Cotoneasters. The Cotoneasters with deciduous leaves discovered by Wilson in western China now form one of the interesting groups in the Arboretum, and among them are some of the handsomest shrubs of recent introduction, suitable for the decoration of northern gardens. Several of them are plants of exceptionally good habit with gracefully arching branches; the leaves on the different species vary in size, color, and texture, and on several of the species assume brilliant autumn colors; the flowers are small in small clusters, but are produced in the greatest profusion; and in autumn the branches are covered with red or with black fruits. The flowering time of these plants extends through several weeks; and Cotoneaster-fruits enliven the collection from September to December.

For the information of persons who may want to make a selection of these Cotoneasters for their gardens they may be grouped as follows:

1. Prostrate or semiprostrate shrubs with wide-spreading branches, small red flowers and fruit, and small, thick, dark green leaves persistent in this climate until the beginning of winter and further south until early spring. The best known plant of this group, *Cotoneaster horizontalis*, was sent by a French missionary to France many years ago from western China. It sometimes grows from two to three feet high and possibly ten feet in diameter, and is well suited for covering banks; it is sometimes used in rock gardens and as a cover for low walls. Two varieties of this plant, var. *Wilsonii* and var. *perpusilla*, discovered by Wilson are handsome plants; the former is inclined to grow taller than the type, but the var. *perpusilla* is a much dwarfer
and more compact plant. *C. adpressa* of this group is one of the handsomest of the Cotoneasters for the rock garden or for the edges of beds of taller shrubs.

2. Large shrubs with white flowers and red or orange-red fruits. In this group are *Cotoneaster multiflora calocarpa*, *C. racemiflora* and its variety *soongorica*, *C. gracilis* and *C. hupehensis*. These are perhaps the handsomest Cotoneasters which can be grown in this climate. The first is the earliest of the Cotoneasters to bloom, and its flowers in compact clusters have covered for more than two weeks now its gracefully arching branches on which the blue-green leaves are fast expanding. The orange-red fruit arranged in compact clusters ripens in September. Of the two forms of *C. racemiflora* the var. *soongorica* is the handsomer and perhaps the handsomest of the Arboretum Cotoneasters, and one of the handsomest shrubs of recent introduction. In habit and in the color of the leaves it resembles *C. multiflora calocarpa*, but the flowers are larger and the fruit is more brilliantly colored. *C. hupehensis* is a tall, broad, fast-growing shrub with dark green leaves, with larger flowers than those of the other species arranged in many-flowered compact clusters which cover the branches. The fruit is scarlet and lustrous, but in the Arboretum is only sparingly produced and is covered by the leaves. Seen from a distance when in flower this Cotoneaster looks like a large well-flowered Spiraea.

3. In this group may be placed the species with red flowers and red fruit, *C. bullata*, *C. bullata* var. *macrophyllo* and var. *floribunda*, *C. Dielsiana* and its variety *elegans*, *C. Zabelii* and its variety *munata*, *C. Franchetti* and *C. obscura*. *C. divaricata* and *C. Dielsiana* are perhaps the best garden plants in this group. They are large shrubs with wide-spreading, slightly drooping branches, small dark green lustrous leaves, and small inconspicuous flowers and fruit. *C. Franchetti* has not proved perfectly hardy in the Arboretum.

4. In this group are placed the species with red flowers and fruits such as *C. nitens*, *C. acutifolia* and its variety *villosula*, *C. ambigua*, *C. foveolata* and *C. moupinensis*. *C. nitens*, though its flowers and fruits are small, is perhaps the handsomest of the group for none of the Chinese Cotoneasters have more gracefully spreading branches and more lustrous leaves. By some persons it is considered one of four or five of the handsomest of the Chinese Cotoneasters which can be successfully grown in this climate. *C. moupinensis* and *C. foveolata* are the tallest of the Chinese Cotoneasters with larger leaves than the others. They are coarse and not very attractive shrubs, but the brilliant colors of the leaves of *C. foveolata* in autumn make it worth growing in large shrubberies.

Several species of Cotoneaster which do not come from China are established in the Arboretum. The best of these for this climate are perhaps the red-fruited European *C. tomentosa*, *C. integerrima*, a black-fruited Siberian shrub and one of the handsomest species, and the Himalayan red-fruited *C. macrophylla* with stems only a few inches high and gray-green leaves. The last and the Chinese *adpressa* are the best of the hardy species for the rock garden for which they are well suited.
**Viburnum prunifolium**, which is known popularly as the Black Haw, is a common shrub in the middle Atlantic states where in early spring, on rocky hillsides and along roadsides and the borders of woods, it rivals in the beauty of its flowers the Flowering Dogwood (*Cornus florida*) which naturally grows in open woods and not in such exposed situations as the Black Haw. *Viburnum nudiflorum* is a large arborescent shrub or a small tree rarely thirty feet high, with a short trunk usually less than a foot in diameter, rigid spreading branches beset with slender spine-like branchlets, ovate to suborbicular, thick, dark green and lustrous leaves which, handsome through the summer, are splendid in the autumn with their dark vinous red or scarlet colors. The white flowers in slightly convex clusters have been produced here this spring in the greatest profusion; in the autumn they will be followed by red-stemmed drooping clusters of dark blue fruits covered with a glaucous bloom, and from half an inch to three-quarters of an inch long. The Black Haw, which is one of the handsomest of the small trees of the eastern United States, takes kindly to cultivation and is quite hardy north of the region of its natural distribution which is in southern Connecticut. It has generally escaped the attention of American nurserymen who in recent years have made better known our northern arborescent *Viburnum Lentago*, the Sheepberry or Nannyberry, a usually larger and for some persons a handsomer plant. The flowers, which are arranged in larger and rather flatter clusters, are pale cream color and not white, but the fruit is as handsome as that of the Black Haw and rather larger. The leaves, too, are large, equally lustrous, and also assume brilliant autumn colors. This *Viburnum* can grow in the shade of larger trees or in open situations which it prefers, and has proved to be one of the handsomest and most useful of the plants which have been largely used in the Arboretum in border and other mixed plantations. The plants here are now covered with flower-buds which will open in a few days. More beautiful than the Black Haw or the Nannyberry, the common tree *Viburnum* of the southern states, *V. rufidulum* is perhaps the handsomest of all the *Viburnums* with deciduous leaves. When it has grown under the most favorable conditions this *Viburnum* is a tree often forty feet high, with a tall stout trunk and branches which spread nearly at right angles from it; the leaves are thick, dark green and lustrous on the upper surface, with winged stalks covered, as are the winter-buds, with a thick felt of rusty brown hair; the flowers are creamy white and the fruit is dark blue covered with a glaucous bloom. This *Viburnum* has been growing in sheltered positions in the Arboretum for many years, but it is only a shrub and does not flower here every year. The plants on Hickory Path near Centre Street are now well covered with flower-buds.

**Viburnum rhytidophyllum.** This evergreen species discovered by Wilson in western China has attracted a great deal of attention in Europe; there are fine specimens of it in Raleigh, North Carolina, and it flourishes in the neighborhood of Philadelphia. It has lived for several years in the Arboretum, but the cold of ordinary winters destroys most of the leaves and kills the flower-buds. Favored by an exceptionally mild winter, the plants on the upper side of Azalea Path are now
covered with the uninjured leaves of last year and flat clusters of white flowers. These are less interesting than the leaves which are six or seven inches long, pointed, dark green, deeply wrinkled above and covered below with a thick coat of pale brown or nearly white felt. The fruit, which is red, has not yet been produced in the Arboretum.

**Viburnum ichangense**, which first flowered in the Arboretum in 1916, has not before been as full of flowers as it is this spring. It is a native of central China where it is a shrub sometimes ten feet high with small, narrow, pointed leaves and small clusters of slightly fragrant flowers followed by black fruits. As it grows in the collection of Chinese plants on Bussey Hill it is a narrow, almost pyramidal shrub six feet tall, with slender, erect stems, clothed to the ground with lateral branchlets which are covered with leaves and flower-clusters. In habit unlike other Viburnums in the collection, the Ichang species is an attractive plant which promises to be useful for northern gardens.

The last of the Asiatic Crabapples are two still little known and related species from western China, *Malus to7ingoides* and *Malus transitoria*, which are now in flower on the southern slope of Bussey Hill, the latter for the first time in the Arboretum. *Malus to7ingoides* is a small tree with gracefully drooping branches which form a broad head, deeply lobed, pointed, dark green leaves, white flowers and small, pear-shaped, red fruits. It was discovered by Wilson in western Szechuen near the Thibetan border, and is a perfectly hardy, handsome tree which in its native country sometimes attains the height of thirty feet. *Malus transitoria*, found by Purdom in Shensi, is, as it has grown in the Arboretum, a densely branched shrub rather than a tree, with smaller leaves and flowers than those of *M. to7ingoides*.

**A few American Crabapples.** All the species of eastern North America have large pale pink or rose-colored, fragrant flowers which do not open until the leaves are partly grown, and green, fragrant fruits covered with a waxy exudation peculiar to them. Several species have been distinguished in recent years; they are all now in the collection but several of them are still too small to flower. *Malus glaucescens*, noticed first in the vicinity of Rochester, New York, best distinguished by the pale under surface of the leaves is the first of these trees to flower. *Malus platycarpa* from the southern Appalachian Mountains, with larger fruit than that of the other species, is in bloom opposite the upper end of the Meadow Road, in the old Crabapple Collection, and near it are large specimens of *Malus ioensia*, the common Crabapple of the middle west. With it is growing the Bechtel Crab, (var. *plena*), its variety with double rose-colored flowers which look like small Roses. There are large plants of the Bechtel Crab also in the Peter’s Hill Group. The trees are now in bloom, and, judging by the number of persons who stop to examine and admire them, they are the most popular plants in the Arboretum. The Bechtel Crab is now found in many American nurseries.