



A welcoming new walkway greets visitors to the Bonsai and Penjing Museum at the U.S. National Arboretum.

PEGGY GREB (K10473-1)

THE ANCIENT ARTS OF BONSAI AND PENJING

Masters of Japanese bonsai and Chinese penjing techniques are gardening artists. The tiny trees they meticulously shape—ranging in age from newborn to centenarian—create a sense of full-grown trees in their natural surroundings while taking up only the space of a coffee table. Perfecting such miniature masterpieces is truly the pinnacle of gardening skill.

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Trident maple, *Acer buergerianum*, with its roots growing over a rock and its foliage and stems trimmed in the shape of a dragon.

The National Bonsai and Penjing Museum, part of the U.S. National Arboretum in Washington, D.C., is the only museum of its kind in the world that allows the general public to enjoy and learn about these interesting living art forms free of charge.

“This is the first true bonsai museum anywhere in the world, and it’s also the largest and most comprehensive one in the western world,” says arboretum director Tom Elias. “We have the finest collection of mature bonsai outside of Japan.”

The museum opened in 1976, when the Nippon (Japan) Bonsai Association donated 53 bonsai to the people of the United States to commemorate the nation’s Bicentennial. Now, more than 200,000 people annually visit the museum’s collection of 150 plants located in three pavilion houses.

“Newcomers are always amazed by the beauty of the collection and often become repeat visitors,” says curator Jack Sustic.

A well-trained bonsai or penjing specimen should give the impression of being a tree, not a shrub. Trees have well-defined foliage layers with open areas between them, while shrubs are masses of foliage that need pruning to define and improve their branch structure.

Though many people believe such trees are simply dwarfed versions of natural trees, the truth of the art form lies in the creation of the image. Masters manipulate potentially full-sized trees and mold them into beautiful pieces of art that, with proper care, can last for generations—sometimes centuries. But take a bonsai or penjing tree out of its pot and plant it in the ground, and it’ll reach its full, normal height.

An Ancient Eastern Tradition

Penjing is the Chinese word referring to the tree-shaping art of creating miniature container-grown trees or landscape groupings. Masters coax the roots of penjing specimens over large rocks placed at the base of young trees or shrubs in training. The roots of penjing plants often rise in sculptural shapes above the stones.

A penjing worth noting is the Trident maple (see above), an example of this “root-over-rock” style. It has been trained, or molded, into the shape of a dragon, with one of its larger branches looking like a head and another, a tail.

Eventually, the art of penjing migrated from China through Korea to Japan. The Japanese term “bonsai” refers both to the plant and to the pot or tray in which it sits. The two must

complement each other to create visual harmony. Bonsai come in all sizes: miniature (6 inches tall or less), small (6 to 12 inches), medium (12 to 24 inches), and large (24 to 48 inches).

It takes six people to carry each of the museum’s famous Japanese red and white pines, both of which are centuries old and 3 to 6 feet tall. But most trees are kept in the 1- to 2-foot range.

The Japanese white pine, the museum’s oldest tree, is nearly 400 years old.

To call it a survivor would be an understatement. This “six-person” bonsai survived in a nursery about 2 miles from where the atom bomb was dropped on Hiroshima, Japan, in 1945. This bonsai belonged to one family for six generations before coming to the United States.

Next to it is another six-person bonsai, a Japanese red pine that is the collection’s second-oldest tree. This 200-year-old was the first bonsai ever to leave the Imperial Household. Both of these pines were part of the Bicentennial gift to the United States in 1976.

The most-photographed bonsai in the museum’s collection is Goshin, meaning “Protector of the Spirit.” John Naka, an American bonsai master, designed this assemblage of 11 foemina juniper trees, each representing one of his grandchildren.

California juniper is a remarkable bonsai, one that seems to break the laws of gravity with a large, extreme-downward-curving branch. This branch reaches far below its roots and then manages to grow upwards at the very tip, sort of like roller coaster track—bonsai style.

Do-It-Yourself Bonsai and Penjing

It’s certainly not easy to create a miniaturized tree, and it can be daunting. But the museum can serve as a valuable source of knowledge on the art form, says Liz Ley, who heads the arboretum’s Gardens Unit. “The museum strives to teach the unaware about bonsai, their history, and how to create them,” she says.

Countless days, months, and years can be spent learning techniques for creating and maintaining bonsai and penjing. With practice, you can shape a tree by removing a branch, allowing one to develop in a desirable location, or allowing the trunk to grow more. Repotting lets you place the trunk where you’d like in the pot, wiring lets you alter the position of the branches, and pruning keeps the branches short.

Creating a bonsai from seed can be tricky. So one popular way is to start by choosing a nursery



Top: California juniper, *Juniperus californica*, by Harry Hiraou.

Middle: Curator Jack Sustic moves a 100-year-old Trident maple, *Acer buergerianum*, to the Japanese pavilion.

Bottom: A 120-year-old Japanese quince, *Chanenomeles speciosa*, cultivar Toyo-Nishiki.

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tree, shrub, or even a vine, then potting and beginning to style your bonsai—a step called “pre-bonsai” or “bonsai in training.” This process of training a plant in a pot takes several years. With proper care and the appropriate techniques, one day it may earn the title of “masterpiece.” While training a plant, you may need to replace the original pot as the tree gets bigger, and special attention needs to be given to drainage and soil mixes so that the tree remains healthy.

Once fully formed, a bonsai will have a thick trunk, a shape like the normal-sized tree, branches of the right size and in the right place, leaves that are as small as they can get, and a pot perfectly matched to the style and color of the tree. This maintenance process requires years of trimming and restyling, but it’s very satisfying to the owners and gives a deep sense of artistic pleasure.

Better Service and Access for All

As part of the recently completed \$1.3 million facelift that began in 2001 during the museum’s 25th anniversary, the International Pavilion received a new orientation area. Visitors are now greeted by an exhibit titled “Bonsai: Test Your Knowledge.” It’s a series of questions with multiple-choice options

placed on the tops of beautifully crafted wooden boxes, with the answers inside. Literature relating to the art is also available to visitors.

The reconstruction project was partially funded by the National Bonsai Foundation, which has provided support and

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donations for the museum for more than 20 years. The rest of the funding came from the Agricultural Research Service, which operates the arboretum.

Renovations to the bonsai museum's upper courtyard area have made it more accessible to visitors with limited mobility by replacing narrow, gravel pathways with hard, wheel-friendly surfaces. An automated irrigation system; lighting for nighttime events; a new, Japanese-inspired entrance to the Stroll Garden; improved grading and drainage; and expanded work space for museum staff have all been added in the past year.

Now that the renovation is complete, visitors can enter the museum's main entrance, go through the Cryptomeria Walk lined with small Japanese plants, and see the newly paved upper courtyard with the International Pavilion to the left and the Japanese Pavilion and Kato Stroll Garden to the right.

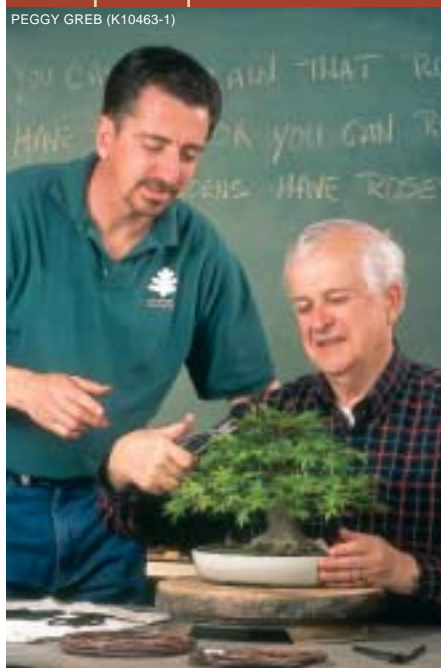
Visitors who venture a little farther down to the lower courtyard will see the Chinese Pavilion on the left. To the right are the North American Pavilion—home of the Tropical Conservatory, where Hawaiian and other tropical bonsai are housed—and the Lecture and Demonstration Center.

The National Bonsai and Penjing Museum has become the permanent home of bonsai gifts made to U.S. Presidents Clinton, Reagan, and Nixon. Now it is also taking long strides to become home for bonsai enthusiasts worldwide.—By **Alfredo Flores, ARS.**

This research is part of Plant, Microbial, and Insect Genetic Resources, Genomics, and Genetic Improvement, an ARS National Program (#301) described on the World Wide Web at www.nps.ars.usda.gov.

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**Jack Sustic
helps volunteer
Karl Green
trim a Japanese
maple.**

**At the National Bonsai and
Penjing Museum, many
tours are provided
throughout the year. Here,
Jack Sustic gives a tour to
the Friends of Bonsai Club
of the Brooklyn Botanic
Garden.**

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