The Lindens. On the whole the group of Lindens on the right hand side of the Meadow Road is the best arranged and most satisfactory group of trees in the Arboretum, and so far as flowers are concerned these are the most interesting trees in this climate in July. Linden trees are found in eastern North America, eastern Asia, the Caucasus and in Europe, and the species are usually widely distributed and common forest trees. They are all quite similar in the character of their flowers and fruit, and chiefly differ in the shape of their leaves, in the presence or absence of the hairs on the leaves and branchlets, and in the nature of this hairy covering when it exists. A curious fact about Linden trees is that in the flowers of the American species there are five petal-like scales opposite the petals and connected with the clusters of stamens, and that in the flowers of the Old World Linden trees these petal-like scales do not occur. Another interesting fact which has been learned here about Linden trees is that in the Arboretum the European species and their hybrids are more vigorous and handsomer trees than the Asiatic species, although with few other exceptions eastern Asiatic trees give more satisfaction in eastern North America than the trees of western Europe. The European Lindens, too, grow more rapidly than the American species which have never been very generally planted in this part of the country with the exception perhaps of the northern *Tilia glabra* which often suffers here in dry summers from the attacks of the red spider which disfigures and often causes the leaves to fall in August, especially when planted as a street tree. This tree usually appears in books under the incorrect name of *Tilia americana*. It is a splendid tree in the forests of northern New Eng-
land and eastern Canada, where it is found from northern New Bruns-
wick to the shores of Lake Winnipeg, but is less common and smaller
southward. The leaves are destitute of hairs with the exception of
the large conspicuous tufts in the axils of the veins on their lower
surface which is light green and lustrous. Three other American spe-
cies are established in the Arboretum, *Tilia neglecta*, *T. heterophylla*
var. *Michauxii* and *T. monticola*. The first of these differs from *T.
glabra* in the short, gray, finely attached pubescence which covers the
deeper surface of the leaves during the season and in the small incon-
spicuous tufts of axillary hairs. This is also a common northern tree
which often grows with *T. glabra* and has been confused with it in
books on American trees. It has a wide range from the valley of the
St. Lawrence River in the Province of Quebec through the northern
states, and ranges southward along the Appalachian Mountains to
North Carolina, and westward to southwestern Missouri. This tree,
which has not been many years in the Arboretum, has so far escaped
the attacks of the red spider, has grown rapidly and proved to be a
good tree. *T. heterophylla* var. *Michauxii* is a northern variety of a
species widely distributed in the southeastern states. It differs from
*T. glabra* and *T. neglecta* in the thick white down which covers the
lower surface of the leaves early in the season and on the leaves of
upper branches is often brown. It is a handsome tree with slender,
reddish or yellowish branchlets and small, slightly flattened winter-buds.
It occurs in western New York and is widely distributed southward
from the valley of the Susquehanna and lower Ohio rivers, in the
southern states being usually confined to the slopes of the Appalachian
Mountains and their foothills. It is hardy in the Arboretum but has
grown more slowly than *T. neglecta* and *T. monticola*. This last is the
most conspicuous of the American Lindens which has been satisfac-
torily grown in the Arboretum. It is the tree which has been incor-
rectly called *Tilia heterophylla* in many books in which American trees
have been discussed. It is found only on the slopes of the southern
Appalachian Mountains from Virginia to North Carolina and eastern
Tennessee, growing with *T. heterophylla* var. *Michauxii*. From that
tree it differs in its much stouter branchlets, much larger compressed
winter-buds, larger leaves very oblique at the base, often seven or
eight inches long, thickly covered below with white tomentum and
hanging on long slender stalks. The flowers are larger than those of
any of the American Lindens. This Linden has grown more rapidly in
the Arboretum than *T. heterophylla* var. *Michauxii* and promises to be
a valuable tree in northern parks.

There are three Linden trees in western Europe, *Tilia platyphyllos*,
*T. cordata* and *T. vulgaris*. The first has yellowish green leaves cov-
ered on the lower surface with short hairs found also on the young
branchlets. This is the first of the European species to bloom in the
Arboretum where it is growing with several of its abnormal forms, in-
cluding one with deeply divided leaves (var. *asplenifolia*) one with
slightly lobed leaves (var. *vitifolia*) and one of pyramidal habit (var. *pyramidalis*). These varieties are curious rather than beautiful and
have little to recommend them as ornamental trees. *T. platyphyllos*
appears to be the common Linden sold by American nurserymen as
"European Linden." It is perfectly hardy but as an ornamental plant
is less desirable than the other European species. Much handsomer is the small-leaved *T. cordata* which is the last of the Lindens in the collection to open its flower-buds. The leaves are often broader than long, with a heart-shaped base, very dark green above and pale below, and rarely more than two and a half inches in length. This tree has grown slowly here and is still a broad, densely branched pyramid. Not common in American plantations, the Arboretum has not heard of large specimens in the United States. In central and northern Europe trees one hundred feet tall are not uncommon. The third of the Lindens of western Europe, *T. vulgaris*, is believed to be a natural hybrid between *T. platyphyllum* and *T. cordata*. It is a large tree with leaves dull green on the upper surface, lighter on the lower surface, and destitute of hairs except in the axils of the veins below. There are fine old specimens of this tree in the neighborhood of Boston, and it is the best Linden in this climate to shade city streets. It is this tree which has been so successfully used in Boston on Louis Pasteur Avenue which connects the Harvard Medical School with Audubon Road.

The Two Silver Lindens of eastern Europe, *T. tomentosa*, sometimes called *T. argentea*, and *T. petiolaris*, are handsome trees of unusual appearance which may often be seen in American parks. *Tilia tomentosa*, which is a common tree in the forests of Hungary, is a large tree with erect branches which in this country form a broad, compact, round-topped head and large leaves dark green above and snow-white below. This tree has been a good deal planted in the parks of New York City where large and handsome specimens can now be seen. It appears to be less well known in New England. *T. petiolaris* is a handsome tree and one of the most beautiful of the exotic trees which can be grown in this climate, as can be seen in Newport, Rhode Island, where there are many noble specimens. It is a tall tree with drooping branches which form a narrow head, and leaves which are silvery white on the lower surface, and drooping on long slender stalks flutter gracefully in the slightest breeze. This tree is not known in a wild state and its origin is uncertain. *T. spectabilis*, which is believed to be a hybrid of *T. petiolaris* or *T. tomentosa* with *T. glabra*, is a handsome fast growing tree with the large leaves of the American species and silvery white below. This is one of the handsomest Lindens in the Arboretum collection. The var. *Moltkei* of this hybrid is a tree of denser habit and greener leaves, and in this climate a handsome and more desirable tree than *T. glabra*. It originated many years ago in the Spaeth Nursery near Berlin. The Crimean Linden (*T. euchlora*, sometimes called *T. dasystyla*), is distinct in its dark green lustrous leaves, and is believed to be a hybrid between *T. caucasica* and *T. cordata*. This beautiful tree is hardy in the Arboretum, but does not grow as well here as the European species, certainly not as well as it does in some of the countries of western Europe where it has been used and is recommended as a street tree. *T. caucasica*, one of its supposed parents, is not in the Arboretum collection.

Asiatic Lindens have not yet given much promise of growing here into large or handsome trees. Nearly every species from eastern Asia which has been described has been planted in the Arboretum more
than once, and most of them are still growing here. They are all quite small with the exception of _T. japonica_ which were raised at the Arboretum from seeds collected in Japan by Professor Sargent in 1892. It is a small tree here with leaves very similar to those of _T. cordata_, of which it has been considered a variety. The Japanese tree is chiefly interesting as it is the first of all the Linden trees here to unfold its leaves in the spring. When Lindens bloom is a happy time for bees, for the flowers of all contain large quantities of nectar. Unfortunately those of _T. tomentosum_ and _T. petiolaris_ are poisonous.

_Hypericum Buckleyi_, the first of the genus to bloom here, has already opened its flowers in the Shrub Collection. This is a rare plant found only on a few of the high mountains of North Carolina, but has proved perfectly hardy in the Arboretum where it has been growing for many years. It forms a dense mass of slender branches less than a foot high, covered with small yellow leaves, and early in July with small bright yellow flowers. This is an excellent plant for the rock garden and for a ground cover or the border of a shrubbery.

_Rhododendron maximum superbum_. A plant under this name came to the Arboretum a few years ago from a Connecticut nursery. It has leaves shaped like those of _R. maximum_ but only six inches long, and blossoms two inches across the expanded corolla; this is deep rose color on the margins of the lobes shading to white toward their base and marked on the upper lobe by many orange-colored spots. It is probably a hybrid of _R. maximum_ with one of the hybrids of _R. catawbiense_. Plants raised from this cross by Charles Sander at Holm Lea in Brookline have the general appearance of _R. maximum superbum_, but they have longer and more lustrous leaves pale on the lower surface, and on some of the plants much larger clusters of handsomer flowers. There is an old plant, evidently the same hybrid, in what was the garden of Mr. Francis Parkman on the western shore of Jamaica Pond in Jamaica Plain. This plant has even longer leaves than the Sander plant and rather paler-colored flowers. This and one or two of the Sander plants are as handsome as any Rhododendron with pink or rose-colored flowers which can be grown in this climate. They bloom at the same time as the white-flowered hybrid, probably a hybrid of _R. maximum_ and _R. catawbiense_ raised many years ago by Anthony Waterer at Knaphill and named by him _R. Wellesleyanum_, from Mr. Hunnewell's estate at Wellesley. This plant is now flowering in the Arboretum. These _maximum-catawbiense_ hybrids seem destined to play an important part in the decoration of parks and gardens in the northeastern United States where few Rhododendrons and other broad-leaved evergreen plants can be grown. They are as hardy as the hardiest of the catawbiense hybrids and bloom two or three weeks later than these, prolonging the flowering period for hybrid Rhododendrons to the middle of July, that is when the conspicuous flowers of trees and shrubs are not abundant.