kwanzan which have been used by English nurserymen.

Kwanzan is as hardy as any of the double-flowered cherries and is a vigorous grower. Young trees often grow so rapidly that they develop long leaders, especially when growing conditions are very favorable. If in midsummer any young shoots that are overgrown are pinched back, a more compact tree will result, but it is best to allow the longer branches to remain, if the tree is to be a typical representative of the variety. On the other hand, the lower branches may be removed from time to time as the tree grows, since there are certain advantages in high heads for some of the flowering cherries. In those varieties, like Kwanzan, where the blossoms are in pendent clusters, these are viewed to best advantage when the garden path passes under the tree and the flowers can be seen from below. Or, if they are planted on a bank or knoll with the path beneath, a similar effect is achieved.

This variety is of particular value as a spring-flowering tree, since its deep-pink blossoms give more warmth to the chilly April landscape than do the other delicately pink-tinted forms.



FIGURE 24.—Kwanzan, *Prunus serrulata*.



FIGURE 25.—Kwanzan, *Prunus serrulata* (three fourths natural size).

OH-NANDEN (SNOWSLIDE OR AVALANCHE), ALSO NANDEN

Tree up to about 15 feet high, of spreading habit; bark very dark gray; young foliage green with slight brownish tinge; mature foliage light green, appearing with flowers; flower buds globose-truncate, red, with 1 or 2 leafy carpels protruding slightly; sepals entire, large, green or nearly so, with ends curling over end of youngest buds; flowers double, with about 47 petals, clear pink, marked at edges and below with deeper pink, nearly 2 inches across, in pendulous clusters of 2 to 4 on long pedicels.

Oh-nanden (fig. 26) is a superior variety, with flowers resembling those of Kwanzan in size and doubleness, but paler pink. The green or greenish young foliage and entire sepals also distinguish this from Kwanzan. In fact, perhaps the principal charm of Oh-nanden lies in the pleasing contrast of the apple-green foliage with the delicate shell pink of the flowers, reminding one of some of the flowering crabs. There is likewise some resemblance to Shogetsu, but the flowers of the latter are much paler, with serrate sepals.

This variety is established in the collection at Glenn Dale, Md., but is not yet in the trade.

SHIRO-FUGEN (WHITE GODDESS)

Tree up to 25 feet high, vigorous, of wide-spreading habit; bark dark brownish gray; young foliage dull mahogany brown; flower buds ovoid-truncate, deep rosy pink; sepals ovate-acuminate, sharply serrate; expanded bud scales slender, pinkish brown, trifid; flowers double, with about 30 petals, clear pink, rather soon fading to pure white in the center, with the outermost petals brown tinged beneath, up to 2½ inches across, opening flat and exposing the 2, or sometimes 3 to 5 green leafy carpels, in pendulous long-stalked clusters of 3 or 4; calyx dull brown, becoming greenish brown.

While Shiro-fugen (figs. 27 and 28) is not mentioned in Miyoshi's writings, it is probable that this variety is known in Japan under some other name. Trees of this variety growing near the Lincoln Memorial in Potomac Park, Washington, were identified as Fugenzo by a Japanese botanist several years ago. The true Fugenzo, however, is quite different, with double pink flowers which do not become white.

In the United States Shiro-fugen is rather well known on the Pacific coast under its proper name and also as Victory, and in the East it is beginning to appear in nursery lists. It has much to recommend it for parks or large estates, but should be given plenty of room because of its spreading habit. It is one of the latest of all the flowering cherries to bloom, sometimes even a day or so later than Kwanzan.

Plants imported from Japan in 1906 by David Fairchild under the name Ussusumi have proved to be Shiro-fugen.

Under the name Asahi a California nursery offered for a few years a variety which really appears to be a form of Shiro-fugen. It differs in having green young foliage instead of dull brown and was originally introduced from Japan as Fugenzo, a quite distinct variety.

SHOGETSU (MOON HANGING LOW BY A PINE TREE)

Tree up to 15 feet high, with a broad flat crown; bark gray; young foliage and expanded leaf scales a characteristic pale greenish yellow; flower buds deep rose-pink, ovoid truncate; sepals pale brown or green, coarsely serrate or partly entire; flowers double, with about 30 petals, very pale pink, sometimes white in the center, slightly deeper pink at the margins, up to 2 inches across, with 1 or 2 green leafy carpels protruding, in pendulous clusters of 3 to 6, with a rather short peduncle and longer pedicels.



FIGURE 26.—Oh-nai den, *Prunus serrulata*



FIGURE 27.—Shiro-fugen, *Prunus serrulata* (three fourths natural size).



FIGURE 28.—Shiro-fugen, *Prunus serrulata*.

Shogetsu (fig. 29) is listed by only 2 or 3 Pacific-coast nurseries and by about the same number in the East. It is one of the handsomest of the double-flowering cherries, and merits wide cultivation. The smaller flowers sometimes are very double and compact and when partly open suggest pink and white English daisies (*Bellis perennis*). Plants imported from a Japanese nursery as Oku-miyako have proved identical with Shogetsu, and from notes published in English horticultural journals it appears probable that the Oku-miyako now grown in England is actually Shogetsu as known in this country.

Miyoshi illustrates this variety twice. In 1916 (11) he shows a cherry with short stiff flower clusters, while in 1921 (13) the cherry illustrated has long-stalked flowers. The latter agrees very well with our plant. Furthermore, while Miyoshi shows no illustration of Oku-miyako, he states that in spite of long stalks the flower clusters of that variety are upright.

SHUJAKU (A SOUTHERN CONSTELLATION)

Tree about 12 feet high, upright spreading in habit; bark gray; young foliage yellowish brown; flower buds ovoid, pink; sepals entire; flowers semidouble, with about 12 petals, pale pink, about 1½ inches across, slightly campanulate, in lax clusters of 4 to 6.

Shujaku is similar in many ways to Gijo-zakura but has smaller flowers that are less campanulate, and longer peduncles and pedicels resulting in more pendulous clusters. This variety is growing on the grounds of E. A. Merritt, North Chevy Chase, Md., and is in the collection of Collingwood Ingram in England. It is not a form of outstanding horticultural merit, yet it is worth a place in any large collection.

TAIZAN-FUKUN (GOD OF TAIZAN MOUNTAIN, CHINA)

Tree up to 16 feet high, erect, with numerous very slender branches; bark dark brown, rough; young foliage yellowish brown; flower buds globose-truncate, deep pink; calyx greenish brown; sepals broadly triangular, slightly serrate; flowers double, with about 30 petals, nearly white in the center with deeper pink margins, about an inch across, much crinkled, in rather stiff clusters of 3 or 4; pedicels sparsely covered with fine hairs.

In its rather stiff upright habit of growth Taizan-fukun (fig. 30) is distinct among the double pink cherries; the flowers are smaller and more double than those of Amanogawa. Like Amanogawa it lends itself admirably to a formal type of landscaping, but makes a broader tree of greater height. The mature foliage is, like the pedicels, more or less hairy, and this feature induced the late E. H. Wilson to place this form under *Prunus yedoensis*. Except for this hairiness, however, Taizan-fukun plainly belongs under *P. serrulata*, and may well be considered an aberrant form of that species.

Two or three Pacific-coast nurseries list Taizan-fukun; also one or two in the East. A few trees are established at the Arnold Arboretum and near Washington, D.C. Trees imported from Japan under the name Hoki-zakura (broom cherry) appear identical with this variety.

TANKO-SHINJU (PINK PEARL)

Tree up to 25 feet high, upright-spreading and branching from near the base of the trunk; bark pale brownish gray, darkening with age; young foliage brownish; flower buds ovoid-truncate, deep rose; sepals broadly triangular, mostly green, and entire; flowers double, with about 17 petals, up to 2 inches across, very pale pink in the center, becoming deep pink at the margins, in rather stiff clusters of 2 to 6, the clusters tending to form globular masses toward the ends of the branches.



FIGURE 29.—Shogetsu, *Prunus serrulata*.

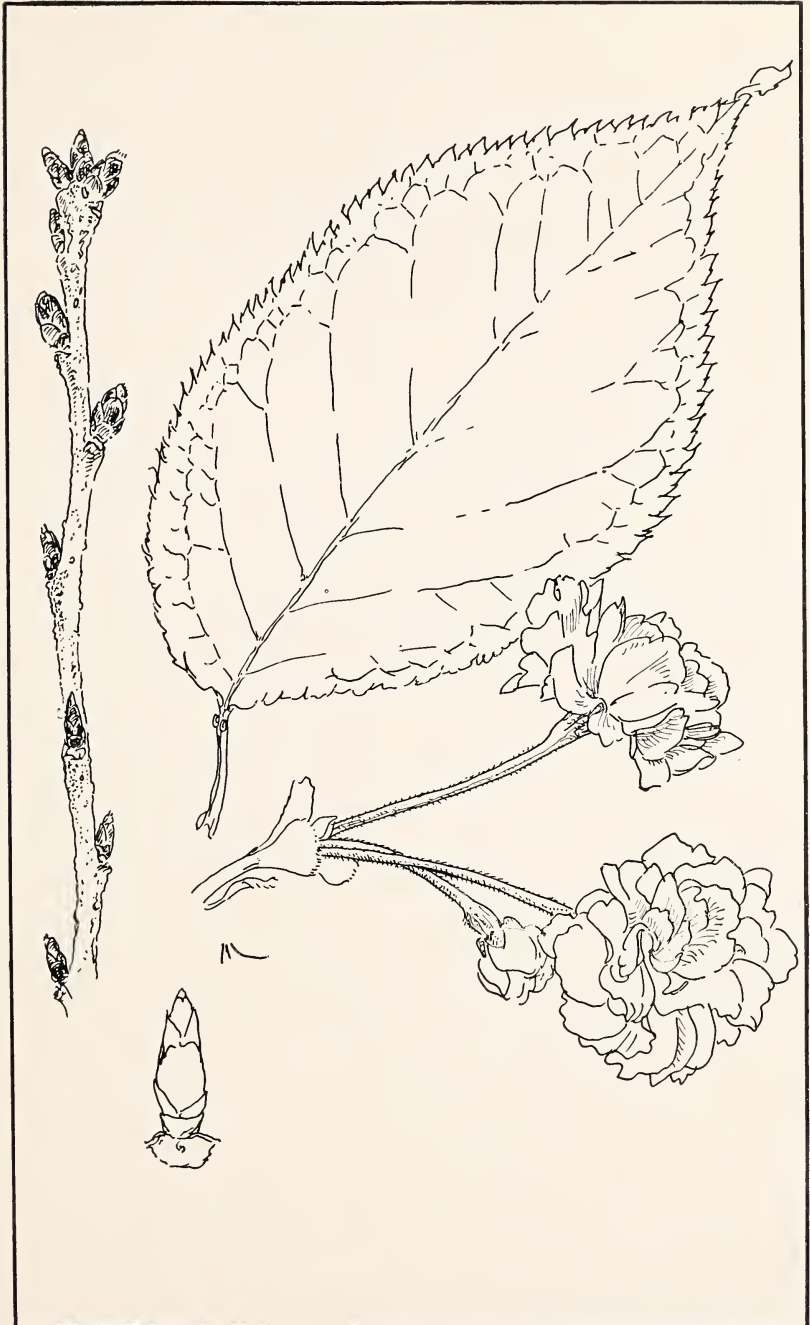


FIGURE 30.—Taizan-fukun, *Prunus serrulata*.

Tanko-shinju (fig. 31), an excellent variety, does not appear in any of the available works of Japanese horticulturists, but has been carried for several years by California nurserymen as Pink Pearl. Recently the Japanese equivalent of the English name has been applied to this variety by W. B. Clarke, of San Jose, Calif. An excellent specimen of Tanko-shinju nearly 25 feet high is growing next to the residence of George C. Roeding, at Niles, Calif.

In the Potomac Park collection at Washington there are a few trees received from Japan under the name of Fuku-rokuju (genius of fortune and wealth) (fig. 32). This variety resembles Tanko-shinju very closely but appears to differ in a few minor characters such as smaller bracteoles and narrower sepals and in having flowers of a slightly paler pink. Both Fuku-rokuju and Tanko-shinju are very free-blooming, develop into well-shaped trees, and are certainly among the finest of the double pale-pink forms.

TEMARI (BALL)

Tree of medium size, said to grow rapidly when young; young foliage brownish yellow, appearing when the flowers have passed their prime; flowers uniformly rosy pink, nearly 2 inches across, with about 20 roundish petals, suggesting apple blossoms, in short-stemmed clusters of 3 or 4, the clusters crowded in ball-like masses at the ends of the branches in the older trees.

The young trees often bear numbers of single flowers along with the double ones, and the globular massing of the flower clusters, the principal distinguishing character of this form, is much more evident in the older trees. Yedo-zakura sometimes exhibits this tendency toward globular massing of the flowers, as does also Tanko-shinju, but both of these have flowers that are much more double.

There are young trees of this form at the Plant Introduction Garden at Glenn Dale, Md., recently imported from Japan; these have not yet flowered. In Volunteer Park, Seattle, Wash., there are two trees labeled no. 13 which appear to answer to the published descriptions of Temari. At the Royal Botanic Gardens, Kew, England, an excellent floriferous Japanese cherry was identified a few years ago as Temari by the late E. H. Wilson, and Collingwood Ingram has trees propagated from the Kew specimen.

YAE-MURASAKI (DOUBLE PURPLE)

Tree up to about 15 feet high, with a wide-spreading crown; bark dark grayish brown; young foliage dull reddish brown; flower buds ellipsoidal, deep pink; calyx dull reddish green, sepals slightly serrate, narrowly triangular; flowers semidouble, with 8 to 13 petals, purplish pink, up to 1¼ inches across, in stiff, short-pediceled clusters of 2 or 3.

Miyoshi (11) describes the single form of this as Murasaki, mentioning the semidouble form in a footnote. Ingram (5, *pt. 2*) considers Benden, or Bendon (Imperial rest chamber) as it is sometimes written, as merely a paler pink form of Choshuhi-zakura (red cherry of Choshu) which, in turn, is probably identical with Murasaki. Miyoshi (11), however, describes Choshuhi-zakura as having slightly larger, semidouble flowers, which makes it appear very close to Yae-murasaki.

The subject of this note is not known in the trade but is represented in the United States by a few trees in the collection at Glenn Dale, Md., and also in the collection of E. A. Merritt at North Chevy Chase, Md. Ingram (5, *pt. 1*) also has it in his collection in England.

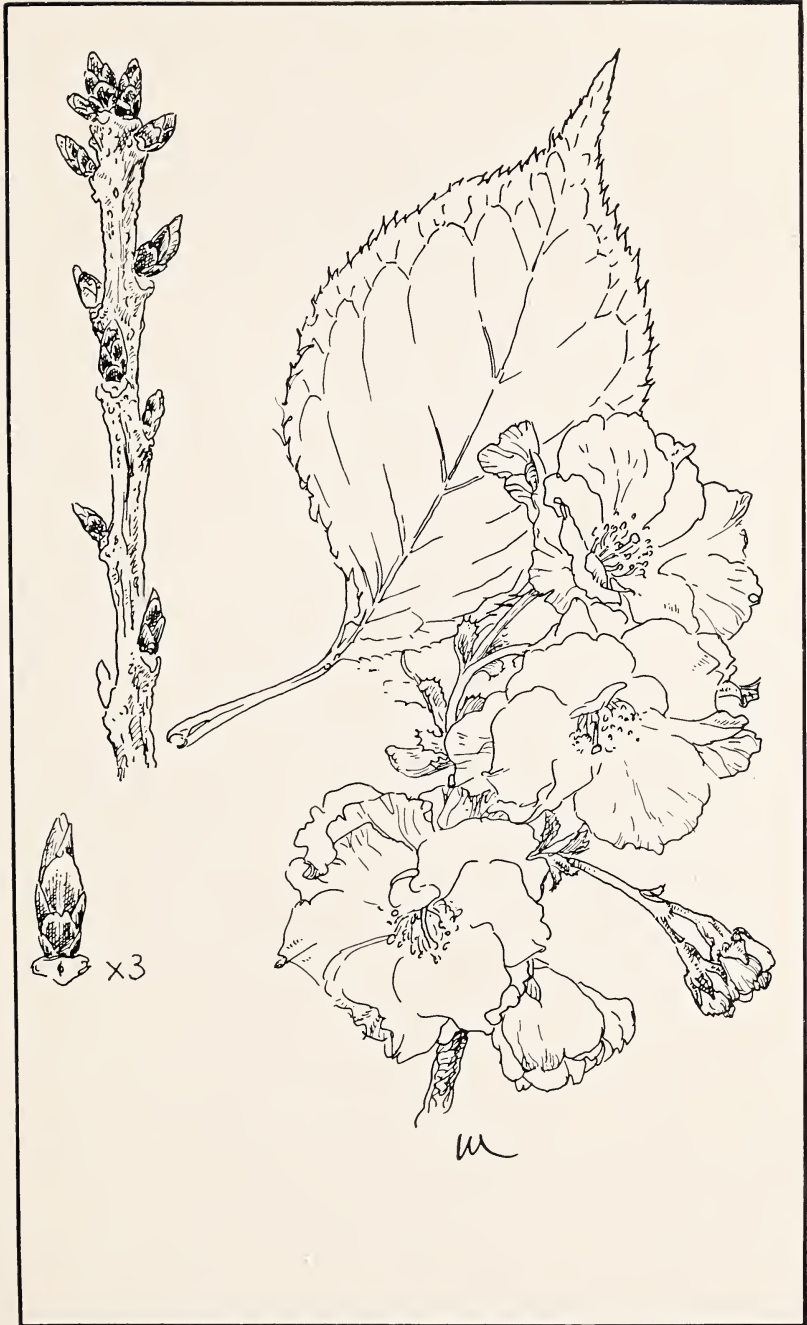


FIGURE 31.—Tanko-shinju, *Prunus serrulata*.



FIGURE 32.—Fuku-rokuju, *Prunus serrulata*.

It suggests Kwanzan in general aspect, though its less double flowers are characteristically more deeply purplish red. Semidouble and single flowers sometimes appear on the same tree, a condition that may be observed, but less commonly, in many of the semidouble cherries.

YEDO-ZAKURA (YEDO CHERRY)

Tree up to 18 feet high, of spreading habit; bark grayish brown; young foliage brownish green; flower buds ovoid-truncate, deep pink; calyx green or pinkish brown; sepals small, three sixteenths of an inch long, more or less serrate; flowers double, with about 26 petals, about $1\frac{1}{4}$ inches across, pale pink in the center, somewhat deeper pink at the margins, with the petals ruffled, nearly hiding the stamens and carpel, the latter sometimes leaflike; flowers in stiff clusters of 3 to 5, with short peduncle and pedicels, tending to form globular masses at the ends of the branches.

There are a few trees of this variety growing at the Plant Introduction Garden, Chico, Calif., and also at Glenn Dale, Md. With the exception of one California nursery, Yedo-zakura does not appear to be in the trade in this country. It is an excellent double pink form, somewhat resembling Kwanzan, but the flowers are lighter pink and the young foliage less coppery. Yedo-zakura as described by Miyoshi and Collingwood Ingram is less double, having only about 15 petals.

Miyoshi (*12, pt. 1*) describes Akebono (dawn) as very close to Yedo-zakura, differing only in having smaller flowers of paler pink.

Ingram (*5, pt. 2*) considers Beni-torano-o (pink tiger-tail) to be only "doubtfully distinct" from Yedo-zakura, the former having usually less than 10 petals.

The names in the following list are of pink semidouble or double forms, that have appeared in horticultural works, papers, and nursery lists, mostly Japanese, during the last 15 years. It is probable that several are synonymous with, or at least scarcely distinguishable from other well-known varieties. At any rate, these names represent varieties concerning which it is not yet possible to report definitely:

Akabana-ma-zakura	Ito-kubiri	Nadeshiko-zakura	Rosea-Hollandi
Asahi-botan	Ito-kukuri	Najima-zakura	Ruiran
Beni-gamo	Itsuka-yama	Nara-no-yae-zakura	Ruth Wohler
Beni-hiyo	Jeanne Wohler	Nara-zakura	Saihai-zakura
Beni-nanden	Judzukake-zakura	Nido-zakura	Sa-kon
Daizen-zakura	Kabuto-zakura	Ochiehima	Shinonome-nioi
Fugen-shidare	Kaido	Ogon	Shiogama
Fuku-zakura	Kariyado-zakura	Okiku-zakura	Shojo
Geba-zakura	Kenrokuen-kiku-zakura	Oku-miyako	Shumei-zakura
Hiyodori-zakura	Kiku-zakura	O-Naden	Udzu-zakura
Horaisan	Kogiku-zakura	Oshibayama	Wase-miyako
Hosokawa-beni	Kokonoye	Oshokun	Yachiyo-zakura
Isami-zakura	Konnosakura	Paul Wohler	Yae-akebono
Ise-zakura	Miyako	Rosea	Yoritomo-geba-zakura

The following names were attached to flowering cherries brought in from Japan by the United States Department of Agriculture during the last 20 years. The plants did not survive, and it has not been possible to learn the nature of the varieties that these names represent, nor have any of the names appeared in Japanese catalogs. Some are probably misspelled:

Kirinji, Kumagai-zakura, Nikoromoki, Ogasa-yama, Oyama-fugin, Ruirashi, Shitoyefugen, Tama-mari, Totanki-zakura, and To-yama-zakura.

In addition to the foregoing species and varieties, there are two other native Japanese cherries which deserve consideration as orna-

mentals, although neither is yet in general cultivation in the United States.

FUJI OR MAME CHERRY, *PRUNUS INCISA*

Prunus incisa Thunberg, Flora Japonica, p. 202. 1784 (17).

A shrub or at times a tree up to 30 feet high, of compact habit; bark gray; leaves ovate to obovate, 1 to 2 inches, purplish when unfolding, pubescent above and below on the veins, characteristically doubly or even triply incisely serrate; flowers single, up to three fourths of an inch across, white or pale pink, solitary or in twos or threes, petals fugacious; pedicels relatively short; calyx vinous red, persistent a week or more after the petals fall; fruits ovoid, black, one third of an inch long.

The Fuji cherry, so named because of its abundance on the slopes of Fuji yama, Japan, is ornamental in bloom, chiefly because of the persistent deep-red calyces. It would probably thrive over large areas in the central and northern United States, although its climatic limitations have not yet been worked out definitely. At the Arnold Arboretum, Jamaica Plain, Mass., the Fuji cherry has proved entirely hardy for several years and is now one of the most popular spring-flowering shrubs at that place. It is said to be a favorite with Japanese gardeners for dwarfing, flowering freely in small pots. Propagation by budding or grafting on its own seedlings is safer than relying on growing from seeds, since the seedlings are very variable and not always satisfactory. Another Japanese name, Marne cherry, has reference to its dwarf habit. Thunberg (17) uses the Japanese name Fingan-zakura for this cherry. This may be a corruption of Higan-zakura, in which case the name refers not to *Prunus incisa*, but to *P. subhirtella*.

TAKANE OR MINE CHERRY, *PRUNUS NIPPONICA*

Prunus nipponica Matsumura, Tokyo Bot. Mag. 15:99. 1901.

A bushy tree up to 12 feet high; bark chestnut brown; leaves ovate, 1 to 3 inches long, doubly or at times triply incised serrate, long acuminate, pubescent when young, chiefly on veins, finally glabrous; flowers single, white, or pale pink, solitary or in twos or threes, up to an inch across; calyx tube campanulate or funnelform; fruits globose, about one third of an inch in diameter, black.

This is the alpine cherry of central and northern Japan, and it is in many ways similar to the Fuji cherry (*Prunus incisa*). It is distinguished from this and other incised-leaved cherries chiefly by its bark, which becomes shiny chestnut brown by the second or third year. The young foliage is inclined to be bronzy green, and in the autumn the leaves turn to brilliant yellow, orange, or red. The flowers are inclined to be a little larger than those of the Mame cherry.

A form of this, the Chisima cherry, with pubescent petioles and somewhat larger flowers, has been described as var. *kurilensis* Wilson. Both the type and this variety are free-flowering hardy trees and are desirable ornamentals which should be tested even farther north than the Arnold Arboretum, where they have proved satisfactory. Like the preceding species, *P. nipponica* comes more or less true from seed but should be budded or grafted on its own seedlings if superior forms are desired.

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