Effects of the severe winter. Injuries to plants with deciduous leaves have fortunately been less serious than to broad-leaved Evergreens. All Azaleas are unhurt in branch and bud, with the exception of some of the flower-buds of *Rhododendron (Azalea) Kaempheri*, and promise to bloom exceptionally well. The ability of some of the handsomest of the eastern North America and the eastern Asiatic Azaleas to bear uninjured the cold of a winter like the last teaches an important lesson; and it is well to repeat what has been so often said in these Bulletins, that in these Azalea species, but not in their hybrids which are usually short-lived and not always hardy, are found some of the most beautiful of the shrubs which can be grown in this part of the country, and that for the eastern United States they are more satisfactory than any evergreen Rhododendrons. All the new Chinese Cotoneasters have come through the winter without injury with the exception of the variety *elegans* of *C. Dielsiana*, the varieties *rugosa* and *flaccosa* of *C. salicifolia* some plants of *C. horizontalis* and its variety *perpusilla* which have lost the ends of the branches. The fact that most of these Cotoneasters have been able to support without injury the cold of last winter is important, for among them are some of the most beautiful of the Chinese shrubs of recent introduction. The Chinese Poplars are uninjured with the exception of *P. lasiocarpa*, which has never done well in the Arboretum, and *P. yunnanensis*, which has lost a good many branches. This tree has suffered here before and will probably not live long in eastern Massachusetts, although it has grown well in the neighborhood of New York. The Chinese Butternut
(Juglans cathayensis) is uninjured but some plants of J. regia raised here from nuts gathered by Wilson in western China have lost their buds, while others appear to be uninjured. Maples from western China, on the whole, are not promising. Acer griseum, A. fulvescens and A. pictum parviflorum are still in good condition, but A. longifolia and A. Henryi, which have suffered before, are now killed; and A. Davidii, which once flourished in the Arboretum for several years, is again badly injured. The new Cherry-trees from western China are all in good condition with the exception of Prunus Conradinae. This tree has always been delicate in the Cherry Collection, and the large plants on Peter's Hill have now all been killed. This handsome tree flowered two years ago on the grounds of the United States Agricultural Station at Chico, California. Neillia sinensis is uninjured and there appears no reason why this beautiful shrub should not become a popular ornament in northern gardens. The other Chinese species in the Arboretum, N. longigracemosa and N. affinis, have been killed to the ground but the roots are alive. The Chinese Spiraeas and Hydrangeas are uninjured, but some of the Deutzias like D. longifolia and the varieties of D. discolor have suffered as usual. Plants of all the Chinese Ash-trees are alive, although the winter has been too severe for a plant each of Fraxinus retusa var. Henryi and F. platypoda. Ligustrum Delavayanum has been killed to the ground, as has Daphne genkwa. The injury to this plant has been one of the serious results of the winter. The Chinese Buddleias are usually killed to the ground here; as they flower on the new shoots this is a matter of little importance, but the roots have now been killed. Styrax americana of the southern states has been killed and the Chinese S. dasyantha is so badly injured that it will not recover. Unfortunately the only species probably of this beautiful genus which can be successfully grown here are the Japanese S. japonica and S. obassia, and in this region these do not always grow as well as they have in selected positions in the Arboretum.

Forsythias. For the second time in three years many flower-buds have been killed on all the species and hybrids of this genus. On some plants, especially those in low positions, all the buds were injured but on high ground probably at least half the buds have opened. The hybrid F. intermedia and its varieties have suffered the most, and the Chinese F. suspensa and the Albanian F. europea have lost fewer buds than the others.

All the Chinese Barberries with deciduous leaves are practically unhurt with the exception of Berberis Wilsonae, which has always been rather tender here, its variety Stapfiana, which has always been considered a hardier plant, and B. triacanthophora. Few Chinese Honey-suckles have suffered, but Lonicera pileata, which has flowered here for several years, is killed to the ground, and the beautiful climbing L. similis var. Delavayi has been killed.

Hamamelis. All the winter-flowering Witch Hazel plants are uninjured. Hamamelis vernalis was covered the middle of December with flower-buds which promised to open earlier than usual but the extreme
cold later in the month destroyed them. The flower-buds of the Japanese *H. japonica* and its variety were not hurt, but they did not open until late in March or six weeks later than usual. The flower-buds of the Chinese *H. mollis* were badly injured and only partly opened toward the end of March.

*Quercus arkansana*, from the neighborhood of Fulton in southern Arkansas, has been killed, but the Nutmeg Hickory (*Carya myristiciflorus*) raised from nuts gathered within two miles of the place where *Q. arkansana* grows is uninjured, as are *Sapindus Drummondii* from the same general region and *Malus angustifolia* from Florida. More remarkable is the hardiness of *Carya texana*, the so-called Bitter Pecan, raised here from nuts gathered on the lower Brazos River in one of the hottest parts of the Texas coast region where sugar is the principal crop. On the other hand, more northern trees like the Liquid-amber and the Persimmon (*Diospyros virginiana*) have lost many buds and will certainly be disfigured. These are not Massachusetts trees but they are natives of southern Connecticut and have been growing for years in the Arboretum; and it might well have been supposed that they would be harder than trees from southern Arkansas, Florida and the Texas coast. But the hardiness of a plant can only be determined by experiments conducted through many years, as the effects of the last winter have clearly shown. It is the office of the Arboretum to make such long sustained experiments and to report on the results obtained from them, and if nurserymen and other planters will study this work of the Arboretum they will be saved many disappointments and the loss of valuable time and unnecessary expenditures.

**Asiatic Crabapples.** Some of these trees are blooming very early this year and many of them are carrying an unusually large crop of flowers. Much attention has been paid at the Arboretum to this collection because few plants have more beautiful flowers and fruits or are better suited to this northern climate, and as the Apples of pomologists have been obtained by crossing a few of the species of the wild Crabs there is a chance that the future may disclose new and perhaps improved races of Apples obtained by crossing some of the recently introduced species with some of the varieties of orchard Apples. A general interest in this collection is shown by the number of requests for Crabapple grafting wood which are sent to the Arboretum from Agricultural Experiment Stations and nurserymen from all the northern parts of the country. The Arboretum collection is a large one and now contains well established plants of all the wild Crabapples with the exception of the Himalayan *Malus sikkimensis* which has not always been quite hardy here. It also contains many hybrids both of Asiatic and American species. The Asiatic species and several of the American species, as well as many hybrids, are now large enough to flower and produce fruit, and the collection affords an excellent opportunity for study. The Crabapples are in two groups, the first on the left-hand side of the Forest Hills Road, and the second at the eastern base of Peter's Hill where will be found the greatest number of species. The Japanese and Chinese species can be considered hardy as they have not been injured by the past winter, with the exception of *Malus yunnanensis*. 
Some of the plants of this small tree are dead or badly hurt, but one tree in the nursery at the top of Peter's Hill is uninjured.

**Malus cerasifera.** The earliest of the Asiatic Crabs to bloom is believed to be a hybrid between *Malus baccata* and *M. prunifolia*, which has generally been called *M. cerasifera*. It is one of the largest of these trees, and in good soil and with abundant space it can form a wide-branched, round-topped, shapely tree. The flowers are larger than those of other Asiatic Crabapples, pure white and fragrant, and the fruit is globose, rather dull red, and sometimes an eighth of an inch in diameter.

**Malus baccata var. mandshurica.** Another desirable Crabapple as a flowering tree is the variety *mandshurica* of *M. baccata*, a common north China, Korean and Japanese plant. This has pure white flowers only a little smaller than those of *M. cerasifera* and more fragrant perhaps than those of any other Apple-tree. Last week a good specimen of this Crabapple in the Peter's Hill Collection was covered with flowers which perfumed the air for a long distance. Another still little known species, *Malus micromalus*, has been unusually attractive with its small pink flowers. This is a tree with erect branches which form a narrow pyramidal head, and smooth pale bark. Its habit will make it valuable in many gardens.

**Korean Azaleas.** On the upper side of Azalea Path two Korean Azaleas, *Rhododendron Schlippenbachii* and *R. poukhanense* have been covered with flowers during the past week. The former has large obovate leaves and white flowers more or less tinged with rose, and from three to three and one half inches in diameter; the corolla is thin and delicate in texture, and when fully exposed to the sun soon fades. The flowers will probably last longer in partial shade. The plants appear perfectly hardy in the most exposed position. This is a common shrub on the grassy slopes above the cliffs on the Korean coast and other parts of that country, but has remained little known in gardens, although its flowers are perhaps the loveliest of all Asiatic Azalea flowers. *Rhododendron poukhanense* has been covered again, as it has been every spring for several years, with its clear rose-colored fragrant flowers. This is one of the best of the Azaleas introduced by the Arboretum into American gardens, and a hardy decorative plant of first-rate importance.

An illustrated guide to the Arboretum containing a map showing the position of the different groups of plants has been published. It will be found useful to persons unfamiliar with the Arboretum. Copies of this guide can be obtained at the Administration Building in the Arboretum, from the Secretary of the Massachusetts Horticultural Society, 300 Massachusetts Avenue, Boston, from The Houghton, Mifflin Company, 4 Park Street, Boston, and at the office of the Harvard Alumni Bulletin, 18 Plympton Street, Cambridge. Price, 30 cents.