

# On the History of the Introduction of Woody Plants into North America

*Alfred Rehder*

**This is one of the very few popular articles that Alfred Rehder ever wrote. While initially written in English in the early 1930s, it was never published because American horticultural magazines considered it too technical. Faced with this rebuff, Rehder published the article in Germany in 1932. In 1936, the Arboretum librarian, Miss Ethelyn M. Tucker, translated the article back into English for publication in the *National Horticultural Magazine*. While our knowledge of the history of the introduction of plants has increased considerably since Rehder's time, this work is still of value because it provides a firm foundation for future studies.**

The introduction of North American woody plants into Europe has been treated frequently, while of the introduction of woody plants from other countries into North America almost nothing has as yet been written. It will, therefore, be appropriate to give here a brief sketch as to when and how foreign and also western American woody plants reached the gardens of eastern North America, as well as to mention the earliest and the most important gardens and arboreta.

The history of the introduction of ligneous plants into North America may be divided into three periods, the first of which embraces the time from the arrival of the first European settlers up to the middle of the 18th century. This period is characterized by the fact that the introduction of European woody plants is restricted chiefly to fruit trees and other useful plants with the addition of but a few ornamental shrubs. This is not to be wondered

at since pioneers in a strange land have a hard struggle for existence and are forced to seek first to assure for themselves the necessities of life, and only with increasing wealth and security of possessions do they find leisure to think of beautifying their surroundings.

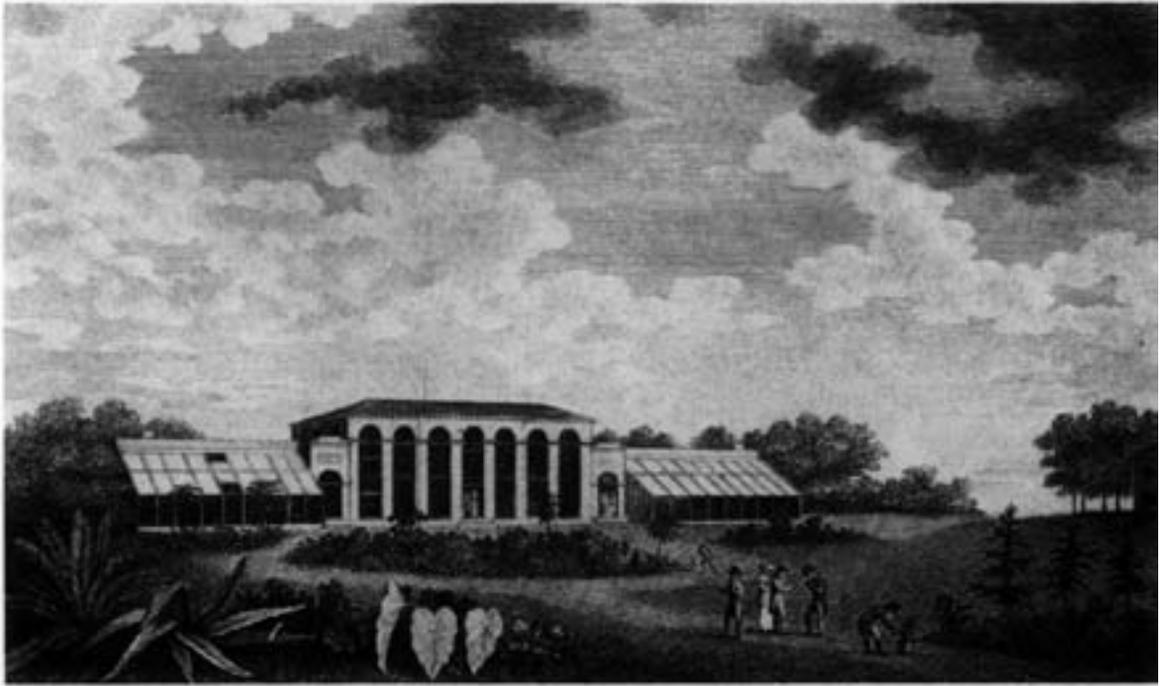
The first fruit tree introduced into the New World was the peach, which as early as the 16th century was brought into Florida by the Spaniards; from there it spread west and north and was planted by the white settlers as well as by the Indians. The introduction of woody plants in the North began in the first half of the 17th century. The first account of this we find in Josselyn (*New England Rarities Discovered*, published in 1672; and *Account of Two Voyages to New England* in 1638 and 1663, published in 1674) where he mentions the apple, pear, quince, cherry, plum, and barberry as thriving in New England; he mentions also *Salvia officinalis* and remarks that *Artemisia abrotanum*, rosemary, and lavender were not suited to the climate of New

England, which shows that their introduction was attempted, but was successful only in the southern states. Of ornamental shrubs he mentions only the rose. We can, however, be almost certain that some other ornamental shrubs, such as the lilac, snowball (*Viburnum opulus* f. *roseum*) and box had already in the second half of the 17th century been found here and there, as in the garden of Van Cortlandt in Croton on Hudson established shortly after 1681, and in that of Peter Stuyvesant in New Amsterdam (New York) which was established somewhat earlier; but as to what other plants these gardens may have contained we have no knowledge. The sources of information concerning the garden plants of this period are very few and unreliable; it is, however, to be assumed that some native ligneous plants also were cultivated, especially shade trees such as sugar maple, elm (*Ulmus americana*), red oak, and farther south *Catalpa*. Here, too, it may be mentioned that in the year 1645 Endicott, Governor of Massachusetts, introduced *Genista tinctoria* as a dye plant, which soon escaped from cultivation and is now thoroughly naturalized in eastern Massachusetts.

The second period is characterized by the introduction of an ever-increasing number of ornamental trees and shrubs, exclusively, however, from European gardens, and may be considered as extending from the middle of the 18th to the middle of the 19th century. In this period two men are outstanding figures, pioneers in garden-craft. One is John Bartram, who in 1728 established a botanic garden at Kinsessing near Philadelphia, where he planted and cultivated American trees and shrubs, which he had collected in his travels extending from Lake Ontario to Florida. He was in active communication with England and introduced many American plants there; in exchange he received plants from European gardens and propagated them in America. Among these may be mentioned the horse chestnut, which probably came to America in the year 1746. His work was continued by his sons, John and William. Bartram's house and

garden stand today, preserved in their original form. The second man is Robert Prince, who in the year 1730 founded a nursery in Flushing, Long Island, which has been managed continuously through five generations of the same family. Although in the beginning intended only for the raising of fruit trees, the management gradually broadened to include ornamental trees and shrubs, and since 1793 the nursery has been continued under the name Linnean Botanic Garden. From the catalogues which were issued it is evident what foreign trees and shrubs were in commerce at that time; from the catalogue of 1790 the following plants may be mentioned, though only the English names are given: *Cotinus coggygria*, *Koelreuteria paniculata*, *Colutea arborescens*, *Laburnum anagyroides*, *Populus nigra* var. *italica*, *Viburnum opulus* f. *sterile*, *Hibiscus syriacus*. In the earlier Prince estate still stand the oldest specimens in America of the cedar of Lebanon and Atlas cedar, *Paulownia*, the copper beech, Asiatic magnolias, and others.

Toward the middle of the 18th century, wealthy landowners, especially in Pennsylvania and Virginia, began to lay out large gardens in which among other things one finds box, lilac, *Taxus baccata*, and *Salix babylonica*. Washington's garden at Mount Vernon, begun about 1760, was one of the most important and contained many American and foreign trees and shrubs. One other very rich garden was laid out some years later by William Hamilton on his estate, "The Woodlands," near Philadelphia. This estate was later converted into a cemetery, "Woodlands Cemetery," in which today many of the trees planted by Hamilton still stand, among them the first *Ginkgo* in America which was planted in 1784. Humphry Marshall, inspired by his cousin, John Bartram, began in 1773 the foundation of an arboretum in Bradford, now Marshallton, in Pennsylvania. In 1785 he published his "Arbustrum Americanum," the first work written by an American on American trees and shrubs. Many of the trees which Marshall planted stand today. The first actual



A view of the Elgin Botanic Garden in New York City, established by Dr. David Hosack in 1801. Today Rockefeller Center in midtown Manhattan occupies the site on which the Garden once stood. From the Archives of the Gray Herbarium.

botanic garden in America was founded in 1801 by David Hosack in New York under the name "Elgin Botanic Garden." In the year 1810 it was taken over by the state of New York and later transferred to Columbia University, but was finally discontinued for want of funds. The second edition of the catalogue of this garden in 1811 contained many European and a number of Asiatic trees and shrubs, among which are *Gleditsia sinensis*, *Malus spectabilis*, *Rosa multiflora*, *Magnolia liliflora*, *Hydrangea macrophylla* (*H. opuloides*), *Sophora japonica*, and *Aucuba japonica*, the last two grown as greenhouse plants. A second botanic garden was established at the beginning of the 19th century in Cambridge, Massachusetts, and still exists at the Botanic Garden at Harvard University. In the year 1818 a catalogue of the garden by W. D. Peck was issued listing the following Asiatic trees and shrubs not mentioned in the catalogue of the

Elgin Botanic Garden: *Vitex negundo* var. *incisa*, *Eriobotrya japonica*, and *Thuja orientalis*. Other eastern Asiatic trees and shrubs listed in Prince's catalogue for 1828 are *Ulmus parvifolia* and *Wisteria sinensis*. In the year 1806 an expedition under command of Lewis and Clark, sent to the west coast by the United States government, brought back to the East the first western American plants, which were distributed by Macmahon and Philip Landreth, two gardeners in Philadelphia; by far the most important woody plants so brought were *Mahonia aquifolium*, *Ribes aureum*, and *Ribes sanguineum*. At the beginning of the 19th century, a greatly increased interest in gardening and plant culture, and especially in the cultivation of trees and shrubs, was evidenced through the collection of ligneous plants begun in 1800 by the brothers Samuel and Joshua Pierce in Longwood, Pennsylvania, and through more than

50 years carried on by the family. The garden which still contains many of the trees planted by the Pierce brothers is now the property of Pierre S. du Pont [today it is part of Longwood Gardens]. Another well-known collection is the Painter Arboretum, near Lima, in Pennsylvania, founded in 1825 by the brothers Minshall and Jacob Painter, who extended and maintained the arboretum up to the time of their death in the 1870s. The garden exists today and contains, among other plants, the oldest specimen of *Sequoiadendron gigantea* in eastern North America.

In the year 1828, John Evans founded a garden on the Ithan Creek near Philadelphia and brought together a remarkable collection of trees, shrubs, and herbaceous plants. He corresponded with both Hookers, father and son, and exchanged seeds, and also received seeds of Himalayan plants which Joseph Hooker had collected. In the year 1841, Henry Winthrop Sargent bought the estate Wodenethe above Fishkill Landing in the state of New York and planted and attempted to raise all the conifers which he was able to obtain; from here was distributed *Pinus ponderosa* f. *pendula*. Another pinetum was established by Horatio Hollis Hunnewell, of Wellesley, Mass., in the year 1852, and is still maintained by the family. No garden in the eastern United States can boast a better collection of fine large specimens of various conifers.

Here also mention should be made of some famous nurseries such as that of Ellwanger and Barry in Rochester, New York, established in 1840; the nursery of Samuel B. Parsons and his brother Robert established at the same time in Flushing, Long Island; and later that of Thomas Meehan, in Germantown, near Philadelphia, in 1853. All these firms carried a large number of trees and shrubs and thereby made many of the plant treasures of European gardens available to American garden lovers.

A third period may be marked from the year 1861 in which the first Japanese plants were sent to America, and thereby direct communication with Japan and later also with China

was initiated, countries which were destined to enrich American and European gardens through a large number of beautiful and valuable trees and shrubs. Up to this time America had received eastern Asiatic woody plants entirely by way of Europe, with the possible exception of a few important trees and shrubs such as *Rosa laevigata* Michx., which had previously come direct to America and by the end of the 18th century was already growing wild in the southern states. How it may have come there remains unknown.

In the year 1861, Dr. George R. Hall, who spent nearly fifteen years in China and had also visited Japan, sent a number of plants from Japan to America; in the following year he brought still more Japanese plants, some of which he sent to Parsons' Nursery in Flushing, some to Francis Parkman in Boston, and some he planted on his own estate in Bristol, Rhode Island, where many of them are growing today. Among the plants which he introduced may be mentioned some then not even known in Europe, as his *Malus Halliana*, *Magnolia stellata* and *M. kobus*, *Hydrangea paniculata* f. *grandiflora*, *Hypericum patulum*, *Taxus cuspidata* f. *nana*, *Sciadopitys verticillata*, *Phellodendron lavalleyi*, *Euonymus patens*, and *Lilium auratum*. Other Japanese plants were introduced by Thomas Hogg, the American consul in Japan in the years 1865 and 1873, and propagated in Parsons' nursery; among these *Cercidiphyllum japonicum*, *Hydrangea petiolaris*, *Symplocos paniculata*, *Magnolia parviflora*, and *M. obovata* (*M. hypoleuca*) deserve special mention.

In the year 1872, the Arnold Arboretum was founded as a department of Harvard University with Professor C. S. Sargent as Director, an institution whose purpose was to grow all the woody plants which would be hardy in the climate of Boston. All plants already cultivated in European and American gardens were collected and planted. As to those not yet found in cultivation, the director made it his aim to introduce from eastern Asia the rich ligneous flora up to that time only slightly known in western gardens. The first shipment

of seeds from eastern Asia was sent to the Arnold Arboretum in the 1880s by Dr. F. Bretschneider, who was physician to the Russian embassy in Peking. It consisted chiefly of trees and shrubs from the mountains west of Peking, among which may be mentioned *Syringa pubescens* and *S. villosa*, *Sorbus pohuashanensis* and *S. discolor* (*S. pekinensis*), *Deutzia parviflora*, *Rhododendron dauricum* var. *mucronulatum*, *Pyrus bretschneideri*, *P. betulifolia*, and *P. phaeocarpa*.

From Japan the Arboretum received in 1890, through Dr. William S. Bigelow, seeds of *Prunus sargentii*. Two years later, the director, Professor Sargent, visited Japan and brought back seeds of many trees and shrubs chief among which were *Rhododendron obtusum* var. *Kaempferi*, one of the most valuable introductions of the Arboretum, *Malus sargentii*, *Acer capillipes*, and *Sorbus alnifolia*. In the year 1905, J. G. Jack made a trip to eastern Asia and brought back, among other plants from Korea, *Rhododendron yedoense* var. *poukhanense*, *Tripterygium regelii*, and *Evodia daniellii*, and from northern China *Quercus aliena* and *Salix matsudana*. A year earlier the Japanese botanist Uchiyama had sent seeds of Korean woody plants to the Arnold Arboretum, among them *Abies holophylla* and *Neillia Uekii*. In the years 1907 and 1908, E. H. Wilson, who had formerly collected very successfully in China for the English nursery firm of Veitch, traveled for the Arnold Arboretum. Two years later he undertook a second journey to China, chiefly to western China, to collect seeds of conifers which in 1908 had borne no cones. During these three years Wilson sent more than 1,200 numbers of seeds to the Arnold Arboretum as well as a number of cuttings and young plants of *Populus* and *Salix* and some other woody plants. Many of the plants collected by him proved to be new not only to cultivation, but also to science. Wilson's new introductions and even those of horticultural merit are too numerous to mention here and only the following selection may be noted, among which

are found some previously collected by him for Veitch: *Abies fargesii*, *Actinidia chinensis*, *Aesculus wilsonii*, *Berberis sargentiana*, and *B. triacanthophora*, *Cercis racemosa*, *Corylopsis veitchiana*, *Cotoneaster divaricata*, and *C. hupehensis*, *Dipteronia sinensis*, *Fagus lucida*, *Hydrangea sargentiana*, *Ilex pernyi*, *Jasminum mesnyi* (*J. primulinum*), *Kolkwitzia amabilis*, *Malus hupehensis*, *Populus lasiocarpa*, *Picea asperata*, *Rosa moyesii*, *Salix magnifica*, *Sargentodoxa cuneata*, *Sinowilsonia henryi*, *Sorbaria arborea*, *Spiraea veitchii*, *Styrax wilsonii*, *Syringa reflexa*, *Viburnum rhytidiphyllum*.

Also a part of the seeds of woody plants collected in eastern China by C. Schneider for the Austrian Dendrological Society in 1914 came to America owing to the interruption of communication with Europe by the World War. In the year 1914, Wilson went again to eastern Asia and this time to Korea and Japan. Of the Korean ligneous plants which he introduced, those deserving special mention are *Forsythia ovata*, *Pentactina rupicola*, *Stewartia koreana*, *Buxus microphylla* var. *koreana*, *Thuja koraiensis*, and *Syringa velutina*; of the Japanese ligneous plants may be named the numerous garden forms of Japanese cherries and the Kurume azaleas. From Formosa, which he visited in 1918, he introduced the only recently discovered *Taiwania cryptomerioides*, the tallest conifer of eastern Asia, a counterpart of the *Sequoiadendron gigantea* of California. In the years 1910 and 1911, William Purdom visited the northern provinces of China and sent back a large number of valuable seeds of ligneous plants, such as *Malus transitoria*, *Prinsepia uniflora*, *Berberis circumserrata*, and *B. purdomii*, *Sorbus koehneana*, *Deutzia grandiflora*, and *D. hypoglauca*, and *Picea meyeri*. The last collector for the Arnold Arboretum in eastern Asia was J. F. Rock, who in the years 1925 and 1926 collected in northwestern China, after he had previously traveled for the United States Department of Agriculture in southwest China, Burma, and Siam. Among the woody plants collected by him that were



*The original introduction of the spreading Japanese yew, Taxus cuspidata 'Nana,' growing on the site of Dr. Hall's former estate in Bristol, Rhode Island. The specimen, planted in 1862, is now over 30 feet tall and 130 feet in circumference. Photo by P. Del Tredici, 1987.*

new to cultivation may be mentioned the following: *Juniperus tibetica*, *J. distans*, *J. glaucescens*, *Betula japonica* var *Rockii*, *Quercus laotungensis*, *Spiraea uratensis*, *Caragana brevifolia*, and *C. densa*, *Euonymus nanoides*, and *E. przewalskii*, *Rhododendron rufum*, and *R. capitatum*. During the sixty years of its existence, the Arnold Arboretum has introduced into American gardens some 2500 species and varieties besides the garden forms of *Syringa*, *Rhododendron*, *Rosa*, *Diervilla*, and others. . . .

Also to the Department of Agriculture with its experiment gardens in different parts of the country, America is indebted for many new introductions of trees and shrubs through collectors sent to all parts of the world. One of the most successful of these collectors was Frank N. Meyer, who in the years 1907–1914

traveled in central and eastern Asia, where by accident he lost his life in the Yangtze River. Among his new introductions may be mentioned *Juniperus squamata* var. *Meyeri*, *Syringa meyeri*, *Albizia kalkora*, *Betula chinensis*, *Buxus microphylla* var. *sinica*, *Daphne giraldii*, *Wisteria villosa*. The botanic gardens with arboreta connected, such as the Missouri Botanical Garden in St. Louis founded by Henry Shaw as a private garden and opened to the public about 1860, the New York Botanical Garden founded in 1894, and the Brooklyn Botanic Garden established in 1910, have contributed but little to the introduction of foreign trees and shrubs. The same is true of other arboreta founded in more recent times, as the Knox Arboretum in Warren, Maine; the Sanford Arboretum in Knoxville, Tennessee; and the Morton Arboretum,

in Lisle, near Chicago. The last named is, next to the Arnold Arboretum, the most important arboretum in the United States; in it are special plantations, largely of trees of value for forestry purposes, but it is also very rich in its collection of ornamental trees and shrubs.

From the preceding statements it is evident that the introduction to American gardens of most of the trees and shrubs was not direct from their native country but through the medium of European gardens. Not until the second half of the present century did introductions begin to be made direct. Even many American plants, especially those from the Rocky Mountains and from the western states, came by way of Europe into eastern American gardens. . . .

Of the woody plants introduced into North America from Europe and Asia, many have found conditions so favorable for their growth that they, especially in the eastern states, have to a large degree escaped from cultivation, and many are so well established that they actually form a part of the native flora. Among such woody plants that have become naturalized in many places may be mentioned the following: *Picea abies* (*P. excelsa*), *Salix fragilis*, *Populus alba*, *P. nigra*, *Alnus glutinosa*, *Berberis vulgaris*, *B. thunbergii*, *Ribes sativum*, *Philadelphus coronarius*, *Sorbaria sorbifolia*, *Malus pumila*, *Sorbus aucuparia*, *Crataegus oxyacantha*, *Pyracantha coccinea*, *Rubus laciniatus*, *Rosa canina*, *R. eglanteria* (*R. rubiginosa*), *Prunus persica*, *P. avium*, *P. cerasus*, *P. spinosa*, *Genista tinctoria*, *Cytisus scoparius*, *Ailanthus altissima* (*A. glandulosa*), *Euonymus europaea*, *Rhamnus cathartica*, and *R. frangula*, *Daphne mezereum*, *Solanum dulcamara*, *Ligustrum vulgare*, *Paulownia tomentosa*, *Lonicera*

*caprifolium*, *L. japonica*, *L. tatarica*, *L. xylosteum*, *L. morrowii*, and many others. Their number increases from year to year so that in time the flora of the wooded areas, at least in the more densely populated regions, takes on a mixed character. For the most part, however, the foreign trees and shrubs will probably never become so predominant as is the case with herbaceous plants on cultivated and uncultivated ground in proximity to settled communities. Here the native plants are often almost crowded out by the European aliens, and when a European who has a knowledge of plants comes to northeastern America he will scarcely be reminded by the surrounding vegetation, so long as he stays in and near the cities and does not go out into the country, that he is in another part of the world.

In Europe this is far less the case; American plants have not become naturalized to such a degree as to change the character of the vegetation; in contrast to the European plants, the American plants appear to possess less vitality, which possibly may be explained by the fact that the European plants represent a geologically younger flora. The American plants belong in the main to the tertiary flora, while the European flora has developed and spread since the ice age. But the European and Asiatic flora will also change with time. As a consequence of the intercourse between the different countries ever becoming closer, one may expect that an increasing mixture of floras of each of the climatic zones will take place and that finally each climatic zone around the world will have more or less the same or similar vegetation, as this is already the case today to a higher degree in the tropics than in the temperate zone.