

BOTANIC GARDEN PROFILE: QUARRYHILL BOTANICAL GARDEN

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ABSTRACT

Quarryhill Botanical Garden is a privately operated foundation in the town of Glen Ellen, California. The garden features plants from Asia and the reasons for this are described along with its history. In 2012, the garden celebrated its 25th anniversary and the launch of three significant developments: an education programme for local elementary schools, an *ex situ* conservation project for *Acer pentaphyllum* which is endangered and the creation of a heritage rose garden demonstrating the influence of Chinese species roses on modern roses.

DESCRIPTION OF QUARRYHILL BOTANICAL GARDEN

Quarryhill Botanical Garden occupies 25ha in the foothills of the Mayacamus Mountains in the wine country of northern California. Cabernet sauvignon grapes are grown on 6ha of the property and are sold to local wineries. Almost all of the plants in the garden are grown from documented wild origin seed collected during fieldwork in Asia, primarily China, Japan and the foothills of the Himalaya. The garden was first created in 1987 on land owned by Jane Davenport Jansen. She added to the original size in 1998 with the purchase of an adjoining 8ha. The rocky undulating site was formerly dotted with small quarries that were used for the production of gravel. There are more than 4.8km of trails that wind through the property (Fig. 1). The garden is planted in a naturalist style, with magnolias, maples, roses, dogwoods, oaks and lilies particularly well represented (Figs 2 & 3).

HISTORY

Originally from Tennessee, Mrs Jansen settled in San Francisco in the mid-1960s. She purchased a house on 17ha in Glen Ellen in the wine country of the Sonoma Valley in 1968 as a summer home. Glen Ellen is about 80km north of San Francisco. Shortly thereafter she planted wine grapes on the property. In the early 1980s, after a particularly rainy season, the small ephemeral creek that runs through her property overflowed and destroyed the small garden around the house. Mrs Jansen hired garden designer Roger Warner to design a new, much larger garden around the house that would be more in keeping with the site and would be a wonderful venue for summer entertaining.

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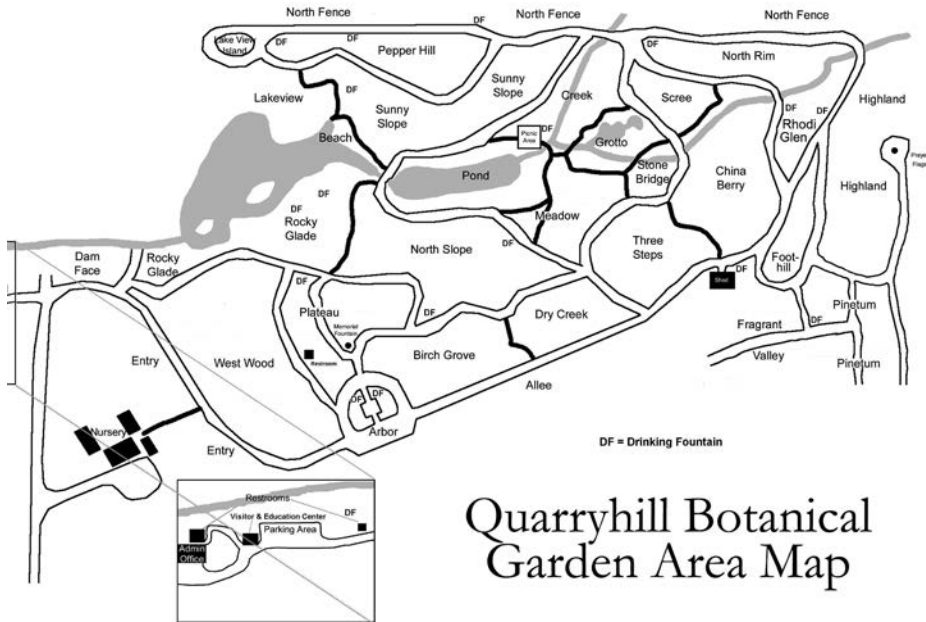


Fig. 1 Map of the garden. Quarryhill Photograph Archives.



Fig. 2 View of the Meadow area, with *Iris ensata*, collected in Kyushu, and *Pinus thunbergii* at the back right, collected in Yakushima, both from a collecting trip to Japan in 1989. Photo: Quarryhill Photograph Archives.



Fig. 3 Waterfall into the lower pond. Photo: Quarryhill Photograph Archives.

Meanwhile, during a trip to England to visit gardens and nurseries, Mr Warner met Lord Charles Howick, who was building an arboretum on his estate in Northumberland. The two decided to go on a seed-collecting expedition to the north-eastern part of the United States in 1985. This was followed by a second trip to the western part of North America in 1986. While in California as part of this trip, Lord Howick met Mrs Jansen. She was intrigued with the idea of creating an arboretum and at Mr Warner's urging, she decided to build a garden on 8ha of land in the hills above the vineyard. In the spring of 1987, labourers were hired to begin clearing the site and a contractor was hired to build roads and ponds from the quarries. That spring, Mrs Jansen and Mr Warner went to England to visit gardens. Lord Howick had arranged a visit to the Royal Botanic Gardens, Kew (RBG, Kew) with Mr John Simmons, then Curator of the Living Collection at Kew. During the meeting, Mrs Jansen proposed that the three institutions, RBG, Kew, Howick Arboretum and Quarryhill (it was not until over a year later that the garden was named Quarryhill), take part in an expedition to China to collect seeds and herbarium specimens from naturally occurring plants in the wild.

Quarryhill's first expedition took place in the autumn of 1987 to northern Japan with Mr Warner, Lord Howick and the author. The following year, the three institutions began

a series of expeditions that continued until 2003 and are known by the abbreviation SICH (for Sichuan, China). During this time, staff from Quarryhill made expeditions to Japan, India, Nepal and North America, primarily in partnership with the Howick Arboretum. Expeditions to China, Taiwan, Japan and Myanmar have continued to this day.

Herbarium specimens from the expeditions have been deposited at various institutions including RBG, Kew, Royal Botanic Garden Edinburgh, California Academy of Sciences and Sichuan University. The seeds and plants grown from them have been freely shared with botanic gardens, universities and researchers in North America, Europe, Japan, Korea and China.

OPERATION

The construction of the garden began with a small crew of labourers clearing the site, with outside contractors hired to build the roads and the ponds. A small greenhouse was built in the winter of 1988 to germinate the seeds from the expeditions. The extensive irrigation system (this part of California is usually without rainfall from May to September) was installed in 1989 and 1990 by a landscape contractor, and the first seedlings were planted in the ground in the spring of 1990. The size of the staff slowly grew until 2000, the year of Mrs Jansen's untimely death, by which point they included a garden supervisor, four gardeners, a propagator, a horticulturist and a director. Up until that time, the entire operation was funded solely by Mrs Jansen and was open by appointment only. Shortly after her passing, the garden opened to the public, a membership programme was established and a regular newsletter produced. The garden currently has a staff of eleven with assistance from interns and volunteers. There are now more than 80 volunteers, half of whom train to lead tours for adults and local schools, with the others assisting with propagation in the nursery. For operating expenses the garden has relied on funds left by the founder, income from memberships, entrance fees, donations and grants. The management has never asked for, or received, government funding.

WHY ASIA?

By the mid-1980s, China had recently opened for fieldwork and the possibility of Quarryhill working there was made possible through its association with RBG, Kew and the latter's reputation in the world of horticulture and botany. Mrs Jansen saw this as a tremendous opportunity, as Quarryhill would be working in the field in China, home to the richest temperate flora on earth. This would have been difficult to do without Kew's leadership. RBG, Kew was planning to make several expeditions to China and Quarryhill was keen to join them whenever possible. After a few years of fieldwork in China and Japan, Mrs Jansen and the author decided to focus Quarryhill's collection on that part of the world. This decision proved advantageous as Quarryhill is now recognised as having one of the most significant collections of wild-origin plants from Asia in

North America. Figs 4–7 show a selection of the flowering plants cultivated at Quarryhill from these collecting trips.

This decision proved beneficial in three other ways. Conservation of plant species is an important component in Quarryhill’s mission. In China, like elsewhere in the world, many plants are threatened with extinction primarily from habitat loss and fragmentation. The pressure caused by 1.3 billion people and rapid economic development has



Fig. 4 *Magnolia obovata*. Photo: Quarryhill Photograph Archives.



Fig. 5 *Tricyrtis* species, collected from Kyushu, Japan, 1989, 730m elevation, from plants on shaded rock face rooted in moss carpets over granite, on Mount Osuzu. Photo: Quarryhill Photograph Archives.

placed an enormous toll on the environment. Quarryhill's records of plant species in the wild and the extent to which it has provided botanic gardens with living specimens and herbarium vouchers plays an important role in the conservation work of the institutions with which it has shared this material.

There are over 31,000 species of plants in China, and China has long been known to be a source of many of our most beautiful ornamental plants. By focusing on Asia,



Fig. 6 *Stauntonia* species, collected from Kyushu, Japan, 1989, from a dense thicket overhanging a stream. Photo: Quarryhill Photograph Archives.



Fig. 7 *Clerodendrum bungei* collected from Sichuan, China in 1992, at 990m elevation, in gravelly loam on a steep mountainside of cultivated forestry and farm land. Photo: Quarryhill Photograph Archives.

and especially China, Quarryhill has not only created a valuable scientific collection but also a collection rich in ornamentals. A casual study will show that about half of the world's species of firs, dogwoods, lilies, magnolias, peonies, spruce and roses; about two-thirds of the world's species of daylilies, larches, privets, poplars, primroses and rhododendrons; and more than three-quarters of the world's lilacs, maples and camellias are found in China. This is obviously why China is often referred to as a 'Plantsman's Paradise' and the 'Mother of Gardens'.

Finally, one concern which botanists have when introducing plants from different parts of the world is that they might escape from their new homes and spread into natural areas. Once established, they can alter ecosystems, out-compete many of the native plants and even cause the extinction of some native species. However, Quarryhill's collection is from summer rainfall habitats (much of East Asia has a warm, wet summer and a cool, dry winter), and it is unlikely that they would escape, as they would not survive the summer drought that the collections at Quarryhill experience.

The opportunity to work in Asia has made it possible to create a beautiful garden with an active conservation programme and with little possibility of introducing 'escaped exotics'.

ELEMENTARY SCHOOL EDUCATION PROGRAMME

In 2009, Quarryhill began a programme for nine- and ten-year-old students from local elementary schools in Sonoma County, using Quarryhill as an outdoor facility for teaching the natural sciences and basic botany. More than 1,000 students now participate in the programme each year. Conservation education is one of the key goals of Quarryhill, and concern about the cutbacks to science education in public schools in California led to the establishment of a programme to teach students about the essential role that plants perform for all life.

MAPLE CONSERVATION GROVE

Concern for the survival of endangered species prompted Quarryhill to establish an *ex situ* conservation grove for *Acer pentaphyllum*. Staff from Quarryhill have visited the three known sites of this endangered maple on multiple occasions to collect seeds and herbarium specimens and to urge Chinese officials to protect the species. This maple is on the verge of extinction due to the construction of several dams along the Yalong River in Western Sichuan. In 2010, staff planted 200 *Acer pentaphyllum* plants in an isolated area of the garden for the production of seed for seed banks, research and distribution to other botanic gardens.



Fig. 8 *Rosa chinensis* var. *spontanea* collected from Sichuan, China, in 1989 at 740m elevation, from Fujiang river area. Photo: Alysén Nielson.

HERITAGE ROSE GARDEN

During the spring of Quarryhill's 25th anniversary, the Jiang Entian Heritage Rose Garden was created to demonstrate the unique and important influence that Chinese species and hybrid roses have had on the development of modern roses. The Rose Garden was named in honour of Madam Jiang Entian, China's most notable rosarian. It highlights the impact of *Rosa chinensis* var. *spontanea* (Fig. 8), *Rosa odorata* var. *gigantea* and the four Chinese 'Stud Roses' on the history of garden roses. With an already large collection of rose species, visitors to Quarryhill can now trace the origin of many of our garden roses back to their Chinese ancestors.

CONCLUSION

Quarryhill is now home to more than 30,000 plants representing 1,500 species from 450 genera and 130 families. Recent surveys by Botanic Gardens Conservation International concluded that Quarryhill was ranked ninth in the world for the conservation value of

their magnolia collection and third in the world for the conservation value of their maple collection. There are plans to continue the field work in Asia, expand the education programme for local schools and create more *ex situ* conservation groves for endangered species.