n 1946, a young Chinese botanist named Chi-Ju Hsueh made a difficult 72-mile journey alone and on foot to a remote valley in Sichuan province. His assignment was to collect samples from an unusual tree botanists had found several years earlier, but still could not identify. With these samples, scientists landed on what has been
described as one of the greatest botanical finds of the 20th century—live specimens of a species that had previously been seen only in fossil records. The tree would come to be known as dawn redwood, *Metasequoia glyptostroboides*.

The story of the tree’s discovery is a compelling one, made even more so by the fact that it took place during a period of war and austerity. In 1941, a Chinese forester named Toh Kan came across a huge, deciduous conifer by the roadside near the village of Muo-tao-chi, in Sichuan Province. He knew he had discovered something unusual but was unable to collect adequate samples due to the lateness of the season. Two years later, a forest researcher called Chan Wang—at the request of a colleague of Kan’s—collected material from the tree but misidentified it as a type of swamp cypress. It took two more years for scientists to realize they were looking at a new species, possibly a new genus.

In 1946, Wan-Chun Cheng, a professor of forestry at the National Central University in Nanjing, sent his graduate student, Chi-Ju Hsueh, to collect additional material from the tree, following Wang’s directions. Cheng sent a sample to Hsen-Hsu Hu, director of the Fan Memorial Institute of Biology in Beijing. Hu determined the sample to be a match with the fossil records of a genus named *Metasequoia*, dating back to the Mesozoic Era (250 to 65 million years ago). This genus had only recently been described by the Japanese paleobotanist Shigero Miki, from fossils that were roughly five million years old.
The discovery rocked the botanical world. Here was a tree believed to be long extinct quietly surviving in a unique and remote pocket of the world. Miki had determined that his fossil specimens of Metasequoia were most closely aligned with the North American redwoods—Sequoia sempervirens, the California redwood, and Sequoiadendron giganteum, the giant sequoia. (The genus name Metasequoia derives from the Greek word meta, meaning “after,” and Sequoia.) Cheng and Hu chose the species name of “glyptostroboides” for the large tree species discovered in Sichuan, in recognition of its resemblance to the Chinese swamp cypress, Glyptostrobus pensilis—a common deciduous conifer in southern China, and also the plant for which Wang mistook it.

Conserving an Endangered Tree
Cheng and Hu shared their discovery with then Arnold Arboretum director Edwin Drew Merrill and Ralph W. Chaney, a redwood specialist at the University of California, Berkeley. Both Americans arranged modest grants allowing the Chinese botanists to send their assistant on a more comprehensive expedition to find more trees and gather seeds. The Arnold distributed seeds from that trip to 76 botanical gardens and research stations throughout the globe. Washington Park Arboretum was among the recipients, and one of the 11 dawn redwoods in our collection is a product of that original seed donation.

The story of the dawn redwood is a testament to the vital role played by arboreta and botanical gardens in fostering the knowledge and preservation of the world’s plants and trees. It is also a testament to the dedication of a multi-national group of scientists who persevered in identifying and saving this species.

To the local Chinese, the tree was known as “water fir.” They revered and protected the oldest trees and planted saplings in desired locations, but they also cut down many more trees for personal use. At the time of its discovery by the scientific community, the native population of Metasequoia glyptostroboides was found to be dwindling. American and Chinese scientists immediately began efforts to encourage protection of the largest, oldest specimens. Today, the tree is cultivated throughout much of the temperate northern hemisphere, and several cultivars have been named. However, the wild population—numbering in the region of 5400 trees—remains endangered, and conservationists are calling for more effective preservation of the habitat conditions around veteran trees to promote natural regeneration.

The climate in the remote Sichuan valley, where the dawn redwood trees were discovered, is unique in that it is a mild temperate one with cool, wet, but rarely freezing winters and summers with ample rainfall. Associated deciduous broadleaf trees in the old native forests included birch, chestnut, oak, beech and katsura trees. Young dawn redwoods are shade tolerant and gain height at an astounding rate.

Cultivating Metasequoia
Wild trees sprout in the dampest soils near creeks and seeps. In the late 1940s and mid 1950s,
Arboretum director Brian Mulligan selected similar conditions for our trees when he placed them slightly upslope from the creek running through Rhododendron Glen, and also along Arboretum Creek. In cultivation, *Metasequoia* has proved adaptable to a range of soil and temperature conditions, but they grow more slowly and to smaller dimensions in drier and/or cooler conditions. This is evident in size of the specimens planted more recently at the Arboretum in drier, exposed sections of the Pinetum.

Dawn redwood is well adapted to the Pacific Northwest and has the capacity to grow to 100 feet in 50 years and reach 30 feet after just 10 years. It has a narrow, pyramidal form for most of its life and does not become as broad at the base as the giant sequoia. The light-green foliage has a soft and ferny texture. Short needles sit opposite each other along the twigs. Fall color is cinnamon brown to golden. The broad buttresses that form on the lower trunk, deep-cinnamon-colored bark, and deep furrows that develop at old branch nodes give the tree a bold, sculptural appearance. Even though dawn redwood grows very rapidly when young, it is long-lived—a rare characteristic among fast-growing trees.

Ralph Chaney coined the common name for the plant. He suggested “dawn” as a colorful reference to the plant’s prehistoric origins. This venerable redwood, with its ability to survive over the millennia and its adaptability to a variety of cultural conditions, is truly a tree for this century. In the 1940s, Chinese scientists traveled arduous roads to discover—and then preserve—the tree. Visitors to Washington Park Arboretum can travel a not so arduous trail to the small, shady valley of Rhododendron Glen to see a group of 100-foot tall *Metasequoia glyptostroboides* thriving near the creek.

**Christina Pfeiffer** is a horticulture consultant, ISA Certified Arborist and educator. She is a member of the “Bulletin” Editorial Board and served as the Arboretum Horticulturist from 1987 to 2002. Each quarter, she teaches a half-day “Arboretum Plant Study: Plant ID and Culture” lecture/field class through the UW Botanic Gardens ProHort programs.

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**Remembering Jan Pirzio-Biroli**

September 3, 1926—June 15, 2015

Jan Pirzio-Biroli was editor of the “Bulletin” from 1964 to 1980. A brilliant plantswoman, she was dedicated to the Arboretum and to sharing her passion for plants with others. Originally an art historian, Jan visited the Arboretum in the 1950s to learn about what to grow in her Mercer Island garden and developed a keen interest in plant study. This led to a long career as an active Arboretum Foundation member and a UW Arboretum staff position until her retirement. “My Green Garden” (2004) was the last of her many articles for the “Bulletin.”