The winter of 1913-14 will be remembered in all parts of eastern North America as a winter of exceptional severity. The unusually low temperature accompanied by high gales of a day or two in January when there was no snow on the ground, and the severe cold and high winds of late February and early March caused much anxiety to the lovers of plants in eastern Massachusetts. So far as the Arboretum is concerned these fears have not been realized, for the losses from the winter here are few and unimportant. The plants of a small Rhododendron, *R. Gowenianum*, chiefly interesting as one of the hybrids between an Azalea and a Rhododendron, have been killed; otherwise the Rhododendrons are in remarkably good condition and their flowering promises to be the best that the Arboretum has seen. A few of the small, half hardy conifers, like some of the Torreyas and Cephalotaxus planted near the top of Hemlock Hill, have suffered but will probably recover, and here and there through the Arboretum the dead tips of small branches show how severe the winter has been. Even small plants of Buckeyes from Georgia and Texas, and several species of Plums from Texas planted in the open ground, show no signs of injury.

The effects of the cold on the new plants from western China are of special interest for it would seem that any plant that could survive such a winter might be considered hardy. It is gratifying, therefore, to find that very few of the Chinese plants even when planted in the most exposed positions have suffered. The Oaks, Birches, Poplars, Willows, Ashes, Cherries, Plums, Yellowwoods, Davidias, Eucommia, Catalpas, Berberis, Cercidiphyllum, most of the Cornels, Viburnums, Cotoneasters, Honeysuckles, Spiraeas, Lilacs, several of the Evodias and Ehretia and many others are uninjured. Some of the Chinese Roses, as might have been expected, are killed back nearly to the ground, while others are quite unhurt. Two of Wilson's conifers, *Picea Watsoniana* and *Tsuga chinensis*, have been growing for three years in the open ground without protection and are now as bright and fresh as any conifer in the collection. This is interesting for these two trees came from the region where Wilson later found the large number of new conifers, the introduction of which into cultivation was one of the important results of his travels, and the hardiness of this Spruce and Hemlock indicate that other species from the same region may perhaps be equally hardy in New England.

It is interesting to note that the flowers of the winter-flowering Witch Hazels from southern Missouri, Japan and western China were not affected by the severe cold. The Chinese species, *Hamamelis mollis*, produced its flowers for the first time in the Arboretum in February. These flowers are larger than those of the other species; the petals are bright yellow and remained for weeks in good condition. This promises to be a valuable plant for persons who can use winter-flowering shrubs.

The spring is exceptionally late. The bluebirds did not arrive this year until March 25th; they have been known to come as early as the 21st of February, and the average date of their arrival for the last thirty years is March 9th. In the bulletin published last year on April 25th there was announced the flowering of several Cherries, of the
Amelanchiers, of some of the Forsythias, and of other plants which are now only just beginning to enlarge their buds. A week later the Japanese *Eupeilea polyandra* was in flower, and the branches of the Chinese *Prunus tomentosa* were already covered with its handsome flowers.

In spite of the lateness of the season several trees and shrubs, however, are already in flower. The branches of the White Elm, *Ulmus americana*, the earliest of the Elm trees to open its buds here, have been brown for several days with the clusters of its small flowers, and the Scarlet Maple (*Acer rubrum*) is gay with its crowded flowers which cover its otherwise naked branches and are on some individuals scarlet and on others pale red or yellow.

The earliest exotic tree to flower this year is the European Dogwood or Corneli, *Cornus mas*, often called the Cornelian Cherry. The small bright yellow flowers in dense clusters now cover the leafless branches and make the plants conspicuous in early spring. The leaves, which will unfold as the flowers fade, are abundant, of good size and pleasant color, and the bright scarlet lustrous fruits, which are the size of large cherries but oblong in shape, hang gracefully on slender stems and are very ornamental. This small tree is perfectly hardy and probably was better known and more generally planted fifty years ago than it is now. The plant in the Arboretum in the Corneli Group, at the foot of the Bussey Hill Road, is not flowering particularly well this year, but many specimens can be seen in the shrubberies of the Boston parks now in full flower; and there is an exceptionally large and shapely tree on the Boylston Street side of the Boston Public Garden near the entrance to the Subway.

Many of the Alders are in flower and their delicate blossoms will well repay careful examination. The flowers of several Willows in the collection planted along the eastern border of the great meadow are now open, and during the next two weeks others will appear in succession. It is at this period that these trees and shrubs are seen in their greatest beauty and are most interesting to the student.

The Spice Bush (*Benzoin aestivale*) is just opening its flowers and can be seen to advantage in the large group on the right hand side of the Bussey Hill Road opposite the end of the Lilac Group. This is a native of the eastern United States and an inhabitant of the borders of swamps where it sometimes grows to the height of ten or fifteen feet. The flowers are small, bright yellow, and the male and female flowers are produced on different individuals, so that some of the plants only bear the small, scarlet, shining fruits which contrast so well with the bright yellow autumn foliage. The leaves are fragrant like those of its relative, the Sassafras, and are not injured by insects. The Leatherwood Group (*Dirca palustris*) which can be seen on the right-hand side of the Bussey Hill Road just above the Spice Bushes, is now covered with its beautiful small yellow flowers. This is one of the most successful groups in the Arboretum and should be visited by persons interested in early spring flowering shrubs of good habit and entire hardiness.

The earliest Magnolias are just opening their flower-buds in the neighborhood of the Administration Building. These are two Japanese species, *Magnolia stellata*, *M. kobus* and its northern form var. *borealis*. These plants, like many other Asiatic species, open their flowers before
the leaves appear. The former is a shrub which may in time be ex-
pected to grow to the height of ten or twelve feet and to spread to a
diameter equal to its height. It is perfectly hardy and one of the most
beautiful of all early spring flowering shrubs but, like several of the
other early flowering Magnolias, it blooms too early and the flowers are
often injured by late frosts. This is true, too, of Magnolia kobus and
its variety. The latter is a larger and more vigorous tree than the
typical Magnolia kobus, which in the Arboretum has remained shrubby
in habit. These two plants, in their young state at least, do not produce
large quantities of flowers and their flowers are less beautiful than
those of many Magnolias, but the northern tree grows rapidly, is very
shapely and covers itself with dense, dark green, handsome foliage.

Other plants now in bloom are the European Daphne Mezereum and
Erica carnea. The former is a small shrub sometimes growing to a
height of eighteen inches or two feet, and is ornamental when it is
covered with its small flowers, and later in the season when its red
fruits are ripe. It may now be seen in good condition on the lower
side of Azalea Path. Erica carnea is one of the few Heaths which are
hardy in this climate and the first of the genus to flower here. The
red and white-flowered varieties may be seen in the Shrub Collection
and among the Rhododendrons at the base of Hemlock Hill.

The interest in native birds is now so great, and fortunately so rap-
oidly increasing, that it may be interesting to make known some of the
resources of winter bird-food which can be found in the Arboretum.

In March a representative of the Department of Agriculture at
Washington came to the Arboretum to study the plants found here
which might furnish birds with winter food. His examination revealed
the fact that fleshy fruits of the sort eaten by birds were still hanging
on the branches, and in good condition, of one hundred and ten species
of trees and shrubs, and that the fruit of fifteen other species, although
dry, was still available as bird-food. These one hundred and twenty-
five species belong to thirty genera. Of the species only forty-nine are
natives of the United States and only thirty of New England. In the
course of a few years, moreover, the number of plants producing win-
ter food for birds will probably be largely increased in the Arboretum
by recent introductions.

An illustrated guide to the Arboretum containing a map showing the
position of the different groups of plants has recently been published. It
will be found useful to persons unfamiliar with the position of the differ-
ent groups of plants. Copies of this guide can be obtained at the Admin-
istration Building in the Arboretum, from the Secretary of the Massa-
chusetts Horticultural Society, 300 Massachusetts Avenue, Boston, from
The Houghton, Mifflin Company, 4 Park Street, Boston, at the Old Cor-
er Bookstore, Bromfield Street, Boston, and at the office of the Harvard

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given these Bulletins.
ARNOLD ARBORETUM
HARVARD UNIVERSITY

BULLETIN
OF
POPULAR INFORMATION

JAMAICA PLAIN, MASS.
MAY 7, 1914
The most conspicuous plants in flower this week are some of the Cherries of eastern Asia which can be seen in the general Cherry Group on the right-hand side of the road leading from the Forest Hills Gate. The first of these plants to flower this year is Prunus Sargentii of which there are several specimens in the collection. This is a large tree in the forests of northern Japan where it sometimes grows to the height of eighty feet and where it is valued as a timber tree. The large, single pink flowers open before the leaves appear and are produced in profusion; these are followed by small fruits which at first when fully grown are bright red but become black when ripe. The leaves are large and of good color, and in the autumn turn to shades of orange and red. As may be seen in the Arboretum, the flowers are of a different color on different individuals, those of some trees being deep rose color and of others pale pink. This is one of the most desirable of the large, deciduous-leaved trees that have been brought into New England from Japan, and it seems destined to become a popular ornament in American parks and gardens. Young plants show a tendency to divide near the ground into several stems and to prevent this and to produce trees with tall straight trunks young plants should be planted close together in the nursery and carefully pruned.

Two other Japanese Cherry trees are in flower, Prunus subhirtella and P. pendula; these are smaller plants than P. Sargentii, and their flowers, which are smaller than those of that tree, are much alike in shape and color. The branches of the former, however, are upright while those of Prunus pendula are drooping. On both plants the flowers are produced in the greatest profusion and begin to open before the leaves appear. Prunus pendula was taken up many years ago by American nurserymen and is now a favorite ornament in most American collections of trees, but P. subhirtella, which is perhaps a more beautiful flowering plant, is still too rarely seen in this country. Two cherries from northern China are also in flower, Prunus tomentosa and the single-flowered form of P. triloba; the former is a large bush which along some of the Boston parkways has grown six or eight feet tall with a wide spread of branches. This Cherry covers itself with white flowers marked with red at the base of the petals, and followed in June by small slightly hairy fruits of good flavor. In the northwest this little Cherry appears to be hardy beyond the region where the European fruit-cherries can be successfully grown, and it is possible by long cultivation and the selection of promising seedlings it may in time be developed into a valuable food plant. This experiment is certainly worth trying on a large scale. Prunus triloba is better known in gardens in its double-flowered form but the single-flowered type is a more beautiful plant, and certainly the flowers on no other tree or shrub are of a purer pink color. First introduced into the Arboretum with Prunus tomentosa thirty years ago, it has never grown to a large size and, although perfectly hardy, it is not robust or long-lived.

The Plums, which are next to the Cherries and near the junction of the Forest Hills and Meadow Roads, are fast opening their flowers. Prunus cerasifera, the Myrobalan Plum from the Caucasus, and Prunus triflora, the only true Plum known in China, are already in flower and the buds of the Plum-tree which grows naturally along the Canadian
border, the so-called Canada Plum, *P. nigra*, is expanding its petals which, pure white at first, turn to rose color as the flowers fade.

Several of the Chinese Magnolias are in flower in the neighborhood of the Administration Building. The most beautiful of them and of all the Magnolias which flower before the leaves appear and are hardy in this climate is the white-flowered Yulan, *Magnolia conspicua*. This tree was found by Wilson on the mountains of western China and is probably widely distributed through the western and central provinces, as it was one of the first Chinese trees introduced into Europe. A number of hybrids of this tree and the shrubby *Magnolia liliflora (purpurea)* were produced in France many years ago and are now well known garden plants. These hybrids differ in the size and color of their flowers, which on some plants are rose color and on others white streaked with rose color or pink. The handsome, perhaps, of these hybrids and certainly the best known, *Magnolia Soulangeana*, is named for the French horticulturist who produced it, Soulange-Bodin. This and the other hybrids flower rather later than *Magnolia conspicua* and therefore more often escape the late frosts which frequently in this climate discolor the petals of these trees.

The northern form of *Magnolia kobus* (var. *borealis*) has flowered much more freely this year than ever before. For many years this tree in the neighborhood of Boston has produced only a few flowers here and there on the ends of its branches, and it is evident that, unlike the Chinese Magnolias which flower when only a few feet high, it requires age before it can show its real value as a flowering tree. The flowers are smaller than those of the Chinese Magnolias and their drooping petals make them less beautiful, perhaps, than the cup-shaped flowers of the Chinese plants, but, judging from the climate of the region where the northern Kobus grows, it may be expected to be hardy in the United States considerably further north than any other Asiatic Magnolia.

The Shadbushes (*Amelanchier*) are fast coming into flower, and as these plants are common in the Arboretum this is a time when the lovers of delicate and beautiful flowers find much pleasure here. Two species grow naturally in the Arboretum, *Amelanchier laevis* and *A. oblongifolia*; the former, which is a tree growing generally on rather dry banks, was long confounded by botanists with the true *Amelanchier canadensis* of Linnaeus. This is also a tree but of more southern and western range than *Amelanchier laevis*, differing from it in the soft pale down which covers the lower surface of the leaves. It is not a native of eastern Massachusetts but is now established in the Arboretum. The second species which grows naturally in the great meadow where there is a large specimen, *Amelanchier oblongifolia*, is shrubby in habit and easily distinguished at this time by the gray color of the unfolding leaves. It is this species which has been largely planted through the Arboretum shrubberies and which in a few days will make a fine show here. Recent investigations have brought to light the existence in the eastern states of a considerable number of species of Amelanchier which were formerly unknown or were unrecognized by botanists, and these interesting plants have now been gathered in the bed on the grass path on the left-hand side of the Meadow Road entering from the Jamaica Plain Gate. Some of these plants are already in flower and the flowers of others will continue to open for two or three weeks.

The severity of the winter is shown by its effect on the flower-buds of the Forsythias. On some plants the buds are entirely killed and on
others only a few buds have opened. The plant which has suffered the most is the upright growing variety of Forsythia suspensa (var. Fortunet). This is the form which is generally planted in the neighborhood of Boston, and the loss of its flowers deprives many Massachusetts gardens of their greatest spring beauty. The buds of Forsythia suspensa itself and of F. viridis have also suffered, but those of a hybrid between these species (F. intermedia) are uninjured or only occasionally hurt. There are several varieties of this hybrid and among them are perhaps the most beautiful of all the Forsythias, and if it proves to be true that their flower buds can resist more cold than those of their parents they will probably soon be better known than they are now. For some reason not easy to explain the Albanian Forsythia europea has not before been so full of flowers and they have not before appeared so beautiful. This is a tall shrub with rather rigid erect stems and branches, and has generally been considered here inferior as a flowering plant to the Chinese species, its chief interest having been that it was a European representative of a genus otherwise exclusively Chinese.

Of broad-leaved evergreens which are hardy in this climate three species, all of the Heath Family, are now in flower. The best of them as a garden plant and the handsomest of the small broad-leaved evergreen shrubs which are perfectly hardy in New England, Andromeda floribunda, is conspicuous all winter from the clusters of white flower-buds which cover the plant and are now opening. In cultivation it grows to the height of three or four feet and forms a round-topped head sometimes ten feet across. A native of high altitudes in the southern Appalachian Mountains, it is everywhere there a rare and local plant, but long a favorite in English gardens it is now well known in those of the northern states. The largest specimen in the Arboretum can be seen in the border on Hemlock Hill Road opposite the Laurels. In this border, too, can be seen in flower plants of another native shrub with evergreen leaves, the Leather-leaf (Chamaedaphne calyculata). This is a low, much-branched shrub with small leaves and white flowers in one-sided leafy racemes. An inhabitant of cold wet bogs, this plant takes kindly to cultivation in dry garden soil. The third evergreen shrub in flower, the Bog Rosemary (Andromeda glaucophylla), is an inhabitant of cold northern bogs and swamps, and is also a good garden plant. It can now be seen in good condition in the Shrub Collection where it is conspicuous from the pale under surface of its narrow leaves and clusters of small pink flowers.

An illustrated guide to the Arboretum containing a map showing the position of the different groups of plants has recently been published. It will be found useful to persons unfamiliar with the position of the different groups of plants. 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, at the Old Corner Bookstore, Bromfield Street, Boston, and at the office of the Harvard Alumni Bulletin, 50 State Street, Boston. Price, 30 cents.

The Arboretum will be grateful for any publicity given these Bulletins.
The earliest Lilacs are already in flower and next week most of the varieties of the common garden Lilac (Syringa vulgaris) will be in bloom. The promise of flowers is excellent, indeed it is several years since the plants have been so full of flower-buds as they are this spring. This year the earliest of the Lilacs is the white-flowering Syringa affinis from northern China and its variety with purple or mauve-colored flowers (var. Giraldii). These are tall plants of loose unattractive habit, but the leaves are broad and handsome and the flowers, which are produced in rather small clusters, are exceedingly fragrant. This fragrance and the fact that the flowers open so early and are not injured by late frosts make these Lilacs desirable garden plants in this part of the country. The white-flowered form is one of the few shrubs generally cultivated in the gardens of Peking. Another north China species, Syringa oblata, is opening its pale purple flowers. This is a plant of much better habit than Syringa affinis, and its broad thick leaves, which turn to a dark wine color in the autumn, are handsomer than those of any other Lilac. The flower-buds, however, are often injured by spring frosts and it is not often that the flowers are in good condition. In time this Lilac grows into a broad, round-topped shrub eight or ten feet high and is well worth growing for its foliage; in cultivation it does not produce seeds. A hybrid of Syringa oblata and S. vulgaris (S. hyacinthiflora) is now in bloom. This is an old inhabitant of gardens and is a large, vigorous and shapely plant with good foliage. The flowers are small, semi-double, bluish purple, very fragrant, and are produced in small clusters. As compared with some of the recent forms of the garden Lilac they are not remarkable, but this hybrid should find a place in every collection of Lilacs as its very early flowers prolong the Lilac season. This, thanks to the discoveries of recent years, now lasts here in ordinary seasons from the first of May to the first of July. Attention will be called in these bulletins to the different species, hybrids and varieties as they come into flower.

The flowers of the Crabapples are late this year and are only just showing in the buds the color of their petals. With a few warm days, however, some of these plants will be in full bloom; and it now seems probable that the Lilacs and many of the Crabapples will be in flower at the same time. The old collection of Crabapples is on the left-hand side of the Forest Hills Road, and there is a large collection at the base of Peter's Hill. The plants in this supplementary collection are smaller than those on Forest Hills Road, but it now contains more species and varieties, and the plants of many of them promise to flower this year more freely than those in the old collection. In the neighborhood of the Administration Building there are some large plants of forms or hybrids of the Chinese Malus floribunda which are now covered with flower-buds. Among them are plants that carry their fruit through the winter and are particularly valuable as sources of winter bird-food. The Crabapples in the Arboretum form one of its important collections of small trees with conspicuous flowers, and as these plants are suited for the decoration of New England gardens they well repay careful study.
The so-called Japanese Quince (Pyrus or Chaenomeles japonica) with its bright red flowers appearing before or with the leaves is found in most old-fashioned gardens. In recent years some attention has been paid in Europe to the improvement of this plant, and there are in cultivation forms with flowers of various shades of red and pink, and with white and red and white flowers. There are a large number of these forms in the Shrub Collection but the flower-buds, except those on the lower branches, have been much injured by the winter, and this year it is not possible to get an idea of the beauty of some of these plants.

The flower-buds of another of the eastern Asiatic Quinces (Chaenomeles Maulei) have not suffered, however, and the plants, which are also in the Shrub Collection, are now in great beauty; they are low, rather wide-spreading, little shrubs and the flowers on different individuals vary from crimson to nearly white. Well suited for planting in the rock-garden, on the margins of shrubberies and on low banks, they appear to be still little known in this country. The Asiatic Quinces, like many related genera in the Rose Family, suffer seriously from the San José scale which, although it can easily be kept in check by spraying, makes them sometimes undesirable garden plants.

The yellow-flowered western American Currants, Ribes odoratum and R. aureum, are just now two of the most conspicuous plants in the Arboretum. A generation ago the former was one of the common shrubs in American gardens where it was always called the Missouri Currant; it is even sometimes naturalized in the eastern United States. A native of the region from Dakota to Texas, it is perfectly hardy, grows to a large size and flowers freely every year. The other yellow-flowered Currant is a smaller plant with more slender stems and shorter flowers, and is perhaps a more attractive plant than the former. It grows naturally from the headwaters of the Missouri River to the northwest coast and to Arizona, and is still rare in cultivation. There is a variety in the collection from Montana with yellow fruit (var. chryso- coccum). Among other species of Currants which are also in flower one of the most interesting is the Rocky Mountain Ribes cereum with its handsome foliage and small white flowers. There is a good specimen of this little known plant in the Shrub Collection, where Ribes tenue from western China is flowering for the first time in the Arboretum.

In the Gooseberry Collection are now in flower several handsome and interesting species well worth examination by persons interested in shrubs still little known in gardens. Some of the most distinct species now in flower in this group are Ribes niveum, with white flowers, from the northwestern United States, R. missouriense, with pale yellow flowers, an inhabitant of the region from Missouri to Arkansas, R. stenocarpum, with white flowers, from Japan, R. Cynosbati, and its variety inerme, with white flowers, from the northeastern United States, and R. pinetorum, with orange-red flowers, from Arizona; in flower this last is perhaps the most beautiful of all the Gooseberries in the Arboretum.

The Korean Viburnum Carlesii is uninjured by the winter. This is one of the most beautiful of the exotic Viburnums and is particularly interesting from the fact that the flower-buds are bright orange-red while the inner surface of the corolla is white, and as the flowers open the color of the outer surface gradually fades to pink and then to white.
As the buds do not always expand at the same time there are in the flower-cluster pink buds among the white flowers; the flowers are very fragrant. This plant, although it is still comparatively little known, well deserves a place in every collection of shrubs.

As usual, the earliest Barberry to flower in the Arboretum is *Berberis dictyophylla* which, although it comes from the southern part of China, is perfectly hardy here. The flowers are solitary or occasionally in pairs in the axils of the leaves, rather less than half an inch in diameter and pale primrose yellow in color. The peculiar beauty of the plant, however, is in the leaves, which, although not large, are silvery white on the lower surface and in the autumn turn brilliant scarlet on the upper surface while the lower surface retains its spring and summer color. Plants of this Barberry can be seen in the Shrub Collection and in the supplementary collection of Barberries on Hickory Path near Centre Street.

*Prunsepia sinensis* is uninjured by the winter and the plant on Hickory Path near Centre Street has flowered more profusely than ever before. This north China shrub is one of the first plants in the Arboretum to unfold its leaves in the spring, and when these are nearly fully grown the clear yellow axillary flowers appear. This beautiful and interesting shrub does not seed at all freely in the Arboretum and is still rare in American collections.

*Fothergilla*, which is a genus of the Witch Hazel Family, confined to the southeastern United States, has furnished gardens with some beautiful shrubs. All the species bear small white flowers in compact clusters, at the ends of the branches, and handsome leaves resembling those of the Witch Hazels; they are just coming into bloom. *Fothergilla major* and *F. montana* are large, vigorous and very hardy shrubs, while *Fothergilla Gardeni*, which is a small plant and a native of the coast region, is less hardy than the mountain species. These shrubs are in the Shrub Collection and on Azalea Path, and the largest plant of *Fothergilla major* in the Arboretum is in the Witch Hazel Group near the pond at the junction of the Meadow and Bussey Hill Roads.

The form of *Rhododendron praecox* known in gardens as "Little Gem" is usually the first of the evergreen Rhododendrons to flower in the Arboretum. The pale rose-pink flowers are too often injured by late frosts, and this year the flower-buds have been killed by cold, so that this spring the earliest Rhododendron in flower is a dwarf plant received several years ago from Germany under the name of *R. Jacksonii*, a name which does not appear in catalogues. It is evidently one of the forms or hybrids of *R. caucasicum*, although it flowers two or three weeks before any of the other forms of this species in the Arboretum. It is a low compact plant with clusters of large pale pink flowers and has not been at all injured by the winter. There are two specimens in the collection at the base of Hemlock Hill and they are well worth the attention of lovers of dwarf early flowering Rhododendrons.

The Arboretum will be grateful for any publicity given these Bulletins.
The number of trees and shrubs really valuable here which western Europe has contributed to New England plantations and gardens is not large. Of the trees the Beech, two or three of the Elms, the Birches, the Mountain Ash, the Laburnums, the Norway Maple, the Hawthorn, the Poplar, several Willows, the Alder, two or three of the Cherries, the Plum, the Apple and the Pear flourish in this climate. Although some of them will drag out a more or less unhappy existence for several years, the Oaks of western Europe, the Ash, the Sycamore Maple, and all the conifers are not desirable trees for our region. From western Europe, too, we have obtained a few shrubs which are important in New England gardens. The Heather gives summer brightness to New England gardens and hillsides, and the little Daphne cneorum, a native of the mountains of central Europe, is now covered with its clusters of fragrant rose-pink flowers. One of the most beautiful of all dwarf shrubs suitable for the decoration of the rock-garden, it is rather capricious as to soil and situation, and does not always flourish in this country as well as it does in the Arboretum.

None of the Barberries which have been brought into our gardens in the last thirty years is more useful than the common European Berberis vulgaris which has long been naturalized in eastern Massachusetts and years ago was selected by one of the wise men of Boston as a typical New England plant for the decoration of a monument to be erected to some departed New England worthy. For thirty years, too, much attention has been paid to the introduction and cultivation of the different species of Privet from eastern Asia, but there is not one among them which is as valuable in New England as the common Privet of Europe which must have been cultivated here for two hundred years and is now sparingly naturalized in some of the eastern states. The black and shining berries in large terminal clusters are unsurpassed in beauty by those of any other black-fruited shrub which can be grown here, and as they remain in good condition until into the winter they are valuable on the plants and, when cut, for late autumn and early winter decorations. Among the shrubs of western Europe which are really valuable in New England must be included the Wayfaring-tree, Viburnum Lantana. With the exception of the Korean Viburnum Carlesii mentioned in a recent bulletin, and of our native northern Hobblebush, Viburnum alnifolium, the Wayfaring-tree is the earliest of the Viburnums to flower. It is a tall, compact, round-headed shrub with large, thick, dark green leaves and broad, compact, convex clusters of white flowers. The fruit when fully grown is bright red but finally turns black, fruits of the two colors often appearing at the same time in the same cluster. This shrub is therefore as beautiful in the early autumn as it is in the middle of May; it can be seen in the general Viburnum collection near the junction of the Bussey Hill and Valley Roads, and it has been largely planted in the Boston parks. Near it and just coming into flower are several plants of Viburnum burejaeticum from Manchuria, Korea, and northern China. This is a neat shrub with small leaves and small compact clusters of creamy white flowers which are followed by small black fruits. As compared with most of the American Vibur-
nums it has little to recommend it as an ornamental plant; indeed, with a few exceptions, the eastern Asiatic Viburnums are less valuable than the eastern American species, among which are found garden shrubs of the first class. Viburnum dentatum and V. Wrightii from Japan, with bright red fruits, have no American counterparts, however, and should therefore be cultivated for the autumn garden. These two species will soon be in flower in the Viburnum collection where can now be seen nearly every species and variety which can be grown in this climate.

The large creamy white flowers of Magnolia Fraseri are already opening and the leaves are half-grown. This is a small pyramidal tree of rather open habit from the slopes of the Appalachian Mountains from southern Virginia southward, sometimes growing on the headwaters of the Savannah River, where it is most abundant, to the height of thirty or forty feet. In cultivation it begins to flower when not more than half that size, and here in the Arboretum it flowers abundantly every year and is perfectly hardy. This beautiful tree is still too rare in American collections. The much smaller, greenish or yellowish green flowers of the Cucumber-tree, Magnolia acuminata, will soon follow those of M. Fraseri. The Cucumber-tree, which under favorable conditions sometimes attains the height of eighty or ninety feet, is the largest Magnolia which can be grown in New England and the most northern in its range of all the American species. The flowers of the Cucumber-tree will soon be followed by those of another American species, Magnolia cordata. This in the Arboretum is a smaller tree with darker green leaves and small, cup-shaped, canary-yellow flowers. This Magnolia was discovered more than a century ago by the French botanist Michaux somewhere on the headwaters of the Savannah River in Georgia or South Carolina. A little later it was found by Michaux and his son, F. A. Michaux, in the neighborhood of Augusta, Georgia. It was introduced into France by Michaux and the descendants of these trees are now cultivated in the United States and Europe. For many years attempts to rediscover this tree in the regions visited by Michaux have been unsuccessful, and it is interesting therefore to report that the Berckmans of Augusta, Georgia, have recently found Magnolia cordata in two stations a few miles south and west of Augusta. The plants are growing in upland Oak and Pine woods, the largest of them being seven or eight feet tall. The plants begin to flower when not more than three feet high, and in April of this year some of these shrubs bore forty or fifty flowers. In cultivation Magnolia cordata is always a grafted tree, but it is not probable that the cultivated trees owe their greater size to a stronger stock, and the small size of the plants discovered near Augusta may be due to dry soil and a hot climate, and Magnolia cordata as a tree may still be found in some of the moist rich valleys of the small streams flowing down the eastern slopes of the Blue Ridge.

Several handsome American Hawthorns (Crataegus) are in full bloom, leading a procession which will last for nearly six weeks. The earliest of these plants to flower here belong to the Molles section of the genus in which some twenty species are now recognized. They are all shapely round-topped trees, some of them growing to a comparatively large size. The flowers are large, in broad many-flowered clusters; the leaves are broad, thin and long-stalked, and on most of the species
begin to unfold as the flowers open. The fruit of these plants is globose or pear-shaped, crimson, scarlet or rarely yellow, and of excellent flavor. The plants of this group are comparatively rare in the east; they do not extend into the southeastern states, and are most abundant in the region from Illinois and Iowa, through Missouri and Arkansas, to eastern Texas. Of this group there are now in flower at the South Street entrance large plants of *C. mollis*, *C. submollis*, and *C. arkansana*. The last is a particularly valuable plant as it retains its brilliant fruit until late in the season and longer than the other plants of this group. Another interesting plant of this group, *C. Arnoldiana*, is valuable because the fruit ripens in August when showy fruits are rare here. This tree was first discovered growing wild in the Arboretum and is still known only from a few stations. It is one of the few species of *Crataegus* which can be easily recognized in winter when its strongly zigzag branches are conspicuous. There are large plants of this tree on the left of the Centre Street entrance, and there are a number of them on the Valley Road in front of the Oak Collection. All of the species of the Mollis Group are American with one exception, *Crataegus peregrina*, which is probably a native of Persia. From the American species it differs in the color of the fruit which is dark purple, unlike that of any American Hawthorn. This plant is in flower in the old *Crataegus* Collection on the bank between the Shrub Collection and the Arboretum boundary of the Arboretum, in which there are also plants in flower of *C. arkansana* and *C. Arnoldiana*.

Many plants in the Plum Collection now deserve inspection, notably *Prunus hortulana* and *P. Munsoniana*, both natives of the Missouri-Arkansas-Texas region, the latter the Wild Goose Plum of pomologists. Many of the early flowering Crabapples are still in good condition and the flowers of many others are still to open.

In the general Rhododendron Collection at the base of Hemlock Hill *R. carolinianum* is in flower. This is a native of the slopes of the southern Appalachian Mountains. Although this plant was sent to England more than a century ago, it has been entirely lost sight of until a few years ago, having been confused with *R. minus* or *punctatum*, a southern plant of lower altitudes, different habit and foliage and less attractive flowers. *R. carolinianum* flourishes in the shade and in full exposure to the sun. It is a dwarf plant of compact habit; the leaves are dark green, and the comparatively small pink flowers are borne in compact clusters. It is perhaps as hardy in New England as any Rhododendron, and it is certainly a plant of great promise either for the decoration of parks and gardens or a possible element in a new race of hybrids. Several plants of *Rhododendron coreanum* are in flower on Azalea Path. This species, which was discovered by Mr. Jack in Korea, is also a plant of much promise; it is one of the species with deciduous or nearly deciduous leaves; the habit is good, and the abundant flowers are of a pleasant rose-purple color. Judging by the experience with it in the Arboretum during the last two or three years it is one of the best of the recent introductions of its class.

When this bulletin reaches its readers many of the plants in the Lilac Group will be in flower, and persons interested in Lilacs should visit the Arboretum during the next week.

The Arboretum will be grateful for any publicity given these Bulletins.
In the collection of Hawthorns (Crataegus) on the eastern slope of Peter's Hill there are now flowering or soon to flower six hundred and thirty groups, including a few duplicates and a few Old World species. This collection of American Hawthorns is the result of work carried on by the Arboretum during the last fourteen years. During this time most of these plants have been discovered, and many of them have been named and described. They have all been raised from seeds at the Arboretum, and thousands of the young plants have been distributed to cultivators in the United States and Europe. This Crataegus investigation has meant many thousand miles of travel by officers of the Arboretum and by its correspondents and friends, and in the last forty years American Crataegus seeds under thirty-two hundred different numbers have been sown, seeds of widely distributed species collected in different parts of the country having been sown in order to show possible geographical variation in the seedlings. This investigation has brought to light a large number of beautiful hardy trees and shrubs well suited for the decoration of the parks and gardens of cold temperate regions; and the collection on Peter's Hill, already interesting, should before many years have passed be one of the spectacular features of the Arboretum in spring and autumn. American Hawthorns are distributed from Newfoundland and the northern parts of the Province of Quebec to Florida and Texas, and to the Pacific Coast in the northwest. The largest number of species grow together probably on the streams which flow into Lake Ontario both from the north and south, in southern Missouri and in southern Arkansas. The genus has few species in the Rocky Mountains, and these are small in size and not numerous in individuals, and in the northwest there are only a few widely distributed species. Some of the American Hawthorns are trees which in the rich bottom-lands of the Mississippi valley attain a height of thirty or forty, or even fifty, feet with tall straight trunks and widespread branches, many are shrubby in habit, and there is one group (Intricatæ) in which nearly all the species are small shrubs rarely more than three or four feet high. These small shrubs bear large and showy flowers followed, in the case of many of the species, by large, bright colored and abundant fruits. They are valuable and interesting plants therefore for small gardens. In spite of all which has been done at the Arboretum to discover and introduce these plants, the investigation must be considered as not more than fairly begun, for there are still thousands of square miles of territory in North America where Hawthorns grow which have not been explored with reference to these plants.

Next to the Lilacs the most valuable shrubs, perhaps, for northern gardens now in flower are the Bush Honeysuckles, of which there is a large collection in the Arboretum. Many of the large-growing kinds, especially forms of the old-fashioned Tartarian Honeysuckle, are conspicuous objects when covered with flowers, and they have the advantage over the Lilacs of producing in summer and early autumn abundant crops of brilliant fruits. These Honeysuckles and the Lilacs are the most satisfactory shrubs which can be grown in northern regions of extreme cold. There are many hybrid Honeysuckles. One of the handsomest of the hybrids, Lonicera notha, with pale pink flowers, is believed to be the result of a cross of L. tatarica with L. Ruprechti ana of northeastern Asia. There are two large specimens of this plant on the right-hand side of the Bussey Hill Road and opposite the
Lilac Group. There is here also a large plant of *Lonicera bella*, with pale yellow flowers, the result of a cross between *L. tatarica* and *L. Morrowii*; and here, too, are plants of *L. chrysantha* from northeastern Asia now in full bloom, and of *L. orientalis* from southeastern Europe which will not open its flowers for several days.

Other interesting Bush Honeysuckles now to be seen in the Shrub Collection are *Lonicera xylosteoides*, with white flowers, a hybrid between the Tartarian Honeysuckle and *L. Xylosteum*, *L. muendeniensis*, with pale yellow flowers, a hybrid of the Tartarian Honeysuckle with *L. Morrowii* from northeastern Asia, *L. muscaviensis* with pale yellow flowers, a hybrid between *L. Morrowii* and *L. Ruprechtiana*, *L. segreziensis* with white flowers, a hybrid between *L. quinquelocularis* and *L. Xylosteum*, *L. multiflora* with white flowers, a hybrid between *L. micrantha* and *L. Morrowii*, and two beautiful plants with pale bluish foliage and small rose-colored flowers, *L. Korolkowii floribunda*, and a hybrid of *L. Korolkowii* with *L. tatarica* which appeared in the Arboretum a few years ago and known as *L. amoena Arnoldiana*. These are only a very few of the plants now in bloom in this collection, which is one of the most important in the Arboretum.

An examination of the plants of the wild Lilac, *Syringa vulgaris*, is interesting as showing the great improvements which have been made in garden Lilacs since the introduction of this plant into western Europe. The original Lilac, *S. vulgaris*, was found only a few years ago to be a native of the mountains of Bulgaria, and there is now a group of these plants raised from seeds collected from the wild plants in Bulgaria now flowering at the foot of the bank on the left-hand side of the path which passes up through the Lilac Group. These plants are labeled “Syringa vulgaris, mountains of Bulgaria.”

The two northern pink-flowered species of Azalea, or Wild Honeysuckle, as these plants are often called, *Rhododendron canescens* and *R. nudiflorum*, are now in flower. The former is a northern and the latter a more southern plant, and is especially common in the Gulf States from Florida to eastern Texas. The flowers of these plants open before or with the unfolding leaves and in early spring fill the woods with their fragrance. Both species can now be seen on Azalea Path, and there is a good mass of *Azalea canescens* on the right hand side of the Meadow Road in front of the Linden Group.

The flowers of the Highbush Blueberry, *Vaccinium corymbosum*, have never been more abundant or lasted longer in good condition in the Arboretum than this year, and it is desirable to call attention again to this wonderful plant which is beautiful in its flowers, its abundant edible fruits, and the splendid scarlet of its autumn leaves. The Highbush Blueberry, which grows naturally along the borders of swamps and other low places, where it occasionally reaches a height of from twelve to eighteen feet, is easily cultivated in good garden soil. On the plants in the Arboretum, where they have been largely planted, the flowers differ in size and in the time of opening. The individuals vary, too, in the size and quality of their fruit, but all the forms seem equally valuable as garden plants. For its fruit, which is the best of all Blueberry fruit, and for the beauty of its flowers and autumn leaves, this shrub cannot be too often planted. There are several plants on each side of Azalea Path near its entrance from the Bussey Hill Road; and the Highbush Blueberry can also now be seen in many of the roadside plantations, especially in the piece of swampy ground on the right-hand side of the Meadow Road in the rear of the Horsechestnut Group.

Aronia, a genus of the Rose Family, confined to eastern North America, sometimes considered a section of the genus *Fyrus*, contains val-
uble plants for the garden shrubbery. There are three species, all widely distributed in the eastern part of the country, *Aronia melanocarpa*, *A. atropurpurea* and *A. arbutifolia*. They all have small white flowers with rose-colored anthers borne in erect compound clusters, showy fruits and handsome foliage. What is believed to be the type of *A. melanocarpa* is a shrub twelve or eighteen inches high, with stems spreading into a broad mat. There is a form of this species (var. *elata*), however, which is much more common and grows into a shrub from six to ten feet tall, and another form (var. *grandifolia*) with broader leaves; this is also a tall shrub. The fruit of this species is black and lustrous, and drooping on long stems hangs on the plant during the winter. *Aronia atropurpurea* is also a tall shrub, in general habit and foliage like the var. *elata*. The fruit, however, is dark, vinous red and ripens and falls earlier. The leaves of these two species turn orange and red in the autumn before falling. *Aronia arbutifolia* is a tall, slender shrub of irregular habit, with flowers which open later than those of the other species, smaller leaves, covered with white down on the lower surface, and erect clusters of small, bright scarlet fruits which remain on the plants without change of color well into the winter. The brilliant fruit and the bright scarlet of the autumn leaves makes this late in the season one of the most beautiful of all our native shrubs. Less common in the north, perhaps, than the other species, *Aronia arbutifolia* is a very common plant in all the southern states where it is very generally distributed, often growing in great abundance on the margins of small depressions in the Pine woods which in spring are filled with water. All the forms of *Aronia* are easily cultivated and are now in flower in the Shrub Collection. They have also been largely planted in the shrubberies along the Arboretum roads.

Several of the Viburnums, notably *Viburnum prunifolium*, a small tree from the middle states, *V. Wrightii* from Japan, chiefly valuable for its scarlet fruits, *V. Sieboldii* from Japan, one of the largest of the Asiatic species with handsome foliage, large convex clusters of creamy white flowers, and large lustrous fruits which, at first scarlet, become black when fully grown. A more beautiful plant and the handsomest of the Asiatic species, *V. tomentosum* is also in flower. It is a large flat-topped shrub with wide-spreading branches, on the upper side of which the flower clusters are set; these are broad and flat, and they are surrounded by a ring of large, pure white sterile flowers which are the conspicuous part of the inflorescence. There is an interesting narrow-leaved form of this plant, discovered in Japan by Professor Sargent, also in flower in the Collection. There are also two Snowball forms of this species developed in Japanese gardens and much cultivated here and in Europe under the name of *Viburnum plicatum*. The correct name of the more common of these two plants is *Viburnum tomentosum*, var. *dilatatum*. This is the Japanese Snowball cultivated in this country and it will not be in its best condition for another week. The other form, *V. tomentosum*, var. *dilatatum*, f. *rotundifolium*, which is a dwarfer plant, is already in flower. They can be seen in the general Viburnum Collection on the Bussey Hill Road just before it turns into the Valley Road near the Centre Street Gate.

The Arboretum will be grateful for any publicity given these Bulletins.
BULLETIN NO. 57.

When this bulletin reaches its readers a large number of Rhododendrons at the base of Hemlock Hill will be in flower. The flowers of a few have faded and those of others will continue to open during several days. The number of species of Rhododendrons with evergreen leaves which can be successfully cultivated in this climate is not large. The four species of eastern North America, *Rhododendron maximum*, *R. Catawbiense*, *R. carolinianum* and *R. minus* are all perfectly hardy, as are *R. Smirnowii* and *R. caucasicum* from the Caucasus, *R. brachycarpum* from Japan and *R. micranthum* from China. The flower-buds of the last, however, have been destroyed by the cold of the past winter. The two European species, *R. ferrugineum* and *R. hirsutum*, are in the collection but they are not very satisfactory plants for this climate, and unless exceptionally favorable positions can be found for them they are not long-lived here. In recent years *R. maximum* has been largely planted in this part of the country, but the common Rhododendron of American gardens belongs to a race of hybrids which originated in England many years ago and are known as Catawbiense hybrids because they have been produced by crossing *R. Catawbiense* of the high summits of the southern Appalachian Mountains with *R. ponticum* of the Caucasus, and with *R. arboreum* and other Himalayan species. These hybrids are valuable in this country in proportion to the influence on them of *R. Catawbiense*, and it is found that varieties with broad leaves like those of the American plant are always harder than the narrow-leaved varieties which show a greater influence of *R. ponticum* and the Indian species. The number of these hybrids, however, which are really hardy in this climate is not large; among them *Atrosanguineum* (very early), Charles Dickens and H. W. Sargent (late) of red-flowered varieties are good plants; among the pink-flowered varieties none have proved so satisfactory as Mrs. Charles Sargent and Henrietta Sargent, similar in general appearance, but the latter with smaller and more compact flower-clusters and flowers of not quite such a perfect pink. Among the varieties with rose-colored flowers, *Roseum elegans* and Lady Armstrong are hardy and satisfactory; and among the varieties with dark purple flowers *Purpureum grandiflorum*, *Purpureum elegans* and King of the Purples are all hardy. Of the varieties with light purple flowers *Everestianum* is the best and one of the hardiest and most satisfactory of all these hybrids. Among the white-flowered varieties *Catawbiense album* (very early), *Album elegans* and *Album grandiflorum* can be safely used. Most of the hybrid Rhododendrons in American gardens are of English origin, but a few years ago the Arboretum obtained in Germany a number of these hybrids raised in that country. These have proved very hardy and some of them promise to be valuable additions to the Rhododendrons which can be successfully cultivated here. The most distinct, perhaps, are Viola, with white flowers, Albert, with pale pink flowers, and Bismarck, with white flowers with small brown dots on the inner face of the corolla. The last has flowered profusely now every season for the last three years; the foliage and habit are good, and as it flowers early this variety is particularly valuable, for there are not many early white-flowered Catawbiense hybrids. Among the hybrid Rhododendrons which
have been raised between *R. catawbiense* and *R. maximum* the best known is *Delicatissimum*. This blooms later than the Catawbiense hybrids; it is a large plant, of good habit, with long lustrous leaves and pale pink and white flowers, and one of the best Rhododendrons which can be grown in this climate.

The experience of another year confirms the good opinion which the Caucasian Rhododendron *Smirnovii* has made for itself here. It is a large plant with pale green leaves covered below with a thick mat of nearly white wool and large clusters of bright pink flowers. It grows best in partial shade as the hot sun of our summer causes the leaves to curl. A number of hybrids have been obtained in Europe by crossing this species with some of the Catawbiense hybrids. Some of these hybrids are established in the Arboretum and have flowered for several years, but the cold of the past winter has destroyed their flower-buds. *Rhododendron caucasicum* and its hybrids or varieties should be more often found in our gardens, in which the form of this species known as *Boule de Neige* is the only one usually seen. Like the other forms of *R. caucasicum* it is a small compact plant which covers itself with clusters of large white flowers which open earlier than those of most of the Catawbiense hybrids. This earliness, its good habit, and its handsome pure white flowers make this a desirable garden plant in this climate. Another plant of this race with pale yellow flowers, known as *R. coriaceum*, is now in flower in the collection and is also a hardy and desirable plant. A smaller plant of this race, *Mont Blanc*, is interesting as the flowers, which are bright pink when they open, become at the end of a day or two pure white. On some of the dwarf forms of *R. caucasicum* the flower-buds have been injured this year for the first time, but in spite of this these plants can be recommended for New England gardens.

Attention is called to the red-flowered *Aesculus Briotii*, an improved form of the so-called Red-flowered Horsechestnut, *Aesculus carnea*, a supposed hybrid between the European Horsechestnut and *A. Pavia* of the southern United States. *Aesculus Briotii* is the handsomest of the red-flowered arborescent Horsechestnuts and should find a place in all collections of trees with showy flowers. A beautiful, shrubby, red-flowered Horsechestnut, or Buckeye as these plants are called in the United States, is in flower in the Horsechestnut Group on the right-hand side of the Meadow Road. This plant is now known to grow naturally from Georgia and Alabama to Texas and Arkansas and to be the only red-flowered species in the region west of the Mississippi River. First discovered in Arkansas many years ago by the botanist Nuttall, it was named by Rafinesque *Aesculus mollis*; later another botanist called it *Aesculus australis*. In the Arboretum it is called *A. discolor* var. *mollis* because it is believed to be only a variety of another southern species, *A. discolor*, with which it grows in Georgia and Alabama. But whatever name may be imposed on it this Buckeye is one of the handsomest flowering shrubs in the United States, and it is fortunate that it has proved perfectly hardy here. Flowering with it is another southern shrubby species with red and yellow flowers, in short, very compact clusters, *A. georgiana*, which is a garden plant of much promise. Three other dwarf Buckeyes are also in flower, *Aesculus humilis*, two different plants under the name of *A. rosea nana*, and *A. Michauxii*. They are small plants with yellow and red flowers occasionally cultivated in
European gardens and probably hybrids of American species, for none of these plants have yet been found growing wild and their parentage is not clear, but whatever their origin may have been they are attractive and useful garden plants.

The Arboretum owes much of its early summer beauty to the Viburnums, and none of these plants are more conspicuous just now than the native Nannyberry, *Viburnum Lentago*, which has been largely used here. This large shrub, or small tree, with its large lustrous leaves and broad convex clusters of white flowers tinged with yellow, and its drooping clusters of black fruit, is one of the handsomest of the whole genus, and if it grew on the borders of Tibet instead of along New England roadsides it would be better known and more highly considered in New England gardens than it is at present.

The three species of the Opulus Viburnums are now in flower on the right-hand side of the Bussey Hill Road and in the Viburnum Collection, and their comparative value as flowering plants can be seen. The European *Viburnum Opulus* has smaller flower-clusters than the others, but it is a larger plant and holds its leaves later in the autumn without change of color; the beauty of the bright red fruits is thus heightened by contrast with the leaves. The American species, *Viburnum americanum*, is a plant of more open habit. The leaves turn orange color in the autumn and fall early, leaving the orange-red fruits on the naked branches. The Asiatic species, *V. Sargentii*, has the handsomest flowers of the three species as the neutral ray-flowers are much larger than those of the other species. The habit of this plant is good, but the fruit is small and inconspicuous. There are forms of the European *Viburnum Opulus* with yellow fruit (var. xanthocarpum), and there is a dwarf very compact form which rarely flowers; the Snowball of old-fashioned gardens is a form of the European plant in which all the flowers are sterile.

*Rosa Hugonis* has been in flower in the Shrub Collection for the first time in the Arboretum. It is a native of western China, with clear yellow single flowers and neat pale foliage. There are not many yellow-flowered Roses hardy in New England, and *R. Hugonis* promises to be a valuable addition to the number.

Other plants now in flower or soon to flower of special interest are *Berberis Pireti* and *B. sinensis*, *Rosa spinosissima altaica* and *R. spinosissima fulgens*, *Potentilla fruticosa ochroleuca* and *P. Vietchii*, *Lonicera Maackii* and its variety *podocarpa* and several Diervillas, all in the Shrub Collection. Worthy of notice, too, are several of the new Chinese Cotoneasters, to be seen in the Bussey Hill collection of Chinese plants and in the Shrub Collection.

In the Lilac Group the Korean *Syringa velutina* is flowering for the first time in the Arboretum. The small rose pink flowers of this shrub are borne in long, narrow, irregular clusters at the ends of the slender arching branches.

The Arboretum will be grateful for any publicity given these Bulletins.
Six of the species of Rhododendrons with deciduous leaves (Azalea) of eastern North America are well established in the Arboretum, and no group of plants perfectly suited to our climate surpasses them in beauty. The first of these plants to bloom, *R. Vaseyi*, opens its small pink flowers early in May before the leaves appear. This Azalea is an inhabitant of a few of the high valleys of the Blue Ridge in North and South Carolina and had been entirely overlooked until some thirty years ago. It is a plant of loose irregular habit, sometimes growing to the height of fifteen or eighteen feet, although in cultivation it begins to flower when less than a foot high. It is perfectly hardy, and the pure perfect pink of its flowers is hardly equalled by that of the flowers of any other plant. There is a form of this Azalea with white flowers. It grows best in rather moist soil in the neighborhood of water, and single individuals generally look better than the large masses sometimes seen in public parks.

Not much later two other pink-flowered species are in bloom, *R. canescens* and *R. nudiflorum*; the former is a more northern and the latter a more southern species, although the two often grow in the same locality. Both produce pale rose or pink flowers of various shades which appear before the leaves or just as they begin to unfold, and their general appearance is very similar. These plants grow singly or in great masses on treeless hillsides or in open woods. *R. canescens* is very abundant in some parts of Worcester County, Massachusetts, and the bundles of branches covered with pink flowers which excursionists on the northern railroads bring into Boston in May are of this species. These two Azaleas take kindly to cultivation and thrive in good soil in either shady or open situations.

The next of these Azaleas to flower, the yellow Azalea of the Appalachian Mountain slopes, *R. calendulaceum*, is now in bloom. The beauty of the brilliant flowers is heightened by contrast with the dark green leaves which are well grown before the flowers open; these vary from bright yellow to orange or shades of red and are not surpassed in brilliancy by those of any other Azalea now in cultivation. *R. calendulaceum* is a slow-growing but long-lived plant, and in time will reach a height of eight or ten feet. There is a large mass of these plants showing the variations in the color of the flowers on the lower side of Azalea Path, and a number of individuals are scattered in border-plantations along the different roads. The flowers of the yellow Azalea will soon be followed by those of another inhabitant of the glades of the Appalachian Mountains from Pennsylvania to Georgia, *R. arborescens*. This is a tall shrub with large, pure white, very fragrant flowers, the beauty of which is increased by the bright scarlet color of the long filaments of the stamens and of the style. The pale leaves of this plant are fully grown before the flowers open. There are many small plants of this species on the lower side of Azalea Path, and there is a mass of it on the Valley Road in front of the Hickories. The last of these Azaleas to bloom (*R. viscosum*) will not be in flower for several weeks. It is a common inhabitant of low wet ground in the eastern part of the country, and is popularly known as the Swamp Honeysuckle. The small white flowers continue to open during many weeks and their fragrance, which is greater than that of the other Azaleas, makes known their presence especially in the evening, from a long distance.
Seedlings of two other American species have been raised at the Arboretum, but it is too soon to judge of their value as garden plants. They are *R. austrinum*, with slender pale yellow flowers appearing before the leaves, a native of the valley of the Apalachicola River in western Florida, and *R. candidum* from southern Georgia, with white or pale pink flowers appearing after the leaves. There is another Azalea to introduce into the gardens. This a native of central Georgia where, in some localities, it is very abundant in open woods. Discovered by Michaux, the French botanist, more than a century ago and confounded by him and all later authors with *R. calendulaceum*, it has been called the variety flammecum of that species. From *R. calendulaceum*, however, this plant, which should be called *R. flammecum*, differs in its winter-buds, in the size and shape of the flowers and in the fact that the flowers open before the leaves. The flowers on different plants vary from yellow to deep orange and to scarlet; and the flowers of no other Azalea compare in brilliancy with some of the deep-colored forms of this Georgia plant, which it is reasonable to hope may prove hardy here as several plants from the same general region are well established in the Arboretum. The beautiful, white-flowered Azalea (*R. occidentale*) from the borders of streams on the western slopes of the Cascade and Sierra Nevada Mountains of the west has not yet proved hardy here probably because just the right place has not been found for it.

These native Azaleas are handsomer, hardier, and in every way more satisfactory than the so-called Ghent Azaleas which are hybrids of some of our species with the Caucasian yellow-flowered Azalea (*R. flavum* or *Azalea pontica*). This plant is not hardy here, and its influence on the Ghent hybrids has been unfortunate so far as this country is concerned. Many of these hybrids are beautiful flowering plants; some are quite hardy but most of them show evidence of a poor constitution; they grow slowly and suffer in severe winters, and none of them have the vigor of their American parents. These Ghent hybrids are raised by grafting in great quantities in European nurseries and many of them come to this country. It is impossible, however, to obtain the native plants in large quantities. Occasionally plants collected from the woods are offered for sale, but these collected plants are always less desirable than nursery-raised seedlings which are rarely to be found; and the American nurseryman who will take up the raising of seedling American Azaleas on a large scale will confer a benefit on American gardens.

*Magnolia glauca* of the Atlantic coast region from Massachusetts to Florida is in bloom. No small tree is a more delightful inhabitant of the garden, where it is an object of beauty throughout the year with its bright green branches in winter and its beautiful leaves which are dark green and very lustrous above and silvery white below, and which remain on the branches at the north without change of color until the beginning of winter and in the south till early spring. The small, creamy white, cup-shaped flowers continue to open during many weeks, and especially in the evening fill the air with their delicate pungent odor; they are followed by the cone-shaped fruits which are common to all Magnolias and are showy when the scarlet seeds hang from them on slender threads. Every one with a garden who makes the acquaintance of this plant wants to grow it; it is easily raised from seed, and at the end of three or four years seedling plants are of saleable size. In spite of the demand for it, which would increase if plants could be had, it is almost impossible to find this Magnolia in American nurseries. *Magnolia Thompsoniana* is also in good bloom. This is a hybrid raised in
England many years ago between *M. glauca* and the American Umbrella-tree, *M. tripetala*. It has leaves like the leaves of *M. glauca*, which it also resembles in the perfume of the cup-shaped pure white flowers intermediate in size between those of its parents. Unlike many hybrids which are usually hardier and more vigorous than their parents, *M. Thompsoniana* is less hardy than either *M. glauca* or *M. tripetala*, and sometimes has been killed to the ground in severe winters. The latest of the Magnolias, *M. macrophylla*, now covered with buds, is still to flower. This handsome tree is interesting for it has larger leaves and larger flowers than any other plant of the northern hemisphere beyond the tropics. A native of the south from North Carolina to Louisiana, it is perfectly hardy here; it is best planted, however, in sheltered positions as the leaves are easily torn and disfigured by the wind. These Magnolias are on the right-hand side of the Jamaica Plain entrance east of the Administration Building.

On the Administration Building a plant of the Japanese climbing Hydrangea (*H. petiolaris*) is now in flower. In the country this plant is usually seen climbing up the trunks and spreading over the branches of trees, but it has been found capable of attaching its stems firmly to brick-work and therefore to be useful in covering walls and buildings. The bright green foliage makes a handsome contrast with the broad heads of flowers which are surrounded by a row of neutral ray flowers of medium size. Two shrubby Hydrangeas will soon be in flower in the Shrub Collection, *H. Bretschneideri* from northern China and its variety *setchuenensis* from western China. The former is an old inhabitant of the Arboretum and is a tall, free-flowering shrub well worth a place in all collections. The variety which is less well known appears to be perfectly hardy and equally free-flowering.

Some of the earliest of the large collection of Mock Oranges (*Philadelphus*) are already in bloom. The earliest this year is *Philadelphus hirsutus* of the southern Appalachian region, a tall shrub of rather open habit, with small flowers and of no great ornamental value. The Korean form of *P. Schrenkii* (var. *Jackii*), a plant of columnar habit and the European *P. coronarius*, the Mock Orange of all old-fashioned gardens, are also in bloom. Of the latter there are in the collection a dwarf form which does not often bloom, a form with yellow leaves and one with very narrow leaves (var. *salicifolia*), a distinct and interesting plant.

Other interesting plants now in flower in the Shrub Collection are the Chinese Cotoneaster *hupehensis*, with white flowers which are showier than those of the other species of the genus, and make the plant look like a Spiraea, *Indigofera Kirilowii* from Korea, with pink flowers, *Genista germanica*, and *Spiraea bracteata* from Japan, a large shrub with long arching branches and one of the handsomest of the still little known Spiraeas, *Lonicera Ledebourii* is still in good condition, and *L. Kirilowii amoena* is only just now dropping its lovely pink flowers.

This bulletin will reach its Massachusetts readers at a time when a visit to the Arboretum will repay all lovers of flowers for the Laurels (Kalmias) will be in bloom at the base of Hemlock Hill.

The Arboretum will be grateful for any publicity given these Bulletins.
BULLETIN NO. 59.

The so-called Tree-Lilacs are beginning to flower and promise to be exceptionally fine this year. There are three of these Lilacs, all natives of northeastern Asia, and they differ from the true Lilacs in the short tube of the corolla of the flower from which the stamens protrude, and for this reason were once placed in a different genus, Ligustrina. The three species produce white, bad-smelling flowers with an odor like those of the Privets, and their leaves fall early in the autumn without change of color, in this differing also from the true Lilacs which hold their leaves until late in the season. The first of the Tree-Lilacs to flower, Syringa amurensis, is a native of eastern Siberia; it is a small tree or tree-like shrub with flat, spreading or slightly drooping clusters of ivory white flowers which make a fine contrast with the dark green leaves. The second species to flower is a native of northern China, Syringa pekinensis. This in cultivation is a shrub rather than a tree, although it sometimes reaches in this country the height and spread of branches of thirty feet. The stout stems are more or less pendent at the ends and are covered with lustrous reddish brown bark which readily separates into thin layers, like that of some of the Birch trees. The long, narrow, pointed leaves hang gracefully, and the half-drooping flower-clusters, which are flat and unsymmetrical, are smaller than those of the other plants of this group. Syringa japonica, a native of the forests of northern Japan, is the last of the Tree-Lilacs to flower. This is really a tree, often from thirty to forty feet high, with a tall stout trunk covered with lustrous brown bark, like that of a Cherry-tree, and a round-topped head. The flowers are produced in large, erect, symmetrical clusters which stand up well above the dark foliage and make this Lilac one of the most beautiful of the flowering trees which can be grown in this climate. The Tree-Lilacs are on the bank near the lower end of the Lilac Group, on the left-hand side of the path which passes up through this group. They are best seen, however, from the path which follows the top of the bank on which the Lilacs are planted. There is also a large plant of Syringa japonica among the Crabapples on the left-hand side of the Forest Hills Road, the site of the first Arboretum nurseries. This is one of the original plants raised from seeds sent from Japan to the Arboretum in 1876 by Colonel William S. Clarke, first President of the Massachusetts Agricultural College and of the Agricultural College at Sapporo, by whom this plant through the Arboretum was introduced into gardens. Syringa amurensis still remains comparatively rare in gardens; S. pekinensis has been occasionally planted in those of eastern Massachusetts, but S. japonica is now a common plant in the eastern states. All three species grow poorly in western Europe, and the size of the plants and the masses of flowers which they produce here always surprise European visitors to the Arboretum.

On the walk at the top of the Lilac bank one of the newer Lilacs, Syringa Sweginzovii, is in flower. This plant, which is probably a native of northern China or of Korea, is flowering in the Arboretum for the third year and appears to be perfectly hardy. It flowers very freely and the flowers, which are borne in narrow clusters, are slender with a long tube and are white tinged with rose color, and slightly fragrant. It is one of the latest, if not the latest, of the true Lilacs to flower here and promises to be a valuable garden plant in New England.
In the group of plants belonging to the Elaeagnus or Oleaster Family, on the left-hand side of the Bussey Hill Road above the Lilacs, *Elaeagnus angustifolia* is a conspicuous object. This small tree is a native of southern and southeastern Europe, Asia Minor, and southwestern Asia. It is now in flower but the small, pale yellow, fragrant, axillary flowers are almost hidden by the leaves, and it is in the leaves that the greatest beauty of this tree is found; these are long and narrow like those of some Willows and they are silvery white, retaining this color during the season. No other tree or shrub which is hardy in New England has foliage of such silvery whiteness, and where it is desirable to produce in this climate in a plantation a striking effect by the use of a tree with white foliage *Elaeagnus angustifolia* is the best plant for the purpose. It has sometimes been called the Wild Olive-tree for the reddish brown fruits which ripen in summer resemble in shape small olives.

The native Cornels (*Cornus*) have been largely used in the Arboretum, and the late-flowering species are beautiful here from the middle to the end of June. One of these plants, *Cornus rugosa*, sometimes called *C. cinerea*, is a common native shrub and one of the handsomest of the whole genus. It has green branchlets, broad, rounded pale green leaves, paler and hairy on their lower surface, and conspicuous clusters of creamy white flowers which are followed by beautiful light blue fruits. Like a few other Dogwoods, it is difficult to transplant, but once established it soon spreads into large masses. There are several individuals in the Cornel Group at the junction of the Meadow and Bussey Hill Roads, and large shapely plants can be seen on the bank just above the group of Sassafras trees on the right-hand side of the Bussey Hill Road and below the Benzoin Group. Among the Hickories on the right-hand side of the Meadow Road there are also large groups of this plant. A smaller plant and less showy, perhaps, *Cornus racemosa*, sometimes called *C. paniculata* or *C. candidissima*, is just beginning to open its flowers. This is a common inhabitant of roadsides and wood-borders in this part of the country, and is a round-headed shrub with slender erect stems and creamy white flowers produced in compound oblong clusters. The plant is as beautiful in October as it is in June for the flowers are followed by translucent white berries borne on bright red stalks, making this one of the most interesting of the shrubs which ripen their fruit in mid-autumn. The Silky Cornel (*C. Amomum*) is the last of the native species to flower. This is a large, widespreading shrub and requires abundant space in which to show its beauty of habit. For this reason it should be planted as an isolated specimen or on the borders of ponds or streams, a purpose for which it is admirably adapted. Its purple stems are attractive in winter and the bright blue fruits which ripen in the autumn add materially to the attractiveness of this shrub.

The Arboretum owes much of its early summer beauty to four shrubby species of native Viburnums which have been planted in large numbers through its border plantations and which can be compared in the Viburnum Group on the right-hand side of the Bussey Hill Road near its junction with the Valley Road. The first of these shrubs to flower, *Viburnum dentatum*, is already beginning to shed its flowers which during the summer will be followed by clusters of bright blue fruits. This is a common roadside and meadow shrub in the northeastern part of the country and, like the other American species, improves by cultivation, producing better foliage and handsomer flowers and fruits. The second species of this group, *Viburnum cassinoides*, is now in
flower. This is a native of swamps in the northeastern part of the country where it sometimes grows twenty feet high. In cultivation it has proved one of the handsomest of all the Viburnums introduced into the Arboretum where it forms a round-headed compact shrub. The leaves, which are thick and lustrous vary greatly in size and shape. The flowers are slightly tinged with yellow and are borne in large slightly convex clusters; the fruit is larger than that of the blue-fruited shrubby species, and at first yellow-green later becomes bright pink and finally blue-black and is covered with a handsome pale bloom; fruits of the three colors are found together in the same cluster. The third of these species, *Viburnum venosum*, will not be in flower for another week. This resembles *V. dentatum* in general appearance and in the blue fruit, but the young branches and the under surface of the leaves are covered with a thick coat of stellate hairs. This Viburnum is found growing naturally only in the neighborhood of the coast from Cape Cod and Nantucket to New Jersey. A larger plant with large lustrous leaves and more showy flowers, and larger later-ripening blue fruit, *Viburnum Canbyi*, will not flower for two or three weeks. This plant appears to be confined to eastern Pennsylvania and northern Delaware, where it is by no means common; in cultivation it grows to a large size.

One of the attractive plants now in flower in the Shrub Collection is *Halimodendron argenteum*, the so-called Salt-tree because it inhabits the saline steppes near the river Irtish in Siberia. The pale rose-colored fragrant pea-shaped flowers, which are produced in great profusion, are borne in small clusters, and their delicate beauty is heightened by the color of the leaves which are covered with a silky down. This plant remains in flower during several weeks in the Arboretum and produces abundant crops of pods but the seeds apparently are rarely fertile.

The large and widely distributed genus *Indigofera* of the Pea Family has given a few beautiful small shrubs to our gardens. Two of these can now be seen in good condition on Hickory Path near Centre Street. The showier of the two, *I. Kirilowii*, is a low shrub spreading by underground stems, with ample leaves and comparatively large bright pink flowers in long racemes. It is a native of Korea. With it is a plant of *Indigofera amblyantha*, one of Wilson’s discoveries in western China and a slender little shrub with erect stems and axillary racemes of small rose-colored flowers which are produced continuously through the summer. Among Wilson’s discoveries there is not a more delightful small shrub than this. On the left-hand side of Azalea Path, near its entrance from the Bussey Hill Road are two other species of *Indigofera*, the white-flowered *I. decora* from China, and the purple-flowered *I. Gerardiana* from the Himalayas. The stems of these two plants are killed back to the ground every winter but new stems spring up in the spring, and as the flowers are produced on the new growth the killing of the old stems does not interfere with the flowering of these plants.

The Arboretum will be grateful for any publicity given these Bulletins.
BULLETIN NO. 60.

Most of the conifers still retain the delicate colors of the foliage of their young branchlets, and this is a good time for the lover and planter of these trees to examine the Arboretum pinetum.

Eastern North America is not a good region for these trees. Many of them cannot long bear our hot dry summers, cold winters, and the cold nights, the hot sun and the winds of a New England March. For ornamental planting here better and more permanent results are obtained by the use of deciduous leaved trees and shrubs than by the general planting of conifers and broad-leaved evergreens. Two of the handsomest of coniferous trees, however, are native to this part of the country, the White Pine (Pinus strobus) and the Hemlock (Tsuga canadensis), and where these two trees thrive the lover of evergreen trees need not lack material for his plantations. It can be said generally that the conifers of northeastern North America, the Rocky Mountains, northern, central and southeastern Europe, Siberia, northern China and northern Japan, are hardy in this climate, and that those of the southern United States, Mexico, Central America and the countries south of the equator, the Himalayas and southeastern Asia are not hardy; that only a few of the species of western North America can be safely planted in this climate, and that so far as it is possible to judge by our experience here many of the Pines, Spruces, Firs and Larches which cover the mountain slopes of the Chinese-Tibetan frontier promise to be hardy in New England. In the Arboretum there is probably the largest collection of species and varieties of conifers which can be found in eastern North America, although in a few collections like that at Wellesley in this state, and in the Hoopes Pinetum at West Chester, Pennsylvania, there are larger specimens of several species. Many exotic species are hardy and grow rapidly and vigorously here, but only time can tell whether any of these trees will ever reach here a large size and become permanently valuable as ornamental or timber-trees.

The most interesting thing, perhaps, which the Arboretum has taught about conifers is the fact that when a species is widely distributed over regions of different climates plants raised from the seeds of the trees growing in the coldest parts of the area of distribution of the species are the hardiest. For example, the Douglas Spruce (Pseudotsuga taxifolia) from the shores of Puget Sound, where this tree grows to its largest size, is not hardy here, but the same tree from the high mountains of Colorado is one of the hardiest and most promising of the exotic conifers which have been planted in New England. Abies grandis from the cold Coeur d'Alène Mountains of Idaho has been growing for years in the Arboretum, while the same tree from the northwest coast-region cannot be kept alive here. The same is true of the so-called Red Cedar or giant Arbor-vitae (Thuja plicata) of the northwest. Plants from Idaho are perfectly hardy in the Arboretum and now promise to grow to a good size, while those from the coast are tender here. The experience of the Arboretum with the Cedar of Lebanon is interesting, for this is a famous tree which it is desirable to establish wherever it can be induced to grow. The Cedar of Lebanon of European nurseries is raised from seeds produced in Europe by the descendants of the trees brought originally from the Lebanon in Syria.
Occasionally one of these trees can be seen in the neighborhood of New York and Philadelphia, but it is not hardy in New England. The Cedar of Lebanon also grows on the Anti-Taurus in Asia Minor, a much colder and more northern region than the Lebanon, and in 1901 the Arboretum had seeds collected from the trees in this northern station, and these were sown in the spring of 1902. None of the plants raised from this seed, although planted in exposed situations, have ever suffered and some of them are now from fifteen to eighteen feet high. This experiment may have important results, but a century at least will be needed to show its real success or failure.

Of exotic conifers usually planted in this country it is found that the life here of the Scotch Pine (*Pinus sylvestris*) is usually not more than thirty or forty years. The tree grows very rapidly here, it is perfectly hardy, and, beginning to produce seeds when only a few years old, self-sown seedlings often appear in considerable quantities. The so-called Norway Spruce (*Picea Abies* or *excelsa*) is another hardy, fast-growing European tree which in this climate generally begins to die at the top when forty or fifty years old and is not a success here. Experiments are being made in the Arboretum with seeds of these trees collected from wild trees in Norway and Sweden in the hope that plants raised from these seeds will be more permanent here than European nursery stock which has usually been planted in this country.

The Colorado Blue Spruce, so-called, (*Picea pungens*) promises to be a disappointment. This tree grows naturally near the banks of streams in Colorado, where it is not very common, and never forms forests or large groves; and at the end of a few years it becomes thin and scrawny, with a few short branches found only near the top of the tree. Plants up to twenty or thirty years of age in Colorado and in cultivation are symmetrical, compact and very handsome. No conifer of recent introduction has been raised in such large quantities by nurserymen here and in Europe, and few ornamental trees have been more generally planted in the last twenty years. This must be considered a misfortune, for judging by old trees in Colorado and by the oldest trees in cultivation, this Spruce cannot be for any length of time a valuable addition to our plantations. It was discovered by Dr. Parry in 1862, and one of the trees raised from seeds which he sent at that time to Asa Gray is growing on the southern slope of Bussey Hill in the Arboretum. This specimen very well shows what this tree looks like at fifty years of age. The other Colorado Spruce, *Picea Engelmannii*, although it grows more slowly, promises to be a more permanently valuable ornamental tree than *Picea pungens*; certainly as it grows in Colorado, where it once formed great forests, at high altitudes, it is one of the most beautiful of all Spruces. The trees in the Arboretum were raised here from seeds collected in Colorado in 1879 and are believed to be the finest specimens in cultivation. They are narrow, compact, symmetrical pyramids and until a year or two ago were furnished with branches to the ground; now they are beginning to lose their lower branches and therefore are losing some of their beauty as specimen trees.

It is found here that the northern White Spruce (*Picea canadensis*) grows rapidly and is very handsome for about thirty years, and then begins to become thin and unsightly probably because our climate is too warm for this cold country tree. It is found here, too, that the Red Spruce (*Picea rubra*), the great timber-producing Spruce-tree of
the northeastern United States, is rather difficult to establish and grows more slowly than any other conifer in the collection, and that the two Balsam Firs of the eastern states (Abies balsamea and A. Fraseri) are in cultivation short-lived and are of no value as ornamental trees; and that this is true, too, of one of the Rocky Mountain Firs, Abies lasiocarpa, and of the Siberian Abies sibirica.

Of native conifers in the collection, which now after a trial of from twenty to thirty years promise to be most valuable in this climate, the Rocky Mountain form of Abies concolor is the most beautiful at thirty years of age of all the Firs which can be grown here. Abies brachyphylla from Japan, with leaves dark green above and silvery white below, Picea omorika from the Balkans, a narrow pyramidal tree which seems to grow as well in western Europe as it does in New England, are promising trees. Abies cilicica from Asia Minor, Pinus parviflora from Japan, and P. Koraiensis, from Siberia, Manchuria and Korea, a valuable timber tree in its native country, are also promising. Pinus monticola from western America, the western representative of our eastern White Pine, is perfectly hardy here, but as an ornamental tree is in no way superior to the eastern species. Tsuga caroliniana from the Blue Ridge of North and South Carolina, although smaller is a more graceful and beautiful tree than our northern Hemlock. First raised from seeds in the Arboretum in 1881, it gives every promise of being one of the most desirable ornamental conifers which can be grown in this climate. The collection of the forms of the native Arbor-vitae (Thuja occidentalis) in the Arboretum is a large one and is now in excellent condition, and well worth a visit by any one interested in the seminal varieties some trees are capable of producing. This tendency to variation, appears, too, in the Japanese Retinosporas (Chamaecyparis obtusa and pisifera) which are planted next to the Arbor-vitae.

Although Yews are not technically conifers, it may be said that the Japanese Taxus cuspidata and its variety brevifolia have come through another winter entirely uninjured, and that there is no reason for modifying the statement already made in these bulletins, that these are the most valuable plants which Japan has contributed to New England gardens, in which the Japanese Yew seems destined to become our best hedge plant. A low form of Taxus baccata (var. repandens) has proved very hardy in the Arboretum, and for this climate appears to be the most desirable form of the European Yew.

Of trees related to the Yews the hardest here, with the exception of the well-known Gingko-tree, is the Japanese Torreya, T. nucifera. This in Japan is a large tree with a tall trunk and a dense head of dark green foliage. It should appeal to Americans as it bears the name of a distinguished American botanist, and to the student of trees it is interesting because it is the latest of all the conifers or conifer-like trees to begin its annual growth, the leaf-buds now only just beginning to expand. There is a group of these Torreyas among the Laurels at the base of Hemlock Hill, and near them is growing the largest specimen of the Japanese Yew in the Arboretum.

The Arboretum will be grateful for any publicity given these Bulletins.
The most important summer-flowering trees, the Lindens (Tilia) are beginning to bloom and the fragrant flowers of the different species will perfume the air during a large part of the month of July. In the collection are the three species of the northern United States, *Tilia americana*, *T. Michauxii*, and *T. heterophylla*, all the European species, and several species from eastern Asia. Usually the trees of eastern Asia are more successful in this climate than those of the same genus from Europe, but to this general rule *Tilia* is an exception. All the European species and their hybrids and varieties flourish in New England, but the Asiatic species are showing themselves bad growers here, and only the Japanese *T. japonica* and the north China *T. mongolica* have ever grown large enough in the Arboretum to flower and produce seeds. The latter is a small and apparently short-lived tree of only botanical interest. *Tilia japonica* is also a small tree here with drooping branches and light green foliage; it is one of the late-flowering species and is conspicuous in early spring as it unfolds its leaves a week or two before those of any of the other Lindens in the collection appear.

The flowers of *Tilia platyphyllos* have been open for several days. This is the most widely distributed of European Lindens especially in the south, and it may be recognized by the yellow tinge of the leaves, by the thick covering of short hairs on their lower surface and on the leaf-stalks, and by the prominent ribs of the fruit. It is not the handsomest of the European Lindens, but it is the tree which is usually sold by American nurserymen as "the European Linden." There are varieties with leaves larger than those of the type (var. *grandifolia*), with erect branches forming a broad pyramidal head (var. *pyramidata*) and with variously divided leaves (vars. *lanceolata* and *vitifolia*). A handsomer tree, *Tilia cordata*, is the common Linden of northern Europe where it sometimes grows to a large size, the old historical Linden-trees of the north and central countries usually being of this species. This tree may be recognized by its small, thin, more or less heart-shaped leaves which are pale on the lower surface and furnished with conspicuous tufts of rusty brown hairs in the axils of the principal veins. It has not been often planted in this part of the country, although it is specially valuable, for it is the latest of the Lindens to flower and supplies bees with food after the flowers of the other Lindens have faded.

The handsomest, perhaps, of the Lindens of western Europe is by many students considered a natural hybrid between the two species already described, and is variously called *Tilia vulgaris*, *T. europaea*, *T. intermedia* and *T. hybrida*. Although widely distributed in Europe, this tree appears to be much less common than either of its supposed parents. It is a tall, round-headed tree, and large noble specimens can be found in the neighborhood of Boston where formerly it must have been more often planted than any of the other foreign Lindens.

Two Lindens occur in eastern Europe, the Silver Linden, *Tilia tomentosa*, and *T. petiolaris*. The former is a tree with erect-growing branches which form a broad, compact, round-topped, rather formal head, and erect leaves dark green above and silvery white below; this distinct-looking tree is not very common in eastern Massachusetts, but it can be often seen in the neighborhood of New York and Philadelphia. *Tilia petiolaris* is a more beautiful tree; this also has leaves which are silvery white on the lower surface, but drooping on long slender stalks they
flutter gracefully, in the slightest breeze. The branches, too, are drooping and form a narrow open head. This tree is not known in a wild state, and all the plants in cultivation have been derived from a single individual found many years ago in a garden in Odessa. A supposed hybrid of this tree with *Tilia americana* (*T. vestita*), often sold in nurseries as *T. alba spectabilis*, is one of the most beautiful Lindens with leaves of the size and shape of those of *T. americana* but silvery white on the lower surface. In Europe much attention is paid to another supposed hybrid Linden, *T. euchlora* or, as it is more generally known, *T. dasystyla*. This is a fast-growing, pyramidal tree with dark green leaves, and is now largely planted as a street-tree in Germany and Holland. It is hardy here and promises to be a useful tree in New England.

*Tilia americana*, which will not be in flower for several days, is a common northern tree, growing probably to its largest size along the northern borders of the United States from Nova Scotia to Minnesota, and easily distinguished by the green and shining lower surface of the large leaves which have no hairy covering with the exception of the conspicuous tufts in the axils of the principal veins. The leaves of this tree cultivated near Boston are often made brown, especially in hot dry summers, by the red spider which, however, can be controlled by spraying with arsenate of lead. *Tilia spectabilis* is believed to be a hybrid between this American tree and the European *T. tomentosa*. It is a vigorous, fast-growing tree, and holds its foliage in the autumn much later than its American parent. In some European nurseries it is sold under the name of *Tilia Moltekii*. *Tilia Michauxii* is a common tree in the northern states and is distributed from the valley of the St. Lawrence River to the mountains of North Carolina, and to Missouri and Arkansas. It may be readily distinguished by the thin covering of pale brownish hairs on the lower surface of the leaves. The third of the Linden trees of the northern states grows from western New York to northern Alabama, and through Kentucky to southern Indiana and Illinois, reaching its largest size and greatest beauty in the forests which cover the high slopes of the mountains of North Carolina and Tennessee. The leaves of this tree are larger than those of the other American Lindens, oblong in shape, very oblique at the base and silvery white on the lower surface, and, hanging on long slender stalks, the slightest breeze makes them turn first one surface and then the other to the eye. This beautiful and perfectly hardy tree appears to be rarely cultivated. The Lindens, of which there is a large collection in the Arboretum, may be seen in the meadow on the right-hand side of the Meadow Road entering from the Jamaica Plain entrance.

The collection of Grapevines on the trellises at the eastern end of the Shrub Collection is one of the most complete and important groups in the Arboretum and should be visited by every one interested in hardy vines or in seeing the decorative value of some of our native Grapevines which are still little known to gardeners. All the species of eastern North America, with the exception of two or three from the extreme south, and several exotic species are well represented in the collection and they all have decorative value.

In the Shrub Collection *Hypericum Buckleyi*, the earliest of the St. John's Worts to bloom, is now covered with its small yellow flowers. It is a dwarf plant only a few inches high, but spreads into a broad mat. In the Shrub Collection, too, the two forms of Zenobia are in bloom, and among Andromeda-like plants hardy in this climate none
produce such large and beautiful flowers. This inhabitant of the coast region of the southern United States is perfectly hardy in northern gardens.

In the Shrub Collection the European *Cytisus nigricans*, with its erect racemes of bright yellow pea-shaped flowers, is now in bloom, and this little shrub is one of the best plants of its class which can be grown successfully in this climate. The latest flowering Bush Honeysuckles, the European *Lonicera iberica*, with pale yellow flowers, and *L. involucrata*, var. *serotina* from the Rocky Mountains, with its yellow tubular corollas, are still in flower, although the fruits of some of the early-flowering plants in this group are already ripe, like the different forms of the blue-fruited *L. coerulea* and the red-fruited *L. Altimannii* from central Asia. From now until December there will be beautiful and often showy fruits on some of the Bush Honeysuckles.

Conspicuous plants now in bloom are the Silky Cornel, *Cornus Amomum*, the last of the genus to flower, and *Viburnum Canbyi*, the latest species of this interesting genus. In cultivation this shrub grows to a large size, forming a broad, round-topped bush ten or twelve feet high and flowering freely every year. The fruit is larger and ripens later than that of the other blue-fruited species. Several species of Tamarisk are now in flower and can be seen in a bed by the path in the rear of the Linden Collection where this genus has been planted. The pure white fragrant flowers of *Rhododendron (Azalea) viscosum* are open; those of *Magnolia glauca* still fill the air with delicate perfume, and the flowers of *Rhododendron maximum*, the last of the evergreen-leaved Rhododendrons to bloom, can be seen at the base of Hemlock Hill. The Sumachs are beginning to open their flowers, and many different kinds of the Burning Bush (Evonymus) are in bloom opposite the group of Sumachs on the Meadow Road, among them the broad-leaved form of the evergreen Evonymus (*E. radicans* var. *vegetus*) is unusually full of flowers this year and therefore will be exceptionally beautiful in autumn when its fruit ripens. Attention is again called to this plant as the best of the various forms of this Japanese Evonymus, which is the only perfectly hardy evergreen vine which can be grown in this part of the country.

There are still several interesting trees and shrubs to flower. Among them are the North American Sorrel-tree, *Oxydendrum arboreum*, and the North American Hercules' Club, *Aralia spinosa*. These two trees are among the Laurels at the base of Hemlock Hill. Other trees to flower are the Chinese *Koelreuteria paniculata*, with its great clusters of bright yellow flowers, *Sophora japonica*, *Maackia amurensis*, *Aralia chinensis*, and *Acanthopanax ricanfolius*, all natives of eastern Asia, and the last one of the rare trees of the Arboretum, where it is conspicuous with its great leaves like those of some tree of the tropics and large clusters of small white flowers. The Yuccas, the lovely *Clethra alnifolia* of the Atlantic coast, and *Panax sessiliflorus* from the coast of northeastern Asia, are still to flower. The Chinquapin (*Castanea pumila*) is already covered with flowers, and these in a few days will be followed by those of the native Chestnut-tree. For many weeks to come, therefore, the lover of flowers can find much of interest in the Arboretum.

These bulletins will now be discontinued until the autumn.

The Arboretum will be grateful for any publicity given these Bulletins.
The flowers of woody plants are not common in this climate at the end of September, but visitors to the Arboretum will still find a few interesting plants in bloom. The most conspicuous, perhaps, is the Manchurian and north China Aralia chinensis which can be seen in the Aralia Group near the junction of the Meadow and Bussey Hill Roads. It is a near relative of the so-called Hercules' Club (Aralia spinosa) of our southern woods and, like the American plant, it has stems covered with prickles, large, compound, dark green leaves, and immense clusters of small white flowers which are followed by small shining black fruits. The American plant is not quite as hardy as its Asiatic relative, but it is now well established on the margin of the woods at the northern base of Hemlock Hill in the rear of the Laurels, where it is spreading by underground shoots. The plants are just past flowering.

The Japanese Hydrangea paniculata and its monstrous form, on which all the flowers are sterile (var. grandiflora) are in bloom. The latter is one of the most generally planted shrubs in the United States, although it is a much less interesting and less beautiful plant than the still comparatively little known normal form. The two are growing side by side in the Shrub Collection. In the Shrub Collection, too, the handsome Elsoltzia Stauntonii is in full flower and now at its best. This member of the Mint Family, and a native of northeastern Asia, has long erect spikes of rosy pink flowers and light green foliage. One of the comparatively recent introductions of the Arboretum, it is only beginning to appear in American and European gardens. Near it in the Shrub Collection Vitex incisa from northern China is in flower. Although this plant is a native of a cold region the stems are often killed back to the ground here in severe winters, but as new stems grow several feet tall during the season, and as the flowers are produced on the new growth, this killing back improves rather than injures the flowering of this shrub which at this time of the year is attractive with its finely divided leaves and slender erect clusters of small rose-colored flowers. The flowers of the true Heathers (Calluna) have already passed but flowers may still be seen on the Cornish Heath, Erica vagans, and the Trumpet Creepers from the central and southern states are still producing flowers on the trellis at the eastern side of the Shrub Collection.

On the upper side of Hemlock Path, near Centre Street, small plants of Gordonia Altamaha are now in bloom and during several weeks will continue to open their white cup-shaped flowers which resemble those of a single-flowered Camellia. This tree is a native of southern Georgia where it was discovered late in the eighteenth century. Although often hunted for, it has not been seen growing wild for more than a hundred years, and has only been preserved by the cultivated descendants of the plants introduced by its early discoverers. This Gordonia flourishes in the neighborhood of Philadelphia but it is not very hardy in the Arboretum, and it is surprising that it was uninjured by the severity of last winter which destroyed so many hardier plants. On Hickory Path, near Centre Street, Indigofera amblyantha, which has been in flower for nearly three months, still continues to
produce its slender erect spikes of rose-colored flowers. This is one of Wilson's discoveries in western China and one of the most beautiful of the small hardy shrubs of recent introduction.

The name *Ulmus campestris* has been selected by recent writers on European trees for the Elm of the hedge rows of southern England, which was largely planted a century ago in eastern Massachusetts chiefly, no doubt, through the agency of a Major Paddock who established a nursery of this tree in Milton. The large English Elms which once flourished on Boston Common were of this species, and large specimens can still be seen in several of the Boston suburbs. The origin of this Elm is unknown. It does not produce seeds propagating itself by suckers, and is known to grow spontaneously only in some of the counties in southern England, and in a few parks near Madrid, in which it is now known to have been introduced from England many years ago. It is a noble tree, able to adapt itself to various climatic conditions, and well suited to those of New England; indeed no other exotic tree, with the exception of the European White Willow, has been here so long or grown to such a large size. Another English Elm, *Ulmus vegeta*, usually called the Huntington Elm, a supposed natural hybrid between two European species, *Ulmus nitens* and *U. glabra*, the so-called Scotch Elm, grows to a larger size than *Ulmus campestris* and is perhaps the fastest growing of all Elm trees. An Elm of this kind in the deer park of Magdalen College at Oxford, supposed to have been planted at the time of the Restoration, was blown down in April, 1911; it was one hundred and forty-two feet high, with a trunk circumference at four feet from the ground of twenty-seven feet. This was believed to be the largest tree in Great Britain and perhaps in Europe. *Ulmus vegeta* is a tree with paler bark than that of *Ulmus campestris*, large main branches spreading at narrow angles, giving the tree a vase-shaped form, rather pendulous branchlets and larger leaves than those of *Ulmus campestris*, and usually only slightly roughened on the upper surface. This tree is not rare in English parks and has been largely planted in Cambridgeshire where in the neighborhood of Cambridge there are many fine specimens. Brooklands Avenue in that city, planted with this tree in 1830, shows its value for such planting, for in all England there is perhaps not a better example of an avenue of planted trees. The Huntington Elm was certainly introduced into New England much later than *Ulmus campestris*, and probably the oldest trees here are not more than sixty or seventy years old. This Elm is perfectly hardy here, it grows with surprising rapidity, and if exotic Elms are to be planted in the United States it may well be more generally used here than it has been.

Persons interested in the plants best suited for the parks and gardens of eastern North America can find much to learn in the Arboretum from this time until the end of the year, for it is in the autumn that conifers are seen to the best advantage and that the mature leaves of the few broad-leaved evergreens which flourish in this climate best show the beauty and value of these plants for the late autumn and winter garden. Perhaps nowhere else are so many different plants with brilliant autumn foliage and handsome and abundant autumn fruits assembled; and in no other garden can such plants be so easily and conveniently studied. Such plants give a character and beauty to the autumn garden which can be found only in eastern North America, and
perhaps in Japan where the leaves of many of the native trees and shrubs assume brilliant colors before they fall.

The autumn color of a few plants is already brilliant. The earliest of the American trees to change the color of its leaves is the Red or Scarlet Maple, *Acer rubrum*. On specimens of this tree growing in swamps the leaves are now often bright scarlet, while on trees growing on higher and drier ground the leaves are still bright green or only slightly tinged with red. The so-called Water Willow, *Decodon verticillatus*, often known as *Nesaea*, is a native of all the region from Maine to Florida and Louisiana, and is a shrub with arching stems growing only in the wet, often submerged borders of streams and ponds where it often spreads into broad thickets. By the borders of the ponds in the Arboretum the leaves of this plant are already bright scarlet, and for a few weeks the plants will be conspicuous among the green sedges and swamp grasses with which they are associated.

The leaves of some of the forms of the so-called Virginia Creeper of eastern North America are already bright scarlet. The earliest to adopt its autumn dress and now in brilliant color is *Parthenocissus vitacea*. This plant rarely has adhesive discs at the ends of the tendrils, and therefore cannot attach itself to the trunks of trees or to brick and stone walls, like *Parthenocissus quinquefolia* which is often sold in nurseries as *Ampelopsis Englemannii*. There are many forms of the Virginia Creeper which can be seen on the trellis near the entrance to the Shrub Collection from the Forest Hills Gate.

A few of the fruits which ripen in early autumn are already conspicuous. There is perhaps no shrub more beautiful in the autumn than one of the American Cornels, *Cornus rugosa*, or, as it is sometimes called, *C. circinata*. It is a tall, broad, round-headed shrub with greenish branches and round, oval, dark green leaves; the flowers are not more showy than those of the other Cornels, but the clusters of light blue fruits on red stalks make them objects of much interest and beauty. There are a number of these plants in the Cornel Group at the junction of the Meadow and Bussey Hill Roads, and there are great clumps of it among the Hickories and in other parts of the Arboretum. The red Osier Cornell, *Cornus racemosa*, often called *C. stolonifera* or *C. candidissima*, is also beautiful at this season, for the leaves are beginning to turn dark red and the plants are covered with abundant clusters of white fruits on bright red stalks. This plant has been largely used in the Arboretum; it spreads rapidly into large, dense clusters, and with its good foliage, abundant flowers and beautiful fruits, few shrubs are more desirable for park and roadside plantations.

The fruit of some of the new Chinese Cotoneasters is handsome and the autumn coloring of their foliage is often splendid. Most of these plants are perfectly hardy, and among them are certainly some of the most valuable garden shrubs of recent introduction. They can be seen in the special Chinese Collection on Bussey Hill and in the Shrub Collection, and deserve study with reference to the autumn garden.

The Arboretum will be grateful for any publicity given these Bulletins.
In spite of the severity of the past winter and the injury which it caused, and of the drought of September and October which has been of exceptional length, the Arboretum on the whole does not look bad, and for lovers of plants there is much of interest to be seen here this year in the early weeks of November. The conifers, with few exceptions, are in good condition, although the leading shoots of a few species have been destroyed by a borer, the White Pine Weevil (Pissodes strobi). The species which are injured by this pest nearly every year in the Arboretum are the Himalayan White Pine (Pinus excelsa), the White Pine of western China (Pinus Armandi), the Oriental Spruce (Picea orientalis), and the Balkan Spruce (Picea omorika). The Balkan Spruce is the last European tree brought into cultivation; it is a beautiful, fast-growing and perfectly hardy tree which on the mountains of southwestern Europe sometimes grows to a large size and is highly valued as a timber tree. In this country, or at least in the Arboretum, it does not promise to become valuable as an ornamental tree unless the ravages of the White Pine Weevil can be stopped. There is no indication yet that many of the new Chinese conifers, especially the Pines and Spruces, will not flourish in this climate. The Larches are perhaps less promising, and the Firs, although some of them may prove hardy, grow badly in the nursery and do not give promise of much value here.

A few of the conifers in the Pinetum which are particularly interesting just now are the Colorado White Fir (Abies concolor), the Japanese Abies brachyphylla and A. homolepis, the Carolina Hemlock (Tsuga caroliniana), and three Japanese Pines, Pinus parviflora, P. Thunbergii, and P. densiflora. There are good plants of a dwarf form of the last in the collection of dwarf conifers to which attention is called. This dwarf is a common plant in Japanese gardens and should be better known in this country, for it is one of the handsomest of all dwarf conifers among which are many decorative garden plants. Among other conifers which should be studied at this time are Englemann’s Spruce (Picea Engelmanni), the Colorado form of the Douglas Fir (Pseudotsuga mucronata), the Siberian Spruce (Picea obovata), the western White Pine (Pinus monticola), the different forms of the Black Pine of Europe (Pinus nigra, laricio, etc.), and some of the eastern North American Pines, notably Pinus resinosa, P. virginiana, and P. Banksiana.

The few broad-leaved evergreens which can be grown successfully in this climate are in good condition, and Laurels (Kalmia) and all Rhododendrons now promise abundant flowers for next year. The evergreen Hollies are beautiful now. Ilex opaca is covered with its large red berries and is interesting because it is the only broad-leaved evergreen tree which is hardy in the Arboretum. Although less beautiful than the European Holly with its lustrous leaves, it should be more often seen in eastern American collections in which north of Washington the European tree is not hardy. The native Inkberry (Ilex glabra) is one of the most valuable of the evergreen shrubs which can be grown in this climate. It is a round-topped plant, occasionally five or six feet tall, and is very common in the neighborhood of the coast from New
England to Texas. As an ornamental plant it is chiefly valuable for its small shining leaves which nearly completely hide the small black fruits which remain on the branches during the winter. A large mass of this Holly can be seen on the Bussey Hill Road opposite the Laurels at the northern base of Hemlock Hill. Only one other Holly with evergreen leaves has proved hardy in the Arboretum. This is the Japanese Ilex crenata, which is a taller growing and narrower plant than Ilex glabra, with darker green leaves and larger black fruits. There are several of these Hollies on the lower side of Azalea Path.

Several shrubs are more beautiful now than at any other season of the year, especially those with showy fruits which retain their leaves late into the autumn with little or no change of color. Among such plants not one perhaps is more beautiful than the common European Privet (Ligustrum vulgare) which has been cultivated for centuries and has become naturalized in the eastern United States. This plant bears at the ends of the branches large clusters of shining black berries which now make a fine contrast with the dark green leaves. The European Privets are in the Shrub Collection where they are planted with a number of Asiatic deciduous-leaved species, to all of which they are superior as decorative plants at this season of the year.

There are few more beautiful shrubs in the Arboretum at this time than the variety (var. podocarpa) of the eastern Asiatic Lonicera Maackii which was discovered by Wilson in western China, for its leaves are still green and perfectly fresh, and its branches are covered with bright red fruits. This is a large, vigorous, fast-growing, and perfectly hardy shrub with wide-spreading branches and requires a good deal of space in which to show its real beauty. From the northern Lonicera Maackii, a native of the Amoor region, the leaves have mostly fallen, but the erect growing branches are covered with scarlet fruits. The flowers of the northern plant are pure white and larger than those of any other Bush Honeysuckle.

Photinia is a genus of the Rose Family related to the Apples, with a few species of small Asiatic trees. Two of these plants, Photinia villosa and its variety laevis, thrive in the Arboretum and may now be seen in the Shrub Collection covered with their small red fruits. These little trees succeed perfectly in this climate; their small white flowers are freely produced in spring in many-flowered clusters, and their fruit remains a long time on the branches, especially that of the variety, from which it sometimes does not entirely disappear until the end of winter. This plant has been largely planted in the Boston parks, and several good specimens can be seen along the borders of the Francis Parkman Road.

The trees and shrubs of Japan usually retain their leaves later than the related American species, and as the leaves of many Japanese plants take on brilliant colors in the autumn they are valuable for prolonging the beauty of the autumn garden. It is interesting to find that this late changing of color is common also among many of the plants of western China. This is particularly noticeable in the new species of Cotoneaster discovered by Wilson. The leaves of nearly all these plants are still perfectly green, and probably by the middle of November they will be bright scarlet, or in some species scarlet and orange. These plants have late ripening, red or black fruits which greatly add to their beauty, and among them are certainly some of the most val-
usable shrubs of recent introduction. There are now many good specimens of these Cotoneasters on Bussey Hill and they deserve the attention of all lovers of hardy plants, especially *Cotoneaster divaricata*, *C. foetidissima* and *C. Dielsiana*, the leaves of which turn brilliant colors, and the different forms of *C. horizontalis*, low shrubs with wide-spreadning nearly prostrate branches. These have small lustrous leaves which in this climate do not fall before Christmas, and small red berries. No shrubs are better suited for the decoration of the rock garden.

Among the American Hawthorns which show their greatest beauty in November may be mentioned *Crataegus cordata*, *C. nitida* and *C. persistens*. The first of these plants, the so-called Washington Thorn, is a narrow, slender tree, which sometimes attains the height of twenty or thirty feet. The flowers are small, creamy white, and do not open here until nearly the middle of June, and the small, scarlet, shining fruits, which ripen late in October, remain on the trees without much change of color until the spring. As the fruit begins to show its bright color the small triangular leaves turn to shades of orange and scarlet. *Crataegus nitida* is a native of the bottom-lands of the Mississippi opposite the city of St. Louis; it is a large tree with slightly spreading pendulous branches forming a large, open, round-topped head. The leaves are narrow, long-pointed and very lustrous; the flowers are pure white, of medium size, and produced in numerous clusters which cover the upper side of the branches. The scarlet drooping fruit, which is also of medium size, ripens late just as the leaves turn orange and scarlet. This is one of the handsomest of the American Hawthorns and has grown to a large size in the Arboretum. *Crataegus persistens* retains its leaves, which are now as green as they were in mid-summer, after those of all other Hawthorns have fallen, and the crimson fruit remains on the branches until spring, making this tree in winter the most conspicuous of the deciduous-leaved plants hardy in New England. It resembles in the shape and in general appearance of the leaves some of the Cockspur Thorns of eastern North America. Raised many years ago at the Arboretum from seeds received from the Paris Museum, its native country is still unknown. The largest plant of this tree in the country, and the type of the species, can be seen among several large Hawthorns at the foot of the bank on the pathway near the Forest Hills entrance to the Arboretum, where it is now the only plant with perfectly green leaves.

The only shrub now in flower in the Arboretum is the Witch Hazel of the northern states (*Hamamelis virginica*) which is covered with its yellow flowers.

These bulletins will now be discontinued until spring.

The Arboretum will be grateful for any publicity given these Bulletins.