Autumn Colors in the Arboretum. In spite of the dry summer and autumn it is doubtful if the leaves of the trees and shrubs in the Arboretum have ever assumed more brilliant colors than they have during the past two weeks; and it is doubtful, too, if there are anywhere two hundred and fifty acres which can show such a variety of autumn colors or on which the season of such colors is so long, for in the Arboretum are growing the trees and shrubs of the northern hemisphere, and the leaves of those from northeastern Asia usually change color sometime later than those of related North American plants. No pen can describe the beauty of the Arboretum in these October days, but in this number of the Bulletin a few of the plants which help to make this picture will be mentioned.

Quercus conferta, sometimes called Q. pannonica and the Hungarian Oak, is unusual among Oaks in the clear canary yellow color of its ripening leaves. This is the handsomest of the European Oaks which has been tried in the Arboretum in which it has grown rapidly and promises to become a large and valuable tree, distinct in its large, thick, lustrous, deeply lobed leaves. It is a common forest tree on low mountain slopes and hills in southeastern Europe where it is widely distributed and grows sometimes to a height of a hundred feet and forms a trunk from three to four feet in diameter. The Hungarian Oak is unfortunately still a rare tree in the United States, and the best specimen known to the Arboretum in the country is in the Morris Collection at Chestnut Hill, Pennsylvania. This tree has produced acorns for several years and plants have been raised from them here.
Asiatic Oaks. The autumn colors of the leaves of some of the Asiatic Oaks in the Arboretum are interesting. Those of the Japanese Quercus serrata are now yellow but less clear in shade than those of Q. conferta, and many of them are still partly green. Nearly all the leaves of the related Quercus variabilis which grows in Japan and northern China are still green and later will turn yellow. Yellow and green are now the colors of the leaves of Quercus dentata, another tree which grows in Japan and China and remarkable in its large leaves and winter-buds. The leaves of Quercus glandulifera, raised from acorns gathered in northern Japan, are now deep bronze color, while those on the trees of this species from western China are still green. Green, too, are the leaves of Quercus mongolica, its Japanese variety grosseserrata, and the Corean Q. aliena. The leaves of American Oaks are beginning to change color and before the end of another week should be the principal feature in the autumn picture.

Liquidambar styraciflua, or the Sweet Gum, is one of the brilliant objects of the autumn when its star-shaped fragrant leaves turn to brilliant shades of scarlet. The Sweet Gum is a southern tree, finding the northern limits of its range in southern Connecticut, but it grows fairly well in Massachusetts, although it will probably never attain the size here it does under more favorable conditions. Very abundant in the maritime region of the south Atlantic and Gulf States, and in the valley of the lower Mississippi River, it has become in recent years important for its wood used in the interior finish of houses and for furniture.

Oxydendron arboreum, the so-called Sorrel-tree or Sour Wood, is another southern tree conspicuous in the autumn from the bright scarlet color its leaves take on at this season of the year, making a handsome setting for the clusters of pale capsular fruits following the white Heath-like flowers which open in August.

Viburnum prunifolium, or as it is often called the Black Haw, is perhaps the handsomest of the small trees or large shrubs in the Arboretum with scarlet leaves. A common plant on hillsides in the middle states, the Black Haw, although not a native to Massachusetts, is perfectly hardy here and well deserves general cultivation, for it is an object of beauty and interest from early spring until the beginning of winter; the leaves are thick to coriaceous, dark green and lustrous above, pale below; the flowers are white in flat clusters up to four inches in diameter, and these are followed by oval or obovoid fruit from one-half to two-thirds of an inch long, pink at first, when fully grown becoming dark blue, and covered with a glaucous bloom when ripe, and persistent on the branches until winter. The southern relative of this plant with which it has been long confused, Viburnum rufidulum, is a larger and a handsomer tree with thicker and more lustrous leaves which turn deep purple in the autumn. This tree, which is the largest and perhaps the handsomest of the American Viburnums, is easily recognized by the dark rusty brown felt which covers the winter-buds, and is found on the stalks of the leaves, especially on those which appear early in the season. This Viburnum grows in the Arboretum where it flowers and ripens its fruit, but it is doubtful if it ever becomes more than a medium-sized shrub here.
Cotinus americanus is a relative of the European and Asiatic Smoke-tree (Cotinus coggyria), an old inhabitant of American gardens where it is much better known than the American plant. The "smoke" of the Old World plant, which is its chief beauty, is composed of the large clusters of the hairy stems of abortive flowers, differing in color from yellow-green to red. The "smoke" of the American plant is much less conspicuous, and its value as a garden plant consists in the brilliant scarlet and orange tones of its leaves in autumn. The American Cotinus is quite hardy in the Arboretum where it has been growing since 1882. For many years this tree or shrub was known only in what is now eastern Oklahoma; later it was found always in comparatively small isolated stations in southern Missouri, western Arkansas, northern Alabama, and on the banks of the Ohio River in Davies County, Ohio. Its real home, however, is in western Texas where it spreads over thousands of acres of mountain canyons and high hillsides, growing there usually as a low shrub.

Some Shrubs of the Heath Family. Of all the shrubs in the Arboretum not one surpasses or perhaps equals the High Bush Blueberry (Vaccinium corymbosum) in the splendor of the crimson of its leaves in autumn. It is handsome, too, in early spring, when its white, bell-shaped flowers open, and in August and September when the blue-black fruit covers the branches. A native of swamps, the High Bush Blueberry grows equally well here in dry gravelly soil, and the best plants in the Arboretum are on Bussey Hill near the entrance to Azalea Path from opposite the Overlook. The autumn color of the leaves of the other northern Blueberries and Huckleberries (Gaylussacia) is as brilliant as that of the High Bush Blueberry and some of these smaller plants, especially Vaccinium pennsylvanicum, the dwarfest of them, are invaluable for covering dry ground under Oaks and other hardwood trees. The white flowers are attractive; the bluish black berries, which are the earliest blueberries to ripen, have a fair flavor, and during a month or more in autumn the plants form broad masses of scarlet only a few inches high and more brilliant in color than that of the flowers of the Heather on the highlands of Scotland. Every encouragement, with excellent results, has been given in the Arboretum to the spread of these dwarf Blueberries.

Rhododendrons in autumn. The leaves of some of the American species with deciduous leaves (Azalea) are nearly as brilliant in autumn as those of the Blueberries, and their autumn colors greatly add to the value of these plants for the decoration of parks and gardens. For autumn beauty the yellow or flame-colored R. calendulaceum is the most conspicuous this year. But R. dauricum from Siberia, one of the true Rhododendrons with deciduous leaves, growing by Azalea Path, is now in its autumn dress one of the conspicuous plants of the Arboretum and far more attractive than it was in early spring when its small rose-colored flowers were open.

Enkianthus. The Japanese species of this Asiatic genus of the Heath Family all grow well in the Arboretum and the group of these plants on the lower side of Azalea Path furnish pleasure to many persons in spring when they are covered with bell-shaped flowers, and in
late October when the leaves are of the brightest scarlet. The handsomest of these plants in the autumn, *Enkianthus perulatus*, is a compact round-headed shrub with white flowers. This is a popular plant in Japan and can be seen in many Japanese gardens cut into a round ball. It has never produced seeds in the Arboretum and has remained exceedingly rare in this country. More common is *E. campanulatus* which is sometimes in Japan a tree twenty-five or thirty feet high and which in the Arboretum has grown from seed in thirty years into a narrow shrub eight or ten feet tall. The yellow flowers tinged with red, or in one variety pure white, hanging gracefully in long racemes, are attractive. The plants produce quantities of seeds every year, and there is no reason why this beautiful shrub should not become a common garden plant in those parts of America where the soil is free of lime.

Dwarf Hawthorns. Many of these plants which were entirely overlooked by botanists until toward the end of the last century prove to be worth more general attention than gardeners have learned to give them. Some eighty species of these dwarfs have been distinguished. They are most abundant in Pennsylvania, New York, Ohio and Michigan, occurring as far north as Massachusetts and southward to Alabama. In the great *Crataegus* region west of the Mississippi River, in southern Missouri, Arkansas and eastern Oklahoma they are comparatively rare. Nearly all the species have large and conspicuous flowers in few-flowered clusters and handsome red or yellow fruit. Many of the dwarf plants are now well established in the Arboretum, and flowers and fruits are produced freely by several of them. Some of these plants are worth cultivating for the beauty of their autumn foliage which is not surpassed by that of any of the larger growing American Hawthorns. The Arboretum group of these dwarf plants at the eastern base of Peter's Hill, on the lower side of the road, is just now worth a visit. Many of the plants are covered with fruit and distinct and variously colored foliage.

Yellow leaves. The autumn picture owes much to the different shades of yellow to which the leaves of many plants turn in the autumn. Yellow leaves, especially those of many Maples, Birches, several Elms, Hickories and Poplars, however, ripen and often fall before the foliage of Oaks and many other trees and shrubs assume the red color of their autumn foliage. The yellow leaves of the Tulip-tree, the Japanese Cercidiphyllum, the Virginia (*Cladastris lutea*), the Kentucky Coffee-tree (*Gymnocladus dioicus*) are conspicuous at this time. Conspicuous, too, now with their yellow leaves are the American Witch Hazels, *Hamamelis virginiana*, already in flower, and the winter-blooming *H. vernalis* with autumn leaves probably more beautiful in the delicate yellow tints of its fading leaves than any other plant in the Arboretum with yellow autumn foliage.