



## HORTI SELBYANI

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### FROM SELBY TO SINGAPORE: THE ASIAN CONNECTION

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#### MARIE SELBY BOTANICAL GARDENS

As a movie buff, I have a Chinese movie to recommend to you, if you haven't seen it yet—*Crouching Tiger and Hidden Dragon*. In it, you will notice that the Chinese have fictional heroes who walk over water, climb up buildings, and dance on treetops. Upon first arriving in America, I found heroes who do the same—they are called botanists. Carl Luer wades through swamps, Cal Dodson goes up mountains, Meg Lowman dances on treetops. The places where these heroes work when not in the field are institutions such as the botany departments of universities or botanical gardens. The importance of botanical gardens is my topic, for what I gleaned from my years at Selby Gardens I took back to Singapore, where I learned these lessons all over again and passed them on.

I became involved in Selby Gardens as a graduate student studying under Calaway Dodson at the University of Miami. A born naturalist, Dr. Dodson led me through what it means to be a field biologist, and botany inspired me. Then Carl Luer started appearing on campus to talk with Cal; and before I knew it, we were both whisked over to Sarasota in the early 1970s to a peninsula that would become Selby Gardens. We visited Selby House, the former home of Marie Selby who donated her waterfront property for a garden. I came as a research associate; I don't know what research I did, but I did a lot of searching for people and plants. The first people I met were Ruby Hollis, the Gardens secretary, and Sue Kauffman, the first volunteer. Sue looked after the orchid collection, primarily species that Cal brought from Ecuador and other

parts of South and Central America, and Ruby looked after all of us.

Herrick Smith, head of Landscape Architecture at the University of Florida, prepared the master plan for Selby Gardens, and we helped build a scale model of it. Then we started clearing all the scrub and Brazilian pepper from the front lawn. The staff of Blazer's Nursery in Sarasota helped us haul rock. Their crane operator, a former trapeze artist, was very good at balancing. On one occasion, though, he underestimated the weight of a rock, and it tilted the truck. On another occasion, Herrick was nearly caught between a rock and a hard place while supervising the construction of the rockery near the Bayou.

The main display greenhouse was constructed by Lord and Burnham. Student workers were supervised by Jack Longino, who later married Nalini Nadkarni, who became director of Research at Selby Gardens and treetop dancer in the mode of former Selby Gardens director Meg Lowman, and Jack himself became an eminent entomologist. On one wall of the Display House, Carl Luer created a masterpiece in pumice. He is a perfectionist, which means that when he didn't like the jigsaw puzzle made up of tons of rock, he tore it apart and redid it.

Another volunteer, Jane White, helped in the first greenhouses, caring for orchids. Next we started constructing trellises outside the Display House. We built a pond that didn't work and a bigger pond that didn't work (where the Butterfly Garden is now), and we had statues delivered. I hid "The Thinker" among the banyans, hoping that aerial roots would cover it one day.

By May 1975, the Gardens were beginning to

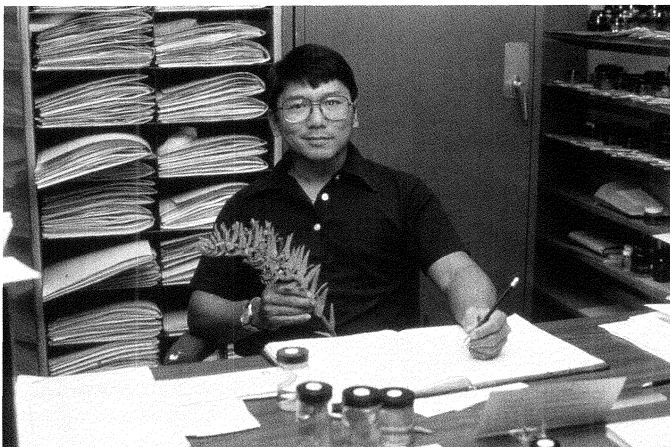
**A****B****C**

FIGURE 1. Early days at Selby Gardens: **A.** Jane Luer, Frank Pfeifferberger, and Carlyle Luer (left to right); **B.** Kiat Tan at work in the Selby Gardens Herbarium (SEL); **C.** Aerial view of Selby Gardens in 1975.

resemble the master plan. We also obtained landscaping plants from Reasoner's Nursery and made purchasing trips around the country. In Corpus Christi, Texas, we picked up collections being donated to the Gardens by Will Bates; and at Palm Beach, Florida, we loaded up donations from the Phipps Collection. Helping us were Larry Rabinowitz, and Joe Halton. Many specimens came from the research projects being conducted by Selby Gardens scientists, such as Cal with his orchids of Ecuador and Carl with his pleurothallids. We gradually accumulated a world-class orchid collection. Hans Wiehler joined the staff and built up an excellent gesneriad collection that gave more depth to the work at Selby Gardens. Mike Madison joined the Gardens as the aroid man and practicing cabinetmaker. He can turn out seminal research from ad hoc fieldwork with raw recruits. Joe Halton was the first Display House curator.

At first, I lived in one corner of the Christy Payne Mansion and got to know all its creaks, groans, and ghosts, but it had a marvelous fishing hole out back – Sarasota Bay. I may have helped deplete the bay, but I had to feed my constant companion, Bayou, the first Selby cat. He was a gift to me from Dodson, who fished him out of Hudson Bayou, thus the name. Eventually I moved to my own place, where I began breeding hibiscus; you need to get away from orchids once in a while. One hibiscus with a big, fat, red bloom, I called "Chairman Mao." Bayou used to wander in the underbrush next door. He liked to stalk the peacocks of the Sarasota Jungle Gardens; one day he got caught and was lost forever. The first Selby cat is immortalized, though, by the hibiscus variety "Blue Bayou," which still grows at the Gardens.

As time passed, our offices moved from the Christy Payne Mansion across South Palm Avenue to the Marquette House, which became the Administration Building. With Cal's guidance, I started the Orchid Identification Center (OIC). Laurie Gills, my assistant, organized the information that makes the OIC work. Jim Henderson joined us later and worked in the Eric Young Micropropagation Laboratory with Lee Kuhn. Things often got crazy when large numbers of orchid specimens arrived, but Dorothy Miller, my secretary kept me sane. She taught me to accept no less than the absolute best in help. Her husband, Hal Miller, taught a whole generation of people to grow orchids here in Sarasota. Volunteers figure largely at Selby Gardens. They are the heart of the Gardens, because, besides being members, they serve as interpreters between the public and the professional biologists, who can be narrowly focused on their research. Some even become full-fledged researchers, and in

turn require other volunteers to interpret for them. Volunteers are vital. Paul Colmorgan did a mural in the Payne Mansion, and Libby Besse, not only supported but also took part in orchid fieldtrips to tropical rain forests. Anita Lee, who worked in mounting plant specimens for the Herbarium; Eve Wilkinson, who headed the herbarium mounting squad; and Dorothy Miller helped at plant sales.

Roger Berringer then came into the picture, because we needed to build up our 'resources'; every botanical garden has to do that. Roger was a marketeer, and we had a lot of promotional events to put Selby Gardens on the map. Sarasota being the home of the Ringling Museum, we even brought the circus to the lawn—the Sailor Circus of Sarasota High School. We had luaus a plenty, and Frank Pfeiffenberger, Jane Luer's brother, would lend a hand. Thanks to Claire Herzog, the Plant Shop became a moneymaker; and in all these years, the Plant Shop hasn't changed that much. Mike Bush was one of the Gardens' first superintendents.

Another source of fundraising and outreach were staff-led tours around the world for Selby Gardens members. Ray and Bud Reasoner went on a tour that I led to Southeast Asia; on the Island of Langkawi, we found a really big stag-horn fern and visited a rubber estate, where Selby research scientist Mike Madison did one of his seminal studies. Mike climbed a rubber tree, assisted by Libby Besse and me, and we were able to document and identify pollination and colonization of and by the epiphytes in the rubber estate. Over the years, I was amazed at how game Selby Gardens members were on these fieldtrips to such places as Bali, the Edinburgh Botanic Gardens, and Kuekenhof. I no longer doubt the description of ladies in sneakers who can kill elephants with a stick.

Selby Gardens plays a major role in the community as an institution with botanical knowledge. We spread the word that "You can come to us," and Epcot did. When the Epcot Center was being built at Disney World, the decorators decided they needed fake bamboo made from real bamboo. So they came to Selby Gardens and cut bamboo stems. The next time you go to Epcot, look for the bamboo lamps; they are made from Selby bamboo.

Selby Gardens has become a bromeliad center, thanks to the genius of Harry Luther, the founding director of the Mulford B. Foster Bromeliad Identification Center (BIC). At the OIC, John Atwood was director for a number of years, and today John Beckner is curator.

#### SINGAPORE BOTANIC GARDENS

In 1983, I went home to become Director of the Singapore Botanic Gardens, started by an

amateur Horticultural Society. When they built a house for the first superintendent in 1866, they busted the budget, and the colonial government had to take over. It grew into a British colonial garden that looked into the economical plants of the region that could be used for the glory of Empire and revenue for the coffers. Prominent among these was nutmeg, which is a double spice because the red arils around the seeds are used to make mace. Today, the Singapore Gardens is a leading tropical botanical institution with the multiple roles of research, education, conservation, and recreation. What attracted me particularly on going back home was the proximity of nearby countries rich in tropical biodiversity. I could go north a few miles into the Central Highlands of Malaysia to look for orchids. On one such trip, I was walking along a road being cleared through the countryside, and there on the ground was a *Spathoglottis aurea*, which I was able to rescue and bring back to the Singapore Gardens for use in breeding. Borneo is also right around the corner, with the highest mountain in Southeast Asia. There, along mountain riverbeds, you can just walk around and pick up new orchid species, like pebbles. *Renanthera bella*, *Paraphalaenopsis labukensis*, *Cylogyne* species—all of these were quite recently discovered.

A botanical garden is a place where a research botanist can explain to the public the need for orchid research and conservation, by relating to visitors with a product they understand, appreciate, and use in their daily lives, such as hybrid orchids. In Singapore, I was able to spread the Marie Selby Botanical Gardens excitement to a new generation. To my dismay, though, I found myself doing more horticultural than botanical research. The Gardens was then under the Department of Parks and Recreation, whose staff did not consider basic research a priority. This is the thinking that botanists must continually combat. Most botanists, however, are so into their work that they need, as I said earlier, interpreters to bridge the gulf. Without interpretation, the field of botany shrinks; and this is the status of botany in the world today. Right at the time when the world needs botanists urgently, universities are not training botanists; new people are not joining the fold; and only a few people remain to tell of the botanical wonders being lost.

I found myself looking at how to grow thick creepers to cover our buildings in Singapore or how to make the city look good, which are important functions; but it was becoming the sole role of the Botanic Gardens to provide only horticultural information, and I consider that a diminishing of its mission. I had to yank the Gar-

dens out of the Parks and Recreation Department and turn it into a statutory body, before I could reintroduce the functions of a botanical garden. The basic pillars of a botanical garden are education, research, and conservation—underpinned by recreation that brings in the public. Botanists then can spread the message and gain public support. With this support, I could afford to hire other botanists to do needed research. Then somebody has to pull it all together, so now I am a full-time administrator, part of that group of people, upon which I used to look dismissively, but now I realize that they are like death and taxes—inescapable and indispensable. In planning to redevelop the Gardens, I followed Cal's example and made a scale model. The site has 120 acres in a funny shape, so I divided the Gardens into three sections (tourism, heritage conservation, and community park) to reflect its multiple roles.

The central section is for tourists, because the Botanic Gardens is one of the main tourist destinations in Singapore, attracting 2 million visitors a year. This is where we punch home a "plants are essential" message, and we do this with plants that grow rapidly on the Equator.

The community park section to the north at Bukit Timah is where families bring their children and relax. Here we use the theme of "plants for the use of man" to communicate the educational and economical use of the plants message.

The heritage section shows how the colonial government era of the Botanic Gardens started under Henry James Murton in 1878. It is a tranquil place where people like to come. We have mature specimens of jungle trees and even a 4-ha pristine rain forest. To the collection of plants introduced by previous curators, we have added new ways of displaying plant material. A road bisected this part of the Gardens, but I was able to convince the government to close it, making space for a Visitors Center and my offices. The landmark here is a rain tree (*Samanea saman*), introduced into Singapore from Colombia in 1866.

The logo of the Gardens features the lipstick palm, which we didn't paint red, it grows like that. In the shade of the Palm Court, people can sit and wait for their friends. The palms were trucked in from Malaysia, and ferns came with them. Add a cafeteria and voila! people will come. It is the presentation of the Gardens that makes people say, "This is the kind of world in which I want to live." Every weekend, we have concerts at the Gardens. Local people, seeing that foreigners are enjoying the Botanic Gardens as a place to share essential moments, say, "they must know something." The number of visitors

to the Gardens has increased, which allows me to build a new Orchid Garden. I used trellises, as at Selby, and landscaped the place with a bit of colonial flare, with lots of orchids. About 40,000 plants are in bloom at any one time. For every orchid in bloom, we have to grow six others. Brides bring their grooms to have their wedding pictures taken, and their children will come later, and they are good recruits.

A botanical garden is a place where gardeners come with notebooks and say, "What are the plants we can use? Oh, you have them labeled, where can I get them?" And suddenly the local plant nurseries become richer in their offerings, and suddenly the jungles don't appear so anonymous or homogenous.

We have even added bromeliads. I hope Harry Luther can come over and help me identify the plants, because one of my assistants decided that the labels made the pots look untidy. You always have to keep sponsors in mind, and the Orchid Garden is a place where I can take visiting dignitaries and maybe name a plant after them. Unfortunately, you can't choose your dignitaries, and I now have a rogue's gallery of plants named after deposed leaders.

The latest addition to the Gardens is the cool house, with plants that grow on slopes of hills up to 3000 feet. Thanks to my exposure to bromeliads at Selby Gardens, I learned that bromeliads don't need anything except air and sun. We attach them to bare concrete, and they flourish in the sun and rain. We are trying out a new mist system, and we are seasoning rocks. We also are developing a ginger garden, and so I hope John Kress can come and give me some advice.

People come to the Gardens for exercise, and right from 5 am in the morning, groups can be found practicing Tai Chi. The Singapore Botanic Gardens is open from 5 am to 1 am, every single day, and admission is free, except for the Orchid Garden. There we charge enough to pay for the maintenance of the Gardens itself, of the staff, and of research. The food and beverage outlets also help defer expenses.

As the Gardens began to realize its role in research and education, I gradually could hire a staff capable of turning out technical publications. Now I am in the final stage of development, which will include a new Herbarium, new library, new horticultural labs, and the School of Horticulture. This stage includes retail facilities and a plan to locate parking under a road. This meant closing another portion of a highway. My minister winces every time I come in, but he can see the results, so I get his support.

The community is the key to a successful botanical garden, and so I go to the people and the

media and say, "Help me convince the paymasters that this is what we need." The Gardens became so successful that the government decided to reattach the tail to the dog, and the Gardens is once again merged with the Department of Parks and Recreation to form a new National Parks Board. I now have little time for the Botanic Gardens, because the whole city is my garden. As one of the most crowded nations on earth, Singapore has about 4 million people living in an area of some 200 sq. mi. The impression we have to create with the little space left for greenery is one of a City Set in a Garden. As visitors drive along, they should always see greenery on the roadside. A hierarchy of parks is needed with a matrix of park greenways, where people can walk or jog on land linking the regional parks that separate townships. The priority is to create recreation for the public. Residents need to have relief from the high concrete boxes in which they live; and it is fun to design green space with imaginative new play equipment with new safety standards for their use. One of my latest projects is to landscape our version of the White House, the Istana; but as a consequence, I have to follow up with a book about it.

With only 5 percent of the land dedicated to nature, the major parks must become nature preserves. Amazingly, we still have some primary forests in Singapore, especially around the reservoirs. We also have a bird sanctuary right in the mangroves, where the birds coming down from Siberia in winter stop to rest. Recently we supervised management of a small island, on which we maintain a rural village culture, once widespread in Singapore. My next step is to convince the government that, as the ratio of buildings to green space increases, we need to start greening massive concrete structures. So we are looking at how to put in roof gardens and create vertical greenery on high-rise buildings.

Our world is a large canvas, on which botanists can write and illustrate stories to interest the young in conservation. We are getting the young to reeducate the older generations on the value of our environment, of how precious greenery is to our lives. This is the seed that was planted in my mind at Selby Gardens and which is flowering in Southeast Asia.

**ABOUT THE AUTHOR.** Orchid specialist Kiat Tan, a native of Singapore, was on staff at Selby Gardens from 1973 to 1982 (FIGURE 1). During those years, he completed a research assistantship and post-doctoral fellowship and served as assistant director to Calaway Dodson. Dr. Tan was the first director of the Orchid Identification Center and the Museum of Botany and the Arts at the Gardens. He has a B.A. in biology from Williams College, a M.Sc. in botany from Michigan

State University, and a Ph.D. in botany from the University of Miami, where he studied under Dr. Dodson. He received the Selby Gardens Meritorious Service Award in 1983, prior to leaving to become director of the renowned Singapore Botanic Gardens. Today he is chief executive officer and commissioner of the National Parks Board in Singapore's Ministry of National Development. An author on orchids, landscaping, and botanical gardens, he serves on the Editorial Board of

the *Singapore Botanic Gardens Bulletin* and the *Malayan Orchid Review*. A founding member of the Singapore Environment Council, he also serves on the Species Survival Subcommittee of the International Union for the Conservation of Nature (IUCN) Orchid Group. This essay is based on a slide lecture delivered by the author at the Expeditions Seminar held in January 2001 to mark the Silver Anniversary of the Marie Selby Botanical Gardens.

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#### ERRATA

The following are corrections of text that appeared in *Selbyana* 24(1):

On page i and in the Contents, the date of birth for the late Hans Wiehler that reads "1931" should read "1930."

In the article by Gradstein and coauthors, text

on page 108, column 2, lines 7–10 that reads, "Species diversity of bryophytes and lichens, because of their small size, are scored by analyzing five small plots within each Johansson zone" should read "Species diversity of bryophytes and lichens, because of their small size, are scored by analyzing small plots within each Johansson zone."