grows in this soil to its greatest size. Planted by itself in the open ground the American Beech does not grow well, and rarely makes a handsome specimen, but does best when many trees are planted so close together that the lower branches are killed and tall trunks formed.

Fagus sylvatica, the European species, is distributed over a large part of Europe except in the extreme north, growing to great perfection in England, Denmark, parts of Germany, and on the mountains of the Balkan Peninsula, often forming pure forests and growing to a height of more than a hundred feet. It is a hardy and handsome tree in New England, where it seems to be perfectly at home, and grows faster and makes a handsomer specimen tree than the American species. There is no record, unfortunately, of the date of the introduction of this tree into the United States, but judging by the size of some of the trees here it must have been at least a hundred years ago. The finest European Beeches in the neighborhood of Boston are on Longwood Mall, a strip of turf extending east from Kent Street and between Chatham and Beech Streets in Brookline. This Mall was laid out by David Sears at the time he was engaged in developing his Longwood property seventy-five or eighty years ago, and it is probable that these Beech-trees were planted at about that time. There are sixteen of these trees, thirteen with green leaves and three of the purple-leaved variety. They are all in good health and are short-stemmed specimens from sixty to seventy feet tall with wide-spreading branches which on some of the trees sweep the ground. These trees now belong to the Town of Brookline, to which Longwood Mall and three other squares in the Longwood district were left by Mr. Sears. Several varieties of the European Beech have been found in Europe and are propagated and sold by nurserymen. The best known of these varieties is the so-called Purple Beech with leaves which are pale red in spring and deep red-purple at maturity. The Purple Beech was found growing naturally in the forest in three or four places in central Europe, and the first account of it was published as long ago as 1680. Seedlings of the Purple Beech sometimes have purple leaves; such seedlings often differ in shades of color, and to some of these trees names have been given. The Purple Beech is better known and more generally planted in this country than the typical green-leaved form, and for many years now has been a favorite with tree-planters in the northeastern states. The Copper Beech (var. *cuprea*) which is probably a seedling of the Purple Beech, has paler copper red leaves than those of that tree. An interesting form (var. *pendula*) of the European Beech is a comparatively low tree with horizontal or slightly pendulous branches from which hang almost vertically the secondary branches, the whole forming a tent-like head almost as broad as high. This tree was at one time somewhat planted in this country, and the largest specimen known here is the tree growing on what was once part of the Parsons Nursery in Flushing, Long Island. This tree is said to be one of the finest specimens in existence. A picture of it can be found in Wilson's *Romance of Our Trees*. There are other forms of the European Beech with pendulous branches differing somewhat in habit from the var. *pendula* to which names have been given (vars. *bornyensis*, *remillyen-*

sis, *pagnyensis*, *miltonensis*, etc.) The Fern-leaf Beech (var. *heterophylla*) is distinguished by its variously shaped leaves, which on the same branch are long and narrow, and usually more or less deeply lobed, pinnate or laciniate. Various names (vars. *asplenifolia*, *incisa*, *laciniata*, *salicifolia* and *comptoniaefolia*) have been given to forms of this variety, but the variation is often so slight that it seems wise to call all the forms of the European Beech with cut or laciniate leaves var. *heterophylla*. The largest specimen of this tree in the United States grows on Bellevue Avenue in Newport, Rhode Island, on the grounds of the Redwood Library and Reading Room. A form of the European Beech (var. *fastigiata*) on which all the branches grow erect and form a narrow pyramidal head promises to be a handsome and useful addition to the trees with this habit, like the fastigate Red and Sugar Maples, the fastigate European Oak and the fastigate Tulip-tree, European Hornbeam, etc. The original fastigate Beech is growing at Dawyck in Peeblesshire, Scotland, and is a comparatively recent addition to the Arboretum collection. In the variety *rotundifolia* of the European Beech we have a handsome tree, probably always of small size, with nearly round leaves closely set on the branches and usually not more than an inch in diameter, a good tree to plant where there is not room for the large-growing Beech-trees. The least attractive of all the forms of the European Beech, the var. *cristata*, is a tall narrow tree with short-stemmed leaves, deeply lobed and more or less contorted, interesting as a monstrous form but of no value among ornamental trees.

Fagus orientalis is a native of southwestern Asia where it is distributed from Asia Minor to northern Persia. From the European Beech it differs chiefly in the lower prickles of the fruit which are changed into oblong linear lobes. The plants which have been grown in the Arboretum for eight years have not suffered from cold or heat, but are still too young to give an idea of the value of this tree in the United States.

Chinese Beech-trees. These do not occur north of the central provinces where three species have now been found, *Fagus longipetiolata*, *F. Engleriana*, and *F. lucida*. The first Wilson found to be the common Beech of central and western China, where it grows with Oaks, Maples and other deciduous leafed trees. This Beech is usually a small tree fifty or sixty feet tall, but in western Szech'uan, where Wilson saw the largest specimens, it is a stately and handsome tree with a single trunk rarely divided near the base and covered with very pale gray bark. *Fagus Engleriana* is common on the high mountains of northwestern Hupeh and eastern Szech'uan where it often forms pure forests. Wilson found that the trunk of this tree almost invariably divides at the base into several diverging stems which do not attain much thickness or any great height, the tallest of which there is a record being not over seventy feet high, trees of half that height or less being more common. *Fagus lucida* is distinguished from the other Chinese species by the duller gray bark of the trunk which does not separate at the base and by its thick and spreading branches which form

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