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EXPLORATION FOR AND INTRODUCTION OF MAPLES INTO CULTIVATION

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Although the British Isles supports only a limited native flora it is ideally suited to growing the many plants that have been introduced from abroad.

Acer campestre is the only native maple, having come into the country from Europe after the Ice Age across the land bridge between Dover and Calais before the sea level rose.

The next maple to arrive was the sycamore, *Acer pseudo-platanus*, which probably arrived in Scotland in about 1480, where it was known as the plane tree. The first mention of it in literature is by Turner in his *Herbal* of 1551. Later, Sir T. D. Lauder writes "It is a favourite Scotch tree having been much planted about old aristocratic residences in Scotland and if the doubt of it being a native of Britain is true . . . then it is probably the long intimacy which has subsisted between France and Scotland that may be the cause of it being so prevalent in the latter country".

In Scotland, the sycamore was also known as the dool, or grief tree, because powerful barons used the sycamore for hanging their enemies.

The introduction of plants from foreign lands received much encouragement in the 17th and 18th centuries. Botanic gardens were established in many cities and it was these and their sup-

porters who looked for new plants from abroad.

In 1700 a Frenchman, Joseph Pitton deTournefort, who held the chair of Botany at the Jardin du Roi in Paris, was commissioned to explore Greece, Asia Minor, and Armenia. He established a plant classification system first explained in his *Element de Botanique* in 1694 and later in more detail in *Institutiones Rei Herbariae* in 1700 where is found the first description of *Acer*, establishing Tournefort as the father of the genus. A specimen of *Acer orientale* [syn. *A. sempervirens*] which is native to the eastern Mediterranean is reputed to have been planted in the Jardin by Tournefort in 1725.

A few years earlier, Andrew Balfour and Robert Sibbald had established a garden in Edinburgh which became The Royal Botanic Garden. James Sutherland was appointed to the "Care of their Garden", and introduced *Acer platanoides* into Scotland from southern Europe in 1683.

Several maples were introduced to the Chelsea Physic Garden, by its celebrated Superintendent Phillip Miller who took over the job from his father in 1722. In 1738 he brought in the Montpellier maple, *A. monspessulanum*; in 1759 *A. orientale*; and in 1759 the Tartar maple, *A. tataricum*, which is native to southeast Europe and Asia Minor. The Calmucks collect the seeds of *A. tataricum*, stripping off their wings and boiling the remainder in water to use as a food mixed with milk and butter.

In 1768 Miller described 10 species of maple with useful information on their culture. He wrote: "Most of the sorts of maples which come from America are very impatient of heat while young. Their seed should be sown in a sheltered situation. Of plants exposed to full sun but one day when they first appear, few will survive, especially the sugar maple. The seed should be sown with a good depth of soil covering them to protect them from mice".

The traffic in trees and plants from America to Europe had begun a century earlier after the establishment of the colonies.

Amongst the plants introduced by John Tradescant the younger is the red maple, *A. rubrum* in 1656. In 1741, Miller writes "The Virginian flowering maple, *A. rubrum*, was raised from seeds which were brought from Virginia many years since by Mr. John Tradescant in his garden at South Lambeth, Nr. Vauxhall, and since is in the garden of the Bishop of London at Fulham where it has flowered for several years and produced ripe seed from which several plants have been raised". This Bishop of London was Henry Compton the Head of the Church for the American Colonies. He was a most successful importer of American plants and his garden at Fulham Palace was greatly renowned.

One of the missionaries whom Dr. Compton sent out to America was John Bannister who arrived in Virginia in 1678 and it is probably he who collected seed of *A. negundo*, the ash leaf maple. It was not originally recognised as a maple and was named *Negundo fraxinifolium*.

In 1728, Sir Charles Wager introduced *A. saccharinum* which was originally known as *A. eriocarpum* or commonly as Wager's maple. It flourished in Sir Charles's garden at Parsons Green; Fulham and Miller, speaking of this maple, says "This, the gardeners distinguish by the title of Sir Charles Wager's maple but as there is no difference in the flowers, seeds or leaves from *A. rubrum* so they must be deemed but one species as there are only accidental varieties arising from seed".

William Aiton in his *Hortus Kewensis* (1789) records that the sugar maple, *A. saccharum*, was introduced by Peter Collinson, a Quaker linen draper from London, in 1735; and that *Acer pensylvanicum* was introduced in 1755 by Messrs. Kennedy and Lee of the Vineyard Nurseries, Hammersmith, London.

The 19th century opened with the discovery of a land route across the United States of America to its western shores. In 1792, Dr. Archibald Menzies sailed on the *Discovery* with Captain Vancouver and on May 2 in the following year he obtained the first sighting of the big leaf maple, *A. macrophyllum*, on Protection Island at the northeastern tip of the Olympic Peninsula.

In 1804 the United States government sponsored an expedition to find a practical route to the Pacific, appointing Captain Meriwether Lewis and Captain William Clark to lead it. The expedition reached the Pacific on 7th October 1804. An extensive collection of plants and specimens made on the outward journey were lost at the Great Falls but a smaller collection on the homeward journey survived. Everything was new to science and among the specimens were *A. circinatum* and *A. macrophyllum*.

In 1823 the Horticultural Society and later the Royal Horticultural Society employed David Douglas, a Scotsman, sending him first to the eastern United States and then the following year to the western United States. In 1826 he travelled by the Columbia river and collected and sent back to London seed of *A. macrophyllum* and *A. circinatum*. Douglas wrote in his journal "*Acer macrophyllum* of Pursh [is] one of the largest and most beautiful trees on the Columbia river, . . . correctly noted by Pursh to have the largest foliage of any".

A year earlier when he was collecting for Professor J. D. Hooker, Douglas discovered a form of the rocky mountain maple in the Blue Mountains which Hooker names after him, *A. glabrum* ssp. *douglasii*. It is a maple with attractive purple stems. At first Douglas sent only leaf specimens, but later seeds.

The beginning of the 19th Century saw the start of botanical exploration in India. In 1817, the Danish surgeon Nathaniel Wallich was appointed Superintendent of the Calcutta Botanic Garden. Among his collectors was Kamroop who discovered *A. acuminatum*. Others included John Forbes Royal who collected *A. villosum* at Choo Mountain, and Dr. George Goven who discovered

A. pectinatum at Sirimore.

The great floral treasurers of China and other countries in the Far East were now about to be discovered. In 1775 Carl Thunberg arrived in Japan. He was restricted to an island in Nagasaki Harbour where he was able to collect a few plant specimens from which he made the first description of *A. palmatum* and *A. japonicum*.

In 1826, Dr. Phillip Franz von Siebold, a German physician, arrived in Japan. In 1845, Siebold published the first description of many maples indigenous to Japan including *A. carpinifolium*, *A. crataegifolium*, *A. distylum*, *A. micranthum*, *A. rufinerve*, and *Acer cissitolum* [syn. *Negundo cissifolium*].

In 1853 a treaty with the United States of America led to the opening of Japanese ports, and botanists came flocking in.

In 1853 Carl Maximowicz explored the virgin forests of the Amur river, where he found *A. barbinerve* and *A. mandshuricum*. Maximowicz then went on to Japan spending four years collecting plants. In the province of Senaro he discovered *A. mono* subsp. *mono*, *A. capillipes*, *A. japonicum* and *A. nikoense*. His attendant, Sukawa Tschonoskii, was appointed to collect, and found *A. argutum* and *A. caudatum* subsp. *ukurunduense*. After Maximowicz had returned to St. Petersburg Tschonoskii continued to collect for him and found the maple which now bears his name.

In 1879, Charles Maries, working for James Veitch & Son, made a large collection of trees and shrubs, including many maples, near Sapporo. *A. crataegifolium*, *A. carpinifolium* and *A. rufinerve* were sent back to Veitch.

Travel was also restricted in China. In 1832, the Horticultural Society sent John Reeves, who collected *A. palmatum*. Dr. Alexander von Bunge arrived with an ecclesiastical mission from Russia and near Peking collected *A. truncatum*.

No further exploration took place in China until after the end of the Opium War. In 1862 Armand David arrived in Peking. He made three journeys into the hinterland with a stoic disregard of local insurrections, and his own constitution.

In 1868, David discovered *A. davidii* in Mupin which was introduced by Maries. The Golden Age of plant hunting was now about to dawn. In 1888, a remarkable Italian missionary, Father Giuseppe Giraldi, arrived in Shaanxi. On Mount Thae-pi-san he discovered the maple which Pax named after him, *A. giraldii*. Forrest also collected it between 1913 and 1915 and sent back seed to his employer, J. C. Williams of Caerhaes Castle. Giraldi also discovered in Shaanxi *A. grosseri*, which Joseph Hers introduced into cultivation in 1919.

In 1881, an Irishman, Augustine Henry, arrived in China, to work for the Chinese Maritime Customs at Ichang. He took an interest in the flora and began corresponding with Dr. William Thistleton-Dyer at Kew Gardens. In the high mountains of Hubei

Henry collected 10 new maples, including *A. erianthum*, *A. henryi*, and *A. sinense*.

Before leaving China in 1900, Henry had written to Professor Charles Sprague Sargent, then director of Harvard's Arnold Arboretum, suggesting that a younger man take over. Ernest Henry Wilson was appointed, and he arrived in China in 1899 where, on and off, he was to spend the next 15 years or so. He describes a day's march made through Hubei in 1910 "We traversed an old wood especially rich in species of maple . . . I gathered *Primula violodora* . . . *Acer griseum*, and a pink-flowered staphylea . . .". A day or so later Wilson describes walking through some fine woods "Maples in variety are very common, one large tree of *A. griseum* with chestnut red bark, its foliage looking like the river birch was the gem of all". In 1901, Wilson sent seed of this maple back to his employer.

In the limestone mountains of Hubei near Hsingshan Wilson collected 11 species of maple including *A. amplum*, *A. fulvescens*, *A. maximowiczii* and others. In all, he collected some 30 species of maple, including *Dipteronia sinense*.

After Wilson came George Forrest who arrived in China in 1904. His main collecting area was in the Likiang range of mountains, where he collected a fine maple which Diels named after him in 1912. He collected many maples in the Lutien Valley, including *A. oliverianum*, *A. stachyophyllum* [syn. *A. tetramerum*], and *A. giraldii*. In all, he collected over 25 species.

These three—Henry, Wilson, and Forrest—were the giants of plant collectors in China but there were many other colourful characters. These include a Russian, Potanin, the first to take his wife on expeditions and who discovered *A. multiserratum*; Antwerp E. Pratt who collected *A. laxiflorum*; Frank Kingdon-Ward who collected *A. wardii* and others; Heinrich Freiherr von Handel-Mazzetti who collected *A. taronense* and Joseph Rock an Austrian who became Professor of Botany in Chinese at the University of Hawaii and who collected *A. pentaphyllum* in the Valley of the Yalung River in July, 1929.

Lying to the south of China is the island of Formosa where there are half a dozen or so indigenous maples. These were collected by Japanese although several Europeans visited the island for example, Wilson in 1913 who collected specimens of many of the Taiwanese maples. K. Yashiroda collected seed of *A. morrisonense* in 1932 which he sent to Trewithen in Cornwall and in 1970 Professor Huang of Taipei University collected seed of this maple for the author on Mount Morrison, and later collected and sent seed of *A. serrulatum*, *A. kawakamii* and *A. albo-purpurescens*.

Lying between China and Japan is Korea, whose flora has been much neglected. It has a rich flora which has never been overrun by glaciation. The first European collector there was Richard Oldham, who arrived in 1877. He was followed by Vladimir Leontievich

Komarov from Russia who in 1901 discovered *A. triflorum*. This maple was ultimately introduced into cultivation in England in 1923. Other famous visitors included Père Urbain Faurie, who was one of the most remarkable but the least known, from the horticultural standpoint, of the French missionaries, and Wilson who arrived in 1917 and travelled there with Takenoshin Nakai. In 1982, I was fortunate to visit Korea and Ullung-do and to collect two endemic maples—*A. okamotoanum* and *A. takesimense*.

While maples are still to be discovered in the older countries, especially China, the descendants of the settlers who set out from Europe to find new lands and settle there now share with the descendants of those who stayed in the exploration and exchange of seeds and plants of known species and new forms. The maple has established itself as a plant of great ornamental beauty with increasing popularity.

MALUS SPECIES AND CULTIVARS

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The Arboretum, of approximately 40 acres, was established in 1972 at Jodrell Bank on the eastern edge of the Cheshire Plain. The soil is derived from a heavy boulder clay, becoming progressively lighter towards the eastern section of the Arboretum. The consequent poor drainage causes some problems in the establishment of trees with the planting sites more or less acting as sumps in the late winter months. However, this is compensated for during dry springs and summer drought when very few losses occur. The lighter eastern section has few problems and there is better establishment and growth. Early establishment of shelter planting on the eastern side of the arboretum has helped to alleviate any exposure problems and there is little wind damage. The beneficial effects of this shelter are readily seen when the cold easterlies take place in January to March and damage occurs on the more open sections of the arboretum.

Winter temperatures regularly go down to -12°C and in most springs we have a series of late frosts, which have a considerable effect on the fruiting of many of the malus in exposed positions. Malus 'Red Sentinel' is usually a very reliable fruiting crab, yet this year (1987) it has failed to do so due to frost. The beneficial effect of the shelter planting is very obvious this year, with good fruiting in well sheltered positions.

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