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Pterocarya is a genus of trees of the Walnut Family, differing from the Walnuts and Hickories in its small winged nut arranged on a long pendulous raceme and smooth bark. It has the long pinnate leaves of the other members of its Family and pith like that of the Walnuts, in thin plates, not solid like the pith in branches of Hickory-trees. The genus is a small one and grows naturally only in the Caucasus, central and southern China and in Japan. The Caucasian species, *Pterocarya fraxinifolia*, was the first of these trees planted in western Europe and the United States, it having been brought to Europe from Persia in 1782 by the French traveller Michaux whose name is a household word with students of the American flora. This tree appears to have been first planted in the United States at the beginning of the nineteenth century at the Woodlands in West Philadelphia, the famous Hamilton garden where it is believed that the Lombardy Poplar was first planted in the United States. Three of these trees were growing at Woodlands, at that time a cemetery, thirty years ago. They had not grown to a large size but were in good health; it is reported that these trees have now disappeared. There in an old specimen of this tree in the Harvard Botanic Garden at Cambridge which possibly was planted when this garden was laid out more than a century ago. This tree is hardy and is perhaps the oldest and largest specimen in the United States, but it is not a handsome tree and has never looked as if its surroundings agreed with it. The Caucasian *Pterocarya* has been a difficult tree to establish in the Arboretum, and there is only a young specimen here which does not give much promise of becoming a tree. The climate of England, France and Italy suits this tree much better than that of the northeastern United States; and several specimens

eighty or ninety feet high with tall massive trunks can be seen in those countries. The best known of the Chinese species, *Pterocarya stenoptera*, is a common tree in the central and southern provinces of China, ranging southward into Tonking. It inhabits plains and low hills in the neighborhood of streams and is said to be always a small tree. This tree was first planted in Europe in 1860 in the Arboretum Segrezianum; it lived there for several years but was killed by the severe winter of 1879-80. In the Arboretum the roots live but the stems are killed back to the ground or nearly to the ground every winter. This tree would probably grow well in California or in some of the southern states, but its only interest in the north is in the fact that crossed with the Caucasian species it has produced a natural hybrid to which the name *Pterocarya Rehderiana* has been given. This is a beautiful, fast-growing tree with characters intermediate between those of its parents, which it surpasses in hardiness and vigor. The small grove of these trees under which at one place Hickory Path passes is one of the interesting groups in the Arboretum. These trees flower and produce fruit every year and send up also many suckers from the roots by which they can be easily multiplied. The two or three other Chinese species of *Pterocarya* have not yet been cultivated long enough to make it possible to form any opinion of their value in this climate. Judging by our present knowledge, it is to Japan that we must look for the best *Pterocarya* for general planting. The Japanese species *P. rhoifolia* has been growing in the Arboretum since 1893 when it was raised here from seed collected by Professor Sargent in Japan. He first met with it on the lower margin of the Hemlock-forest (*Tsuga diversifolia*) which covers the slopes about Lake Umoto among the Nikko Mountains. Here the *Pterocarya* was a small tree; on the slopes of Mount Hakkoda in the extreme northern part of Hondo he found the *Pterocarya* extremely common at altitudes between 2500 and 4000 feet above the sea level and next to the Beech the largest tree of the region. Trees eighty feet high with a tall straight trunk two and a half feet in diameter and stout branches spreading at nearly right angles and forming a massive crown of dark green foliage were common. The leaves are eight or ten inches long and from four to six inches wide, with stout hairy petioles and six or seven pairs of lateral leaflets which are acute, unequally rounded at base, long-pointed, and finely toothed on the margins; in October they turn clear yellow before falling. The terminal winter-buds well distinguish this species; they are conical with a curved beak and when first formed are covered with a thin sheath composed of two external and usually two internal glabrous glandular scales; these fall off late in the autumn, leaving scars at the base of the bud which is thickly covered with pale pubescence. In the Arboretum *Pterocarya rhoifolia* has proved to be one of the handsomest and hardiest of the trees of eastern Asia which have been planted here; it has grown up with a clear straight trunk and its lustrous dark green leaves have not yet been injured by insects or disease. It will certainly be a good subject for park plantations; and it is not improbable that it will prove useful for shading city streets. It should certainly be tried for this purpose. *Pterocarya rhoifolia* is a rare tree in the United States and Europe. During the last two years,

however, the Arboretum has succeeded in obtaining a supply of the seeds from Japan, and as these have been widely distributed it will now perhaps soon become better known.

Crataegus Phaenopyrum or **cordata** is in flower this week. Hawthorns begin to flower in the Arboretum before the first of May and they have been flowering here almost continuously ever since. In a month some of the species will begin to ripen their fruit, and on others fruit little shrivelled or discolored by the winter will still be on the branches in April. There are not therefore many weeks in the year in which Hawthorns in this climate cannot furnish either flowers or fruit. In the tropics some trees produce flowers almost continuously during the year, but in cold countries like New England no other group of plants has such a long season of flowers except the Viburnums, and none of the Viburnums retain their fruit into the winter. When in bloom some of the American Hawthorns are objects of great beauty, and only the fruit of some Crabapples is more conspicuous than that of the large-fruited Hawthorns. As they grow naturally over a large part of eastern North America and more sparingly in the west there are few parts of this country or Canada where some of the species cannot be successfully grown. All the Thorns thrive in cultivation and respond to a generous treatment with larger size, more tree-like habit and handsomer foliage and fruit. *Crataegus Phaenopyrum*, which appears at the head of this paragraph, the Washington Thorn, cultivated perhaps more frequently seventy-five years ago than at present, is a slender tree growing under favorable conditions to a height of twenty-five or thirty feet; the leaves are nearly triangular in shape, not more than two inches long and an inch and a half wide, and are dull green; in the autumn they turn bright scarlet. The flowers are creamy white, smaller than those of most Hawthorns, and are arranged in small compact clusters. Few if any of the American species have less attractive flowers. The fruit, too, is small, barely more than a quarter of an inch in diameter; and the Washington Thorn owes its value as a garden plant to the brilliancy of its autumn foliage and to the beauty of its abundant fruits long persistent on the branches. In earlier days of American gardens *Crataegus Phaenopyrum* was much used as a hedge plant in the middle states, although there are many other American Hawthorns which seem much better suited to form handsome and impassable hedges.

The last Viburnums. The first Viburnum, *V. alnifolium*, was in bloom the first of May, and this week the last Viburnum, another American species, *V. Canbyi*, has just opened its flowers, and during more than two months there has not been a day when a Viburnum has not flowered in the Arboretum. *V. Canbyi* is the largest and the handsomest of the blue-fruited species of eastern North America, of which the best known now in gardens is *V. dentatum*. There are three species in this group; they all have broad, coarsely toothed, dark green shining leaves, wide, flat clusters of white flowers and small blue fruits. The first to flower, *Viburnum dentatum*, is followed by *V. venosum* which differs from it chiefly in the hairs which cover the young branchlets and the lower surface of the leaves. This is a sea coast plant and

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