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The Arboretum is often asked to determine the names of European Elms and for information about these trees, particularly about the so-called English Elms. The subject is complicated for many varieties and several hybrids of these trees have been developed through long cultivation, and it is sometimes difficult to distinguish hybrids or forms due to cultivation from the original wild types of these trees. This difficulty is increased by the nearly complete destruction of the original forests of western Europe where of most species of trees only planted individuals can now be seen, and the wild types of the European trees must be looked for in the Balkan states or in the Caucasus.

There are in all Europe four species of Elm trees that can be readily distinguished. The confusion in regard to these trees goes back at least to the time of Linnæus who considered that all the European Elms belonged to one species to which he gave the name of *campestris*. This name, however, cannot be used for any one of the four species united by Linnæus as it is impossible to know which of the four he considered best deserving of the name. *Ulmus campestris*, therefore, as a name must be given up. This is unfortunate for the name is of old usage and is found in all books about trees.

Two Elm trees grow naturally and spontaneously in Great Britain, *Ulmus glabra* and *Ulmus nitens*, and these names, which are the oldest which have been applied to these trees, further complicate the situation. *Ulmus glabra*, which is often called the Scotch Elm, is a medium-sized, round-headed tree with stout hairy branchlets and large short-stalked leaves often three-lobed at the apex, and very rough, especially on the upper side, from the short rigid hairs which cover them. This tree can easily be distinguished also by the fruit in which the seed is in the center of the surrounding wing. It is a native of Scotland and northern England, and extends eastward to the Caucasus, eastern Siberia and Japan, where it is represented by a distinct form, the variety *heterophylla*. To the Scotch Elm several names have been given. The oldest and the one therefore which should be adopted is *Ulmus glabra*. This is an unfortunate name for the leaves are rougher than those of any other Elm tree, and *Ulmus scabra* and *Ulmus montana* which were given to it later are more appropriate names. The name *glabra*, however, as the author who first used it states, was given to this tree because the branches are smooth, that is because they do not produce the corky wings which are developed on the branches of many varieties of Elm trees. The Scotch Elm has been sometimes planted in the eastern United States but it is not a desirable tree. It does not produce suckers like many other Old World Elms, but it bears great quantities of seeds which are freely blown about and, growing rapidly, produce innumerable plants which may become troublesome weeds. In recent years, in the neighborhood of Boston, the leaves of this tree have been destroyed in early summer by the larvæ of a leaf-mining insect which works entirely under the epidermis of the leaf and cannot therefore be reached by an external application of poison. This insect is a good botanist and, selecting always this Elm, never feeds on any of the other species. Several varieties of the Scotch Elm are commonly cultivated. The best known, perhaps, is the Camperdown Elm, the variety *Camperdownii*. This is the tree with pendulous branches which is often planted in suburban gardens where, as the branches grow

regularly round the top of the stem and reach the ground, it makes a natural arbor. The variety *horizontalis* with irregularly spreading and more or less drooping branches is a handsomer tree but is less often seen in the United States. The Exeter Elm is a variety of this tree, var. *stricta*, with erect branches which form a narrow pyramidal head and is more curious than ornamental. The variety *macrophylla* is a form with exceptionally large leaves, and the variety *myrtifolia* has purplish leaves. The variety *superba*, which is perhaps a hybrid, is a large tree with a broad head of pendulous branches, and large, rather lustrous leaves, and is the handsomest of all the forms of the Scotch Elm.

The second species which grows in Great Britain, *Ulmus nitens*, is a taller tree with slender hairless branches sometimes furnished with corky wings, longer-stalked and smaller, smooth, shining leaves without hairs except occasionally on the under surface of the midribs, and fruit in which the seed is near the upper edge of the encircling wing. This tree produces suckers freely. It is a widely distributed tree, extending to the Caucasus and Siberia. It is not often found in American collections and it is hardly recognized by American cultivators of trees. There are several forms of this tree in cultivation. Perhaps the one most often seen is the variety in which the leaves are blotched with white, variety *variegata*, also called *argenteo variegata*. The Cornish Elm, with erect growing branches forming a narrow irregular head, is a variety of this tree. There is a variety with purple leaves, var. *purpurea*, sometimes called var. *corylifolia purpurea*; and there is an interesting form found a few years ago in Persia, the variety *umbraculifera*, with short branches forming a compact nearly globose head.

The third European species, *Ulmus laevis*, is found only in the northern part of the continent and is the commonest Elm of Scandinavia and northern Russia. This is a noble tree which sometimes grows to the height of one hundred feet, and is hardly distinguishable in habit and foliage from the American Elm although quite different from our tree in the long stems on which the flowers and fruit hang. Like the American Elm, the trunk and large branches are often clothed with small pendulous branches. This tree is probably extremely rare in American collections, although it might well be more often planted in the northern states. It is often called *Ulmus pedunculata* and *Ulmus effusa*.

The fourth European species merged by Linnæus in his *Ulmus campestris* is a tree from central and northern Europe for which the oldest name is probably *Ulmus foliacea*. This is a tall tree with slender branches often developing corky wings, small, smooth or rough leaves, and fruit in which the seed is near the middle of the wing or between the middle and the apex. This tree is not generally recognized in American collections, but it is usually *Ulmus foliacea* which comes to this country when seedling Elms, under the name of *Ulmus campestris*, are imported from French or German nurseries. The curious, dwarfed, small-leaved Elm called *Ulmus viminalis* is evidently a seedling variety of this species.

The Huntington Elm, *Ulmus vegeta*, is now believed to be a hybrid between *Ulmus glabra* and *Ulmus montana*, the two species which grow naturally in England where the Huntington Elm originated. It is a large tree with a short trunk and numerous large branches spreading at narrow angles, and in this country it grows more rapidly than any other Elm tree. It should be oftener planted here. *Ulmus major*, which is supposed to be a hybrid of the same parentage as *Ulmus vegeta*, is another noble tree which a hundred or a hundred and fifty years ago was

much planted in the suburbs of London. There is another Elm in Europe which is perhaps a hybrid but its parentage is uncertain, and it appears to be without an authentic name. This is the Elm which is planted in all the Dutch cities and, judging by its appearance in these cities, it is one of the best of all street trees. There are large trees in Holland, in the Champs Elysées in Paris, and at Versailles, so if it is a hybrid it is not of recent date.

When in Massachusetts we speak of *Ulmus campestris* we do not refer to any of the trees already mentioned in this bulletin but to the so-called Elm of the roadsides, avenues and hedge-rows of southern England. The origin of this tree is obscure. Growing spontaneously it is known only in England; it never ripens seeds, and it increases by suckers which are produced in profusion. Some authors have thought that it might be a hybrid; by others it has been suggested that it was brought from Italy to Britain by the Romans. It is a splendid tall long-lived tree with a massive trunk and erect or spreading branches. This is the tree which has grown to a larger size in Boston and its suburbs than any other planted tree. Major Paddock established a nursery of these trees at Milton in the eighteenth century and the Paddock Elms, once the glory of Tremont Street, and the so-called English Elm trees which once stood on Boston Common are of this form. The oldest name for this tree is *Ulmus surculosa*. All these Elms, and many other species, hybrids and varieties in small individuals can be seen on the northeastern slope of Bussey Hill. *Ulmus surculosa* is common near Boston. *Ulmus glabra* and some of its varieties are not uncommon in this neighborhood, and occasionally plants of *Ulmus nitens* and *Ulmus foliacea* can be found in eastern Massachusetts. As these last are usually raised from seeds in European nurseries the imported seedling plants show great variation in habit, foliage and in the presence and absence of wings on the branchlets.

Two of the trees of eastern Asia are now in bloom. *Koelreuteria paniculata* is a native of northern Japan and is often planted in the gardens of Peking; It is a medium-sized tree with compound leaves and large erect clusters of bright yellow flowers. This is a valuable tree for it is very hardy, the foliage is handsome and the flower-clusters appear after the flowers of nearly all trees have passed. It is to be seen on the right-hand side of the Meadow Road between the Evonymous Group and the Horsechestnuts.

The second of the Asiatic trees in flower, *Maackia amurensis*, belongs to the Pea Family and is a native of eastern Asia. It is a small tree with orange-brown bark, dull green compound leaves, and short erect clusters of small yellowish white flowers. Botanically it is a nearer relative of the North American Yellow-wood or Virgilia, *Cladrastis lutea*. It has sometimes been supposed to belong to the genus *Cladrastis*, from which it differs, however, in the winter-buds, in the inflorescence and in the bark and wood. As an ornamental tree it is in every way inferior to its American relative, and it is only of botanical interest. Two trees of *Maackia* can be seen on the right-hand side of Bussey Hill Road at the top of the Pea Family Group.

**The Arboretum will be grateful for any publicity given these Bulletins.**