

# ARNOLD ARBORETUM

HARVARD UNIVERSITY

## BULLETIN

OF

## POPULAR INFORMATION

---

SERIES 3. VOL. I

NOVEMBER 10, 1927

NO. 18

---

**Autumn Foliage.** At the autumn season of the year brilliantly colored foliage attracts the eye on all sides. The Maples, Hickories and other trees, whose leaves color early, have shed their foliage but the Oaks, the noblest group of trees in eastern North America, are now at their height of glory, being later this year than is usual. The Scarlet, Red and White Oaks take on ruddy tints varying from reddish purple and crimson to red. The Black, and Swamp Oaks develop imperfect shades of orange to leather-brown tints. All the Oaks hold their autumn-colored leaves longer than other trees and often we enjoy their color from mid-October to mid-November. Where deciduous-leaved trees are associated with Conifers, the landscape effect in the autumn is immensely heightened. The contrast between the brilliant tinted foliage on the one hand and the dark green of the Conifers on the other is very impressive. One is often asked the why and wherefore of autumnal tints—a simple question not easy to answer, but briefly the metamorphosis is effected as follows: At the approach of winter leaves, which cannot withstand frost, cease to function as food factories and the residue food substances are conveyed from the leaf-blade into the woody branches and there stored, chiefly in the form of starch, until the season of growth recommences the following spring. The leaves from which everything useful has been transported form nothing more than a framework of cell-chambers containing waste products, such as crystals of calcium-oxalate, which are thrown off with the leaves and help to enrich the soil. But while the process of food evacuation is going on other changes take place. In many plants a chemical substance, known technically as anthocyanin, is produced in the leaves and often to such an extent as to become plainly visible on the exterior. In the presence of free acids in the cell-sap it appears red, blue when no acids are present, and violet when the quantity of acids is small. In a great many leaves the chlorophyll bodies, which contain the green coloring matter, become changed to yellow granules. Sometimes these yellow granules are few and anthocyanin is absent, then the leaf except losing its freshness exhibits little outward change before it falls. In others the yellow granules are abundantly developed, and if anthocyanin is absent or nearly so the whole leaf assumes a clear



yellow hue. If there is an abundance of yellow granules together with free acids and anthocyanin the leaf assumes an orange color. Thus the leaf at the period of autumnal change by the presence of these substances in a greater or lesser degree loses its green hue and becomes brown or yellow, crimson or orange, purple or red.

**Tsuga caroliniana.** In these Bulletins attention has been frequently called to this magnificent Conifer. Each year its merits become more and more apparent. The dark green of its foliage is restful at any season of the year and the hummock-like arrangement of its branches give it much character. It is certainly, as a specimen, among the most beautiful Conifers that are hardy in New England.

**Witch-Hazels** have the distinction of being the last shrubs to blossom in the autumn and the first to put forth their flowers in the spring. Indeed, it is sometimes possible to find flowers on the common Witch-Hazel (*Hamamelis virginiana*) at Christmas and opening buds on another American species (*Hamamelis vernalis*) early in the new year. The flower-buds in all the species are formed early in autumn and are strung along the stems in clusters, each of which singularly resembles the pad of a pussy's foot. They are good shrubs for planting in close proximity to the house and are excellent subjects for town gardens. They do not object to smoke, dust and draught of streets and give a display of blossoms long before other shrubs. The genus is confined to eastern North America, Japan and China. In all half a dozen species with several varieties are recognized and of these four species and six varieties are growing on Centre Street Path and by the pond near the junction of Meadow and Forest Hills Roads. At this season of the year the common Witch-Hazel (*H. virginiana*) is everywhere a feature in the open woods and thickets, where its clear yellow foliage is conspicuous. As the leaves fall the star-shaped blossoms become apparent. A strong growing bush, it is very much like a Hazelnut in habit and often 15 to 20 feet tall and as much through. On account of its robust growth it is the least desirable for the garden, the town garden especially, being better accommodated on the margins of woodlands. As a rule the flowers are not so abundantly produced as in other species although on occasions the common Witch-Hazel produces its blossoms in the utmost freedom. Different bushes open their flowers at different times and it is possible in stretches of woodland to find it in bloom from mid-October to mid-December. This species has a very wide distribution, being found from Canada south to Georgia, west to Nebraska and Arkansas. There is a variety in which the petals are stained with reddish brown and, curiously enough, a similar color variation appears in another American species and in the Japanese *H. japonica*.

**Hamamelis vernalis.** A better specific name for this would have been "*Hiemalis*" since it flowers in the winter rather than in the spring. This is a shrub with upright branches growing from 5 to 8 feet tall and suckering freely from the base forms a broad clump or thicket.



1927. "Autumn Foliage." *Bulletin of popular information - Arnold Arboretum, Harvard University* 1(18), 69–70. <https://doi.org/10.5962/p.321889>.

**View This Item Online:** <https://www.biodiversitylibrary.org/item/216960>

**DOI:** <https://doi.org/10.5962/p.321889>

**Permalink:** <https://www.biodiversitylibrary.org/partpdf/321889>

#### **Holding Institution**

Harvard University Botany Libraries

#### **Sponsored by**

BHL-SIL-FEDLINK

#### **Copyright & Reuse**

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Arnold Arboretum of Harvard University

License: <http://creativecommons.org/licenses/by-nc-sa/4.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.