The Ailanthus. The Tree of Heaven of the Chinese, which botanists now call *Ailanthus altissima*, although it is still better known as *Ailanthus glandulosa*, is one of the remarkable trees of the northern hemisphere. Raised in Europe in 1751 from seeds sent from Peking, the Ailanthus was one of the first Chinese trees known in western countries. The first Ailanthus was planted in the United States by William Hamilton in 1784 in his famous garden near Philadelphia; and in 1804 it was first planted in New England, near Portsmouth, Rhode Island, where it is still abundant. For many years little attention was paid to the Ailanthus in Europe until it was found that one of the silk worms could be successfully fed on its leaves. This discovery led to the establishment of great Ailanthus plantations in France where they have succeeded beyond the most sanguine expectations, the best results having been obtained in calcareous soil and on the sandy sea-coast. The date of the first planting in Europe of the Ailanthus as a street tree is not known, but when the streets of Paris were generally bordered by trees in the early years of the second Empire it was largely and successfully used for this purpose. As early as 1820 its remarkably rapid growth, the tropical appearance of its long gracefully drooping leaves, and its freedom from the attacks of insects attracted general attention to the Ailanthus in the United States. It was found to flourish equally well in the country and in the streets of New York and Philadelphia where it grows more rapidly than any tree which had been planted in those cities; and it was believed that a tree had been found which would take the place of all others for city planting. So

Bulletin No. 16 was paged incorrectly. Pages 61-64 will not appear in this volume.
great did the popularity of the Ailanthus become in a few years that the number of the trees planted was only limited by the ability of nurserymen to supply the demand. The popularity of the Ailanthus in the United States, however, was short-lived, for when the trees began to flower it was found that some of the flowers emitted a strong and to most persons an offensive odor, that the clouds of pollen shed from the flowers and the flowers themselves dropping on neighboring roofs so affected the water caught on them that it was unfit for use, and that the flowers which dropped on the ground made the city sidewalk and the country yard unbearably disagreeable. This peculiarity of the flowers discovered, the Ailanthus sank rapidly in popular esteem, and its general destruction in this country was advocated and put into execution.

Unpopular as the Ailanthus has become, it is one of the handsomest and most valuable trees in the world. Planted in cities it can resist better than any other tree heat, drought, dirt and gas escaping from defective pipes which menace the life of city trees. It grows rapidly even in the most unpromising situations; it is never seriously injured by insects; and few trees can be more easily propagated, for small pieces of the root covered with soil will soon grow into plants large enough to transplant. The suckers which the Ailanthus produces in great numbers from the roots are the real drawback to this tree, but when it is planted in city streets they are unable to force their way through brick sidewalks and concrete is impervious to them. The male and female flowers of the Ailanthus are chiefly produced on different trees; only the male flowers have a disagreeable odor and drop to the ground; the female flowers are scentless. In the clusters of female flowers occasional male flowers are found, but there are so few of these that their odor is not perceptible. It is perfectly easy to propagate only the female tree which is the one which should be planted, and apart from the absence of the disagreeable smell of the flowers it is more ornamental than the male, for the winged fruit of the Ailanthus, produced in great terminal clusters, is handsome and conspicuous in the late summer and autumn. The fruit is usually yellow, but in one variety it is bright red (var. erythrocarpa) and more brilliant and conspicuous than the fruit of any tree of large size which can be grown in the northern states. The leaves of the red-fruited variety are darker on the upper surface and paler below than those of the yellow-fruited form; and the handsomer leaves and more brilliant fruit make this the desirable form to cultivate. There is certainly no better tree than the Ailanthus to shade the streets of American cities provided they afford sufficient room for its development, for the Ailanthus even when it is planted in cities may become a tall, wide-branched tree, demanding space in which to display all its beauties. Although the attempt has not been made on a large scale in this country to fix shifting sand dunes by planting the Ailanthus, it has been successfully used for this purpose in Europe, especially in the neighborhood of Odessa on the Black Sea where large plantations of Ailanthus have been successful on sterile soil so shifting that other trees have not been able to secure a foothold on it. The Tree of Heaven produces valuable hard, heavy and close-grained wood of a pleasant clear yellow color, resembling that of satinwood; it is easily seasoned, and shows as little tendency to
shrink or warp as the best mahogany. Beautiful furniture has been made from Ailanthus wood raised in New England, and if the tree is ever grown on a large scale on the sandy now unused lands of our seacoast it will supply the cabinet-maker with wood which in quality and beauty equals that of the White Oak, the Black Walnut and the Wild Cherry. From experiments in the laboratories of the University of Wisconsin it appears that the wood of this tree can be profitably used in the manufacture of paper. It is an interesting fact that although the Ailanthus is now known in all the countries of the world which enjoy a temperate climate its true home in China, that is the region where it is a really wild tree, is still unknown to European and American botanists who have now travelled in nearly all parts of the Celestial Empire. Two other specimens of Ailanthus, A. Giraldii and A. Vil-moriniana, are known, however, as wild trees in western China. The former, which differs in the presence of prickles on the branches, has not proved hardy in the Arboretum; the other, which chiefly differs from the common Ailanthus in the downy covering of the young branchlets, is now established here but has not yet produced flowers or fruits. Small plants of Ailanthus altissima setchuenensis, A. glandulosa pendulifolia and A. Duclouxii are now in the Arboretum nurseries, but in view of the importance of this genus sufficient attention has never been paid to it in the Arboretum. Plants of A. altissima were first raised here in 1882 from seeds collected in Roxbury by Jackson Dawson and one of these plants which stood on the right hand side of the Meadow Road grew to a considerable size but died suddenly a few years ago without apparent cause.

Inquiries are often made at the Arboretum about the best trees to plant in northern cities where trees suffer badly or are killed from smoke and dirt. Persons interested in this subject are referred to an article published in the last July number of The Atlantic Monthly entitled "Are some Trees civilized?" by Don Knowlton, in which they are intelligently discussed, and it contains much useful information. His survey of the healthy trees in the smoke-covered region of Cleveland shows that the following trees can be relied on in such situations: the Ailanthus, the tree which he calls the European Sycamore, which is not that tree but a hybrid between the European and American species known as Platanus acerifolium, Catalpa, which is probably C. speciosa, the Carolina Poplar, Weeping Willow, Crack Willow and White Poplar.

Cedrela sinensis. The Arboretum saw last week for the first time fresh flowers of this Chinese tree of the Meliaceae Family produced on a tree in Mr. William L. McGee's garden in Bristol, Rhode Island, which is believed to have been planted more than thirty years ago. There is no record here that it has flowered before in the eastern states, and the only evidence of other American flowers in the Arboretum herbarium are those taken from a tree growing in the state of Washington. Plants raised from seed in the Arboretum in 1892 have grown well here on Peters' Hill and are perfectly hardy. This Cedrela appears to be rare in Europe, and we have been unable to find any record of its having flowered there. There are several species, of which Cedrela sinensis is the most northern in its distribution, while the others
are confined to Mexico, Brazil, Australia and India. *C. sinensis* is a tree from fifty to eighty feet in height, with large, long-stalked leaves, with ten to twenty-two oblong or oblong-lanceolate leaflets four to eight inches long, acuminate, slightly and remotely serrate and light green on the lower surface. The white flowers are produced in long, pendulous panicles with five subulate staminodes alternating with the stamens, and oblong or obovate fruit about an inch in length. The tree has the general appearance of Ailanthus and at one time was called *Ailanthus flavescens*. From Ailanthus this Cedrella can be easily distinguished by the few coarse teeth near the base of the leaflets, each bearing a large gland on the lower side.

**Koelreuteria paniculata.** This Chinese tree, which has been in bloom several days, is when in flower the most conspicuous of all the summer flowering trees which are hardy in this climate. It is a round-headed tree rarely more than thirty feet high, with large, compound, dark green leaves and large erect clusters of golden yellow flowers which are followed by great clusters of bladder-like pale fruits. This tree, which is hardy in Massachusetts, has been much planted in this country, especially in the gardens of the middle states. The Koelreuteria often appears in American nursery catalogues under the name of "Japanese Lacquer-tree," although it is not a native of Japan and has not lacquer-producing sap.

*Aesculus parviflora*, the summer-flowering Buckeye, is still flowering, and is covered with its tall narrow spikes of small, slender, white flowers with long exserted stamens. This is perhaps the most conspicuous of the summer flowering shrubs, with the exception of Hydrangeas, which are hardy in the Arboretum. It is a native of the southeastern states from South Carolina to Florida and Alabama, and nowhere abundant it appears to be most common in northern Alabama. It has long been a favorite in gardens in which it produces stems seven or eight feet high, and in good soil and with sufficient room spreads into great thickets often twenty or thirty feet across.

**Cotinus.** In the Sumach Group, on the left hand side of the Valley Road and opposite the Evonymus Group, the Smoke-tree (*Cotinus coggyria*), is in bloom. The flowers are very small, in loosely arranged clusters and are not at all conspicuous, and it is their much lengthened hairy colored stems which are interesting and showy, and make this plant such a feature of the summer garden. The fruit is small and of no particular beauty, but in the autumn the dark green leaves sometimes assume dull shades of red and orange. The Smoke-tree is a native of southern and southeastern Europe, the Himalayas and western China, and is perfectly hardy in New England where it was probably brought early from Old England where it was cultivated soon after the middle of the seventeenth century. In the same group there is a large specimen of the American species *C. americanus*. This as it grows in the south is sometimes a tree thirty feet tall with a stout trunk a foot in diameter, but here in the Arboretum it is always bush-like in habit.