Japanese knotweed (Polygonum cuspidatum Siebold & Zuccarini, now reclassified as Fallopia japonica (Houtt.) Ronse Decraene), a member of the Polygonaceae, is a large, shrubby perennial native to the sunny hills and high mountains of Japan, Korea, China, and Taiwan that grows rankly throughout the eastern United States, the Pacific Northwest, and parts of the Midwest. Great clumps of it are found along riverbanks, roadsides, and in other untended places. It is a serious problem in many of our parks. Ecologists increasingly view it as a threat to species diversity and wildlife habitat. In Great Britain, where it is virtually ubiquitous, it is considered the nation’s most pernicious weed, and planting it in the wild is forbidden by law.

Ninety years ago nurseries in the United States were marketing Japanese knotweed as “a bold, handsome plant four to six feet tall ... [with] white flowers, small but very numerous, which bloom in great clouds, producing a very
soft and pleasing effect.” It was considered “very hardy and desirable.” Why, one might ask, if it is such an obnoxious weed and a serious threat to the natural ecosystem, was it ever so esteemed that gardeners paid money for it?

The Problem

Fallopia japonica, commonly known as Mexican bamboo, false bamboo, and fleeceflower as well as Japanese knotweed, is without question an obnoxious weed. When this became evident to Western gardeners it fell from favor, but unlike many other garden plants that became unfashionable and were dropped from the trade, it did not disappear. It has persisted in gardens despite gardeners’ heroic efforts to get rid of it, and it thrives in the wild.

It is not hard to understand knotweed’s early popularity. Its sturdy red-brown asparagus-like shoots appear in early spring and grow rapidly, as much as three inches a day, becoming hollow bamboo-like stalks that can reach ten feet in height. The leaves, pale to bright green and strongly veined, are broadly egg shaped, two to five inches wide and two to six inches long, with sharply pointed tips. Knotweed flowers in late summer, when for several weeks the entire plant is a froth of tiny (2.5–3 millimeters long), creamy or greenish-white blossoms borne on axillary panicles, and sets seed in winged, three-angled, shiny black-brown achenes. Except for its autumn debris—it dies back to the ground in October in a messy litter of dry leaves and broken stems—knotweed’s outward appearance is not so bad, really. The clusters of stems, the heart-shaped leaves, and the clouds of bloom are attractive. The troubling aspect of the plant lies below ground.

Although knotweed produces seeds, they are rarely viable and reproduction occurs primarily through extensive rhizomes. The rhizomes, as large and sturdy as the rest of the plant, form thick, gnarly masses at the base of the stalks and send up new shoots as they extend outward in tough, ropy, underground stems that may reach lengths of sixty feet and are extremely difficult to uproot. Furthermore, small fragments of rhizomes, even from internode tissue, can regenerate, and new clumps of Japanese knotweed often sprout from rhizome fragments washed downstream or transported by humans in topsoil or landfill operations. The shoots are amazingly strong, and have been observed to emerge from rhizomes buried three feet deep; they have even been known to thrust their way up through two inches of asphalt.

Limited only by its need for sun, Japanese knotweed grows in almost any conditions on open sites. Its rapid growth in spring enables new shoots to outcompete other plants for space, light, and nutrients. Less aggressive plants cannot grow in the accumulated debris of old stems and leaves or survive in the dense shade of established stands.Unchecked, knotweed seems capable of endless expansion.

Efforts to control Japanese knotweed have met with mixed success. It is possible to limit its spread in areas near established stands, since new plants can be removed by hand fairly easily. Keeping young plants cut to prevent sturdy rhizomes from developing is also quite effective. The literature on eradicating established stands is not encouraging, however. A combination of frequent cutting and repeated application of herbicides is recommended, but the knotweed will reemerge if this procedure is discontinued or relaxed. Research has begun on biological con-
trol, but the discovery of an effective agent is probably some years in the future and most biologists conclude woefully that complete eradication of the plant may not be possible. However, while its negative impact on the landscape may outweigh its "soft and pleasing effect," knotweed can nonetheless be appreciated for its interesting history.

The Introduction of Japanese Knotweed to the West

In 1822 or 1823, a Bavarian physician named Phillip Franz Balthasar von Siebold (1796–1866), surgeon major in the Dutch East Indies Army, was assigned to the Dutch East India Company's outpost on the Japanese island of Deshima in Nagasaki Harbor. Siebold was a scientist and adventurer as well as a physician, intensely interested in Japanese customs, politics, and natural history; he was also ambitious and eager to win fame and fortune. Deshima, a 32-acre wasteland that the Japanese had constructed of rubble and debris to house foreigners under severely controlled conditions, was an unlikely spot for Siebold to explore and cultivate his interests.

Siebold, a man of "extraordinary intellectual brilliance," was nevertheless undaunted. Shortly after his arrival he revived the herbal and medicinal gardens established by his predecessors Engelbert Kaempfer (in 1690–1692) and Carl Pieter Thunberg (in 1775–1776), and with the help of medical students and grateful patients began collecting and documenting native plants. In time Siebold gained the trust of the Japanese and was permitted to move to the mainland, where he established a larger garden and an arboretum; and despite the Japanese prohibition against plant exports, he managed to introduce several hundred new species into European cultivation. When he left Japan in 1830, and again in 1862 after a second visit, "the deck of the vessel on which he sailed was a veritable nursery." Many of the plants he introduced, or their cultivated descendants, are now so commonly found in American gardens that we think of them as American plants, among them Siebold forsythia (Forsythia suspensa) and PeeGee hydrangea (Hydrangea paniculata 'Grandiflora'), a shrub much planted in the late nineteenth century and "still a hallmark of rural and small-town North America." Japanese knotweed was also among the plants that Siebold took home.

After returning from Japan in 1830 Siebold established his Jardin d'Acclimatation in
This illustration of Japanese knotweed in flower appears in William Robinson's 1881 edition of The Wild Garden with this text.

"If, instead of the formal character of much of our gardening, plants of bold types similar to the above were introduced along the sides of woodland walks and shrubbery borders, how much more enjoyable such places would be, as at almost every step there would be something fresh to attract notice, and gratify the eye, instead of which such parts are generally bare, or given up to weeds and monotonous rubbish."

Leiden where he cultivated Japanese plants for sale to the public. His 1863 Catalogue Raisonné et Prix Courants des Plantes et Graines du Japon et de la Chine listed knotweed as one of our most important introductions from Japan, a perennial ornamental plant, inextirpable, with shining foliage, clusters of flowers 'tres gracieuses,' useful in creating groves, sheltering young plantings, and fortifying sandy hills and dunes. The plant, which can be cut in the spring many times over, provides an excellent forage for fattening livestock, which eat it out of preference; the flowers, which appear in autumn, are very sweet and give bees winter food; the bitter and tonic root is a medicine of repute among the Chinese and Japanese; finally, even the stalks which die in winter are good for burning and for matches. Already there have been very satisfactory trials stabilizing trenches and slopes along railroad tracks and sandbanks with plantings of this arborescent, inextirpable plant.

Knotweed was also documented and described in Flora Japonica, a handsome two-volume flora published in Leiden by Siebold and his collaborator J. G. Zuccarini in 1835, and in the smaller, unillustrated edition in 1845.

Japanese Knotweed in England

The first English reference to Japanese knotweed may have been a description included in Paxton's Flower Garden, published in 1850–1851, which noted that it was "only to be found at present" in Siebold's garden in Leiden. Shortly afterward it crossed the Channel; in 1880 Sir Joseph Dalton Hooker, the director of the Royal Botanic Gardens at Kew, wrote in Curtis's Botanical Magazine that Japanese knotweed had been grown "for a quarter of a century at Kew, to which it was, [Dalton believed], sent from Holland."10

William Robinson (1838–1935), however, was most responsible for Japanese knotweed's popularity in England. Robinson, the Irish-born horticulturist and writer who became known as the Father of the English Flower Garden, almost single-handedly changed garden design in the second half of the nineteenth century from the formal bedded-out geometry of the Victorians to the more naturalistic plantings best represented in the gardens designed by Gertrude Jekyll. "Knowing," Robinson said, "a little of the vast world of plant beauty quite shut out of our gardens by the 'system' then in vogue...[I] was led to think of the vast numbers of beautiful hardy plants from other countries which might be naturalized, with a very slight amount of trouble, in many situations in our plantations, fields, and woods." He saw this giant knotweed as well-suited to his wild garden, and promoted it not only in the various editions of The Wild Garden but also in The English Flower Garden, published from 1870 to 1935, and in Hardy Flowers (1872), where he set forth his opinion that
If anybody will select some open grassy spot in a pleasure-garden or grassy glade near a wood—some spot considered unworthy of attention as regards ornamenting it—and plant a group of three plants of Japanese knotweed... it will spring up every year to a height of from six feet to eight feet if planted well; it has a graceful arching habit in the upper branches, and is covered with a profusion of small bunches of pale flowers in autumn.

Robinson's appreciation for Japanese knotweed is further evident in his labeling it a perennial of "noble port" in an otherwise straightforward botanical listing, and including it in his list of "A choice Selection of the very finest Herbaceous Perennials." In 1884, however, his discussion of knotweed in The Garden, while encouraging his readers to plant it "on the lawn, in the shrubbery, or in woodlands... placed so that they may have plenty of room in which to fully display their gracefully arching stems," included a warning that knotweeds were "not plants for the border, being of such spreading growth, and being gross feeders would soon overrun and harm plants of a weaker character." And in the 1921 edition of The English Flower Garden, Robinson limited his entry on knotweed to three rather terse sentences, of which only the first retains a trace of his earlier enthusiasm:

Of fine graceful habit, its creamy-white flowers are borne in profusion. It should be grown apart on the turf or in the wild garden. It is easier to plant than to get rid of in the flower garden; a rank weed, right in copse or pond side.

In fact, by the early twentieth century knotweed was beginning to be viewed with disfavor all over England, where it had been extensively cultivated for thirty years. It had proven to "make itself a nuisance when planted in borders or shrubberies, its rootstocks creeping beneath the surface for some distance, throwing up new plants at every point, and the more they were chopped up the more they grew, unless completely eradicated" and even one who admired its ability to flourish where nothing else would grow and pronounced it "a plant we ought to be devoutly thankful for to our allies in the Far East" admitted that "it thrives too well in most cases, becoming somewhat of a weed, if not carefully watched and restricted."

Japanese Knotweed in the United States

It is often claimed that Frederick Law Olmsted (1822–1903) is responsible for introducing Japanese knotweed into the United States, planting it in Central Park or along the Muddy River in Boston's "Emerald Necklace." It is known that Olmsted met William Robinson when Robinson visited the United States about 1870 and that he later owned a copy of The Wild Garden, which he recommended to his partner Calvert Vaux (1824–1895) when Vaux was laying out the Rambles in Central Park.

However, hard evidence that Olmsted actually specified knotweed's use seems not to exist. It is not on the Muddy River Improvement Plant Lists (1892 and 1893), though it is so well established on the river's banks that it may have been growing there since then; a hundred years later it formed a solid mass between the river and the roadway, through which the pedestrian pathway became a mere tunnel in summer and fall when it was in full foliage. Knotweed is also something of a problem at the Biltmore Estate in Asheville, North Carolina, which Olmsted designed in the 1890s, but the plant does not appear on the original plant list for the estate nor on the 1893 list of plants in the estate nursery. According to Charles E. Beveridge, editor of the Frederick Law Olmsted Papers, "while the vigor of [Japanese knotweed] might have appealed to Olmsted, there are at least two qualities of the plant that [probably] would have made it not so attractive for him. One is the size of the leaf and the density with which... it would grow under any circumstances: in the masses of shrubs that he planted, the elements of delicacy, intricacy, and variety [were] key, and... [knotweed] would not be a good plant for achieving such effects. Also, the amount of bloom would have made the plant less desirable in his view." Whether or not Olmsted ever specified knotweed, by the turn of the century it had become a firmly established ornamental garden plant in the United States, recommended for planting in wet soil by the sides of pond and streams. In Our Garden Flowers: a Popular Study of Their
Cascading over the wall in the center of this photo is Fallopia japonica 'Crimson Beauty', said to be a cultivar that knows how to keep to its place. Other cultivars available in the trade include 'Devon Cream' and 'Spectabile,' as well as a compact variety.

Native Lands, Their Life Histories, and Their Structural Affiliations, first published in 1910, Harriet Keeler (1846-1921), a botanist and writer of popular garden books, describes knotweed as “effective for bold effects and desirable for the flowering mass it produces in autumn,” also noting “one should think twice, possibly thrice, before planting [it] within the garden enclosure.”

By that time, Japanese knotweed was a staple in nursery catalogs, sold by such companies as Bobbink and Atkins in New Jersey, H. Kohankie and Son of Ohio, Palisades Nurseries of Sparkill, New York, and Bay State Nurseries and R. and J. Farquhar and Company in Massachusetts. In the 1920s Farquhar’s catalog listed Giant Knotweed, “a decorative plant growing five to six feet high and producing in the fall long drooping clusters of white flowers” for $2.50 per dozen or $18.00 per hundred, the going rate for other perennials such as balloon flower (Platycodon grandiflorus) and Jacob’s ladder (Polemonium caeruleum).

The Final Chapter
It is easy to imagine that by the late 1920s those gracefully arching stems and drooping clusters of bloom had already found their way into many gardens via garden club plant swaps and church fair garden tables, but by this time gardeners were of two minds about Japanese knotweed. In September of 1928 Horticulture magazine printed Frank Waugh’s description of the lusty knotweed as “effective in background plantings” and “a beautiful sight” in full flower, to which the editor appended a warning that it resisted control except by strong weed killer and should be planted with caution.

The Massachusetts Horticultural Society’s Gardener’s Omnibus of 1938 included a paragraph entitled “Exterminating the Knotweed” interposed between “Burning Weeds with a
Torch” and “Burning Out Tree Stumps.” And finally, the Bush-Browns in the 1965 edition of their widely consulted America’s Garden Book, give knotweed no quarter, finding it not only ubiquitous but of “a very rank character of growth, quickly crowding out everything in its path,” mentioning it only in their discussion of shrubs with undesirable characteristics.21

Japanese knotweed, which a century earlier Siebold had considered one of his most important introductions, had so fallen in public esteem that gardeners were interested only in methods for removing it. What Robinson saw as a plant laudable for its ability to survive the hardest frosts and spring up every year with renewed vigor had become an impossible nuisance, and gardeners were throwing endless clumps of it on rubbish heaps, though not as quickly as it spread throughout their gardens and beyond. Boldly displaying its unquenchable spirit, knotweed, transplanted from its native Japan by a German doctor employed by the Dutch, had established itself as a permanent though unwanted member of plant communities throughout the Western Hemisphere, its arching stems and clouds of bloom appearing indomitably anywhere one of its stout rhizomes—or a piece of one—lay hidden in the soil.

Endnotes
3 1907 Biltmore Nursery Catalog, Biltmore, NC.
4 S. A Spongberg, A Reunion of Trees (Cambridge: Harvard University Press, 1990), 101
5 Ibid., 102.
7 Siebold was not, however, the first to bring Japanese knotweed to Europe. It had been introduced to Western science earlier, via a herbarium specimen.

In 1777 Martinus Houttuyn (1720-1798), a Dutch collector, merchant, and author of Natuvryke historie, introduced Reynoutria japonica, which in 1901 was determined to be Polygonum cuspidatum (now Fallopia japonica) Thunberg had sent Houttuyn (who had helped to underwrite Thunberg’s travel to Japan) a number of specimens but no seeds or living plants.

8 Translated from a description in the Annales de Gand (Ghent) 5: 461, written by C. F. A. Morren (1807–1858), a Belgian botanist and horticulturist.
9 The entry goes on to say that the plant has been cultivated in the Royal Horticultural Society’s garden for a quarter of a century, introduced from “China as Houttuyna cordata,” which is possibly the source of the 1825 date often given for its introduction, but H cordata is not the same taxon as Fallopia japonica (Polygonum cuspidatum).
10 J. D. Hooker, Polygonum cuspidatum, Curtis’s Botanical Magazine (1880) 36 (3rd Series): Tab 6503
12 The Garden (1884) 26: 317; The English Flower Garden, 13th ed (NY: Scribner’s, 1921), 640.
14 Gardeners’ Magazine (1904) 47: 861.
15 Tankard, op cit., xi.
17 According to William Alexander, Landscape Curator, The Biltmore Company, Asheville, NC, Japanese knotweed (as Polygonum cuspidatum) was included among the plants offered in the 1907 Biltmore Nursery catalog, but these plants were grown for the nursery trade and reflect market demand rather than Olmsted’s preferences.
18 Personal correspondence with Charles E Beveridge, Series Editor, The Frederick Law Olmsted Papers, Department of History, American University, Washington, DC, January 6, 1997.
19 Harriet L. Keeler, Our Garden Flowers (NY: Scribner’s, 1925), 108.
20 Horticulture (1928) 6(17): 407.

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