



Roy Lancaster, plantsman, author, and British television personality, will offer a slide-talk on Japan and its plants, Friday, October 17. He is seen here with *Rhododendron falconerii* x *sinogrande* 'Fortune'.

The Arboretum Campaign Goes Public

On Friday, June 13, 1997, Harvard President and Mrs. Neil Rudenstine, members of the Director's Advisory Board, Arboretum director Bob Cook, and 90 longtime Arboretum friends and donors gathered for a special dinner in celebration of the public phase of The Campaign for the Arnold Arboretum.

Campaign chairman Francis O. Hunnewell announced that in this first fundraising campaign since 1927 (following the death of Charles Sprague Sargent), the goal is to raise \$8.2 million for the Arboretum's endowment and capital projects, of which \$3.8 million has been committed to date. Campaign objectives include adding significantly to the endowment for the living collections and establishing permanent endowments for two critical Arboretum programs in the areas of children's science education and international biodiversity conservation. The campaign will also raise funds to build and endow a new garden for sun-loving vines and shrubs.

Speaking at the June dinner, President Rudenstine underscored the campaign's priorities while reflecting on the Arboretum's significance to the University and the larger community. The campaign,



Martha Stewart

From left, Arnold Arboretum Director Robert E. Cook, Arboretum Director's Advisory Board Co-Chair Ellen West Lovejoy, Campaign Chair Francis O. Hunnewell, Harvard President Neil L. Rudenstine, and Director's Advisory Board Co-Chair David B. Stone.

Rudenstine noted, aims to "sustain the Arboretum and its programs at the level of excellence that has been established and maintained. It will sustain the Arboretum's vital educational efforts for both children and adults. And it will contribute directly not only to the understanding of our natural surroundings close to home, but also to research on important questions of biodiversity abroad and to the larger goal of environmental protection."

"The cause could not be better," Rudenstine added, "because the Arboretum touches on so

many different aspects of our lives: natural beauty and the beauty of design; the process of teaching and learning; the discovery of new knowledge, driven by deep curiosity about the natural world; and the effort to improve the environment we live in."

We plan to complete the fundraising effort by the conclusion of Harvard University's comprehensive campaign on December 31, 1999. For more information about The Campaign for the Arnold Arboretum, contact Lisa M. Hastings, Director of Development, at 617/524-1718 x 145.

佐藤恵子

Keiko Satoh

I arrived in Boston from autumn in Canberra, Australia, just in time for Lilac Sunday, to take up a one-year appointment as a Putnam Fellow at the Arnold Arboretum. I



Karen Madsen

was quite prepared for the New England weather because just four years ago I graduated from Mount Holyoke College in western Massachusetts. During my year here, I will be working under Sheila Connor's guidance on the E. H. Wilson and plant distribution archives and, with Stephen Spongberg, editing an unpublished manuscript by E. H. Wilson. Written in the late 1920s, its subject is the species that he considered his best introductions into cultivation. Another part of my project is the creation of a computer database of Arboretum plant distribution records, which were kept on index cards from 1910 to 1970. The database will track information on Arnold Arboretum plant introductions. In addition,

I will be producing botanical illustrations of *Sorbus* for Dr. Spongberg.

Having lived in several different countries by virtue of my father's diplomatic postings, I have had many opportunities for travel and extraordinary experiences. I received my first exposure to the world of taxonomy and training in nomenclature when I curated shells (Architectonicidae: Gastropoda) at the National Natural History Museum, Leiden. This in turn led me to undertake a Master of Science course in biodiversity and taxonomy of plants at the University of Edinburgh and the Royal Botanic Garden, Edinburgh. It was there that I learned a great deal about the Arnold Arboretum and E. H. Wilson through my classmate Andrew Bell, himself a former intern and Putnam Fellow (summer 1995). Also during that time I was able to meet Dr. Spongberg and Susan Kelley on their respective trips to the Garden.

Working on the Wilson material offers me more than professional interest: it teaches me a great deal about the history and culture of my home, Japan, and also of China, where my great-grandparents were posted at around the same period as Wilson was traveling there. Many of his photographs depict aspects of those countries that have since changed drastically or disappeared.

Arnold Arboretum Open House

The Arnold Arboretum once again cordially invites the public to an Open House on Saturday, October 18, from 11:00 am to 3:00 pm.

The day's events will include tours of the landscape and a behind-the-scenes peak into the greenhouse led by Arboretum staff (at 11:00, 12:00, and 3:00), a maple tree activity for families (from 1:00 to 3:00), and opportunities to talk with Director Bob Cook and other staff about Arboretum plans and programs. For information or directions, call 617/524-1718 x 100.



Karen Madsen

Youngest celebrants at the Arboretum staff's 125th-anniversary gala were the director's daughters, Christina Farrow Cook and Katherine Farrow Cook, born on June 12 to Lee Farrow and Bob Cook.

Amazing Grace: The Cutleaf Maples

Rob Nicholson

Ask average gardeners to draw a maple leaf, and they will probably try to render a palmately veined, coarsely toothed, simple leaf similar to the symbol adorning the Canadian flag. This only shows the limited conception most people have of a genus whose members grow from Mexico to Manitoba and from Malaysia to Siberia.

Maples are one of the two genera of the Aceraceae (*Dipteronia* of China is the other) and number about 150 different species worldwide. As only a dozen of these species are native to North America, it is little wonder that our perceptions of what a maple can be are so limited.

Asia, and in particular China, is where maple species are found in abundance; China lists 85 while Japan has 22 and Korea 9. It is toward the species of these countries that my list of favorite maples is most heavily weighed. (Where would horticulture be without top ten lists?) My preference is away from the broad, palmately leafed tribe and toward the cutleafed trifoliate and even pentafoolate species—graceful trees of unparalleled beauty. These maples are those with a compound rather than simple leaf and are composed of three similar leaflets, one terminal leaflet with two attending laterals.

Trifoliate maples, those of section *Trifoliata*, first began to appear in the United States as early as 1891 when C. S. Sargent of the Arnold Arboretum brought back seed of *Acer nikoense* from the mountains of Japan. Since then, many more species of trifoliate maple have been introduced and are now among the most highly

regarded landscape trees. Having propagated hundreds of these maples and recently returned from seeing two of them in their native forests, I hope to raise the reader's appreciation for these wonderfully useful and sublime plants.

Acer maximowiczianum

Japan and central China are home to a species of trifoliate maple known as the Nikko maple. Originally named for the Japanese temple city of Nikko, the tree was once known as *Acer*



RICHARD MUNSON

The trifoliate foliage of the Nikko maple turns to pleasing shades of scarlet and orange in the fall.



The compact, neat, roundheaded habit of *Acer maximowiczianum* makes it a useful specimen for smaller scale landscapes.

nikoense, but a nomenclatural change has brought it to its present Latin name of *A. maximowiczianum*. It grows in the cool-temperate forest, preferring moist and fertile soils near streams. In central China it grows with such genera as *Tilia*, *Carpinus*, *Betula*, *Fagus*, *Davidia*, and other species of *Acer*. Trees of sixty-five feet have been reported from the wild, but most mature trees in cultivation are from forty to fifty feet. A tree raised from Sargent's seed collection of one hundred years ago now measures forty-five feet high with a broadly domed canopy of forty feet. Its two-foot thick trunk shows a number of main branches close to the ground, the first at three feet, and these rise at a 45-degree angle upward to the canopy. The bark is more subtly colored than that of other trifoliate maples, being a tight medium gray, sometimes forming small plates and with curious vertical rows of bumps. The Nikko maple distinguishes itself most clearly by its foliage; it has the largest leaves of the trifoliate group. Each leaf consists of three leaflets, with two lateral leaflets at nearly right angles to the third, terminal leaflet. These thick leathery leaflets are oblong-ovate in shape, deep green

above and pale green below, with the lower leaf surface and petiole having felty, silvery-white hairs. The edges of these leaflets are slightly wavy, although a few coarse teeth may be present. The size averages from 3 to 5 inches long and 1.5 to 2.5 inches wide, although trees from China have been reported with 7-inch long leaflets. This crisp, fresh greenery is the most outstanding attribute of the species, especially when it changes hue in mid-October (all times are for Boston). Luminous shades of scarlet and orange are made even more pronounced by the darkness of the gray bark. Oddly, the underside of the leaf remains a duller color. The flowers are held in threes, each a third of an inch long with

ten chartreuse petals in two rings of five. While interesting on close examination, it is really a flower only a botanist could love.

The plants in cultivation in the United States have been reported to survive winters with lows of minus 25 degrees Fahrenheit without damage. As a woodland native the Nikko maple prefers fertile brown soils and a moist site. The proportions of *Acer maximowiczianum* make it an ideal tree for suburban gardens; if grown as a specimen tree on a lawn, it does not attain too large a size to keep in scale with most houses.

Acer griseum

The star of the trifoliate group is the renowned paperbark maple, *Acer griseum*. Native only to the central Chinese provinces of Hubei, Sichuan, Honan, and Shensi, it was introduced into cultivation by the prolific plant hunter E. H. Wilson and has come to be regarded as perhaps the best of his hundreds of plant introductions. He first found the plant in May of 1901, when he jotted in his field notebook "Hupeh's best maple." He later came to regard it as "China's best maple," and modern horticulturists may go even farther. Wilson recorded the

species on steep slopes of moist, rich woodlands of western Hubei between 4,000 and 5,500 feet. The maximum size of the tree was sixty feet with an eight-foot circumference, but trees of thirty to forty-five feet were more typical. Seed from these trees was collected for the Veitch Nursery of England in 1901 and for the Arnold Arboretum in 1907. Veitch raised a hundred plants from their seed, and the Arnold raised one seedling to pair with two seedlings Wilson had dug up in China and brought home to Boston.

The collector who seems to have seen the plant in the greatest numbers of localities was the Belgian Joseph Hers. He recorded it from five sites in Honan and two in Shensi, but I have not been able to determine if any seed was collected from these plants and, if so, whether they resulted in any seedlings. The Arnold Arboretum was a recipient of many kinds of seed collected by Hers, as was the Vilmorin Nursery in France, but no entries for *Acer griseum* exist in the Arnold's records among the four hundred items sent by Hers between the years 1919 to 1927. The same is true for the records of the National Botanic Garden of Belgium, another recipient of Hers' seed. A recent sighting of the tree was made in China by Wilson's spiritual heir, Roy Lancaster, but no seed was collected. The Sino-American Botanical Expedition of 1980 found the tree in the Shennongjia Forest District of Hubei (Wilson's old terrain), but none of the seed they collected resulted in seedlings.

It seems probable then that Wilson's collections in 1901 and 1907 are the only ones that have been brought out of China and that until very recently all trees in cultivation were descendants of these. In 1994 an expedition of the North American-China Plant Exploration



The first *Acer griseum* to take root in North American soil still grows at the Arnold Arboretum.

Consortium collected 25 seedlings of *Acer griseum* on Hubei's Wudang Shan, and they are now growing at the Arnold Arboretum, Morris Arboretum, Longwood Gardens, and U.S. National Arboretum.

The bark of this Chinese species is unique in the maple family, a striking collage of textures and colors. The oldest bark, at the base of mature trees, is often an interlocking puzzle of irregular plates of copper and smoky gray. Younger wood is sheathed in tight bark of a ruddy maroon brown with patinas of orange brown and weathered bronzy olive surrendering curled shavings of cinnamon. The wood is hard and dense, and at certain points looks sinewy. The effect of this singular stem is of a dense, aged, metallic pillar of exotic alloy.

To photograph a frame of "typical" *Acer griseum* bark is akin to photographing a "typical" three-inch square of Monet, Seurat, or Pol-

lack, as every section of stem has its own composition, subtly different in character, a unique blend of curls and plates, bronzes, mahoganies, and coppers. It is a trunk that begs to be surrounded by snow as it literally shines in defiance of gray skies and chilling winds.

The foliage of the paperbark maple is reddish-brown when unfurling in spring but soon turns to a soft, deep green above, pale green and felty below. The margins of the leaflets are coarsely toothed with two to five large teeth on each leaflet's side. The foliage turns a striking crimson in late October and early November, blending beautifully with the coppery bark. Flowers are similar in size and color to those of the Nikko maple but the petioles are less hirsute.

The oldest paperbark maple that I know of graces the grounds of the Arnold Arboretum and is one of E. H. Wilson's original trio. Unlike other *Acer griseum* trees in the collection, this specimen has a squat, fat trunk that begins to branch at three and a half feet. Its dome is broad, some forty feet wide and twenty-five feet high. It is a venerable and monumental tree, a piece of living sculpture that honors its collector far more nobly than any work from an artist's hand.

The paperbark maple is ideally proportioned for lawn and specimen plantings as it doesn't

attain a tall stature in full sun. It works particularly well alongside the red brick dormitories and lecture halls of our Smith College campus, but it would be superb as a focal point in a woodland or courtyard garden, and as a grove of twenty, an unsurpassable luxury.

Collecting Trifoliate Maples

I recently fulfilled a longheld wish to collect seed of trifoliate maples in the wild. I had failed to do so earlier while on a visit to the town of Nikko, Japan, as I did not find the local trifoliate when I collected there. Botanists at the Nikko Botanic Garden have since written me that *Acer maximowiczianum* is now rare in those woods, perhaps because of its value for tool handles and construction.

My luck turned during a collecting trip to South Korea. Due to the hospitality of Ferris Miller, the owner of the Chollipo Arboretum, collecting in South Korea has become a relatively simple task, with good roads and well-maintained national parks adding to the ease of seed harvesting. It has become in recent years the preferred hunting grounds in temperate Asia, Japan being costly and China restrictive. Mr. Miller was host to two other collecting parties during my brief visit, and he now talks of being swamped with collectors.

The woodland forests of Korea have very fine fall foliage color, thanks mainly to their nine maple species. *Acer pseudosieboldianum* (sometimes called the purplebloom maple) has the most vivid colors, scarlets and reds, but close behind are two trifoliate species native to the mountains, *A. triflorum*, the three-flowered maple, and *A. mandshuricum*, the Manchurian maple. The three-flowered maple ranges from South Korea, where I saw it at 2,000 feet in the foothills of the Odae Mountains, north into northeastern China, with isolated disjunct stands reported in Shensi Province growing at 5,600 feet. It usually

ROB NICHOLSON



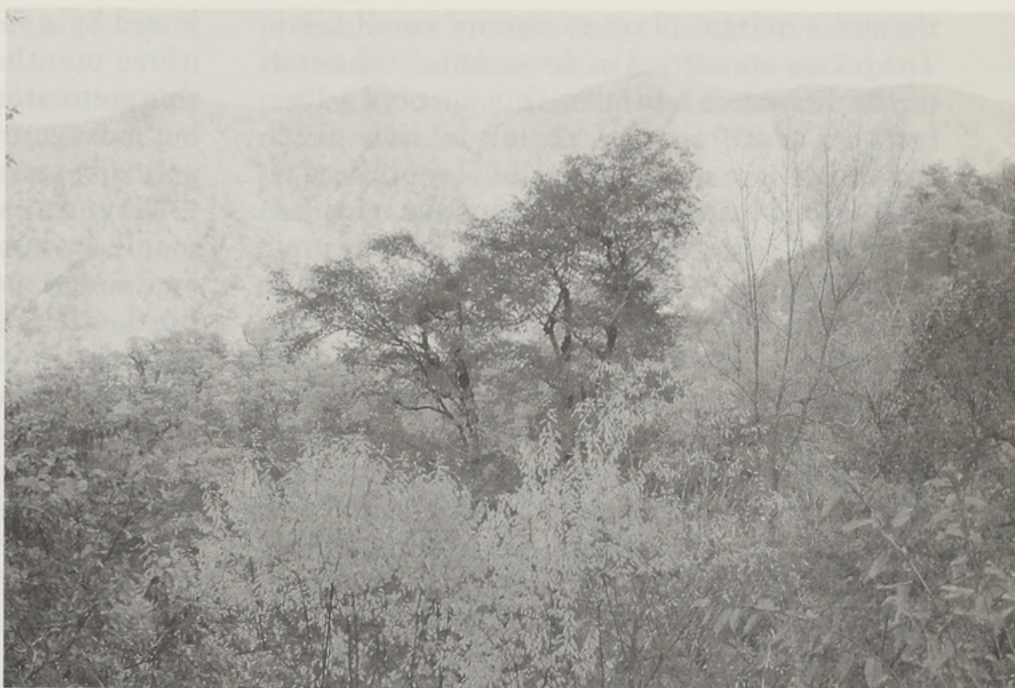
The Wolchong-sa temple complex was founded in 654 A.D. and is now within the boundaries of Odae-san National Park. A beautiful specimen of *Acer triflorum* rises from behind the small temple.

grows to about fifty feet, but older trees in the wild have been recorded as high as seventy feet. I collected seed in the Odae Mountains, where I found the species next to a brook on the edge of a forest of huge *Abies holophylla*, the Manchurian fir. A mile up the road was the ancient temple complex of Wolchong-sa, and on a crisp fall day in the mountain forests I found a beautiful tableau, two maples with temple. To the front was a small *A. pseudosieboldianum*, its branches covered in leaves of pink and brilliant cardinal red. The temple is small, with a sedate gray tile roof covering two chambers that face an open

middle section. Intricately painted beam work and panels counterbalance the somber roof and straightforward architecture. Behind it, fronting a screen of dark firs, was a glowing orange three-flowered maple, its lowest branches peeking through the alcove of the temple. Standing sixty-five feet high with a basal trunk diameter of three feet, it was far bigger than the tree I'd previously seen downriver. The bark at the lower portion of the trunk was splashed in pale gray-green lichens, these contrasting pleasantly with the gray and buff colored bark.

The three-flowered maples I have seen in cultivation have a silvery-beige bark, flaking in small plates to reveal coppery-orange and even pinkish tones beneath. These trees were over sixty feet high at seventy years of age and were more upright in habit than the Nikko maple. Unlike the Nikko maple, the three-flowered maple tends toward a single dominant trunk.

Its trifoliate leaf can be distinguished from others of the group by its bristly upper surface (the lower surface has a hairy midrib). Leaflets are medium green above, paler beneath, up to 3.5 inches long and half as wide, with two to four coarse teeth along the margin. In Boston its fall color usually appears during mid- to late October and is a blend of pumpkin, yellow, and wines, with orange being the dominant hue.



Acer mandshuricum grow almost to the summit of Mt. Odae, here photographed at 4,600 feet.

My hike from the Wolchong-sa temple complex to the highest point in the park, Mt. Pirobong at 5,100 feet, was a two-and-a-half kilometer climb through sublime fall forest color, an interplay of the maples' blaze and the solid, somber green of fir. I first found the Manchurian maple, *A. mandshuricum*, at 3,400 feet, a small grove of trees on a sharply steep, cool slope anchored in dry brown soil. Sharing the hillside were *Betula schmidtii* and *B. davurica*, *Viburnum wrightii*, *Magnolia sieboldii*, *Rhododendron schlippenbachii*, *R. brachycarpum*, *A. pseudosieboldianum*, *A. ukurunduense*, *Astilbe koreana*, and *Hepatica asiatica*. In this tight, competitive canopy, the Manchurian maples were tall trees to eighty feet, with their first branches at thirty-five feet, yet had a relatively thin trunk diameter of about one foot. Toward the top of the mountain, one thousand feet higher, the canopy was lower and more open and here the Manchurian maple was a round-headed tree of thirty-five feet. Its bark was tight, plating slightly, and of a dark battleship gray color. The leaves of *A. mandshuricum* have narrower leaflets when compared to its cousins, the two laterals being held at a closer angle to the terminal and sometimes overlapping it. The oblanceolate leaves are a dark, glossy green above and pale green below, with a long tapered

tip and a margin of up to twenty small teeth. The leaves are carried in dense tufts at the ends of the branches and give this species a fine, feathery texture. I was struck by how much variation there was in the fall color of this species, especially when I recalled those trees cultivated stateside. In the wild, a dull ruddy purple to soft maroon seems to be the most common color, with undertones of blended pink, orange, and yellow. Among the yellows of birch and poplar in the high mountains, these reddening plumes were the standouts. In sharp contrast to these wild plants is the fall color of a specimen at the Arnold Arboretum. Grown from seed sent by the St. Petersburg Botanic Garden in 1906, the tree grows in full sun and measures fifty-five feet high by fifty feet wide. It colors early, usually in the first week of October, displaying a superb soft rose color. Once turned, the leaves last but a few short glorious days, then drop too soon. Based on its fall color alone, this striking tree is worthy of cultivar status.

Flowers of the Manchurian maple are less prone to the chartreuse coloration of the other trifoliates and can be a dull pink. But by late May, clusters of dark pink and chartreuse samaras are forming and these contrast beautifully with the soft green undersides of the leaves. Of all the trifoliolate maples, *A. mandshuricum* is probably the hardiest, growing near the tops of frigid mountains in South Korea and surviving the brutal winters of northeastern China. It can probably withstand temperatures of minus 25 to minus 30 degrees Fahrenheit.

Propagation

Propagation of the trifoliolate maples is problematic, which accounts for their scarcity in the nursery trade, although it is far easier to obtain one of these than it was even fifteen years ago. Viable seed rarely develops, as it is uncommon to find trees in cultivation close enough to each other to ensure pollination. I know of instances where nurserymen have converged on the same grove on the same day and proceeded to get into a roaring shouting match over the precious seed.

The seeds of these maples have what is known as a double dormancy, requiring a stratification period of moist and warm conditions (five months at 65 to 85 degrees Fahrenheit) fol-

lowed by a period of cold and moist conditions (three months at 35 degrees Fahrenheit). After this pretreatment some germination will result, but most germination occurs only after a second period of stratification.

I have successfully propagated the three-flower maple by cuttings, taking them in mid-June, applying a medium-to-high strength hormone (IBA), sticking them in a medium of sand and perlite, and keeping them misted. More recent attempts at vegetative propagation involved grafting. Based on the advice of my college propagation professor, Sidney Waxman, I used sugar maple (*Acer saccharum*) as understock and got three different trifoliolate species to take. The long-term outlook for these is uncertain, but so far the plants show remarkable vigor.

Other Cutleaf Maples

In researching the botanical and horticultural journals for information on these unusual maples I was surprised to find a few with dissected leaves that I had never before encountered and that are rare in cultivation or have yet to be introduced. One of them, the five-leaf maple, *Acer pentaphyllum*, was first reported by plant explorer Joseph Rock in China in 1929. He found the tree west of the Yalong River near Muli, in southwestern Sichuan province. It has been reported that only two to three hundred trees still exist. For generations, the only known adult tree in cultivation was in the Strybing Arboretum in San Francisco, but this plant has recently died. Seedlings have been raised from the Strybing plant and a number of nurseries on the West Coast now offer this rare tree. According to Rock, it forms a small tree growing to thirty-five feet with widely spreading or slightly pendulous branches. The bark on younger branches is brown to yellowish brown, while older bark is ashen. The most remarkable feature of this maple is its beautiful leaves, which are divided into five thin leaflets 2 1/2 to 4 inches long, a bright yellowish green above and soft green below. These wispy leaflets are held in a star pattern, with the interplay between the leaves and the slender, delicate stems producing an extremely fine, linear texture. Fall color is said to range from yellow to crimson. West Coast nurserymen consider the plant hardy



Nicholson, Rob. 1997. "Amazing Grace: The Cutleaf Maples." *Arnoldia* 57(2), 17-24.

View This Item Online: <https://www.biodiversitylibrary.org/item/217009>

Permalink: <https://www.biodiversitylibrary.org/partpdf/251177>

Holding Institution

Harvard University Botany Libraries

Sponsored by

BHL-SIL-FEDLINK

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Arnold Arboretum of Harvard University

License: <http://creativecommons.org/licenses/by-nc-sa/4.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.