Oaks best loved of trees by the Anglo-Saxon race are the glory of northern forests. They have been associated with our history from immemorial time and the veriest tyro among tree lovers recognizes an Oak at a glance. They form the genus Quercus and the members are widely distributed through northern regions dipping into the tropics of both hemispheres. A majority of the species are evergreen, quite a few of which are natives of North America but not a single evergreen Oak has proved hardy in the Arboretum. This is a great pity since one and all are beautiful umbrageous trees, none more so than the Holm Oak of Europe (Quercus Ilex) of which Kew Gardens boasts magnificent specimens. In North America and Canada some 85 species, of which 28 are shrubs, and about 60 natural hybrids are recognized. In the Arboretum 60 species and hybrids are successfully grown, the collection being perhaps the finest of the tree groups. New England is well represented in Oak species; in the Arboretum itself 6 are native and Oaks are the principal feature of the mixed woods which clothe its low rocky hills. When the Arboretum was founded in 1872 the Oak trees through poverty of soil and excessive pasturage showed marked signs of deterioration, many of them were stag-headed and dying at the top. Professor C. S. Sargent submitted them to the Des Cars' system of pruning, which consists of thinning out the lesser and pollarding the main branches. The beneficial result of this treatment is remarkable, especially among the White Oaks; indeed, it is difficult to tell without close inspection that they have been submitted to drastic pruning. In addition to the native species all that will withstand the climate are flourishing and there are trees now 60 feet and more tall raised from seeds planted about fifty years ago. The idea is current that Oaks grow slowly, but the experience of the Arboretum is that they grow faster than the majority of hardwood trees. The erroneous notion of slow growth is probably responsible for their being much neglected by nurserymen. Their beauty as specimen trees for lawn and meadow is obvious to all and their value as roadside trees is well demonstrated by the magnificent
avenues of Red Oak which line the Parkway in the vicinity of Jamaica Pond. The best way of raising Oaks is by planting the acorns in flats so soon as they are ripe and transplanting the seedlings when a few inches high. As Oaks form a stout taproot it is necessary to transplant them frequently in order to develop a fibrous root system. If properly grown from their youth, most of the Oaks transplant with ease but some, the common White Oak in particular, are notoriously difficult to move. Oaks with their stout boles, rugged bark, massive branches and widespread crowns are beautiful at all seasons of the year. In the brilliancy of their autumn tints they are not excelled by any trees and the soft greens, grays and pinks of their unfolding foliage and flowers is one of spring's greatest delights.

Red and Black Oaks are peculiar to North America and are not found elsewhere in the world. They are characterized by the fruit taking two years to mature, and many of them are distinguished by a hair-like process which protrudes from the margins of the leaf. Of these 20 species and hybrids are growing in the Arboretum, prominent among them are the northern Red Oak (Q. borealis), the Pin Oak (Q. palustris), the Scarlet Oak (Q. coccinea), the Black Oak (Q. velutina) and the Shingle Oak (Q. imbricaria). The northern Red Oak is best known as Q. rubra and extends north to the foothills of the Laurentians in Quebec, being the most northerly species in those latitudes. To this same group belongs the scrubby Bear Oak (Q. ilicifolia) abundant in rocky places on the Blue Hills and elsewhere. These Oaks assume orange-brown or scarlet to crimson-purple tones and where they grow on sandy soil or in rocky places the color is especially brilliant. Several of this group, especially Q. coccinea and Q. borealis, do well in the British Isles but the pernicious European practice of grafting them on the native White Oak has led to their being less common than they otherwise would be. The Shingle or Laurel Oak (Q. imbricaria), which is readily distinguished by its descending, over-lapping branches and oblong, smooth margined leaves, is exceedingly well-suited for making tall hedges and since it holds its brown dead foliage until spring gives a sense of warmth throughout the winter months. Its value as a hedge plant has been well demonstrated at the Experimental Farm, Ottawa, and nurserymen would do well to raise this Oak in quantity for this purpose.

White Oaks are found not only in North America but in Europe and Asia also. They are distinguished by the acorn maturing in one season and by the absence of any hair-like outgrowths from the margin of the leaves. Of the American species and hybrids some 25 are growing in the Arboretum, the best known of which are the common White Oak (Q. alba), the Swamp White Oak (Q. bicolor) and the Burr Oak (Q. macrocarpa). The White Oak with its relatively short but very thick trunk and its widespread flattened-round crown of massive branches and rich scarlet autumn tints is one of the noblest of northern trees. Where the soil is rich and it has ample room in which to grow this is one of the outstanding trees of the
A rejuvenated White Oak, *Quercus alba*
countryside. Curiously enough it has been found virtually impossible to grow this Oak in the British Isles where only one or two small trees are known. The Swamp White Oak with taller trunk but less wide-spreading crown is found as far north as the St. Lawrence Valley in southern Quebec, being the most northerly of White Oaks in these latitudes. The Burr Oak with its handsome, mossy capule is widespread and grows taller than any other White Oak. In the rich bottomlands of southern Indiana and Illinois it sometimes reaches the great height of 170 feet with a trunk 20 feet in girth clear of limbs for 75 feet. It has a wide distribution, being found as far north as Nova Scotia and New Brunswick; it is the common Oak in Wisconsin and ranges farther to the northwest than the other Oaks of eastern North America. Two very interesting White Oaks growing well in the Arboretum are the Overcup Oak (Q. lyrata) and the Post Oak (Q. stellata).

**Asiatic Oaks.** Of the 9 species of deciduous leaved Oaks native of China, Japan and northeastern Asia in general, 7 are growing in the Arboretum, where one and all do well. The most valuable of these Asiatic Oaks is Q. mongolica, the Oriental relative of the European Q. robur. The typical species is abundant in Manchuria and Korea but has only recently been established in the Arboretum where it was raised from seeds collected in 1917 by E. H. Wilson. Its Japanese form Q. mongolica grosse-serrata, more generally known as Q. cris-pula, the Nara of the Japanese, is famous for its timber which approaches in quality that of the American Q. alba. The species, widely known as Q. glandulifera, but correctly as Q. serrata, is peculiar in that it is the only Asiatic Oak which assumes red to crimson autumn tints; it grows freely in the Arboretum. The corky-barked Q. variabilis and its close relative Q. acutissima, peculiar as being the only deciduous leaved Oaks outside of the Red and Black Oak section which take two years to mature their acorns, are doing well. The Japanese Tan-bark Oak (Q. dentata) often called the Daimyo Oak, remarkable for its very large leaves, grows less freely than other Asiatic species. These with Q. aliena, common to China, Japan and Korea, may be seen on the eastern slopes of Bussey Hill. The largest trees were all raised from acorns collected in 1892 by Professor Sargent on his most fruitful expedition to Japan.

**European Oaks** with the exception of the Hungarian Oak (Q. conferta), one of the handsomest White Oaks, do badly in eastern North America. The English Oak (Q. robur) grows rapidly for the first twenty years of its life but afterwards becomes stunted. It has been abundantly planted about the old villages on Cape Cod, where here and there a passable specimen may be seen. The Turkey Oak (Q. cerris) exists in the Arboretum but in the town of Brookline one or two good specimens may be seen. A supposed hybrid between Q. robur and the American Chestnut Oak (Q. montana) and known as Q. Sargentiana, grows well and is represented in the Arboretum by a number of fine trees.

E. H. W.