2004 Expedition: Taiwan

*Ilha Formosa — Island Beautiful*

After many years of expeditions to the interior of China and throughout Japan, we decided it was time to explore the botanically rich island of Taiwan. Relatively young geologically, the 35,981 sq. km (13,889 sq. miles) island has unusually steep mountains and is home to the highest summit in Northeast Asia. More than 250 of the mountains tower above 3,000 meters (9,843 feet) with Yushan the highest at 3,952 meters (12,966 feet). It also has some of the highest sea cliffs in the world with vertical drops of more than 600 meters (2,000 feet) down to the ocean. Portuguese sailors in the sixteenth century christened it “Ilha Formosa” meaning Island Beautiful. The Chinese characters for Taiwan mean Terraced Bay.

(Continued on page 5)

New Nursery Manager

*Meenal Joins Us From Mendocino Coast Botanical Garden*

Last July, Quarryhill was very fortunate to find Meenal Harankhedkar to fill the position of Nursery Manager. Born in the State of Maharashtra, India, Meenal studied at the University of Mumbai where she received a Bachelors and Masters degree in Botany. In 2001 she came to Kansas State University to further her knowledge in plant sciences and soon acquired a second Masters, this time in Horticulture. An internship opportunity brought her to Mendocino Coast Botanical Garden where she, as happens with so many, fell in love with California. Serendipitously, her four-month internship ended just as we were searching for a new nursery manager. From her studies and her internship, she brings professionalism and experience in taxonomy, plant propagation, landscape gardening, educational programs and volunteer supervision. We look forward to working with Meenal and hope that she will occasionally treat us to another of her many talents, delicious India cuisine.
Each year, March through October, Quarryhill Botanical Garden opens its doors to the public in the form of docent led tours. In order to accommodate the over 1,500 people that visit the garden each year, Quarryhill is now looking for plant and garden lovers to join our family of dedicated tour docents. Each docent completes a training session by staff and fellow docents. Training is from 9:30 am to 12:30 noon on March 5, April 2, May 7 and June 4. All docents are required to commit to one 2-hour and one 2-hour meeting per month. Tour docent meetings are held the fourth Thursday of every month March through October. Docents are also invited to garden tours and socials throughout the season. Plant knowledge is helpful, but not necessary! To join this unique gardening experience and to be a part of this breathtaking garden, contact the garden: Phone: (707) 996-3166 E-mail: info@quarryhillbg.org

The Mission of Quarryhill Botanical Garden is to advance the conservation, study and cultivation of the temperate Flora of Asia

Become a Docent

First Saturday March thru June

Each year, March through October, Quarryhill Botanical Garden opens its doors to the public in the form of docent led tours. In order to accommodate the over 1,500 people that visit the garden each year, Quarryhill is now looking for plant and garden lovers to join our family of dedicated tour docents. Each docent completes a training session by staff and fellow docents. Training is from 9:30 am to 12:30 noon on March 5, April 2, May 7 and June 4. All docents are required to commit to one 2-hour and one 2-hour meeting per month. Tour docent meetings are held the fourth Thursday of every month March through October. Docents are also invited to garden tours and socials throughout the season. Plant knowledge is helpful, but not necessary! To join this unique gardening experience and to be a part of this breathtaking garden, contact the garden: Phone: (707) 996-3166 E-mail: info@quarryhillbg.org

2005 Workshops

February 27

WINE GRAPE PRUNING

with Jesus (Chuy) Ordaz,
Owner, Palo Alto Vineyard Management
Cost: $25.00

April 23

BONSAI WORKSHOP

with Bonsai instructor Garth Hokanson and master gardener Sam Douglas
Cost: $25.00

June 19

BUTTERFLY WALK

with Dr. Don Mahoney, Horticulture Manager, San Francisco Botanical Garden
Cost: $35.00 includes lunch

August 21

SALVIA WORKSHOP

with botanist, horticulturist and author Betsy Clebsch
Cost: $25.00

October 16

FLOWER ARRANGING

with Sogetsu Ikebana master Soho Sakai
Cost: $25.00

For more information, or to sign up, 707-996-3166 or info@quarryhillbg.org

10% discount for members

Check availability of workshops at www.quarryhillbg.org

Garden Visitors

The summer of 2004 brought two notable British horticulturists to Quarryhill. Dr. John Grimshaw, the Garden Manager at Colesbourne Gardens in Gloucestershire, England, arrived in July. He was visiting the west coast to gather information about trees new to cultivation. The International Dendrology Society has hired John to write a book about the many new tree species that have recently appeared in gardens due to the flurry of collecting expeditions of the last few decades. This, of course, made a visit to Quarryhill a necessity. In a letter to us shortly after his stay he wrote, “Of all the fascinating gardens visited it stands out as the most interesting in many ways, particularly for the naturalism of the plantings, which I thought was superb. And I am still astonished by the growth rates you achieve!”

Tony Kirkham, Head of the Arboretum at the Royal Botanic Gardens, Kew visited with his wife Sally, daughter Jennifer, and son Robert in August. A member of Quarryhill’s Advisory Committee, Tony has been the leader of many of the joint Kew-Quarryhill-Howick expeditions to China and Japan. On a family holiday, they arrived in time to see Quarryhill’s now famous Emnepaopterys henryi in flower. Tony will be back again this year in October to promote his new book written with fellow plant hunter Mark Flanagan. The book is titled Plants from the Edge of the World: New Explorations in the Far East and should be available this spring.

"A garden, where one may enter in and forget the whole world, cannot be made in a week, nor a month, nor a year; it must be planned for, waited for and loved into being." —Chinese Proverb
History of the China Rose

Of the nearly 200 species of wild roses that populate the planet, confined in nature to the subtropical and temperate northern latitudes, two have contributed uniquely to our rose heritage: *Rosa chinensis* var. *spontanea* and *Rosa odorata* var. *gigantea* (or *R. gigantea*) have provided the world with traits highly prized in the modern age of rose culture, thanks to centuries of domestication in China and subsequent hybridizations in Europe. China has an unparalleled richness of overall biodiversity, and roses are found to be no exception; 93 species and 144 varieties are native to China, while 80% of these are endemic (occur naturally only there). Here at Quarryhill, we are fortunate to maintain a collection of both these species. An accession of *R. chinensis* var. *spontanea* was wild collected in Sichuan in 1988 and is now well represented in the garden, with plantings dating back to 1991. Our accession of *R. odorata* var. *gigantea*, received in 2002, originated from a wild-origin parent collected from its native habitat of northeastern India, and has been planted in the garden since 2003. While the former has bloomed prolifically for years, and is well represented in our photo gallery, we still eagerly await significant flowering from the latter, with its display of creamy white color and fragrant beauty.

References to Chinese floriculture date from at least the 11th century BC and probably include references to roses, though Chrysanthemums appear more prominently in the most ancient art forms of China. The *Zhongguo Huajing* (China Floral Encyclopedia) specifically indicates widespread rose culture in the 4th and 5th centuries AD, and by the Song Dynasty (960-1279 AD) references exist to “Yuejihua”, or perpetual flowering roses that were extensively cultivated in large cities with ever-increasing numbers of varieties; 41 were recorded in Luoyang, alone. By the Ming Dynasty (1368-1644), *Yuejihua* and *Qiangwei* (rose culture) were common, with many varieties in cultivation. Considering this far-reaching history, rose culture in China was doubtless the most advanced in the world until at least 300 years ago, in regard to cultivars developed and cultivation techniques.

The “China Rose” is actually a complex of natural and cultivated hybrids, derived from the two species mentioned above, that have evolved over more than 1000 years in Chinese gardens. Screen paintings from the 10th century depict a blush China Rose identical to Hume’s Tea-Scented China, one of the four China Stud Roses brought to Europe in the early 19th century. The painting by the Florentine Angelo Bronzino (1503-1572), “Allegory with Venus and Cupid” (1529) is the first reference to the China Rose known in Europe. The same pink China may also be the subject described in 1678 by Montaigne at the Jesuit Monastery at Ferrara, Italy, said to be in perpetual flower. Several 18th century references to the China Rose, from Italy, Sweden, Holland, and England make clear that Europe was well aware of this relatively new exotic at this time.

The British Museum possesses a remnant of a crimson China Rose from the Herbarium of Gronovius, labeled “Chinesische Eglantier Roosen” (1733). It has been confirmed as the type specimen of *R. chinensis* Jacquin, named in 1768. This taxon has persisted to this day, yet is now known to represent a diverse group that has evolved in cultivation over the centuries from a truly wild ancestor, discovered and named nearly 150 years later, *R. chinensis* var. *spontanea*. The Koushin (“every other month”) rose of Japan, for example, imported from China over 1000 years ago, is quite distinct from the specimen of Gronovius and Jacquin, yet both are *R. chinensis*, with their defining characteristics and cultivated history.

Peter Osbeck, a pupil of Linnaeus, identified a similar specimen in the gardens of the Custom House at Canton, China in 1751. It became his type specimen for *R. indica* and yet is certainly *R. chinensis*, probably identical to the “Blush Tea China” in Linnaeus’ herbarium. Other China Rose specimens in this herbarium include 3 crimsonos, 1 pink, and 1 recognized hybrid.

In 1885, when Dr. Augustine Henry (1857-1930) made his famous discovery of what would later be named as the wild species, the primary source for *R. chinensis* and the China Roses was finally identified. Henry, having arrived in Hong Kong in 1881, later traveled up the Yangtze river to the customs post at Ichang. He found the rose in a narrow ravine extending from the Yangtze to the north, near the Shan-yu-tung glen, and the cave and temple of the 3 Pilgrims. It was a climber like *R. banksiae* with 3-5 leaflets per leaf and solitary flowers generally of deep red but sometimes pink. It is now known that flower color of this wild species varies from almost white to deep crimson.

The Wild Tea Rose, *Rosa odorata* var. *gigantea*, is native to upper Burma and

(Continued on page 4)
southwestern China and was introduced to Europe in 1888, having been discovered by Sir Henry Collett in the Shan Hills of Burma in 1824. *R. odorata*, in like manner as *R. chinensis*, refers now to garden varieties and hybrids (the “Old” Tea Roses), and so the wild species, also identified later in this case, was named *Rosa odorata var. gigantea*, or *R. gigantea*, depending upon the authority sited, to distinguish it from its cultivated descendents. Ascending up to 40 feet, with strong shoots and hooked prickles, it is less hardy than *R. chinensis var. spontanea* and consequently more temperamental in northern European climates. It has large drooping leaves and large silky flowers of creamy to lemony white, up to 5 inches across. It contributed its long petals and elegant texture to the China Roses, as well as its remarkable fragrance, sometimes ascribed to its foliage when crushed, but more likely from its tea-scented flowers. In contrast to the above description, a second variety with white flowers and smaller leaves has also been in cultivation in Britain. Having been absorbed into the Hybrid Tea lineage, Old Tea Roses, as developed in China over the centuries, are now very rare. One very popular survivor, for example, is ‘Fortune’s Double Yellow’, discovered in 1845 by Robert Fortune in “a rich Mandarin’s garden at Ningpo”.

The China Roses that influenced rose breeding so heavily in the last two centuries offered several distinct traits that had been lacking in European roses of the 18th century: repeat or perpetual (remontant) blooming, from early- or mid-summer through to late autumn (depending on the climate), previously occurring only among the Autumn Damasks; true crimson red coloring that did not fade with age (“red” roses prior to this time are thought to have been of deep or dark pink colors at their reddest, and not the true red of the China Roses); and a lower or “dwarf”, bushy habit. A complete new range of yellow colors also originated from Chinese roses, as well as from the contribution of *R. foetida* Herrm., the Austrian Briar Rose, native to western Asia. In addition, new fragrances were perceived in the China Roses, some as tea-scented, others as fruity or “nectarine-like”, and others as peppery. Lastly, flowers demonstrated a higher center than in the old roses, and flower buds were more slender, unfurling upon opening. The old European varieties, on the other hand, contributed their traditionally loved and familiar characteristics including their wonderful scents and their many-petaled flowers.

The genetic and cytological research of C. C. Hurst, performed in England during the first half of the 20th century, uncovered a vitally important characteristic pertaining to repeat flowering: this capacity resulted from a recessive gene found only in the China Roses. Hurst believed that this trait was the product of a mutation, yet it has been consistently found among cultivated Chinese roses. He also deduced that growth habit and flowering period were closely linked Mendelian characters, dwarf form and repeat flowering being coincident, and that their determining genes were found on the same chromosome. Martyn Rix notes that sports demonstrate this linkage, with dwarf sports of once-flowering climbers showing repeat-flowering, and climbing sports of repeat-flowering dwarfs being “sparring of second crops”.

The desirable traits evident in the China Roses found their way to European breeders by way of four distinct imports that arrived between 1792 and 1824, named the China Stud Roses. The vast majority of our modern hybrids include one or more of these four specimens as their progenitors. These are not the typical “primary” hybrids as would be seen in a breeding program, but are “derivative” hybrids, the results of many generations of incidental and intentional crossings in Chinese gardens. Such roses, in fact, still can be found in China today and are quite similar to these Stud Roses; drawings of Canton roses by John Reeves, from the early 1800’s, reinforce this belief, and can be seen at the Lindley Library of the Royal Horticultural Society in London.

Future questions regarding characteristics and classification of the two wild ancestors of the China Rose, and of the multitude of descendents spawned from them, will best be answered through further genetic study, including DNA and other molecular analysis.

---

Rosa chinensis var. spontanea thriving at Quarryhill Botanical Garden
High rainfall, especially in the summer months, has produced lush and varied vegetation. Just over 4,000 species of plants representing 230 families occur in the diverse topography that ranges from tropical to alpine. Over 40% of the flora was once thought to be endemic, however, current estimates are closer to 20%. Being an island that straddles the Tropic of Cancer southeast of Mainland China, Taiwan’s coast and lowlands are tropical and the foothills subtropical. We therefore had to travel to elevations above 1,500 meters (5,000 feet) before we could locate plants that would be hardy in Sonoma County.

Arriving in mid-October, we were hosted by Dr. Ching-I Peng of the Institute of Botany, Academia Sinica, in Taipei. Dr. Peng placed us in the capable hands of two of his assistants, Maolun Weng who acted as our botanical guide and Chien Hua who served as our driver. Two earthquakes greeted us upon our arrival and typhoons threatened the entire journey. Nevertheless, other than occasional rain and slightly cooler temperatures than we expected in the mountains, the weather proved to be quite pleasant. I was traveling with David Crombie, Director of the Crombie Arboretum and Lord Charles Howick, Director of the Howick Arboretum. It was the first time any of us had done fieldwork in Taiwan and we were surprised by the magnitude of the mountains, along with the numerous deep gorges. Many of the roads appeared to have been literally cut out of the sides of vertical slopes, often leaving a sheer drop of several thousand feet. It is not a place for those that suffer from Illyngophobia - vertigo or dizziness when looking down, or Bathmophobia - fear of steep slopes, or Acrophobia - fear of heights. I should probably add Ophidiophobia - fear of snakes, to this list as there are more than 20 species of poison snakes that populate Taiwan. We did encounter one, at a safe distance, that was a bright lime green with red eyes. But we were there for plants and managed 170 collections, all of which, if they germinate, will be great new additions to Quarryhill. Highlights for me were Gordonia axillaris and Schima superba, both lovely white-flowered evergreen members of the Theaceae, Pseudotsuga sinensis var. wilsoniana, a cousin of our Douglas Fir, a massive 3,000 year old Cunninghamia lanceolata var. konshii, and a wonderful butter yellow Salvia nipponica var. formosana.

Due to Dr. Peng’s careful planning, and Maolun and Chien’s assistance, the journey went very smoothly. One tree that I had hoped to see, but time did not allow, was Taiwania cryptomerioides. Rivaling our Redwoods in girth, we were told that there are not many left and can only be found in very remote areas. I have long wanted to see these majestic giants in their natural habitat and therefore have a good excuse to return to Taiwan. However, one needs no excuse to return to “Ilha Formosa” as it truly is a beautiful island.
PATRONS
Sharon Christoph & Christopher Davidson
Richard & Dana Dirickson
Bettylou & Jerry Hutton
Don & Amy MacNair
Marion McKinsey
Ronald & Christine Mickelsen
Willa & Ned Mundell
Thomas P. & Shelagh Rohlen
James Rundel
Ben Verduin
Mr. & Mrs. Cameron W. Wolfe, Jr.

SUSTAINERS
Barbara Barton
Louis & Susan Y. Cook

CONTRIBUTORS
Milo Shepard
Bruce & Terese Bartholomew
Michele Burton
Leigh & Lindsey Cohn
David Crombie & Margaret Kelly
John & Helaine Dunmire
Bud & Adrienne Fiske
Molly Forgy
Maynard & Mary Garrison
Marianne, Stephen & David Gerardi
Gloria Gordon Getty
Margaret Gokey
Caroline & Joseph Gwerder
Laura Hartman
Dianne & Ron Hoge
Jean & Paul Hull
Joy & Thornton Jenkins
Howard & Susanne Jessen
George & Karen Kardum
Sally MacBride
James & Kristi MacNair
Tamia Marg & Tom Anderson
William McNamara & Joanna Welti
Martha & John Mouer
Ittsei Nakagawa, AIA
Rachel & David Ortolan
C.S. & Sara Ann Ough
Alec & Ann Peters
Joyce & Tom Pettit
Louie & MaryLaura Ramponi
Breazy Rosenthal

SPECIAL THANKS TO:
Donna & Richard Bowman
Carl Hanscom
Sally MacBride
Marion McKinsey
David & Jane Mraz
James & Richard Rundel
TRA Fund