

equally hardy, and the floral bracts are larger and overlap below the middle, forming a cup like those of the American species.

Zelkova serrata, the Japanese Keaki. The leaves of this tree, which are brown more or less tinged with yellow, make it conspicuous at this season of the year and remind us how little this valuable tree is known in the United States. The oldest tree in this country known to the Arboretum is growing on the estate of Mr. Henry Everett in Barnstable, Massachusetts. The seeds which produced it were brought from Japan in 1862 by John Wilson who gave them to Captain Hinckley. Only one plant was raised from these seeds. Fifteen years ago it was a broad-headed tree with a short stout trunk divided into several large spreading stems. A little later seeds of the Keaki were sent to the Parsons Nursery at Flushing either by Dr. Hall or by Mr. Thomas Hogg, and the best trees known to the Arboretum are in Dr. Hall's plantation at Bristol, Rhode Island. The largest of these trees are now fully seventy feet high with tall stems from two to two and a half feet in diameter. For years they have produced large crops of seeds, and quantities of seedlings spring up under the trees and at long distances from them, the seeds being widely scattered by wind. A specimen with a clean trunk and shapely head which had been planted by the roadside in Warren, near Bristol, fifteen years ago indicated that the Japanese Zelkova might be successfully used as a street or roadside tree. It is as a timber tree, however, that this tree deserves the attention of Americans. It is the most important hardwood tree of Japan and Korea. The wood is tough, elastic and durable in the ground, and when exposed to the air it is considered the best wood for building in the Empire, and furnishes the great round columns which support the roofs of Japanese temples. It is universally used in Japan for making jinrikishas, and quantities of the wood are sent from Korea into China for this purpose. It is the Keaki alone which has made the jinrikisha possible, just as the Hickory tree has made possible in this country the light wagon and the trotting horse. Great specimens of this tree can be seen in Japanese temple gardens and by the village roadsides. It is doubtful if this really noble tree, which is hardy and has grown rapidly in the Arboretum, can be found in any American nursery.

The Arboretum at this season of the year owes much to the highly colored leaves of the fragrant Sumach (*Rhus canadensis*), or as it was formerly called *R. aromatica*. This widely distributed North American shrub seldom grows more than five feet tall, and when planted in good soil is often broader than tall with lower branches spreading flat on the ground and upper branches erect, spreading or drooping. In early spring before the leaves appear the branches are covered with clusters of small bright yellow flowers which in June are followed by dull red fruits which are mostly hidden by the small compound leaves. Among the small shrubs in the Arboretum few are more brilliant at this season of the year for the leaves turn gradually to bright scarlet and orange. It has been largely planted along some of the drives as a border for larger plants, and no plant which has been tried in the Arboretum for this purpose has proved so successful. It is a remarkable fact that this beautiful and useful shrub is not found in American Nurseries.

No shrubs are more brilliant in their red or crimson coloring at this season of the year than the Blueberries and Huckleberries of eastern North America. None certainly are more beautiful than the Highbush Blueberry so called (*Vaccinium corymbosum*) and its variety *pallidum*. These plants, too, are handsome in early spring when their white bell-shaped flowers open, and in August and September when the blue-black fruit covers the branches. A native of swamps, the Highbush Blueberry grows equally well in gravelly ground, and the best plants in the Arboretum are on Bussey Hill near the entrance to Azalea Path and opposite the overlook. The autumn color of the other Blueberries and Huckleberries is as brilliant as that of the Highbush Blueberry, and some of them, especially *Vaccinium pennsylvanicum*, are invaluable for covering the 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 the autumn the plants make a broad mass of scarlet when only a few inches high and are more brilliant in color than those of the Heather on the Highlands of Scotland. The Japanese *Vaccinium ciliatum*, an upright growing shrub, is also covered now with bright red leaves. There is a group of these plants in the Shrub Collection, but they are seen to their best advantage on both sides of Azalea Path where nearly all the species are growing.

Many of the Viburnums are still brilliant, the most beautiful perhaps is the American *V. prunifolium* and *V. Lentago* which often grow to the size of small trees, *V. dentatum* and *V. scabrellum*, the Korean *V. Carlesii* and the two red-fruited Japanese species *V. Wrightii* and *V. dilatatum*. It is interesting that the leaves of *V. Canbyi*, sometimes considered a variety of *V. venosum*, are still perfectly green. This native of eastern Pennsylvania, Delaware and central Indiana, is the last of the American species to flower and the leaves are still perfectly green. Specimens from twelve to fourteen feet high and broad can be seen in the Arboretum near the Administration Building and by the border of the Meadow Road.

Of leaves which turn yellow in the autumn and are still brilliant and conspicuous are those of the winter-flowering Witch Hazel (*Hamamelis vernalis*), a native of southern Missouri and adjacent regions. This shrub deserves a place in gardens for its flowers which open in January and February, and for the beauty of its late persistent leaves.

The leaves of the Elm trees when they turn at all in the autumn usually turn to shades of dull yellow. There is a remarkable exception in *Ulmus parvifolia*, a native of the Yangtse valley in China with an outlying station in southern Japan. Plants of this tree were sent in 1909 by Wilson from China to the Arboretum. They have grown well here and are perfectly hardy, and the autumn leaves of most of the trees are bright clear yellow, but on two of the trees the leaves are bright red. This tree is certainly an exception in its autumn leaves to all the Elm trees known to the Arboretum.



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