Linden Trees. Tilia, the name of the Linden, is one of the widely and generally distributed arborescent genera of the northern hemisphere. It is absent from western North America, and no Linden has yet been found in the forests of the Himalayas. Eastern North America with fifteen species is richer in Lindens than all the rest of the world, and in North America Lindens are found from New Brunswick westward to Lake Winnipeg, and southward to northern Florida and northeastern Mexico. To the two species which grow in Canada another is added in New York and Pennsylvania, and southward in the forests which cover the high slopes of the Appalachian Mountains and in those of the coast region of the Carolinas and Georgia the number increases. Lindens are common in all the Gulf States, and abound in eastern and southern Texas where five species and several varieties occur, and where Linden trees grow by the scanty streams and under the bluffs of the Edwards Plateau, a region in which they could hardly be expected to flourish. The ability of the southern species to grow permanently in New England is still to be demonstrated in the Arboretum, and only three northern and one southern Appalachian Lindens are established. These are Tilia glabra, often called T. americana, T. neglecta, T. heterophylla var. Michauxii, and T. monticola. Tilia glabra is a splendid great tree in the forests of the north where it was once abundant, with individuals more than a hundred feet high with trunks from three to four feet in diameter. Such trees are no longer common for the wood of the northern Linden, usually known in commerce as white wood, has been in popular use for many years and a large number of trees have been cut. This Linden has been a good
deal planted as a shade tree in New England but the leaves are too often disfigured, especially in dry summers, by the attacks of the red spider. *T. neglecta*, which finds its northern station in the neighborhood of Montreal, is not rare in the northern states and along the Appalachian Mountains. It is easily distinguished from *T. glabra* by the short persistent gray down on the lower surface of the leaves, that of the leaves of *T. glabra* being green and lustrous and destitute of hairs with the exception of those which form the large tufts in the axils of the principal veins. In the Arboretum it is growing rapidly and now gives every promise of success. The other northern Linden, *T. heterophylla* var. *Michauxii*, is one of the several species with leaves covered below with a permanent coat of white tomentum. It is a common tree from Pennsylvania and western New York to southern Indiana and Illinois, Missouri and southward along the Appalachian Mountains. This handsome tree is growing well in the Arboretum and is well worth a place in collections of ornamental trees. It grows less rapidly, however, and is not as handsome as the other hardy American Linden, *T. monticola*. The flowers are larger than those of other Lindens and the leaves hanging on long slender stems, and swept by the slightest breeze as they turn their lower surface to the eye, make in contrast with the dark Hemlocks with which this Linden often grows one of the beautiful features of the splendid forests which still cover the slopes of the southern mountains. The studies of Linden-trees at the Arboretum have shown that the European species grow more rapidly and give every promise of being better trees in this climate than the American species. This is unusual, for of other trees of western Europe only the Beech and white Willow grow better here than their American relatives, and, with the exception of the Linden, all Asiatic trees are more at home in eastern North America than the trees of Europe. The five European species and several of their varieties are growing here in a satisfactory manner. *Tilia platyphyllos*, easily distinguished by the hairs which cover the lower surface of the yellow-green leaves and the young branches, is the first of the European species to bloom. It has long been cultivated in the eastern states and appears to be the common European Linden sold by American nurserymen, although as an ornamental tree it is the less desirable of the European species. *T. cordata*, distinguished by its small cordate leaves glaucous on the lower surface, is the last of the Lindens to flower. It is a beautiful tree which in Europe grows to a large size but is not often seen in this country. A better tree here than either *Tilia platyphyllos* or *T. cordata*, *Tilia vulgaris* is generally believed to be a natural hybrid of these species. The leaves are dull green on the upper surface and destitute of hairs with the exception of those in the axils of the veins below. This tree, which is not rare in the northern and middle states, is one of the best trees to shade the streets of northern cities. The largest and handsomest Linden-trees in the neighborhood of Boston are of this hybrid. The two Lindens of eastern Europe, *Tilia tomentosa* and *T. petiolaris*, are distinct and handsome trees with leaves silvery white on the lower surface, and can be easily and successfully grown in southern New England; the former, which is common in the forests of Hungary in this country forms a broad compact round-topped head with erect branches and large leaves erect on short
stalks. *Tilia petiolaris* is a more beautiful tree with pendulous branches which form a narrow head, and leaves drooping on long slender stems. It has proved to be one of the handsomest exotic trees which can be planted in the eastern states. It is too soon to speak with much knowledge of the value of the Asiatic species as ornamental trees in this climate; most of them have been introduced here in recent years, the oldest Asiatic Linden now in the Arboretum, *Tilia japonica*, having been raised here from seeds only planted in 1893. A comparatively large tree in Japan, the Arboretum specimens are now from twenty to twenty-five feet high with gracefully drooping branches and open habit. The leaves unfold earlier in the spring than those of any other Linden in the collection, and are small, cordate at the base and pale on the lower surface like those of the small-leafed European Linden (*T. cordata*) to which the Japanese tree bears some resemblance. This Japanese tree has flowered for a number of years in the Arboretum and the flowers are large, bright yellow, and, like those of other Lindens, very fragrant. For its flowers, which appear when few trees bloom in this climate and are beautiful and conspicuous, it deserves to be more generally planted. An Asiatic Linden which reached the Arboretum in 1882 was the north China *Tilia mongolica*. This is a small tree, at least in this country, with small, nearly triangular, lustrous leaves. It begins to flower and produce fertile seeds at the end of a few years. It has proved short-lived here and the original tree soon disappeared. All the other Asiatic species are or have been in the collection at different times; they are all hardy enough, but at best grow slowly and appear to lack vigor of constitution. Of the species lately introduced *Tilia Oliveri* now appears the most promising. One of the handsomest Linden-trees in the Arboretum collection, *Tilia spectabilis* is believed to be a hybrid of *T. glabra* and *T. petiolaris*. It is a fast-growing tree with leaves as large or larger than those of its American parent but silvery white on the lower surface like those of *T. petiolaris*. What is believed to be a variety of this hybrid (var. *Moltkei*) originated many years ago at the Spaeth Nursery in Berlin. It is a tree of denser habit and greener leaves than *T. spectabilis*, and in the Arboretum it is a handsomer and faster growing tree than the original species.

**Maackia.** Two species of this genus of the Pea Family have been in flower during the last days of June. The better known of these species, *Maackia amurensis*, is a native of eastern Siberia; it is a small tree with a slender trunk, with smooth, lustrous, red-brown bark, small erect and spreading branches which form a rather flat-topped obconic head, and long, erect, narrow terminal spikes of small white flowers. Botanically and geographically interesting, the chief value of this Maackia from a garden point of view is found in the fact that its flowers open at a time when flowers can only be seen here on a few trees. A second species, *M. chinensis*, discovered by Wilson in central China, is covered with pale yellow flowers in rather shorter spikes than those of the Siberian tree. In early spring the silver gray hairs which thickly cover the unfolding leaves make this little tree conspicuous and interesting. The bark of *M. chinensis* is dull grayish green and less beautiful than that of the Siberian tree.
Rosa setigera, the so-called Prairie Rose, is the last of the American species to flower with the exception of *R. stellata* which will continue to open its flowers through the summer. No Rose is more beautiful than this inhabitant of the western states where it grows from Michigan to Texas; it is a free-flowering and perfectly hardy plant with tall arching stems, ample, bright-colored foliage and broad clusters of pink flowers. It can be trained over an arbor or against a building, but looks best when it is allowed to grow without any training whatever. The typical form is quite glabrous and appears to be less common than the variety *tomentosa*. Of the latter there is a mass on the right hand side of the Forest Hills Road in front of the Cherries in which the plants are now covered with expanding flowers.

*Rosa multibracteata*, the last of the Roses discovered by Wilson in western China, is now covered on the southern slope of Bussey Hill with its clusters of small flowers, the clear pale pink petals being deeply notched at the apex. Vigorous shoots of this Rose are thickly covered with bright red prickles and greatly add to its beauty at this season of the year and in winter. It does not always bloom as freely as it is blooming this summer, and during the severe winter of 1917-18 with several other of the Chinese Roses the Arboretum plants were killed to the ground.

*Rhododendron maximum*. There are three hybrids of this species which are good garden plants. The type of these hybrids must be considered *Rhododendron delicatissimum*, raised many years ago in England, the other parent being probably one of the white-flowered hybrids of *R. catawbiense*. A handsomer plant which was raised by Anthony Waterer at Knaphill several years ago and called by him *R. Wellesleyanum*, is apparently a rare plant and not in the Arboretum collection. There is a fine plant at Wellesley on the Hunnewell estate and four plants at Holm Lea. The flowers, which appear about a week earlier than those of *R. maximum*, are pure white with a large yellow blotch at the base of the corolla. Another hybrid which was raised several years ago by Charles Sander at Holm Lea in Brookline is not yet in the Arboretum and is still unnamed. It is a handsome, hardy plant with pure pink flowers, and was obtained by crossing *R. maximum* with one of the hybrids of *R. catawbiense* the name of which unfortunately is not known. The form of *R. maximum* with rose-colored flowers is a rare and beautiful addition to New England Rhododendron collections where unfortunately it is still rare. There is a large plant in the Hunnewell collection and it is also in the Boston park which was formerly the garden of Francis Parkman where it was planted by him. It blooms about the same time as *R. maximum*, and has the same habit of sending out its new shoots with or before the opening of the flowers. It has been received at the Arboretum from Connecticut as var. *superbum*. There is no indication in this herbarium that it is anywhere a wild plant.