HIDDEN TREASURE OF THE ARBORETUM

Tetracentron sinense

By Daniel J. Hinkley

In the autumn of 1983, I moved into the endearing Stone Cottage at the south end of Washington Park Arboretum, along with an equally endearing terrier named Emerson, while beginning my Master's degree at the nascent Center for Urban Horticulture. (For historical reference, Director Emeritus Brian Mulligan was then still a frequent visitor to the Arboretum; however, sadly, Joe Witt, with whom I was to study, had become ill that autumn and would pass away the following spring.)

During a harvest moon that October, Emerson and I took a nighttime stroll through the trails of the Arboretum's remarkable collection of plants. I shall never forget seeing for the first time the intriguing silhouette, against a moonlit sky, of heart-shaped leaves held along branches of a tree I did not recognize. I returned the following morning to inquire of its identity.

I had been standing the previous evening under a specimen of *Tetracentron sinense*, a deciduous tree that possesses—along with a handsome presence in foliage and flower—a bit of botanical intrigue and is encountered far too infrequently in American horticulture.

Tetracentron sinense is a monotypic species (meaning it's the only species in its genus) native to central and western China, the eastern Himalaya, and northern Vietnam. Its genus name refers to the flowers, which cluster in groups of four along pendulous spikes in the summertime. The tiny, green flowers aren't much to look at by themselves, but the catkin-like spikes grow up to six inches and offer an intriguing contrast to the foliage.

A Botanical Oddball

A loner in its own genus, *Tetracentron* also once inhabited its own family. But it now shares rank with *Trochodendron aralioides*—the handsome and better-known Japanese parasol or wheel tree—the only other member of the Trochodendraceae. Species of both genera, now extinct, are found preserved as fossils in the Okanagan Highlands of Eastern Washington and British Columbia. It was not by accident that both *Trochodendron* and *Tetracentron* were planted cheek by jowl in our arboretum, east of the entrance to Loderi Valley, just south of the Woodland Garden's upper pond.

Now for the intrigue: *Tetracentron* and *Trochodendron* are very unusual because they both share an absence of vessel elements—a water-conducting tissue generally associated with more evolutionarily advanced angiosperms, or flowering plants. Instead, they solely rely on tracheids, a less-efficient piping system generally associated with conifers. This led botanists to rank the plants as "primitive" early angiosperms. Recent taxonomic research indicates, however, that both genera are not nearly as ancient as they had been pretending to be. It now appears their ancestral lines may have arisen from a foundation of more highly advanced flowering plants.

Tetracentron sinense was first described by Augustine Henry in Hubei Province, China, in 1889. It was introduced to cultivation in England by E.H. Wilson in 1901—in fact during the same expedition that yielded the fabled dove tree, *Davidia involucrata*. The source of the two oldest specimens at Washington Park Arboretum—one of which was the tree I visited on my moonlit walk—was Caerhays Castle in Cornwall, whose own specimen was believed to be one of the largest of its kind in Europe in 1975. Though the Williams family of Caerhays were patrons to Wilson's contemporary, George Forrest, it is indeed possible that our trees are directly related to Wilson's original collection. (When I wrote Caerhays to inquire about their *Tetracentron*, I received the sad news from Charles Williams that their record specimen was blown to the ground in the 1990 hurricane.)

I have collected and successfully germinated the seed of *Tetracentron* from several separate excursions to Sichuan, Guizhou and Hubei Provinces in China, as well as to northern Vietnam. The resulting trees grow at Heronswood Garden in Kingston, my personal garden in Indianola, and the landscape of the new Life Sciences Building on the UW campus.

Deserving Greater Recognition

Tetracentron sinense is a medium-sized tree, favoring moist, well-drained soil, full sun to light, dappled shade, and a somewhat sheltered spot. In late spring, the large (up to four-inch-wide), serrated, heart-shaped leaves unfold with a metallic luster overlay, later diminishing to dark green throughout summer.

Though I have seen specimens in extreme northeastern Sichuan with exceedingly ornamental autumn tones of rich gamboge, I have not achieved that effect in cultivation. Generally, in a good year, the leaves transition to a decent amber and a flicker or two of flame before falling. Each leaf is held singly on a spur that gains in length each year, thus creating that signature silhouette I so admired 36 years ago.

The flower spikes dangle from the spurs in mid-summer and can remain attached throughout the winter. I have lost track of how many visitors to my garden have stopped to ask the identity of the tree when in flower or during its winter nakedness, underscoring its need for greater recognition. The Arboretum's two oldest specimens (it has eight altogether; see "*Tetracentron* in the Arboretum") date to 1962 and have reached about 35 feet in height, while my trio at Windcliff have achieved approximately 25 feet in 18 years.

Without a doubt, much of the tree's scarcity in gardens is due to its difficulty to propagate. (Indeed, the species is now rare in its native habitat, in part because of a poor ability to regenerate.) I unsuccessfully attempted softwood cuttings from the specimens at the Arboretum for several years. Eventually, I imported a young seedling from England whose juvenility allowed for easier rooting. Heronswood Nursery offered these cutting-grown plants for several years beginning in 1992. In 2000, I successfully collected seed from staggeringly large specimens

on the slopes of Emei Shan, in Sichuan Province, and this solved my propagation problem—at least temporarily. Interestingly, the offspring of these plants, which grow in my home garden, do not produce viable seed.

When my husband, Robert, and I constructed our home in 2003, we commissioned artist Wendy Armstrong to make a lamp for our library, fashioning from copper the profile of a branch of *Tetracentron*. At night, when the house is dark and the lamp turned to its softest setting, I am again transported to that evening in 1983 at the Arboretum, with my beloved Emerson, when I first made the acquaintance of this aristocratic tree.

Daniel J. Hinkley is an ardent supporter of Washington Park Arboretum and a long-serving member of the "Bulletin" Editorial Board. He writes, lectures, consults and spends each autumn in remote areas looking for new additions for our gardens. He and his husband, Robert L. Jones, tend their personal garden, Windcliff, near Indianola, Washington.

Tetracentron in the Arboretum

According to UW Botanic Gardens curator Ray Larson, the Arboretum currently has eight specimens of *Tetracentron sinense*. Our two oldest specimens, located just north of the east gate to Loderi Valley (along Arboretum Drive, directly south of the upper Woodland Garden pond), date to 1962. They were received from the U.S. National Arboretum in Washington, D.C., which raised them from seed originally given to Brian Mulligan by F.J. Williams of Caerhays Castle, in Cornwall, England.

Of all our specimens, they produce the most flowers, says Ray. "We've received several collection requests for the flowers in the past few years, as they are being used to study flowering morphology and evolutionary development in this unusual and 'primitive' species."

Three other specimens were planted in 1995 in the Woodland Garden, just to the west of the older trees. Seed for these came in 1991 from Steven Roesch, a collector of unusual plants based in New Berlin, Wisconsin. Two of the specimens are still in their original location and doing reasonably well in the shady, Douglas fir understory. In 1998, one was moved to an open, sunnier, irrigated location adjacent Arboretum Drive, just to the north of the older trees, and it has thrived—especially now that it receives regular watering in summer.

The three other specimens in the Arboretum were donated by Steve Hootman, curator of the Rhododendron Species Botanical Garden, in Federal Way. One plant, received as a seedling in 2007, grows near the top of Rhododendron Glen. The other two, received in 2018 and ranging from three to six feet tall, have been planted near the Arboretum Loop Trail, within the footprint of the future China/Emei Shan Forest of Pacific Connections.