Magnolia virginiana. This tree, better known perhaps as Magnolia glauca, is now in full bloom in the Magnolia Group on the right hand side of the Jamaica Plain entrance to the Arboretum, and has already been mentioned this year in a previous Bulletin. Its value as a garden plant in this climate, however, cannot be too often insisted on or its rarity in American gardens too often vigorously deplored. No one certainly can deny that it is the most beautiful shrub or small tree which is native to New England, and yet there is hardly an American nursery now from which it can be obtained. In this climate it is sometimes a slender tree thirty feet high with a trunk rarely more than twenty inches in diameter, with small, erect, ultimately spreading branches and slender bright green branchlets always pubescent when they first appear, soon becoming glabrous and marked by narrow, horizontal, pale lenticles gradually turning bright red brown in their second summer; often, however, growing as a shrub not more than ten or twelve feet high. The winter-buds are covered with fine silky pubescence, the terminal being from half an inch to three-quarters of an inch in length. At the north M. virginiana is found in deep swamps, its most northern station being near Magnolia in Essex County, Massachusetts. It grows also on Long Island, New York, and southward from New Jersey generally in the neighborhood of the coast to southeastern Virginia and rarely North and South Carolina. In Pennsylvania it ranges as far west as the neighborhood of Chambersburg in Franklin County. In the southern states it is usually replaced by the variety australis which differs in the thick silky pubescence on the pedicels and branchlets, and in the leaves which are persistent without change
of color until spring. This is a tree sometimes ninety feet in height with a tall straight trunk occasionally three feet in diameter and short branches forming a narrow round-topped head, and branchlets usually becoming glabrous in their second year. This beautiful tree, which of course is not hardy in New England, is found on the borders of pine barren ponds, in shallow swamps and on rich hummocks usually in the neighborhood of the coast from the lower Cape Fear River near Wilmington, Delaware, to southern Florida. It is common in the interior of the Florida peninsula and ranges westward to the valley of the Nueces River, Tennessee, and to Alabama, northern Mississippi and Louisiana. *Magnolia major* or *Thompsoniana*, which is a probable hybrid between *M. virginiana* and another North American species, *M. tripetala*, was raised in an English nursery more than a century ago and is still sometimes found in gardens and is intermediate in character between its parents.

**Catalpas are trees of the Bignonia Family and grow naturally only in eastern North America, the West Indies and northern and central China. They all have large simple leaves and large terminal clusters of two-lipped flowers followed by long slender pods containing many thin seeds furnished at the ends with long tufts of pale hairs. All the Catalpas and one or two of their hybrids are growing in the Arboretum with the exception of the species from the West Indies. The first Catalpa, *C. bignonioides*, which attracted the attention of botanists and gardeners was sent from South Carolina to England early in the eighteenth century. This for a long time was the only American species cultivated in Europe or the United States, but forty or fifty years ago it became known that another species grew in the valley of the Ohio River and southward along the Mississippi River as far south as western Tennessee and northeastern Arkansas. To this Catalpa the name *speciosa* has been well given as it is now known to be the largest, the hardiest and the handsomest of all Catalpa trees. It is the earliest of all the species, too, to bloom, and it is now covered with flowers which are larger than those of the other species. On the rich alluvial bottom lands of the Mississippi River this tree has often grown to the height of one hundred and twenty feet and formed a trunk four and a half feet in diameter. In New England it will never grow to that size, but although it was introduced into the eastern states less than fifty years ago trees in eastern Massachusetts are already forty feet high and have been flowering and ripening their seeds for many years. Catalpas produce soft wood which is remarkably durable when it comes in contact with the soil, and in some of the middle western states large plantings of *Catalpa speciosa* have been made to supply fence-posts, for which the wood is admirably suited, and railway ties for which it has proved too soft. The other American species, *Catalpa bignonioides*, probably originated somewhere in the southeastern part of the country, but it has been so spread by escapes from planted trees that it is no longer possible to determine the location of its first home. It was for many years one of the common planted trees in the middle and southern states, and specimens are still occasionally seen in southern New England. Now, however, when one wants to plant a Catalpa tree in this country he finds in nurseries only *C. speciosa*. The more southern species is a smaller tree with shorter-pointed leaves; it grows
less rapidly and blooms two or three weeks later than the eastern species. The flowers are smaller, in shorter and more compact clusters, and the pods are smaller with thicker walls. There is a dwarf form of C. bignonioides (var. nana) which grafted on the stem of one of the tree Catalpas has in recent years been largely planted in this country for the supposed decoration of gardens which are more or less formal in character. It is not known where the dwarf form originated, and if it has ever flowered the fact is not known at the Arboretum. The fact that it is universally sold in American nurseries under the name of Catalpa Bungei causes confusion for that name properly belongs to a tree from northern China. This Chinese tree has narrow, long-pointed, dark green leaves, small yellowish flowers and small pods. It has been growing in the Arboretum since 1904, and was perfectly hardy until the winter of 1916-17 when one of the trees was killed to the ground and others were more or less injured. They have now recovered, but this Catalpa has not yet flowered in the Arboretum. Compared with the American species it has no value as an ornamental tree. Another Chinese species, Catalpa ovata, was sent many years ago to this country from Japan where it has long been cultivated. It is a small tree with comparatively small, dark green leaves, many-flowered clusters of small, yellowish spotted flowers, and slender pods. This tree, which will grow in regions too cold for the American species, has been somewhat planted in the United States, although as an ornamental tree it does not have much to recommend it. In this country it has proved most valuable as one of the parents of the natural hybrid, Catalpa hybrida, which appeared several years ago in the Teas Nursery at Baysville, Indiana, and is often called C. Teasii and Teas Hybrid Catalpa. This is a fast growing and hardy tree with flowers like those of C. bignonioides, the American parent, although smaller but in larger clusters, and leaves in shape resembling those of C. ovata. One of two species introduced by Wilson from central China, C. Fargesii, is still living but gives little promise of ever becoming a valuable addition to the number of summer flowering trees which can be successfully used for the decoration of New England gardens.

Oxydendrum arboreum, the Sorrel-tree or Sour Wood, is a native of the southern Appalachian mountain forests and the only tree of the Heath Family which can be grown in this climate, with the exception of the Laurel (Kalmia latifolia) and the Rose Bay (Rhododendron maximum) which are shrubs at the north and only exceptionally trees in a few favored valleys of the southern mountains. The Sorrel-tree in its native forests grows fifty or sixty feet high, but at the north as it begins to flower abundantly when only a few feet tall it is not probable that in this climate it will ever attain a considerable size. It is well worth growing, however, for its bright green shining leaves which have a pleasant acidulous flavor and in autumn turn bright scarlet, for its white Andromeda-like flowers erect on the branches of spreading or slightly drooping terminal clusters, and for its pale fruit which in the autumn are conspicuous among the brilliant leaves. There is a group of these plants among the Laurels at the northern base of Hemlock Hill which will flower at the end of July or early in August.
Evonymus radicans is the only evergreen climbing plant really hardy in this climate which can attach itself firmly to stone, brick or concrete walls. There are a number of varieties of this variable plant in cultivation, and the handsomest of them is the broad-leafed form from northern Japan, known as var. vegetus. This plant can grow in Massachusetts to the eaves of a tall house and completely clothe its walls with a cover which grows thicker by an annual shortening of the branches, or if a wall is not provided for it to cling to it will grow as a low, round-topped, dense shrub. Like the other forms of the species it can also be used to cover the ground under trees and shrubs, but as a ground cover it is improved by occasional clipping. The variety vegetus is now covered with its small yellow green flowers which will be followed by abundant pink fruits, which add greatly to the decorative value of this variety which is the only form of E. radicans which has flowered in the Arboretum. Extreme cold in occasional winters has injured the leaves on many plants of the variety vegetus in eastern Massachusetts, but the buds were not hurt and the branches were soon covered with a new crop of leaves.

Genista tinctoria. Of the small, yellow-flowered shrubs of the Pea Family, which are such a feature of the flora of southern and southeastern Europe and are so highly valued in the gardens of western Europe, the best known in Massachusetts is the Woad Wax, Genista tinctoria. Brought early from England as a garden plant it long ago escaped from a Salem garden and has spread over and ruined hundreds of acres in Essex County. Planted in the Arboretum it has spread among the native plants like dwarf Roses and Goldenrods which form a considerable part of the ground cover among the Hickories and Oaks, and now enlivens the valley through which the Valley Road extends from Centre to South Street. There is a taller variety with larger flowers (var. elatior). Much more beautiful and the handsomest of these plants which have been tried here is Cytisus nigricans, a native of Italy, Austria and Hungary, and now in bloom in the Shrub Collection. No small plant now in the Arboretum is more distinct and beautiful. As it grows here it is a compact, round-topped bush from two to three feet tall and broad, differing from most of the related plants in the arrangement of the flowers which are borne in long erect racemes terminal on branches of the year; they are bright yellow and produced in great profusion.

Helianthemum. A collection of the varieties of Helianthemum nummularium, better known perhaps as H. chamaecistus or H. vulgare, has been established in one of the borders on the western slope of Bussey Hill and is flowering well this year. These are half evergreen or evergreen, low, prostrate shrubs with leaves green on both surfaces, hairy or nearly glabrous, and from half an inch to an inch and a half in length, and flowers normally yellow but varying from rose pink, orange or white, and about an inch in diameter in many-flowered loose racemes. This species is a native of Europe, western Asia and northern Africa, and perhaps not as often cultivated as it should be in this country where low plants are needed to cover the ground among shrubs. The curious fact about it is that the flowers are only open before noon and close entirely in the afternoon.