

# ARNOLDIA



A continuation of the  
BULLETIN OF POPULAR INFORMATION  
of the Arnold Arboretum, Harvard University

VOLUME 6

MAY 31, 1946

NUMBERS 4-5

## ON THE HISTORY OF THE INTRODUCTION OF WOODY PLANTS INTO NORTH AMERICA<sup>1</sup>

THE introduction of North American woody plants into Europe has been treated frequently, and especially more recently by K. Wein,<sup>2</sup> 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 more 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

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<sup>1</sup> Professor Rehder has rarely been prevailed upon to write for the Bulletin of Popular Information or Arnoldia, hence this paper is doubly valued. It is reproduced from the National Horticultural Magazine of October, 1936, because it is deemed of sufficient value to be of interest to all Arnoldia readers. Several years prior to 1932 it was written by Professor Rehder in English. No American publication would then accept it. The horticultural magazines rejected it as being too botanical, and the botanical journals did not care for it, because it was primarily of horticultural interest. Then it was translated into German and published in *Mitteilungen der Deutschen dendrologischen Gesellschaft*, pp. 114-129, 1932. Later, Miss Ethelyn M. Tucker, Librarian of the Arboretum at that time, translated it back into English, and it was published in the National Horticultural Magazine. Because of the great part the Arnold Arboretum has played in the introduction of plants to America, this article still has much merit, and is here reproduced in the hope that someone, with the interest, the time, and the means, will take up this study of plant introduction. There is much about it not yet known nor recorded.

<sup>2</sup> *Mitteilungen der Deutschen dendrologischen Gesellschaft*, 1930, pp. 137-163; 1931, pp. 95-154; 1932, pp. 123-129.

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 possession 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*, 1672, and *Account of Two Voyages to New England* in 1638 and 1663, 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 Endecott, 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 to-

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day, 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: *Colinus coggygria*, *Koelerteria 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 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 as the Botanic Garden of 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 west 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. 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 70's. 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*, *Evonymus patens* and *Lilium auratum*. Other Japanese plants were introduced by Thomas Hogg, the American consul in Japan in the years 1865 and 1875, 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 80's by Dr. E. 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 western 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 *Taiwanian cryptomerioides*, the tallest conifer of eastern Asia, a counterpart of the *Sequoiadendron gigantea* of California. In the year 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 circumserata* and *B. Purdomii*, *Sorbus Koehneana*, *Deutzia grandiflora* and *D. hypoglauca*, and *Picea Meyerii*. 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 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*, *Evonymus nanooides* and *E. Przewalskii*, *Rhododendron rufum* and *R. capitatum*. During the sixty years of its existence the Arnold Arboretum has introduced into American gardens some 2,500 species and varieties besides the garden forms of *Syringa*, *Rhododendron*, *Rosa*, *Diervilla* and others; of these some 1,400, including 600 species of *Crataegus*, were for the first time introduced into cultivation and over 1,000 were introductions from European gardens into America. 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 squama'a* var. *Meyeri*, *Syringa Meyeri*, *Albizzia kalkora*, *Betula chinensis*, *Bucus 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.

Since most of the plants reached America by way of Europe, it may not be amiss here to give a short sketch of the history of the introduction of woody plants into Europe. If we disregard the gardens of Babylon, Egypt, India, Persia, Greece and Rome, since we are chiefly concerned with the woody plants of the cooler temperate zone, we find the first written proof of cultivated trees and shrubs in middle Europe in connection with cloister gardens, as in the plan of the cloister garden of St. Gallen published in the year 830, and in the "Capitulare de villis" promulgated by Charlemagne in the year 812, in which many fruit-bearing trees such as apple, pear, plum, cherry, quince, walnut, mulberry, peach, almond, chestnut, hazel-nut, medlar and grape, also salvia, rosemary, and *Artemisia abrotanum* are mentioned. Of ornamental shrubs only the rose appears, probably *Rosa centifolia*. A fairly complete list of woody plants cultivated in middle Europe in the middle of the 16th century we find in Conrad Gesner's "Horti Germaniae" under the date of 1560. He names nearly all the known woody plants growing wild in Germany and also some in south Europe such as *Cercis*, *Colutea*, *Laburnum*, *Staphylea*, *Vitex* and *Cotinus*, while some eastern trees and shrubs, as the horsechestnut, lilac, and mock-orange are still lacking, but in John Gerard's Catalogue of the plants in his garden, published in 1596, which is the first catalogue of plants cultivated in English gardens, the last named plants are found together with others from eastern and southern Europe. About the same time Jean Robin published a catalogue of cultivated plants in the Royal Garden at Paris, and Richier de Belleval a catalogue of the botanic garden in Montpellier.

These are the first catalogues of garden plants for France. The first North American woody plant reached Europe through France. It was the arbor-vitae (*Thuja occidentalis*) which probably was brought to France in the year 1536 through Cartier's expedition. In the first quarter of the 17th century a large number of American trees and shrubs were introduced into France as shown by J. Robin's "Enchiridion Isagogicum" of 1623, and Cornut's "Canadensium Plantarum Historia" of 1635, in which among others were listed *Robinia Pseudoacacia*, *Parthenocissus quinquefolia*, *Rhus Toxicodendron* and *R. typhina*, *Campsis radicans* and *Prunus serotina*. From the middle of the 17th century, however, most of the new introductions came first to England and by the end of the 18th century nearly all the more important trees and shrubs of eastern North America, partly through the agency of John and William Bartram, had reached Europe. The first plants of western North America, through the expedition of Lewis and Clark, came in 1806 to the East and from there to Europe; however, most of the woody plants of the west coast of North America and of the Rocky Mountains were introduced into England through W. Lobb, R. Douglas, and Th. Hartweg between 1825 and 1850. For later introductions we are indebted chiefly to American gardens and various American and European collectors. Among the latter we may here mention the two German collectors, C. A. Purpus and A. Purpus.

Siberian plants reached Europe scarcely before 1750, when such species as *Lonicera tatarica*, *Caragana arborescens*, *C. frutex* and *C. pygmaea*, *Cornus alba*, *Sorbaria sorbifolia*, *Malus baccata* and *Malus prunifolia* were received. From the middle to the end of our present century we owe our introductions of north and central Asiatic woody plants in large part to the St. Petersburg Botanic Garden and its collectors.

The very first Chinese plants reached Europe before or about the beginning of the Christian era by way of the old trade route from North China through Tibet and Turkestan to Persia. The most important among these are the peach, apricot, *Morus alba*, *Hibiscus syriacus*, *Salix babylonica*, and *Syringa persica*, which for a long time was thought to be a native of Persia. Some few east Asian plants came to Europe through India, such as *Rosa chinensis*, which therefore was called Bengal rose. The first direct introduction we owe to the Jesuit father d'Incarville, who in 1750 among other plants brought to Paris *Ailanthus altissima* (*A. glandulosa*) and *Sophora japonica*. Toward the end of the 18th century and at the beginning of the 19th century Chinese plants began to be introduced into England through the English East India Company, among them *Paeonia suffruticosa* (*P. moulan*) and magnolias. Between 1810 and 1830 John Reeves sent many valuable trees and shrubs to England, such as *Wisteria sinensis*, *Spiraea cantoniensis* and various azaleas. Very important introductions we owe to Robert Fortune, who in the years 1840 to 1860 collected in China from whence he sent to England among other plants *Prunus triloba*, *Eurochorda grandiflora*, *Spiraea prunifolia*, *Viburnum tomentosum*, *Jasminum nudiflorum*, *Forsythia viridissima* and *F. suspensa* var. *Fortunei*,

*Chionanthus retusa*, *Syringa oblata*, and *Pseudolarix amabilis* (*P. Kaempferi*). Another English collector who in the year 1880 was sent out to China by the nursery firm of Veitch was Charles Maries, to whom we owe the introduction of *Hamamelis mollis*. In the years 1870 to 1880, through the French missionary, A. David, many important northern Chinese plants were brought into France and at about the same time a Russian, Dr. Bretschneider, in Peking, sent woody plants from northern China to Europe and also to America. Between the years 1890 and 1900 various French missionaries as J. M. Delavey, P. Farges and J. A. Soulié sent seeds of central and western Chinese woody plants to France and the Italian missionaries G. Giraldi and C. Silvestri sent seeds of northern and central Chinese trees and shrubs to Italy. From 1900 to 1904 E. H. Wilson collected very successfully for the English firm of Veitch and from 1907 to 1910 for the Arnold Arboretum in central and western China, as already related above more in detail, where also the explorers F. N. Meyer, W. Purdom and J. F. Rock are mentioned. In more recent times F. Kingdon Ward, Reginald Farrer and G. Forrest sent many woody plants from western China to England, especially rhododendrons. During the last decade with the creation of Chinese universities and scientific institutions Europe as well as America is beginning to receive seeds and plants directly from Chinese botanists and collectors.

As in the case of the Chinese plants so also the first Japanese plants came to Europe by way of other countries, as *Rhododendron indicum*, which was brought from Java to Europe in the year 1680. Others as the *Hydrangea macrophylla* (*H. opuloides*) and *Deutzia scabra*, which were cultivated in China, were introduced into Europe from the last named country. Not until the second quarter of the 19th century were the treasures of the Japanese gardens made available for Europe, first through Philipp von Siebold, who traveled in Japan in 1823 to 1829 and returned again in the year 1856. Of the numerous valuable trees and shrubs which he introduced we may here mention *Malus floribunda* and *M. Sieboldii*, *Cornus kousa*, *Cercis sinensis*, *Hydrangea paniculata*, *Callicarpa japonica*, *Spiraea Thunbergii*, many forms of *Acer palmatum* and of *Diervilla*. Other Japanese plants were brought to St. Petersburg by the Russian botanist Maximowicz about the year 1850, and cultivated there. In the year 1860 John Gould Veitch journeyed to Japan and brought many plants, especially conifers, to England. Of the introduction of trees and shrubs to America through Hall, Hogg, Sargent and Wilson we have already spoken. In more recent times new woody plants have been sent to Europe and America by Japanese botanists and nurseries. The introduction of woody plants from the Himalayan Mountains began chiefly about the year 1820; particularly were the English gardens enriched through the collections of Joseph Hooker, who in the years 1848 to 1851, traveled in India and especially in the Himalayan Mountains. The influence, however, of the Himalayan introductions of woody plants on the gardens of the cooler temperate zone has remained comparatively slight, since most of the plants have proved more or less tender, es-

pecially the rhododendrons, among which are many of great ornamental value.

That portion of eastern Asia which was the latest to disclose to us its ligneous treasures is Korea. Some woody plants such as *Pinus koraiensis*, *Cornus officinalis*, *Poncirus (Citrus) trifoliata* and *Rhododendron Schlippenbachii* had already reached us by way of Japan before the end of the 19th century and *Viburnum Carlesii* in the year 1902, but the first direct introductions to America came about through J. G. Jack, T. Uchiyama and E. H. Wilson, as has already been reported above.

The southern hemisphere has contributed little to the ligneous flora of our northern gardens. Of the Australian and New Zealand flora the New Zealand *Cassinia fulvida* is the only hardy shrub, and from Antarctic South America there are but a few species of *Berberis*, especially *B. buxifolia*, some species of *Pernettya*, as *P. mucronata*, and *Escallonia virgata (E. Philippiana)*, which have proved to some extent hardy.

Of the woody plants introduced into North America from Europe and Asia may be found so favorable conditions 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)*, *Evonymus 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.

ALFRED REHDER

*Translated from the German*

*by*

ETHELYN M. TUCKER

*(Revised by the author)*

#### **Translator's Note**

In the foregoing article Professor Rehder has made an important contribution to our knowledge of the dates of introduction into America of many of our well known trees and shrubs. There is a constantly increasing interest in the history of our favorite or familiar plants, where they came from, how and when, who named them, and why they bear the names they do. It is hoped that someone will carry forward the fascinating study which Professor Rehder has so ably begun and thus give to garden lovers a better acquaintance with their plant friends.

#### **Note**

The many friends of the Arnold Arboretum will welcome the announcement that Mrs. Beatrix Farrand has been appointed Consulting Landscape Gardener to the Arnold Arboretum during the next year. Mrs. Farrand, once a student of Professor Charles Sprague Sargent, has been Consulting Landscape Gardener to Princeton University, Yale University, the University of Chicago and Dumbarton Oaks in Washington, D.C. Mrs. Farrand's aim will be to initiate plans that will bring the living collections of the Arboretum into the best possible degree of usefulness to the general public.

#### **William H. Judd passes away**

It is with the deepest regret that the Arnold Arboretum announces the sudden death of William H. Judd, propagator, on its staff for thirty three years. Mr. Judd died of a heart attack on May 23. More information concerning him will appear in a later issue of *Arnoldia*.