Botanical Transculturation: Japanese and British Knowledge and Understanding of *Aucuba japonica* and *Larix leptolepis* 1700–1920

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ABSTRACT

Two species, *Aucuba japonica* and *Larix leptolepis*, introduced from Japan to Britain provide examples of different types of transculturation. We demonstrate the complexity of the interchange of Japanese and European knowledge of natural history in the late eighteenth and early nineteenth centuries. The importance of this exchange and interaction was consciously underplayed by those recounting the discovery of plants by European collectors. We identify different modes of transculturation. Initially, most introduced plants are celebrated as exotic but after a period of testing the most popular plants become culturally assimilated. Some plants may, at a later stage, become physically hybridised. The hardiness of the plants was a crucial factor for successful cultural assimilation. In Britain, *Aucuba japonica* was initially celebrated as an exotic but over time became culturally assimilated, particularly in town and city gardens. *Larix leptolepis* also became assimilated through its economic timber value and became physically hybridised with the European larch in Scotland to produce *Larix eurolepis*.

KEYWORDS

Horticulture, Japan, Larix, Aucuba, Britain

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INTRODUCTION

In the late eighteenth and nineteenth centuries there was a massive increase in the movement of plants around the world. Britain took a particularly prominent role in the trade in trees and shrubs. In 1550 it is estimated that there were 36 hardy and woody exotic species cultivated in England: 'by 1600, 103 species; by 1700, 239 species; by 1800, 733 species; and by 1900, 1911 species'.[1] P.J. Jarvis has provided several reasons for this rapid growth. First there were scientific and technological advances such as the dissemination of botanical knowledge, experimentation, the work of botanical gardens, improvements in green houses and the development of the Wardian case. Second there were changes in attitude and taste and fashions for particular tree species and styles of planting. Third was the development of an economic infrastructure, including the success of nurseries such as Kennedy and Lee at Hammersmith. In addition, of course, there was the discovery by traders and botanists of exotic species and the consequent availability of more and more new species to be described, introduced, sold and planted.[2] John Claudius Loudon thought that in the seventeenth century the 'taste for foreign plants was confined to a few, and these not the richest persons in the community; but generally medical men, clergymen, persons holding small situations under government, or tradesmen'. In the following century 'the taste for planting foreign trees extended itself among the wealthy landed proprietors'[3] while in the nineteenth century the market for exotic plants in Britain was massively increased among the middle classes by the great wealth arising from the industrial revolution.

The very rapid growth in the number of introduced species led to the practical need to identify, classify and label trees so that nurserymen, gardeners and owners could be relatively secure about the identity of trees they bought and sold, discussed and displayed. New trees arrived initially from Europe and Asia Minor, then in the seventeenth and eighteenth centuries from eastern North America, and finally a surge from western North America, China, India and lastly Japan. Initially the classification and display of trees took place in a complex paper landscape of trade catalogues, botanical treatises and manuscript notebooks, descriptions taking the form of dried leaves and seeds, competing botanical nomenclatures and drawings of flowers, seeds, leaves and eventually whole trees. The innovative binomial system of Carl Linnaeus (1707–1778) was central to these classificatory debates. Philip Miller (1691–1771) helped to popularise this classification in Britain when he eventually used it in the eighth edition (1768) of his enormously influential *The Gardeners Dictionary*.[4] Plant naming and classification, in Latin and modern languages, was an additional expression and source of power. In charting the emergence of natural history in the eighteenth century, Foucault argued that 'Natural history is nothing more than the nomination of the visible'; that 'it exists as a task only in so far as things and language happen to be separate' and that it must 'bring language

as close as possible to the observing gaze, and the things observed as close as possible to words'.[5] European names were attached to plants which already had established indigenous names.

By 1914 W.J. Bean was able to write in his influential book, *Trees and Shrubs Hardy in the British Isles,* that over the previous three quarters of a century 'an enormous number of new species have become available for cultivation through the labours of collectors'.[6] The garden historian, Miles Hadfield, argues that 'Probably the most permanent contribution that the early Victorian period made towards gardening was the introduction of new plants'.[7] Plants were sources of food, medicine and timber that could be traded and could generate wealth. Lucile Brockway emphasises the importance of plant collecting in both the accumulation of scientific knowledge and colonial expansion, a connection reinforced by Alfred Crosby's classic work on ecological imperialism.[8] John MacKenzie likewise argues that plant collecting was crucial in the process of forming European imperialism.[9] Kavita Philip, in her detailed study of nature and empire in nineteenth and twentieth century Ootacamund, southern India, argues that 'the systematic production of knowledge about the world and its inhabitants' was not merely a by-product of empire but 'the fuel by which its engines were to be run';[10] while Eric Pawson has used actor-network theory 'to combine insights from the emerging literature on mobilities in social science with work on plant movements'.[11] The European people who collected plants have been termed horticultural explorers and plant hunters.[12] They were usually practical botanists who desired to discover and collect plants and vegetation different from those of Europe, travelling all over the world to do so. As well as sheer novelty, their aim was to find practical plants valuable for Europeans.[13] There is a genre of garden history which has concentrated on the celebration of plant traders as collectors and explorers and underplayed the importance of indigenous knowledge and expertise. Recent research, however, has begun to explore the complexity of interchange of ideas and plants between different cultures. Fa-ti Fan's examination of research by British naturalists in China in the nineteenth century, for example, traces 'the translation, transmission and generation of knowledge and other cultural productions' and emphasises the complex interplay between discourses of natural history, horticulture and visual culture.[14]

In this paper we study the introduction from Japan to Britain of two species, *Aucuba japonica,* an evergreen shrub, and *Larix leptolepis,* a deciduous conifer. Both provide examples of different types of transculturation.[15] We demonstrate the complexity of the interchange of Japanese and European knowledge of natural history in the late eighteenth and early nineteenth centuries. The importance of this exchange and interaction has until recently been consciously underplayed by those recounting the discovery of plants by European collectors. We discuss the naming of plants and show how Japanese names were sometimes used by European nurseries to emphasise the exoticism of newly introduced Japanese

plants. We identify different modes of transculturation. Initially, most introduced plants are celebrated as exotic but after a period of testing the most popular plants become culturally assimilated, while some plants may, at a later stage, become physically hybridised. The hardiness of the plants was a crucial factor for successful cultural assimilation. In Britain, *Aucuba japonica* was initially celebrated as an exotic but over time became culturally assimilated, particularly in town and city gardens. *Larix leptolepis* also became culturally assimilated through its economic timber value and became physically hybridised with the European larch in Scotland to produce *Larix eurolepis*. The paper demonstrates the enthusiasm for knowledge about trees and shrubs which was exemplified by their fashionable display in collections and arboreta in private gardens, public parks and scientific institutions.[16]

PLANT COLLECTING IN JAPAN

In the eighteenth and nineteenth centuries, Europeans recognised the potential of Japan to provide many novel plants. Japan had been largely secluded from the world from the early seventeenth century up to 1858, except through links with the Netherlands and China through the artificial island of Dejima at Nagasaki. Most plant introductions and knowledge in Europe about Japanese plants arose through Dutch trading connections. The botanical writing and descriptions of Engelbert Kaempfer (1712, 1727), Carl Peter Thunberg (1784) and Philip Franz von Siebold (1850), for example, played a major role in raising expectations about the new plants that could be found once regular trade was established.[17] *Flora Japonica,* written by Philip Franz von Siebold and Joseph Gerhard Zuccarini, drew on the experience of Siebold who lived in Japan in 1823–1829 and sent specimens of Japanese plants to Professor Zuccarini at Munich University who classified and named them. On his return to Europe Siebold took his extensive herbarium to Leiden; some living plants were grown at the University of Ghent but were not commercialised in Europe.[18]

These European collectors drew on the established knowledge of Chinese and Japanese scholars and natural historians. Ueno Masuzo has demonstrated the strong links between Chinese and Japanese knowledge of the use of plants for medicine (*honzogaku*) in the eighteenth century. More recently, Oba Hideaki has emphasised the importance of this interchange for the accumulation of natural history knowledge in Japan and the way this knowledge was exchanged with Western knowledge. One of the most important vehicles for the interchange of ideas was the work of Ono Ranzan and Shimada Mitsufusa, who published an important plant dictionary called *Kai* in 1763. It was illustrated with woodcuts to assist in the identification of different plants. There are four volumes dealing with herbs and four with trees and shrubs. Each plant is given its Chinese and Japanese name and local Japanese names are also provided. In total there

are descriptions of 100 herbs and 100 trees and shrubs. Shimada Mitsufusa wrote and published the first two volumes in 1759, and Ono Ranzan wrote and published the last six volumes in 1763. This encyclopaedia was very influential among European botanists and plant collectors such as Siebold who was given a copy of *Kai* by Udagawa Yoan, a Japanese medical doctor who collaborated with him in collecting plants. Siebold used this book as a reliable and practical encyclopaedia and he collated and referenced his newly collected Japanese plants against the descriptions given in *Kai*.[19]

The complicated interplay between different individuals and nationalities in the collection and naming of species is demonstrated by the fate of Siebold's herbarium now held at the Siebold Collection in the Makino Herbarium, Tokyo Metropolitan University. Siebold made this collection on his visits to Japan in 1823–1829 and 1859–1861. On his death in 1866, the collection was purchased from his wife by the Russian botanist, Carl Johann Maximowicz (1827–1891), who collected plants in Japan 1860–1864. Maximowicz added his own Japanese plant collection to Siebold's. In addition, this herbarium includes contributions from plant collectors such as Heinrich Burger (1806?–58, Siebold's assistant who visited Japan in 1825–1827, 1828–1834) and James Bisset (1841–1911), an English plant collector who collected at Hakone, Daisen and Nikko in 1877. Other items in the herbarium come from Japanese collectors such as Ranzan Ono (1729–1810), Sukeroku Mizutani (1779–1833), Keisuke Ito (1803–1901), Sonshin Okouchi (1796–1883), who gave a copy of Ono Ranzan and Shimada Mitsufusa's *Kai* to Siebold, and Hoken Katsuragawa (1797–1844). The varied sources of original material in the herbarium emphasise the importance of early cultural exchanges between Japan and Europe for the creation and dissemination of botanical knowledge. The European collectors derived much of their expertise by collecting plants and botanising with local experts, consulting texts and illustrations written and drawn by local experts and discussing herbarium samples and live plants with local experts.[20]

Early Victorians therefore had some tantalising knowledge about the diverse flora of Japan and also had considerable experience from earlier introductions of the likely potential of Japanese plants in British gardens and parks. It was however, only after 1858, when Japan opened three treaty ports, Kanagawa, Nagasaki and Hakodate to the West following the *Treaty of Amity and Commerce*, that British collectors and horticultural traders were able to experience the Japanese landscape at first hand and exploit fully the commercial potential of its trees and shrubs. A key figure in the opening up of Japan was Sir (John) Rutherford Alcock (1809–1897) who was appointed the first British consul-general in Japan in 1858. One of his main concerns was the 'implementation of the rights gained by Lord Elgin under the treaty of Edo, of 26 August 1858'. He used experience he had gained in China and 'insisted that the Japanese government comply strictly with the agreement on the opening of treaty ports.' He was resident for three years and published an account of his time there *The*

Capital of the Tycoon in 1863. Later in his career he was President of the Royal Geographical Society 1876–8.[21]

Alcock recognised the importance of botanical knowledge for trade and was a correspondent of Sir William Hooker at Kew as well as being personally very interested in the flora of Japan. When he first approached the Japanese coast at Nagasaki Bay in 1859 he was immediately impressed by the hills, pines and lakes which to him were initially reminiscent of Switzerland, but on landing:

> something more tropical appears in the trees and shrubs. The pomegranate and persimmin, the palm and the bamboo are there. But the gardinia and camellia flourish also; and everywhere our common ferns may be seen, and ivy covering the walls; while by the roadside, the thistle is not wanting, to confound all geographical divisions into floral zones. The rare and much-prized stiphelia of botanists I observed, growing luxuriantly in many places as a creeper.[22]

He had what Paul Carter has termed a Victorian 'selective eye': the kinds of plants he saw on his first glance in Japan are symbolic and through identification Alcock is using a 'logic [that] demonstrates the emergence of order from chaos'. The plants he lists, from a British perspective, varied from the common to the exotic and included plants which had long been desired by Victorians for ornamental and practical purposes. Alcock noted that Japanese vegetation confounded European views about plant geographical zones.[23]

Two of the leading British horticultural and plant collectors arrived in Japan in 1860 and were assisted by Alcock in the collection and description of new species and varieties of plants. John Gould Veitch (1839–1870) worked for his family company at the Royal and Exotic Nurseries based in Exeter and Chelsea. He collected in the 'Far East' and Australia 'bringing back many trees which were new to Britain. He was elected fellow of the Linnean Society in 1866'. Robert Fortune (1812–1880), who was one of the best known plant collectors in China, was, in 1857, 'commissioned to collect tea shrubs and other plants in China and Japan on behalf of the United States patent office'. He collected on behalf of John Standish based at The Royal Nursery, Bagshot, Surrey.[24] *The Gardeners' Chronicle* of 15 December 1860 reported that:

> Of all parts of the earth in which vegetation is vigorous, and little known, Japan stands pre-eminent. With a climate like that of England, and a half Siberian or Himalayan and half Chinese Flora, it offers the greatest inducement to Europeans to investigate its productions.[25]

The author extols the vigour and diversity of Japanese vegetation and likened Japan to a botanical frontier. The diversity of the Japanese climate meant that there was a fascinating opportunity for Victorians to find novel and rare plants which were suitable for growing in Britain. The collected plants were at this first stage sold to British gardens through the agency of John Gould Veitch and Robert Fortune in the early 1860s. Western names were applied to plants that

already had established Japanese botanical and horticultural names, although these latter were also used by western nurseries to enforce the exoticism of newly introduced Japanese plants.

The fashion for Japanese plants and gardens spread throughout Europe and the United States, and was part of a larger cultural moment included the vogue for design, arts and crafts known as 'Japonisme'.[26] Japanese gardens were displayed in many international exhibitions and there was extensive coverage in the popular press, including the many illustrated garden magazines. This led to a flourishing export market in mature plants, bulbs and stone ornaments. In Yokahama, large nurseries were established, such as L Boehmer's and the Yokohama Nursery Company. British based nurseries stocked an increasing range of Japanese plants and ornaments, as did the leading arts and crafts design store Liberty's, which advertised Japanese stone lanterns. Japan was increasingly identified in Britain as a global partner, with a comparable imperial history and interest in horticulture. The lack of colonisation by European powers led to complicated trade relationships.

The next two sections examine aspects of transculturation through the knowledge and reception of two case study species: *Aucuba japonica* and *Larix leptolepis*. Emphasis is placed on the way in which the plants are described and illustrated by Japanese and British botanists, mediators and collectors. The process was a complicated aesthetic, textual, artistic and physical exchange. The transfer of knowledge of the plants and the plants themselves, from Japan to Britain was characterised by delays, conflicting knowledge and political impediments. The complex power relations between diplomats, traders and botanists are examined and the vital importance of nurseries and horticulturalists in the effective acclimatisation and acceptance of the species in Britain is identified.

AUCUBA JAPONICA

Aucuba japonica is named after the Japanese 'Aoki' which means 'ever green shrub'. Various types of *Aucuba* had long been cultivated as garden plants for ornamental purposes. According to Yuasa Hiroshi, the history of cultivation of 'aoki' is not well documented; it was first described by the natural historian Kaibara Ekken in his seventeenth-century historical flora *Kafu* completed in 1694 and published in 1698. Ekken suggests that Aoki is a general term used to describe three rather different species of tree and shrub. He considered that the origin of the name could be traced back to the Chinese character 'awoki' used in ancient Japanese documents such as *Nihonki* (A.D. 720) to describe the evergreen characteristics of plants. The three types of Aoki he specified were a tree which is the same as *Aucuba japonica*, and two others which were types of Japanese privet called 'nanami' and 'nezumi-mochi'. Ekken noted that the first type grew to more than 1 *shaku* [30.3 cm] in height, and the leaves were large

and thick. It flowered in April, and the flowers were 'blue-white' and the fruits small and similar to the fruits of the jujube bush. In winter the fruits became red and highly visible. The fruits remained on the shrub until February and provided food for birds such as the thrush and the bulbul. It was a popular plant in gardens and the leaves were ever-green. Terashima Ryoan described 'aoki' in *Wakan sansai zue* (1712) which is a comprehensive illustrated Japanese and Chinese encyclopaedia:

> Aoki: the origin of the name is not known. Aoki is commonly called Aokiba. This tree takes the form of a clump-like bush. Its height is 5–7 *shaku* [1 shaku = 30.3cm]. The leaves are thick and succulent and similar to the oak, edged with large teeth like a saw [Sawtooth Oak, *Quercus acutissima*]. The stem is thick but not strong. The leaves are retained all year round and hence it is called Aokiba which means 'evergreen shrub' and it is planted in gardens so that people can enjoy the foliage. Sometimes, however, a few leaves become desiccated and look as if they have been burnt. In April, small, dark purple flowers come into blossom. Their shape and colour are not attractive enough to be widely appreciated. The fruits are as small as the natsume [Jujube, *Zizyphus jujube*] and ripen and become red in the autumn. Surgeons use the stems and leaves of Aoki to make a pharmaceutical paste. Also, leaves which are dried in the shade, and mixed with oil, are used to cure eczema on children's faces. There is also one type of Aoki whose leaves are toothless and wrinkled.[27]

FIGURE 1. Aoki Commonly called 'aokiba' Terashima Ryoan, *Wakan sansai zue* (1712)

The description is based on visual appearance and on comparison with other well known plants. Aesthetic aspects are emphasised and the appearance of the foliage is particularly valued while the shape and colour of the flowers are not deemed to be attractive. The medical benefits of the plant are also given prominence.

The next significant description of 'aoki' was made by Ono Ranzan and Shimada Mitsufusa's *Kai* (1763). According to *Kai,* 'aoki' was formerly called 'Toyo sango' which probably means 'leaves of peach' with coral coloured fruits; the plant was found in the 'deep' mountains, possibly referring to their growth as native species 'in the wild', and also in gardens where the autumn and winter fruits shaped like jujubes were attractive. They stated that it grew more than 2 *shaku* (approximately 60 cm) in height. Later descriptions emphasise the many types of variegated forms: seven different forms of mottled foliage were documented in Masuda Kinta's *Somoku Kihin Kagami* in 1827. Mizuno Tadaaki's *Somoku Kinyo-shu* of 1829 also documented various types of aoki variegation. It became a very popular shrub in Japanese gardens, fitting in with the general fashion for variegated foliage from the late eighteenth century on-

FIGURE 2. 'Toyo sango' Awoki, Ono Ranzan and Shimada Mitsufusa, *Kai* (1763)

wards which led to the horticultural production of variegation in many types of plant including varieties of *Aucuba*, holly (*Ilex aquifolium*) and Japanese quince (*Chaenomeles japonica*).

FIGURE 3. 'variegated leaves' Aoki Masuda Kinta *Somoku Kihin Kagami* (1827)

The first published description of Aucuba in Europe was by Englebert Kaempfer in his *Planatarum Japonicarum* of 1712.[28] The first published drawings were in Thunberg's *Flora Japonica* (1784). It was one of the few 'good plants' noticed by James Edward Smith in his visit to the botanic garden at Amsterdam in 1786.[29] Thunberg recognised the popularity and importance of Aucuba in Japanese gardens in his *Travels in Europe, Africa, and Asia made between the years 1770 and 1779*. He acknowledged that the gardens 'are of a very insignificant size' and 'are chiefly intended for the sake of ornament'. He reported how the garden trees 'make a splendid figure with their beautiful, large and frequent double blossoms' and 'other vegetable productions', herbs and bulbous plants were 'adorned with the most elegant flowers'.[30] While staying at Kokura in 1776 he described how:

> Here, as well as at all the other inns, we were lodged in the back part of the house… the pleasantest part, having always an out-let and view into a back-yard, larger or smaller, which is embellished with various trees, shrubs, plants and flower-pots….Amongst other things that were common in several places such as *Pinus Sylvestris*, *Azalea Indica*, *Chrysanthemum Indicum*, &c. I also found a tree, which is called *Aukuba*, and another called *Nandina*, both which were supposed to bring good fortune to the house.' [31]

Aucuba japonica was first introduced into Britain by John Graeffer in 1783. But this introduction was of a female plant which did not produce red berries. Despite this, it rapidly gained popularity and by 1797 Thomas Mawe and John Abercrombie described it as 'highly deserving of a place in every elegant garden' because of its foliage; they argued that it might 'with advantage of growth, be planted in the common ground'.[32] The species was described in *Curtis's Botanical Magazine* in 1809 as growing 'into a large tree' and 'very much cultivated in Japan for the beauty of its foliage'. The article notes that it flowers in summer 'but does not produce fruit' and the illustration clearly shows the heavily variegated leaves and the small purple flowers. As with many introduced plants, it was at first thought that the plant could only be grown in Britain in heated glass-houses. *Curtis's Botanical Magazine* reported that at its introduction the Aucuba was 'for some years preserved in the stove, whence it was removed to the greenhouse or conservatory'. By 1809, it had been found to be 'as hardy as the Laurel or Laurustinus' but was still considered 'handsomer in the greenhouse, as the leaves generally have a larger proportion of green than when exposed to the cold of our winters'. It had also become 'very common, being easily propagated by cuttings or layers, and requiring no peculiarity of management or soil'.[33]

By 1852, Aucuba was described as one of 'our best hardy evergreen shrubs'. The toughness of the plant was now emphasised: 'it succeeds better than most other evergreens in squares and gardens in the vicinity of towns'.[34] A major advantage of *Aucuba japonica* was its suitability for the town gardens of a rapidly

FIGURE 4. 'AUKUBA japonica Tab. 13 p.64' Thunberg, *Flora Japonica* (1784)

FIGURE 5. Tab. 1197. Aucuba japonica. (1 May 1809) Curtis, *Botanical Magazine*

urbanising Britain. Robert Fortune argued that the female variety was: 'perhaps the most hardy and useful exotic evergreen shrub we possess. It lives uninjured through our coldest winters, and thrives better than anything else in the smoke of our large towns.' He considered it to be 'one of the most of the common plants in the parks, squares, and houses of London'.[35] These descriptions emphasise how in the sixty or so years since its original introduction *Aucuba japonica* had lost most of its aura of rarity to British gardeners.

However, it was recognised that 'the sexes are dioecious' and that 'only female plants are known to English gardens' so that it was only in 'Japan, its native country' that it bore 'a profusion of red berries in spring'.[36] Indeed one of the reasons Robert Fortune visited Japan was 'to procure the male variety of the common *Aucuba japonica* of our gardens' for 'no one in this country has ever seen it covered with a profusion of crimson berries, as it is met with in Japan'.[37] Fortune visited Siebold at his house near Nagasaki where 'his delight seems to be in his garden, his library, and the Japanese country people who are his friends'. Around the house were 'small nurseries for the reception and propagation of new plants, and for preparing them for transportation to Europe'. Here Fortune saw most of the plants included in Siebold's *Flora Japonica* and 'several new

things hitherto undescribed. A new *Aucuba* with white blotches on the leaves was striking; there was also the male variety of the old *A. japonica*.' [38] Fortune was keen to introduce the male variety of *Aucuba japonica*:

> I look forward with much interest to the effects of this introduction. Let my readers picture to themselves all the aucubas which decorate our windows and gardens, covered, during the winter and spring months, with a profusion of crimson berries. Such a result, and it is not an improbable one, would of itself be worth a journey all the way from England to Japan.[39]

Fortune finally purchased the male plants of *Aucuba japonica* in the gardens of Dr George Rogers Hall (1820–1899) of Rhode Island, a graduate of Harvard Medical School. He lived in Yokohama and had a large collection of Japanese plants; *Amaryllis hallii* and *Malus halliana* were named after him.[40] Fortune arranged to send it home to Surrey and its arrival in Britain was marked in 1865 by star billing in *Curtis's Botanical Magazine*. The article noted that *Aucuba* 'affords a singular instance of the great length of time that may elapse between the first information of a remarkable plant being received, and an accurate knowledge of it acquired'. From the original introduction by Graeffer of the female plant 'the millions now scattered over Europe and America' were derived. But that it was only 'within the last few years that, thanks to the indefatigable Mr. Fortune, the male plant, and in its native unvariegated form' with 'abundantly handsome scarlet berries' had reached us. [41]

FIGURE 6. Tab. 5512. Aucuba japonica. (1 May 1865) Curtis, *Botanical Magazine*

Even the male form of Aucuba soon lost its novelty and exoticism. In 1914, Bean noted that: 'Now, both green and variegated plants of both sexes are common, and small plants in pots, with large crops of fruit, can be bought from costermongers' barrows in the streets of London. As a bright and lasting decorative plant for rooms scarcely anything is so good.' The great merit of *Aucuba japonica* as a horticultural evergreen tree is noted: 'this is its capability of thriving under the shade of trees. Even under a beech, lime, or horse-chestnut, where grass will not grow, it will maintain a cheerful aspect.'[42] Undoubtedly by the early years of the twentieth century *Aucuba japonica* was culturally assimilated and was a common plant in the Britain.

LARIX LEPTOLEPIS

The Japanese name for *Larix leptolepis* is karamatsu.[43] It has a limited distribution mainly at altitudes of between 1,000 and 1,400 m, especially on dry, volcanic soils. The main natural stands are found in central Honshu, especially in Yamanashi Prefecture, including the slopes of Mount Fuji. Lindquist notes that larch 'has long been planted in Japan. For several centuries there have been plantations of it in northern Honshu' and in southern and central Hokkaido many more plantations were made after colonisation.[44] Larch was sometimes reproduced by taking cuttings.[45] In addition to being an important source of timber, the tree was long recognised as attractive for use in gardens. In *Kai* this larch is given three different names: 'Kin sen shou', 'Fuji matsu', 'Nikko matsu'. The first name refers to the golden colour of the autumn foliage while 'Fuji' and 'Nikko' are both areas where the tree grows naturally and 'matsu' means pine. The tree is described as having a thick, scaly bark similar to the Japanese White Pine. It is noted that after frost the needles fall, and so it is called a deciduous pine. The golden autumn colour of the needles is particularly praised and the small trees are valued for bonsai. The pine cone is described as having blue green scales which have an attractive, almost elegant, white spotted pattern like a deer.[46] Although less emphasis is placed on the aesthetic value of the tree compared to *Aucuba japonica*, the autumn colours are celebrated as are the patterned scales of the cones. The tree was included in Siebold and Zuccarini's *Flora Japonica* (1843) and illustrated with a spray of twigs and needles, and cones with details of the needles and seeds.

The complex and not very subtle interplay between the actions of plant enthusiasts, diplomats and traders is demonstrated by the 'expedition' to Mount Fuji in September 1860 made by Rutherford Alcock and John Gould Veitch. It was the first ascent of the mountain by a European and Alcock described it as: 'an expedition through the interior to the far-famed sacred mountain'.[47] In addition to the political need to demonstrate that a diplomatic mission had 'the free right to travel all over the empire', Alcock was delighted to help in the

FIGURE 7. Kin sen shou', Ono Ranzan and Shimada Mitsufusa, *Kai* (1763)

'discovery' of plants and assess the vegetation. A full report was published by the Royal Geographical Society in 1861 in which he emphasised the difference between the freedom of his expedition and the trammelled and constrained visits of earlier botanists. The journey started from Yedo passing through Kawasaki, Kanagawa, Totsuka, Odawara, Hakone Passes, Mishima and Yoshiwara passing

FIGURE 8. Tab.105 Abies leptolepis. (colour plate) Siebold and Zuccarini (1843) *Flora Japonica*

along one of the Japanese main roads to Tokaido; 'The botany of this region was only partially known by the descriptions of Kaempfer and Thunburg, who traversed them (holed up for the most part in their norimons) upon two or three occasions on their way to and from the capital, when the Dutch factory sent their triennial tribute to court.'[48]

In addition to Veitch, Alcock had 'the advantage of being accompanied by Lieut. Robinson, of the Indian navy, provided with a few instruments for the purpose of scientific observations'. Alcock made Robinson and Veitch 'temporarily' members of the Legation in order to make his 'expedition'. A highlight of the September 1860 journey was the 'discovery' of several new species while climbing Mount Fuji. The contribution of the expert, John Gould Veitch as 'a practical botanist' helped to make the expedition a 'scientific' one:

This I deemed especially fortunate, as Sir William Hooker had written to say it was an object of great interest to botanists to learn something of the mountain vegetation of Japan; and especially Fusiyama, of which nothing absolutely was known.[49]

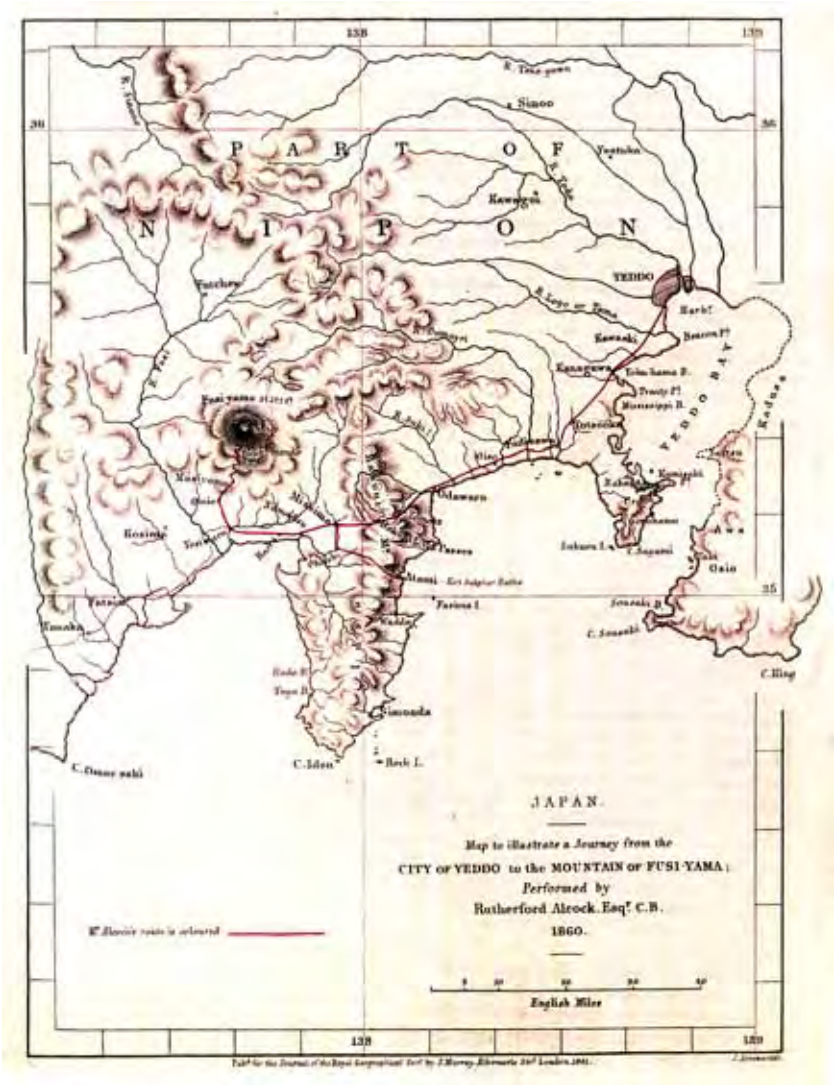

FIGURE 9. 'Map to illustrate a journey from the City of Yeddo to the Mountain of Fusi-Yama; performed by Rutherford Alcock, 1860.'

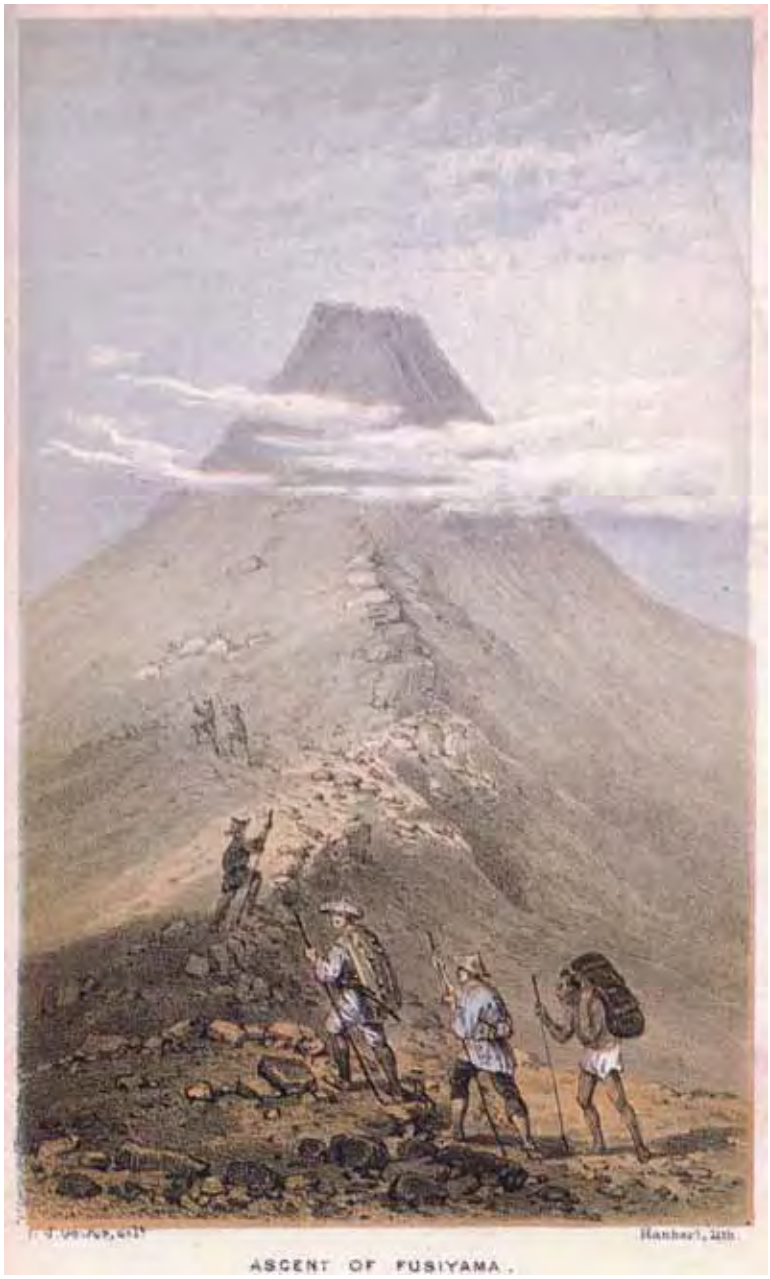

FIGURE 10. 'Ascent of Fusiyama.' in Rutherford Alcock (1863) *The Capital of Tycoon*. London

His description emphasises the changes in vegetation as the party climbed Mount Fuji. At first 'our way lay through waving fields of corn' but we soon 'entered the mazes of the wood' where they found large oaks, pines and beeches. After *Hakimondo* they left their horses and the 'wood became thinner and more stunted in growth, while the beech and birch took the place of the oak and pine'. Towards the summit there was little trace of life 'vegetable or animal' until the 'last step' enabled them 'to look down the yawning crater'. [50]

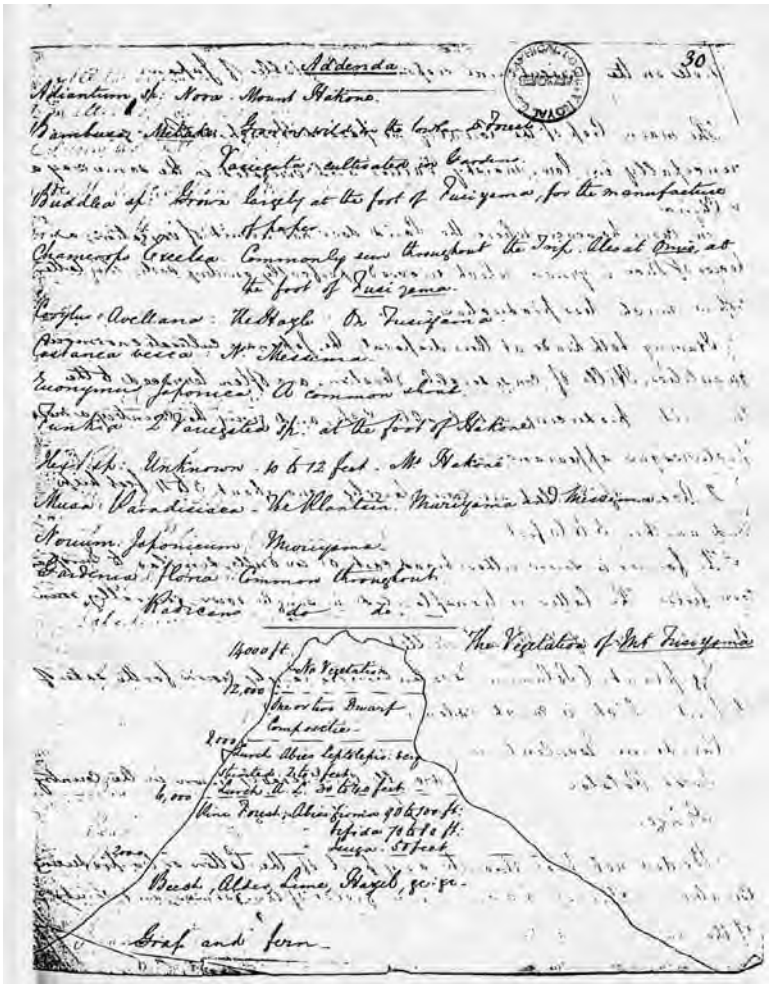

FIGURE 11. Manuscript figure of '*The Vegetation of Mt Fusi-Yama*' of Alcock's journey to Mount Fusi-yama. (Source: Archive of Royal Geographical Society.) Published as 'Vegetation as noted at the different elevations on mount "Fusi-yama"', *The Gardeners' Chronicle*, 22 December, 1860.

Veitch drew a diagram showing 'Vegetation as noted at the different elevations on mount "Fusi Yama," the highest mountain in Japan' which was published in *The Gardeners' Chronicle* 22 December 1860. The Japanese cultural historian Shirahata Yozaburo notes that, although simple, this was the first time that the change of vegetation with altitude had been represented in this way in Japan. This diagram has similarities with those produced by Alexander von Humboldt in his scientific exploration of South America. Mary Louise Pratt argues that Humboldt 'invented' and 'reinvented' the 'primal' nature of South America. However, compared with Humboldt's complex figure of vegetation of Mount Chimborazo (1805), Veitch's is relatively simple and naïve.[51]

Four important coniferous trees were collected:

> *Abies Alcoquiana*. A noble tree, discovered in 1860, during Mr. Alcock's trip to Mount Fusiyama, and named in honour of that gentleman. It grows at from 6,000 to 7,000 feet elevation on Fusiyama, where it attains a height of 90 to 100 feet.
>
> *Abies Veitchii*. A species found at an elevation of 6,000 to 7,000 feet on Mount Fusiyama, where it grows over 100 feet in height.
>
> *Abies leptolepis*. Found at an elevation of 8,000 to 8,500 feet on Mount Fusiyama. It is remarkable as being the tree which grows at the greatest elevation on this mountain. Its greatest height is 40 feet; but on ascending the mountain dwindles down to a bush of 3 feet. (Japanese name is Fusi matsu.)
>
> *Abies Tsuga*. Found growing on Mount Fusiyama, at an elevation of 6,500 feet. It attains a height of 80 to 100 feet, and is much valued as a timber tree.[52]

These four species were found at an elevation of over 6000 feet, where no European had previously explored.[53] Alcock noted that 'There is probably no country in the world, of the same area, which produces so great a variety of conifers, as the group of islands composing the Empire of Japan'. He thought there was 'every prospect that most of them will prove of sufficient hardiness to withstand the most severe of our winters'. He looked forward to a time when they would be 'distributed throughout our pleasure grounds, and flourish as luxuriantly as they do in Japan'.[54]

The plants collected by Veitch were rapidly reported as *New Plants* in *The Gardeners' Chronicle* on 12 January and 23 March in 1861. They were certificated by John Lindley of the Royal Horticultural Society and University College, London. Of the sixteen 'new plants' reported at this time, twelve had already been introduced by Siebold and Zuccarini into Europe, and four of them were named by Lindley. *Abies veitchi* was described as a 'remarkable species [which] looks like a small-coned Silver Fir, and is wholly different from anything previously described' and it was named 'after Mr. J. G. Veitch, whose great merit as a very energetic explorer of the Vegetation of Japan it gracefully records'. *Abies Alcoquiana* was named 'in compliment to Rutherford Alcock, Esq., H. M.

Minister at the Court of Jeddo, to whose kind protection and assistance Mr. Veitch has been greatly indebted.'[55]

The political and scientific 'expedition' to Mount Fuji produced a wide range of observations, from textual narrative to maps and diagrams. The significance of Mount Fuji was strengthened by the Japanese native traditions of literature, poetry, art and pilgrimage. From a British perspective, Japanese conifers were potentially valuable for economic and aesthetic reasons. Alcock's manuscript route map of the journey, which survives in the archives of the Royal Geographical Society in London, depicts a 'Union Jack' on the summit of Mount Fuji.[56] This symbolic contemporary 'capture' of Mount Fuji by the British was more fully realised by the collection of plants, which would become naturalised into the soil of Britain. The Union Jack was perhaps seen by Alcock as an amusing reflection of his 'victory' over Japanese officialdom in gaining the summit of Fuji; he was sensitive enough not to depict the Union Jack on the published map.

FIGURE 12. The Union Jack on the summit of Mount Fuji in the detail of the Manuscript route Map made by Alcock of his journey from the City of Yeddo to the Mountain of Fusi-Yama: performed by Rutherford Alcock, 1860. (Source: Map Room of Royal Geographical Society (S.117).)

Initially there was come confusion as to whether the Japanese Larch discovered by Veitch on Mount Fuji was the same species as the *Larix leptolepis* described by Zuccarini. *The Gardener's Chronicle* of 12 January 1861 noted that the cones described in Siebold and Zuccarini were 'four times larger than those sent home by Mr. Veitch' and that 'there is some doubt whether his plant is not distinct'. Elwes and Henry state that 'A stunted form, growing on the higher parts of Fuji-yama, was collected by John Gould Veitch, and was considered to be a new species by A. Murray; and is recognised as a variety by Sargent.'[57] They provide eight different botanical names[58] for the Japanese larch, eventually plumping for *Larix leptolepis,* Endlicher (1847):

> *Pinus leptolepis* was the name preferred by Endlicher; but he quotes *Larix leptolepis,* Hort., as a synonym; and as this is the first publication of *Larix leptolepis,* Endlicher is responsible for the name, and it is credited to him; and being the first published name under the correct genus is adopted by us. Moreover, it is the name by which this species is universally known; and the adoption of Sargent's name, *Larix Kaempferi,* would cause great confusion, as this has been used for *Pseudo-Larix Kaempferi,* the golden larch of China. The Japanese larch, though known to Kaempfer and Thunberg in the eighteenth century and mentioned by Lambert, was first described by Lindley in 1833.[59]

Writing in the early years of the new century in their thorough and complete commentary on the suitability of trees for forestry and gardens in Great Britain and Ireland, Elwes and Henry note that few trees were established from the seeds collected by Veitch in 1861 'as we know of few trees as old as forty-five years'. They note that trees grown from other seeds 'grew so well generally that it is now being planted almost everywhere, and some of the older trees have produced good seed for ten years or more'.[60] Elwes was keen to assess the growing conditions and uses of the tree in Japan and its suitability as a tree for forestry plantations. He saw the trees growing in volcanic soils in Japan in 1904 and thought they 'were very similar in habitat to the larch in the Alps, and had not an excessive development of branches'. He noted that the timber was used for 'ship- and boat-building' and 'railway sleepers and telegraph poles'. The plantations in Japan were also closely connected to the demands of modern development. Elwes saw many young plantations which 'were very similar to larch plantations in England in growth and habit. I also saw it planted experimentally in Hokkaido, along the lines of railway, where it seemed to grow as well in this rich black soil as in its native mountains'.[61]

The tree became very popular in Britain and was 'looked upon by many foresters as likely to replace the common larch'. Elwes and Henry thought that 'no conifer of recent introduction has attracted so much attention among foresters as the Japanese larch, which, during the last ten years, has been sown very largely by nurserymen'.[62] Elwes himself successfully sowed seeds collected from trees from three different British estates, Dunkeld, Perthshire, Hildenley,

Yorkshire and Tortworth, Gloucestershire in 1890, and after six years they had grown to four to eight feet in height. In his view the Japanese larch had three main advantages. First, its establishment as a plantation at 1250 feet in Scotland where it grew 'very vigorously in mixture with Douglas fir' showed it to be hardy. Second, it appeared to be immune from the canker *Peziza willkommii* which affected European larch. Henry examined in 1904 'six plantations of Japanese larch of ages from five to sixteen years, and in none could detect any sign of canker'.[63] Third, it was a vigorous tree suitable for economic plantations as it grew in its first twenty years quicker than European larch, although it appeared to have 'a great tendency to form spreading branches'.[64] By the mid-twentieth century Japanese larch had become 'one of the most important exotics planted in Britain' with about 14 million plants used annually, a number only exceeded by Sitka spruce and Scots pine.[65]

FIGURE 13. A photograph of 'Mother larch at Dunkeld' (Plate 103) in Henry John Elwes and Augustine Henry. (Vol.II) (1907) *The Trees of Great Britain and Ireland*. II. Privately Printed. Edinburgh.

FIGURE 14. A photograph of 'Japanese larch at Tortworth' (Plate 108) in Henry John Elwes and Augustine Henry. (Vol.II) (1907) *The Trees of Great Britain and Ireland*. II. Privately Printed. Edinburgh.

Henry Elwes suggested to D. Keir, the Duke of Atholl's forester at Dunkeld, Perthshire, that he raise seedlings from a Japanese larch which had been planted close to a European larch. The seeds germinated successfully, around 1900, and Keir's son 'who has watched the growth of seedlings, considers them to be intermediate between the two species; but it is yet too soon to be certain'.[66] The hybrid larches produced at Dunkeld soon became a very commonly planted commercial species, and by 1947 there were over 6,000 acres planted mainly on private estates in Scotland. It was valued for its 'very vigorous growth, its hardiness and freedom from larch dieback, and its straightness of stem, which resembles that of the European parent'.[67]

CONCLUSION

Plant collecting and exploration are routinely seen as key examples of colonialism and empire building. Many plants were central to colonial trade; their cultivation and reproduction were of crucial importance; their value as commodities was immense. But the complexity of the interplay between the different actors – whether the plants themselves, or the various people concerned including botanists, horticulturalists, explorers, traders, medical officers or diplomats – is often understated. In this paper we have shown how the rather simple and frequently portrayed model of European plant explorers discovering new species of Japanese plant in the wild and sending them back to Britain for the demanding horticultural market has to be treated with caution.

We show that there was a complex interaction between different knowledge of natural history in the late eighteenth and early nineteenth centuries. Knowledge of plants was shared between Chinese, Japanese and European botanists and doctors. The drawings they made, books they published and the dried specimens they collected provided a basis for this sharing and exchange of knowledge. There was considerable negotiation and debate about the status, value and characteristics of different plants. Moreover, the importance of this exchange and interaction was consciously underplayed by those recounting the discovery of plants by European collectors. The use of key intermediaries, whether Japanese or other Europeans, was often ignored or written out of the narrative of discovery and exploration which was a potent addition to the publicity associated with the arrival and sale of the plants in Britain. We argue that the sense of exploration underlying modern understandings of plant collecting and dissemination should be tempered by ideas of engagement and mutual cross-cultural connection and reinforcement.

The two case studies of *Aucuba japonica* and *Larix leptolepis* are used to demonstrate that there can be several stages to the reception and transculturation of plant species. Both species were initially celebrated for their exotic status in Britain. Victorian horticulture was characterised by the introduction of many new species from all over the world. These plants were valued for their novelty as well as their colour and form. The stage when plants were conceptualised as exotic can itself be recognised as one form of enculturation. A second stage is when plants become 'culturally assimilated'. At this stage the plants are not physically changed or modified, but they have been grown long enough to demonstrate that they are well adapted to live in the open air, and propagate well enough to become common plants in Britain. A key factor allowing a plant to become culturally assimilated is its hardiness. Hardy plants were useful for ornamental planting in existing gardens and parks, became common in the British landscape and were no longer seen as exotic. A third stage is that of physically hybridised plants. The crossing of exotic and native species of plants was one way to produce new varieties of plants; sometimes, however, hybridisation

occurred naturally. *Aucuba japonica* was initially celebrated as an exotic but over time became culturally assimilated, particularly in town and city gardens. *Larix leptolepis* became culturally assimilated through its economic timber value and became physically hybridised with the European larch in Scotland to produce *Larix eurolepis*.

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[17] Engelbert Kaempfer 1651–1716, German traveller and naturalist; Carl Peter Thunberg 1743–1828, Swedish botanist; Philip Franz von Siebold 1796–1866, German doctor and botanist.

[18] Engelbert Kaempfer, (translated by J.G. Scheuchzer), *A History of Japan together with a Description of the Kingdom of Siam* (London, 1727); Engelbert Kaempfer, *A History of Japan*. 3 Vols (Glasgow: James MacLehose & Sons, 1906); Charles Peter Thunberg, *Travels in Europe, Africa, and Asia made between the years 1770 and 1779* (London: Rivington, 1795); C. P. Thunberg, *Flora Japonica* (Leipsiae, 1784); C. P. Thunberg, *Plantarum Japonicarum Novae Species* (Upsaliae, 1824); Siebold and Zuccarini, *Flora Japonica sive Plantae* (1835–1844); Siebold, (translated to Japanese: Masakatsu Sekura; commentary: Hideaki Oba), *Nihon no shokubutsu* [*Flora Japonica*] (Tokyo: Yasaka Shobo, 1996). See also E. Charles Nelson 'So many really fine plants. An epitome of Japanese plants in Western European gardens', *Curtis's Botanical Magazine* **16** (1999): 52–68. Joseph Gerhard Zuccarini (1797–1848) was Professor of Botany at the University of Munich 1826–48.

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[20] See Nobushige Kato, *MakinoHyohonkan shozou no Siebold Collection* [*Siebold Collection at Makino Herbarium*] (Kyoto: Shibunkaku-Shuppan, 2003); Nobushige Kato; Hidetoshi Kato; Akira Kihara and Michio Wakabayashi ed. *MakinoHyohonkan shozou no Siebold Collection. CDrom Database* [*Siebold Collection at Makino Herbarium. CDrom Database*] (Tokyo: Tokyo Toritsu Daigaku Shuppankai, 2005).

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[23] Paul Carter, *The Road to Botany Bay* (London: Faber and Faber, 1987) pp. xiii, xvi.

[24] ODNB. See Robert Fortune, *Yedo and Peking; A Narrative of A Journey to the Capitals of Japan and China* (London: John Murray, 1863).

[25] *The Gardeners' Chronicle*, 15 Dec, 1860, 1103.

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[53] Alcock, *Narrative*, Appendix E lists plants sent from Japan to Kew by Wardian case. Among these the following were collected from Mount Fuji: Case No.1 '1. Abies species, from Mount Fusi-yama; 4. Abies species (larch), from Mount Fusiyama; 5. Magnolia species, from Mount Fusiyama; 6. Pernettya species, from Mount Fusiyama'.

[54] Alcock, *Narrative*, p. 483.

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[56] Royal Geographical Society Archives. Map Room S. 117: Tracing from a Japanese Map, shewing the route from Yeddo to the summit of Fusi-yama taken by Rutherford Alcock in 1860. Taken on a native oil-paper rain cloak.

[57] Henry John Elwes and Augustine Henry, *The Trees of Great Britain and Ireland*, II (Edinburgh: Privately Printed, 1907), p. 385.

[58] *Larix leptolepis*, Endlicher (1847); *Larix japonica*, Carriere (1855); *Larix Kaempferi*, Sargent (1898); *Pinus Larix*, Thunberg (1784); *Pinus Kaempferi*, Lambert (1824); *Abies Kaempferi*, Lindley (1833); *Abies leptolepis*, Siebold et Zuccarini (1842); *Pinus leptolepis*, Endlicher (1847).

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