Autumn in the Arboretum. It is not probable that the Arboretum has been more beautiful during the months of September and October than it has this year. The trees have not before been fuller of leaves and the grass as green at this season of the year. Many leaves, especially those of the Oaks, are still green; those of several trees have turned gradually and brilliantly, and the beauty and interest of the Arboretum has been increased by abundant crops of beautiful and brilliant fruits. This is particularly true of the fruits of many Crabapples in the great collection near the base of Peter's Hill, and by that of many Hawthorns, Honeysuckles, Viburnums and Cornels. The leaves of many plants have already changed their color and fallen, and this is true of those of the two trees of Phellodendron amurense on the right hand side of the Meadow Road. This is an exceedingly rare species in cultivation, and it is almost as beautiful after the autumn coloring of the bright yellow leaves has disappeared and left the gray trunks and branches bare, making this tree one of the conspicuous winter features of the Arboretum. Nearly all the forms of the American Horsechestnuts, or Buckeyes as they are called, turn brilliantly in the early autumn and have already fallen. The Sugar Maples are now brilliant objects and while the leaves have fallen from many Red Maples others retain their bright colors. The tree directly opposite the Administration Building in the Arboretum is a good example of this, and landscape gardeners who may wish to use trees and shrubs for autumn effects can find useful suggestions in this tree, for it has been raised from a graft taken from a tree with leaves of exceptionally brilliant autumn color. This exceptional color has been
preserved, and indicates that it is possible to graft plants with leaves of unusually brilliant autumn color just as it is possible to propagate trees with leaves abnormally marked with yellow or otherwise abnormal, or with double or other unusual flowers, or with improved fruits. Little has yet been done anywhere to propagate trees for their autumn colors, but the field is an interesting and important one for the makers of autumn gardens. That the making of such gardens will sooner or later receive attention in this country there can be little doubt, for the pleasantest months of the year are the autumn months, and in no other part of the world is the autumn foliage so brilliant and nowhere else are the fruits of trees and shrubs more abundant, varied and interesting.

Flowering Dogwoods. Among the smaller trees with scarlet or crimson autumn foliage none is more beautiful now than the so-called Flowering Dogwood (*Cornus florida*), which is unusually brilliant this year with its leaves of scarlet and green. Its autumn beauty is increased by the contrast in the color on the upper and lower surfaces of the leaves for only the upper surface changes color, the lower surface retaining the pale sometimes nearly white color of the summer. For regions with a winter climate as severe as that of eastern Massachusetts its eastern Asiatic relative (*Cornus kousa*) and especially the variety *chinensis* are more reliable plants. They are smaller trees than the eastern American plant but the leaves turn as brilliantly in the autumn; the flower-buds are not killed or injured by the severest cold of our winters and open from two to three weeks later, and the floral bracts which surround the clusters of small flowers and are the conspicuous feature of the inflorescence are narrower, further apart and pointed, not broad and rounded, at the apex. The fruit is even handsomer than that of the American plant for the individual fruits are united into a globose scarlet head which is raised on a long slender erect stem and are not, like those of the American plant, in clusters of separate fruits. The form discovered and introduced by Wilson from western China promises to be a better plant in this climate than the Japanese form, for it is equally hardy and the floral bracts are larger and overlap below the middle, forming a cup like those of the American species. This plant is still rare, but as it produces good crops of seeds in the Arboretum it is hoped that it will soon be within the reach of lovers of handsome hardy trees.

The Sassafras (*Sassafras variifolium*). This is one of the most beautiful and apparently one of the least known trees of eastern North America. It is interesting as the only member of the trees of the Laurel Family which is native to this part of the country, and is an aromatic tree with deeply furrowed red-brown bark, scaly buds, slender bright green lustrous branchlets, brittle branches containing a thick mucilaginous pith and marked by small semiorbicular elevated leaf-scars displaying single horizontal rows of fibrovascular bundle-scars, and stout stoloniferous roots covered by thick yellow bark. The flower-buds are terminal, ovate, acute, protected by nine or ten imbricated scales increasing in size from without inward, the
three outer scales being ovate, rounded and often apiculate at the apex, keeled and thickened on the back, pale yellow-green below, dull yellow-brown above the middle and deciduous at the opening of the bud. The leaves are ovate or obovate, entire or sometimes three-lobed at the apex, the lobes being broadly ovate, acute, divided by deep broad sinuses, and gradually narrowed at the base into elongated slender petioles, as they unfold light green and somewhat pilose on the upper surface with scattered white hairs, ciliate on the margins, and clothed on the lower surface with a loose pubescence of long white lustrous hairs, at maturity becoming thin, dark dull green above, pale and glabrous or pubescent below. The small yellow flowers open in early spring with the first unfolding of the leaves, the males and females usually on different individuals, in lax drooping few-flowered racemes developed from the axils of the large ovate bud-scales, the upper flowers of the lowest raceme opening first. The calyx is pale yellow, divided nearly to the base into six narrow obovate lobes, rounded or incurved at the apex, spreading or reflexed after anthesis, those of the inner series a little longer than the others; the nine stamens are inserted in three series on the somewhat thickened margin of the shallow concave calyx-tube, those of the outer series opposite its outer lobes; filaments flattened, elongated, slightly enlarged toward the apex, incurved, light yellow, those of the inner series furnished near the base with two conspicuous orange-colored stipitate glands; the anthers are introrse, four-celled, the cells superposed in pairs, the lower longer than the upper, opening from below by persistent lids, in the female flower reduced to flattened, ovate, dark orange-colored, stipitate staminodia, or occasionally fertile and similar to or only slightly smaller than those of the staminate flower; the ovary is ovate, one-celled, light green, glabrous, nearly sessile in the short tube of the calyx, contracted into a slender, elongated, simple style gradually enlarged above into a capitate, oblique, obtusely lobed stigma. The fruit is an oblong, dark blue, lustrous berry surrounded at the base by the enlarged and thickened obscurely six-lobed or truncate, scarlet limb of the calyx, raised on a much elongated, scarlet stalk thickened above the middle. The wood is soft, weak, brittle and coarse-grained, although very durable when placed in contact with the soil, and is aromatic and dull orange-brown with thin light yellow sapwood composed of seven or eight layers of annual growth; it is largely used for fence-posts and rails, in the construction of light boats and in cooperage. The roots of Sassafras, and especially their bark, are a mild aromatic stimulant, and oil of sassafras used to perfume soap and other articles is distilled from them. Gumbo filet, a powder prepared from the leaves by the Chocťaw Indians of Louisiana, gives consistency to gumbo soup. In the middle of the sixteenth century the French in Florida learned from the Indians the medicinal value of Sassafras, and in 1569 the first account of this tree was published by the Spanish physician Monardes. Exaggerated ideas of the curative properties of Sassafras soon spread through Europe and efforts were made to secure large supplies of the wood and roots. The tree is little injured by insects or by serious fungal diseases. In the south it occasionally grows to the height of eighty or ninety feet with a trunk sometimes six feet in diameter and
short stout more or less contorted branches which spread almost at right angles from the trunk; at the north it is much smaller and often a shrub. The leaves vary from four to six inches in length and from two to four inches in width, and in the autumn turn to delicate shades of yellow and orange more or less tinged with red. The flowers are produced in racemes about two inches in length and a third of an inch in diameter when fully expanded. The fruits, which ripen in September or October and are a third of an inch long, are raised on stalks an inch and a half to two inches in length. Exceedingly abundant in some years, the fruit of the Sassafras is usually produced rather sparingly, and is devoured by birds as soon as it begins to assume its brilliant colors. This beautiful and interesting tree is distributed from eastern Massachusetts through southern Vermont to southern Ontario and central Michigan, eastern Iowa, eastern Kansas and the Indian Territory, and southward to central Florida and the valley of the Brazos River in Texas. The Sassafras was probably one of the first North American trees used in European gardens, as the figure of the plant published in 1633 in Gerard's Herbal was made from a specimen which had grown in a garden near London. The Sassafras can be propagated by seeds which should be sown as soon as ripe when they will germinate early the following spring, or by root suckers which are often produced in great profusion. The large thick fleshy roots which penetrate deep into the ground make the Sassafras difficult to transplant and only small plants should be selected for the purpose. The genus is also represented by two species which occur in eastern Asia and which have not yet proved hardy in the Arboretum. No other American tree of its beauty and interest has been so rarely planted in this country as the American Sassafras, owing perhaps to the idea that it is difficult to transplant. Certainly it cannot be found in any American nursery, and it is doubtful if it occurs now often in Europe. There are two or three natural groups in the Arboretum and the largest and handsomest is perhaps on the border of the woods directly behind the collection of Crabapple at the base of Peter's Hill. There is another group nearly as large above the Hawthorns on Peter's Hill, and there are a male and a female plant on the right hand side of the road opposite the Lilacs which were collected in West Roxbury and planted there in 1878 but are not conspicuous or handsome plants.

Deciduous-leafed trees of pyramidal habit. Although much less numerous than pyramidal conifers, all pyramidal trees with leaves which fall in the autumn are worth the attention of tree lovers. The best known of these is the variety italica of the European Black Poplar (Populus nigra) from which it differs in its tall, narrow growth, glabrous young shoots and its confirmed habit of suckering from the roots. This tree, the so-called Lombardy Poplar, has been universally planted in Europe and was early introduced into the United States.