Effects of the Severe Winter. The condition of the new Chinese Roses in the Shrub Collection is not as bad as might have been expected and will perhaps interest persons who are beginning to cultivate these plants. The yellow-flowered species, *Rosa Hugonis*, the single and double-flowered forms of *R. xanthina* and *R. Ecae* from Chinese Turkestan are uninjured. The last has been considered rather a tender plant here. The least beautiful, perhaps, of yellow-flowered Roses it has considerable geographical interest. The following are also uninjured: *R. davurica*, *R. sertata*, *R. Helenae*, *R. Sweinginzowii*, *R. banksiopsis*, *R. saturata*, *R. setypoda*, *R. bella*, *R. omeiensis*, and *R. multiflora cathayensis*. The stems of the following have been killed to the ground or nearly to the ground, but the roots are probably alive: *R. corymbulosa*, *R. Davidii*, *R. Pratii*, *R. filipes*, *R. Moyesii*, *R. Moyesii rosea*, *R. Gentiliana*, and *R. multibracteata*. *R. Willmottae*, which grows well at Rochester, N. Y., but has always been tender in the Arboretum, appears to be dead. Additions to the number of Chinese Maples mentioned in the last Bulletin which have been killed are *Acer sinense* and *A. tetramerum*. The latter flowered in the Arboretum a year ago. Other Chinese plants which have been killed are *Stackhurus chinensis*, *Sophora vicifolia*, *Viburnum ovatifolium*, *Staphylea holocarpa*, *Sorbus pallescens*, *Poliothyris sinensis*, *Fortunearia sinensis*, *Sycopsis sinensis*, *Luidambar formosana monticola*, and the Chinese form of *Symlocos paniculata*. The Sophora has been growing in the Arboretum since 1908, and as it has for several years flowered and produced great crops of seeds here it was believed to be one of the hardiest as it is one of the most beautiful shrubs of recent
introduction. All the plants of *Viburnum ovatifolium* are killed, but plants of the other Chinese Viburnums with deciduous leaves are alive and in good condition. *Staphylea holocarpa*, which when in flower Wilson considered one of the most beautiful of the Chinese trees, has always been tender in the Arboretum and it is not probable that it will ever flourish here.

Some interesting shrubs have been killed to the ground but will probably recover; among them are the two Chinese Dipeltas, the Chinese *Rhus Potaninii*, the Chinese *Cornus paucinervis*, and the Chinese *Salix Bockii*. *Osmaronia* or *Nutallia cerasiformis* from the Pacific coast, the Rocky Mountain *Ceanothus Wrightii*, all the Bladder Sennas (*Colutea*), and the Japanese *Benzoin ericium* and *B. obtusilobum*; the last, which for twenty-five years has been one of the rare and interesting plants in the Arboretum, will probably not recover. The familiar *Exochorda racemosa* or *grandiflora* has suffered badly, but the less known and handsomer species from western China, *E. Giralddii* and *E. Giralddii Watsonii* are uninjured and are now in flower. *E. macrantha*, a hybrid between *E. racemosa* and *E. Korolkowii* is uninjured and is also in bloom. Many of the forms of the Japanese *Prunus Lannesiana* have suffered badly and several are dead. Among these are some of the double-flowered Chérries which are generally cultivated in Japan.

There are some serious losses among the Oaks. All the trees of the Willow Oak (*Q. Phellos*) of the south are dead. The largest of them here had been growing in the Arboretum since 1877 and had not been injured before. The largest plant of *Quercus georgiana* is dead. This is a rare tree from the Stone Mountain region of central Georgia, and the plant that has now been killed had been uninjured in the Arboretum for twenty-one years. Many large trees of the Shingle Oak (*Quercus imbricaria*) are seriously injured, and plants of the southern Red Oak (*Quercus rubra* or *falcata*) which have been growing here since 1889 are killed. *Quercus heterophylla*, which has been growing uninjured in the Arboretum since 1879, is also killed. This handsome and interesting tree is the first hybrid Oak noticed in America and has given rise to many discussions among dendrologists. All the plants of the Turkey Oak (*Quercus Cerris*) are killed, and all the upper branches of a large specimen of the form of the common English Oak with pendulous branches (*Q. Robur pendula*) planted in 1899 are dead. Two southern Nettle-trees, *Celtis mississippiensis* and *C. georgiana*, have also been killed.

**Early-flowering Lilacs.** The earliest flowering Lilac here in other years, *Syringa affinis*, is not blooming this year and there are not many flowers on its variety *Giralddii* with pale rose-colored flowers. The flower-buds of these Lilacs are perfectly hardy and the cold winter cannot be charged with the absence of flowers on these north China plants. They are tall shrubs of loose and rather ungainly habit, but the foliage is good and the flowers are extremely fragrant. Another north China Lilac, *S. oblata*, is blooming well this year although the flower-buds are often injured by the cold of less severe winters. If this Lilac
always flowered as well as it has this spring it would be one of the most valuable of the whole group for it blooms early, and the pale lilac-colored flowers in short compact clusters are very fragrant. The large broad leaves which are thick and leathery and are not disfigured by mildew turn in the autumn to handsome shades of orange and red. One of the first hybrid Lilacs was obtained by crossing this Chinese species with the common Lilac (S. vulgaris). The plant obtained by this cross is called S. hyacinthiflora. It is a large, compact, round-topped shrub with leaves resembling in shape those of its Chinese parent and with small clusters of extremely fragrant, pale lilac-colored double flowers. As a garden plant this Lilac is more interesting than beautiful. Syringa pubescens is covered with clusters of opening flower-buds. Attention cannot be too often called to this native of northern China. It is a tall shrub with erect stems, small leaves and short broad clusters of pale lilac-colored flowers remarkable for the long tube of the corolla and for their pungent and delightful fragrance. For this fragrance, if for no other reason, this Lilac should be found in every northern garden; indeed some persons consider it the most valuable of all Lilacs. Although S. pubescens was first raised at the Arboretum thirty-six years ago, it is still rare in this country, for it never produces seeds here and is not as easily propagated by cuttings as other Lilacs. It is in bloom nearly four weeks earlier than it was last year. Indeed all the Lilacs are early this year, and by the time this Bulletin reaches its Boston readers many of the varieties of the common Lilac will be in full bloom.

Early-flowering Hawthorns. The earliest Hawthorn this year to bloom was Crataegus nigra from western Europe. This is a handsome tree with pale bark and deeply lobed leaves. The flowers have twenty stamens with anthers faintly tinged with pink and are arranged in compact clusters; they are followed by handsome black shining fruits which give greater value to this tree than the flowers which are less beautiful than those of many American Hawthorns. There is a large plant of Crataegus nigra in the old Hawthorn Collection at the end of the Willow Collection. Several American Hawthorns of the Mollis Group, distinguished by their large flowers, large leaves and large scarlet fruit, have been in bloom during the past week. The most conspicuous have been C. Arnoldiana, C. mollis, C. arkansana and C. submollis. These trees have never flowered more profusely. C. Arnoldiana, which was first found growing wild in the Arboretum, has been especially handsome. The fruit of this tree begins to ripen late in August or early in September and this makes C. Arnoldiana valuable also for the decoration of the summer garden. The largest plants of this tree in the Arboretum are on the left-hand side of the road near the Centre Street entrance. There are a number of good trees in the old Crataegus Collection and on the Valley Road in front of the White Oaks. Large plants of the other early-flowering Mollis species can be seen at the South Street entrance. In the Crataegus Collection on the eastern slope of Peter's Hill many plants are already in bloom and for the next six weeks it will be possible to see in the Arboretum Hawthorn flowers of many native and foreign species.
Early-flowering Cotoneasters. Two of the handsomest Cotoneasters, *C. multiflora calocarpa* and *C. racemiflora soongorica*, are in bloom on the southern slope of Bussey Hill. They are tall broad shrubs with white flowers in compact clusters standing up along the whole length of the long, slender, graceful, arching branches. Handsome as these plants are in May they are even handsomer in the autumn when their large and abundant red fruits are ripe. These two shrubs, which have now been well tested in the Arboretum, give every promise of becoming important garden plants in the northern states.

Late-flowering Amelanchiers. The arborescent Shad Bushes, *Amelanchier canadensis*, *A. laevis* and *A. oblongifolia*, dropped their petals nearly two weeks ago, but the flowers of some of the shrubby species are still in good condition and attractive subjects for the spring garden. Among the last of these to flower are the two Old World species, *A. vulgaris* of Europe and *A. asiatica* of eastern Asia. Some of the handsomest of the late-flowering American species are *A. sanguinea*, *A. stolonifera*, *A. florinda* and *A. pumila*. The Amelanchier Collection is on the grass path on the left of the Meadow Road not far beyond the Administration Building.

Malus Arnoldiana. In the last Bulletin attention was called to the hybrid Crabapple, *Malus cerifera*. This plant is probably one of the parents of another hybrid which sprang up spontaneously in the Arboretum many years ago and has been called *M. Arnoldiana*. The other parent is probably *M. floribunda*, itself believed to be a hybrid which originated in China. If this view of the origin of *M. Arnoldiana* is correct, it is the offspring of two hybrids of different parentage and a good illustration of what can be obtained by crossing and recrossing the Crabapples. It is a low, broad, bushy tree with long arching upper branches which are raised well above the general head of the plant and are wonderful objects when clothed from end to end with flowers and the blue sky is seen between them. The flower-buds, like those of *M. floribunda* are deep rose color and the petals after the flowers open gradually turn from rose color to white. The flowers, however, are as large as those of *M. cerifera*, or nearly twice as large as those of *M. floribunda*, and the fruit which is red is intermediate in size between those of the parents. The plant of the Arnold Crab in the Forest Hills Road Group and several plants in the Peter’s Hill Group have not before been more full of flowers or more beautiful.

Early-flowering Buckeyes. The first of these plants to flower this year is the form of the Ohio Buckeye from northern Missouri with leaves of seven instead of five leaflets (*Aesculus glabra Buckleyi*). The flowers of this variety are brighter yellow and handsomer than those of the common form of this tree, and the plants in the Arboretum collection which are now covered with flowers are more beautiful than ever before. The flowers of the typical form with leaves of five leaflets open only a few days later than those of this north Missouri tree. The largest specimen of the Ohio Buckeye in the Arboretum is on the left-hand side of the South Street entrance. Another form of this tree, var. *leucodermis*, from southern Missouri and northern Arkansas has smoother bark and blooms later. In the Arboretum collection the flower-buds are not more than half grown.