



THE DESERT HOUSE: A Journey of Arid Adaptations

by Mike Schroeder '58, WCFH Docent

A visitor to the Ferguson Greenhouses may be tempted to go quickly through the Desert House where everything seems prickly, tough, and even dangerous. Indeed these plants from around the world are designed to do battle, not so much with other plants as with harsh environments of unreliable rainfall – 10 inches or less a year. Augmenting the survival challenge under those clear skies, the merciless sunshine fuels the engines of photosynthesis and uses up what moisture there is. Even cold desert air is desiccating, more so when winds blow. Such pressures have led through the eons to endless permutations of design, both beautiful and bizarre. This is a house intriguing enough for the visitor to pause and ponder.

Epidermi or the outer “skins” here are thick and likely to be coated with waterproof waxes. Gray or lime greens predominate, darker greens coexisting in patterns of paler shades. They are often muted under powdery coatings or down-like hairs which help reflect light and conserve moisture.

Leaves in the desert are likely to be succulent and compact, pale or spotted, or absent. The Burro's Tail (*Sedum morganianum*) has leaves fat as lime jellybeans on a string. If you squish an aloe or a leaf from the dense rosette of a Haworthia, juice will fly. In many Euphorbias, leaves may be a temporary luxury in rare times of rainfall. They are seasonally deciduous, adapted to wet/dry seasons instead of the cold/warm that we in the temperate northeastern United States take for granted. Desert plant



The prickly view upon entering the Desert House from the Visitor Center

“Comparable selective forces, acting on plants growing in similar habitats but different parts of the world, often cause totally unrelated species to assume a similar appearance. The process by which this happens is known as CONVERGENT EVOLUTION.”

FROM PETER RAVEN'S BIOLOGY OF PLANTS, SECOND EDITION, PAGE 266

leaves may be totally transformed into spines that defend against the gnawing teeth of herbivores or grow as dense hair that shields against both wind and sun. Leafless green branches or tall green trunks may have become the sole organ of photosynthesis. Though continents apart, the genes of North and South American Cacti and African Euphorbias have both found their expression in such

transformations. The greenhouse's most striking example of such evolutionary convergence is to be found in the center island where tall spiny columns, one born of the Old World (*Euphorbia lactea* 'Variegata') and one of the New World (*Cereus hexagonis*), twist around each other with a grace worthy of human emulation.

continued on page 6

Notes from the Director

by Dr. Duncan Himmelman, Director Wellesley College Botanic Gardens
ghimmelm@wellesley.edu



The full splendor of autumn is just around the corner. The foliage at the Hunnewell Arboretum is already transforming itself into the glorious palette of colors that draws so many visitors to the Botanic Gardens at this time of year. As temperatures outside continue to dip and the staff shift their focus to wintertime projects, we invite you to join us inside the greenhouses and the Visitor Center for the splendid annual chrysanthemum

Wellesley College Friends of Horticulture
106 Central Street
Wellesley, MA 02481-8203
781-283-3094
horticulture@wellesley.edu

Dr. Duncan Himmelman, Director
Wellesley College Botanic Gardens
WCFH Faculty Co-Chair

Editorial Committee:
Carole M. Jansson Ely '79
Nancy Dean Kingman '53
Elizabeth Reece
Nancy Webb

show or one of the stimulating programs sponsored by the Friends.

As you know from the Spring 2004 Newsletter, the passing of Harriet Creighton in January was deeply mourned by faculty, staff, students, alumnae, and her many friends. At a memorial service in Houghton Chapel on May 19th, President Walsh, several colleagues and former students, and I spoke of the invaluable legacy Harriet left Wellesley College and the Botanic Gardens. After the service the Friends hosted a reception in the Creighton Room of the Visitor Center. Despite the sadness of the occasion, the reception became a lively celebration of Harriet's rich and fascinating life as her many friends shared a wealth of fond reminiscences and delightful "Harriet stories." Though she is no longer with us, Harriet's passion for all things horticultural continues to inspire our work at the Gardens, the efforts of the Friends, and the lifelong appreciation of the plant world for the many students whose lives she touched. We are planning a special horticultural tribute for Harriet and her contributions to the Botanic Gardens. Watch for more details in the Spring 2005 Newsletter.

And what's new at the Botanic Gardens? I am happy to report that significant progress has been made in advancing the Gardens' newly developed mission over the past year. To achieve our goal of promoting "*the value of plant diversity through exceptional education, interpretation, research and public outreach,*" the Gardens must consistently maintain collections that satisfy each of our constituencies. The first step in this ongoing process – the inventory and accessioning of the 15 individual units of the Ferguson Greenhouses – was completed at the end of 2003. Evaluation of the data revealed that although the generally fine quality of the individual specimens and the broad

representation of plant families in the collections remain undiminished, the diversity of species has been gradually decreasing. Several factors had contributed to this trend, including the removal of overgrown plants, failure of certain species to thrive in our artificial environments, and the inevitable aging and death of others. To safeguard the educational and scientific value of the collections, we've begun replenishing the greenhouses and refocusing the collections to ensure the plants are displayed in a meaningful context.

The Desert House, at the east end of the main greenhouse range where most visitors begin their tour, was our first priority. To enable students, faculty, and visitors to explore the differences between desert plants in the Northern Hemisphere and those in the Southern Hemisphere, the large ground bed has been redeveloped into a comparative display of two distinct desert environments. With desert plants of the American Southwest in the eastern half and desert species from South Africa and Madagascar in the western half of the bed, a range of morphological adaptations that spans two hemispheres can be studied and enjoyed firsthand right here on the Wellesley campus. Numerous new species of plants have already been bedded in, with many more on the way. The potted specimens on the benches will also be grouped by continent to accentuate the striking morphological diversity of these arid-dwelling species.

The revamped Tropical House will showcase the wide variety of economic, medicinal, and fiber-producing plants native to the world's lowland tropical jungles (i.e., elevations ranging from coastal plains to 3,000 feet above sea level). Our focus on pan-tropical genera reflects the expanding scope of

continued on page 4

Update on Invasive Plants in the Botanic Gardens

by Tricia Diggins, WCBG Senior Horticulturist

The 2004 summer crew made a prodigious assault against the invasive plant species which plague the 22 acres of the Hunnewell Arboretum and Alexandra Botanic Garden. Thanks in no small part to Pedro Rivera, a Wellesley College Food Service employee. Pedro (see photo caption) made great inroads against the glossy buckthorn in the red maple swamp and nearly single handedly removed all of the *Iris pseudacorus* or yellow flag from Paramesium Pond, the brook and the Arboretum Pool. Also to thank are Melissa Spencer '05 and Tara Tresner '06, two Wellesley student interns who enthusiastically tackled all the many weeding and trimming projects they were given.

Any small, fragmented landscape such as Wellesley College is highly susceptible to colonization by invasive species which threaten diversity, particularly in meadows, wetlands and woodland understories. The removal of the

buckthorn from the red maple swamp has resulted in a dramatic change in the landscape at the base of Observatory Hill. What was an impenetrable mass of brush under the red maples is now nearly an entirely clear space. There was almost nothing but glossy buckthorn. There were no red maple seedlings, and most of the ferns and herbaceous plants had been shaded out by the solid canopy of buckthorn. Pedro did uncover one struggling survivor, a high bush blueberry, but that was nearly the only remnant of plant diversity. The buckthorn seedlings which will sprout and try to reclaim this area will be controlled with a string trimmer and hand pulling. Any desirable trees, shrubs or herbaceous plants that sprout will be encouraged to grow by keeping the buckthorn cleared.

I never thought we would make so much progress against the invasive plants so fast. This summer alone the
continued on page 9



Pedro Rivera works in Cazenove Kitchen during the Fall and Spring semesters as a General Service Worker and has been at Wellesley since 1990. This is the first summer he has worked for the Botanic Gardens. Previously, he worked summers for Wellesley's Grounds Department. Since no one showed him what it looked like, one summer he developed a major case of poison ivy rash. He now knows what the plant looks like and does a good job staying away from it.

Question: *So often seemingly safe plants exhibit invasive tendencies. How do you know if a plant is truly "invasive"?*

Answer by Tricia Diggins, WCBG Senior Horticulturist:

The issue of which plants are defined as invasive or potentially invasive is complex. Simplified, any plant that produces a large crop of seeds could take over an area when those seeds encounter favorable conditions for growing (low competition and/or little seed predation). This happens with native plants after a disturbance. If a gap opens in the forest whatever tree happens to produce the most seeds that year is likely to gain a competitive advantage.

Here in the WCBG, there are two big *Phellodendrons* or Cork Trees in the Red Maple Swamp. Since the other areas are probably too wet, they tend to colonize

only in the north corner of the swamp. *Phellodendrons* are also a problem in the area that was the old brush pile. *Symplocus paniculata* or Sapphire berry is also a problem, mainly in the Wedding Area, but it is showing up other places. Both *Symplocus* and *Phellodendron* produce a lot of seed. Another desirable ornamental that is starting to become a problem is Japanese maple.

The question of what to do about over-competitive plants is easy if you are trying to manage to protect the habitat of rare species, you remove them. However, in an already disturbed system, like the unmown areas of the Hunnewell Arboretum, it ends up being a continuum of most desirable

plants to least desirable. In my opinion, native plants suitable to the particular area (like Observatory Hill or the Red Maple Swamp) are the most desirable and the plants with known reputations like buckthorn are the least desirable. The middle of the continuum is still a gray area.

These are interesting and complicated questions. Research is being done that offers regional answers about determining when a plant becomes a general pest problem. Check with your state horticultural board for specific invasive plants in your own area, and visit www.plants.usda.gov and www.invasivespecies.gov for more information.

Exploring the Language of Plants


by Nancy Abraham Hall, Ph.D., Department of Spanish



Pictured clockwise from back left: Professor Hall, Anne Westermann, Maggie DeVries, Bronwen MacArthur, Zhiyi Zhang, Maria Charles, and Elyse Wilk.

Inspired by the Spanish film “La lengua de las mariposas” (“Butterfly”), in which a child is introduced to the wonders of nature by a remarkable schoolmaster, Professor Nancy Hall and her Intermediate Spanish students recently visited the Greenhouse as part of their intensive, 8 week immersion Summer School class. The purpose of their visit was to talk in Spanish about a variety of plants native to the settings of short stories they had read and films they had viewed together. Students selected a plant sight unseen from a list

prepared by course assistant Ngan Dam '05 in consultation with the Greenhouse staff. With the help of Spanish-only Internet search options, they then prepared individual oral reports about Mexico's Swiss Cheese vine, Argentina's Living Vase, Costa Rica's Skullcap, the Papaya tree and Cuba's Thrimax Radiata. As the group explored the greenhouse,

many interesting observations were shared, including the fact that the Mexican Basket Cactus is a very popular houseplant in China, according to Zhiyi Zhang whose family lives in Shanghai. Others in the group who hail from as far away as India and Texas were delighted to see plants they recognized from home and to use their burgeoning Spanish skills to tell the group about them. All agreed that “el invernadero es un lugar muy especial,” and look forward to returning when the Bird of Paradise is next in bloom. 

Wellesley College Summer School

Completing its sixth successful year in 2004, Wellesley College Summer School is a co-educational program open to all college students, college graduates, and high school students. In addition to our full-credit courses drawn from the regular Wellesley College curriculum, we also offer a non-credit High School Writing Program for Juniors and Seniors with topics such as *Beginning Fiction* and *Writing the Argumentative Essay*. The Wellesley experience in the summer provides academic excellence with a spectacular campus and state of the art facilities.

This summer's experience was marked with over 40 course offerings from a variety of different subject areas including Art History, Spanish, Sociology, Chemistry, Biology, Psychology, Studio Arts, Math, and History to highlight a few. Wellesley hosted students from over 30 different schools, as well as many of our own students. The intense academic environment was coupled with excellent social programming, and students enjoyed the experience as a whole.

We are already looking forward to the next Summer School.

Lynne E. Payson, Director
Wellesley College Summer School
www.wellesley.edu/summerschool


FROM THE DIRECTOR

continued from page 2

the Wellesley curriculum as well as the international character of our student population. The display of New World plants at the east entrance will feature many of the Central American species that are encountered by Tropical Ecology students who opt to travel to Costa Rica during winter term. The western half of

the house will focus on species from the Old World, primarily those of tropical Asia. The process of installing a diverse array of new species and reorganizing the current inventory is already under way.

All of us at the Botanic Gardens are enormously grateful to the Friends for the generous contributions of time and funds that make these projects possible. I would also like to personally thank

the Gardens' staff and summer interns for their hard work in bringing about this transformation. And in gratitude to Harriet—we hope the reinvigorated Ferguson Greenhouses meet her high standards and inspire a renewal of the enthusiasm and support for the collections that she sparked so many years ago. 

TREES FOR FALL COLOR

by Helen Freidberg '59

New England is a popular autumn tourist attraction for the blazing fall foliage of its native deciduous trees and shrubs. This phenomenon is part of the preparation for dormancy, the genetically programmed mechanism that cold-hardy plants use to survive the winter season.

As the days become shorter, trees stop photosynthesizing. Nutrients in the leaves are gradually broken down and returned to the winter-surviving plant parts. Chlorophyll, which provides the leaves their green color, is withdrawn revealing an array of colors—the bright yellow xanthophylls, the orange carotenoid pigments, and the beautiful reds of anthocyanins. The characteristic



Birch

Maple an unrestricted site where water is abundantly available, and take care to avoid proximity to road salt and air pollution.

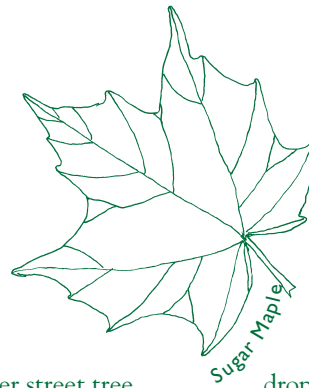
The Red Maple (*Acer rubrum*) is a much better street tree. Although it is found in wetlands in the wild, it tolerates dry soil and traffic fumes. Cultivars have been selected for their brilliant fall color. The main street in Wellesley has been planted with 'Red Sunset', interspersed with Thornless Honey Locust (*Gleditsia triacanthos* var. *inermis*) whose leaves turn yellow. The Paperbark Maple (*Acer griseum*) turns bronze to russet red, and holds its leaves into November in Boston.

Other species with red fall foliage include the moisture-loving Tupelo (Blackgum) (*Nyssa sylvatica*), a brilliant red; Dogwood (*Cornus florida*), which turns burgundy red; and Scarlet Oak (*Quercus coccinea*), whose leaves vary from red to yellow-brown.

The birch (*Betula*) family all exhibit yellow fall foliage, and a relative, the Quaking Aspen (*Populus tremuloides*), produces a uniformly yellow fall color in the Rocky Mountains. Other small trees which turn yellow are Fringe Tree (*Chionanthus* sp.) and Redbud (*Cercis canadensis*). Large trees include Beech (*Fagus* sp.) with yellow to bronze fall foliage; Shagbark Hickory (*Carya ovata*) and Tulip Poplar (*Liriodendron tulipifera*) with golden yellow leaves.



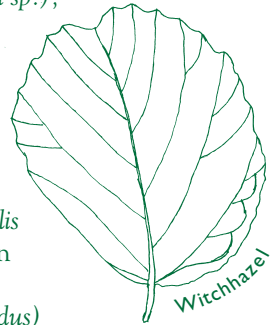
Beech



Sugar Maple


The Tamarack (*Larix laricina*) and related European Larch (*Larix decidua*) are deciduous conifers. Their needles turn yellow each autumn before dropping.

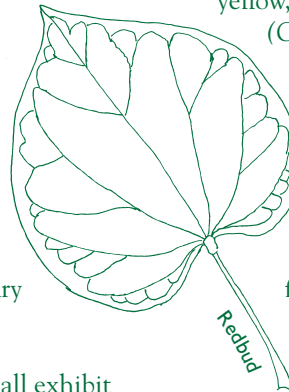
There are also numerous shrub species with good fall color, and many have berries or fruit providing additional interest in this season. The Viburnums (*Viburnum* sp.), Blueberry (*Vaccinium* sp.) and Fothergilla (*Fothergilla*) have red to orange foliage. Rugosa Rose (*Rosa rugosa*) and Witchhazel (*Hamamelis* sp.) are clear to golden yellow, Sweet Shrub



Witchhazel

(*Calycanthus floridus*) and Spice Bush (*Lindera benzoin*) turn bright yellow.

The native trees in New England should inspire us to consider echoing this colorful fall foliage when selecting trees for planned landscapes. 



Redbud



Scarlet Oak

brown of oak leaves is due to their high tannin content. It is the mixture of these pigments that result in the brilliant orange, scarlet and burgundy colors that make

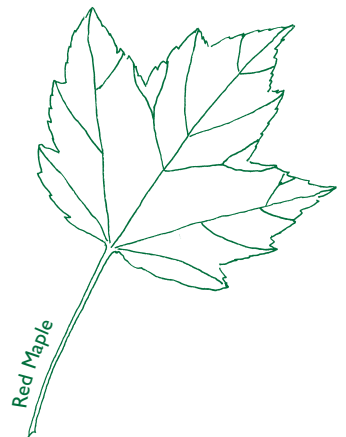
New England forests, with their islands of evergreens interspersed, a spectacular sight in autumn.

Since fall color is desirable in the designed landscape, here are some trees one should consider planting. Not all are native, but they will grow and thrive in this climate.

The red colors predominate in maples. The Sugar Maple (*Acer saccharum*) has extraordinary fall colors; yellow, orange and red on the same tree. For the best results, give the Sugar



Elm



Red Maple

Leaf sketches by Carol Govan

DESERT HOUSE *continued from page 1*

Desert stems are often stout or wide, sometimes with convoluted shapes that divert the flow of moisture-stealing air. Their surfaces may be concave or pleated allowing them to expand to store available water and contract as it is depleted. The accordion-pleated Golden Barrel Cactus (*Echinocactus sp.*) can swell until its pleats almost disappear. Desert stems may also be tremendously enlarged storage vessels evolved to ensure survival in leaner times as in the graceful Bottle Plant (*Nolina recurvata*) of Mexico or its gnarly twin, the Elephant's Foot (*Dioscorea elephantipes*) of South Africa. Twins in evolutionary convergence only, not DNA, they are from very different families. The Elephant's Foot and Bottle Plant are each an example of caudiciform, a plant with a swollen food and water stem axis called a caudex. Typically non-photosynthetic, a caudex sends up green leaves or shoots during favorably moist time periods.

Another intriguing adaptation to observe in the desert house is that of plant skylights. One might overlook the Lithops and its cousins, their unassuming nature being one of the keys to their survival. They just look like pebbles in the sand. But these "pebbles" maximize their photosynthesis. Look closely at the flat crinkly tops and you will notice translucent patches where sunlight can pass through oxalic crystals to photosynthetic cells on the inner surfaces of the leaves. Living stones are not the only plants with skylights. The tips of some of our Haworthias are also translucent, occasionally flattened. Yet another plant, a Crassula, has translucent concave tips on most of its finger-shaped leaves. One has to admire any living thing so fat and rich in a water-starved world, living to the fullest and conserving its resources.

Hidden from the casual visitor are other stories of survival mechanisms and rhythms. At the base of cactus spines are tufts of glochids, shorter, sharper, barbed reminders that this is a delicacy to pass up. Less visible to the visitor's eye are

the toxins in some of the plant tissues. The leaves of the Milk Tree (*Euphorbia tirucalli*) hang temptingly like plump Chinese beans but contain a sap that will torment the skin.

Here in the Ferguson Greenhouses where water is staff-provided and reliable, we frequently find plants in



The spiny towers of center planting island and the Pony-tail Palm (lower right) with its prominent caudex.

flower throughout the year. However, in the wild desert, plants often hold back flowers until rains wet the soils. Through good seasons and bad, the Century Plant (*Agave americana*) marshals its strength for many years before sending up an enormous stalk (literally through the roof the last time it happened here) which flowers prodigiously and makes seeds as the mother plant dies leaving the seeds and side shoots as its prodigy.

As we all know, the success of flowers forming into seeds and seeds becoming new plants depends on agents both for pollination and dispersal. The deserts of Arizona may fill with bloom after the seasonally heavy rains. In some deserts this happens twice a year, in some but

once. There are often years too dry for it to happen at all. Most of the flowers we see here in the Desert House seem designed to attract a critter pollinator with their color and fragrance. A few plants in the Desert House such as the *Senecio* in the Asteraceae family produce seeds designed for wind dispersal. At least some, like the red or purple *Opuntia* fruits, must be eaten or carried away. If conditions on the natural desert have been really tough, do the pollinators and seed dispersers survive or are the flowers doomed to blush unseen? Gary Nabhan's book, [The Forgotten Pollinators](#), explores this connection and its ramifications within and beyond the desert.

Perhaps the unreliability of the rainy seasons and the related tenuous connections to pollinators are reasons why so many succulents are able to successfully root from broken or leaning pieces. If you look about the greenhouse you will see adventitious roots dangling from many segmented stems. Note the tangles of little roots that hang from the Night-Blooming Cereus (*Hylocereus undatus*) that has climbed high on the greenhouse wall. On the propagation benches in the student houses, pieces of succulents seem the tissues of choice for rooting. In the wild desert, plants, such as the Prickly Pear (*Opuntia sp.*), often form huge colonies sprouting from tumbled pieces, stolons, or tubers.

Hidden also from our casual observation are defensive "breathing" mechanisms. Succulent desert plants protect their stomata, the epidermal portholes through which gases are exchanged, by sinking them in fleshy pockets and keeping them on the underside of leaves or stems, or deep within crevices of vertical surfaces. Hairs or spines often thatch over the stomata, slowing the flow of the drying desert air.

Hidden deeper yet, the process of photosynthesis itself is of a special design. Most succulent desert plants have CAM (Crassulacean Acid Metabolism) photosynthesis, so named because it was first discovered in members of the *Crassulaceae* family. During the



Euphorbia milii
by Tsun Ming Chmielinsky

night, when the stomata open and gas exchange can occur, the photosynthetic cells fix CO₂, storing it as malic acid in vacuoles. Chloroplasts in the same cells can use the CO₂ to make carbohydrates in the daytime. CAM plants are said to taste sour at night and sweet in the day. Might this make them less tasty for the little nocturnal creatures prone to nibble after dark? In periods of severe drought the stomata may not open at all, and the whole process is put on hold. CAM may sound like a great thing, but it has a downside as it permits only very slow growth.

Beneath the soil's surface, roots play their role in this survival game. Many desert plants have very shallow roots spread wide to take advantage quickly of what rain may fall. The water-absorbing root hairs slough off when the soil is dry but can resprout quickly. A barrel cactus that has depleted its water supply and shut its stomata will be up and running in 24 hours after a good rain. Other plants send roots as deep as 50 feet into the ground. Of course in a greenhouse there can be no wide spread surface roots or 50-foot taproots. Hence the hose.

Tough as they are, a collection of desert plants requires the creation of a special environment as much as any other plant kept out of its native setting. Built by the College along with the other glass houses in 1923, the original Desert House had cedar framing around often-curved single panes of glass. Lovely, but leaky. Eventually, to conserve heat and energy, the houses were covered with plastic. The cedar began to rot. Tony Antonucci, WCBG Senior Horticulturist, joined the staff about this time and remembers having to wear a hard hat because of the danger of falling glass. Funds were raised for a complete renovation in the 80's. The plaque on the Desert House door reminds us to thank Esther Barbour Pepper '07 for her gift to renovate this enchanting space.

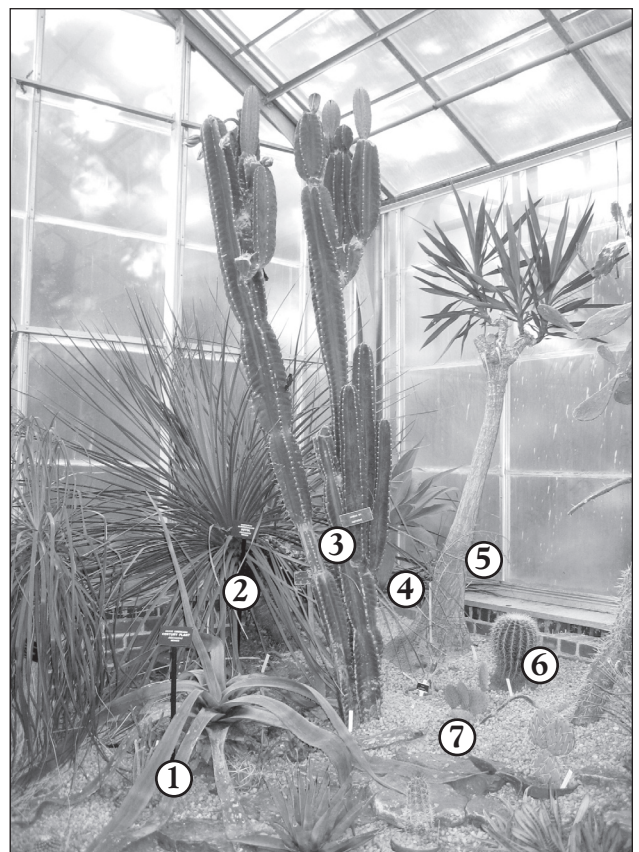
Now, the house's frame is metal, and the glass roof and walls are almost all thermal pane glass. The specially shaped corner pieces are still single pane. When the Friends of Horticulture helped to build the Visitor Center in 1992, the east wall of the house was opened out to form an alcove leading into the visitor's door, giving a new section of southern exposure to the house.

Although the various native homes of the plants may differ in temperature from below 0 to well over 100 degrees Fahrenheit, the thermostat controlling the heating pipes here is always set to 70 degrees. In summer when the temperature may rise higher, the staff opens the vents in the ceiling and side wall. Because the glass so intensifies the heat of the summer sun, the roof is whitewashed in

April and then cleaned off in August or September. Future renovations are likely to include programmable thermostats allowing for cooler night settings and possibly automatic opening of vents.

As roots here are confined to very limited space, regular watering is required. The staff waters every 2-3 weeks in winter, increasing in spring to every 1-2 weeks when some plants show response to increased day length by putting out leaves. Watering is done early in the day, especially in winter, as it is important for plants not to be wet at night. Soil for the pots is a mix of sharp builder's sand, a special bark mix (Pro-mix BRK), coarse perlite, and a type of "expanded clay" (Turface) that reduces compaction. Fertilizing with Peters 20-10-20 is done every 2-3 weeks starting February into

continued on page 15



Desert plants of Mexico and the American Southwest—clockwise from lower left – (1) *Agave Americana*, (2) *Dasyliirion glaucophyllum*, (3) *Cerceus* sp., (4) *Agave attenuata*, (5) *Yucca elephantites*, (6) *Echinocactus grusonii*, (7) *Opuntia rufida*.

On the Road with The Friends of Horticulture Mount Desert Island, Maine July 26-29, 2005

Join us as we journey by coach from Wellesley College to Maine for a four day exploration of Maine's extraordinary horticultural offerings. Barbara Rappaport '44, a long-time Maine resident who has helped plan similar tours for the American Horticultural Society, is our garden travel guru.

Our tour starts with a mid-day stop at the Coastal Maine Botanic Gardens in Boothbay where the shore side gardens form a living museum comprised of collections of plants managed for conservation, research and education. Then we are off to Mount Desert Island to spend the next two days and three nights immersed in the horticultural glories of this special place. We will look at what makes this island ecosystem unique and how it has been tamed and untamed. With Barbara as our leader, we plan visits to premier public gardens as well as explorations of private gardens of Wellesley alumnae and friends. Since garden trekkers are ever ready to see more, we plan to make a garden stop or two on our way back to the College on day four.

**Questions? Contact Anne Moore '56 or Patty Mansfield '51
through the Friends' office: 781-283-3094 or horticulture@wellesley.edu.**

Visitors' Voices

by **Mary Gottmann DS' 98**

Recently, WCFH began an exciting new endeavor: The Tour Evaluation Project. While temperatures plummeted last winter, we mailed a newly-designed questionnaire along with an explanatory letter and a sample of this column to our post-tour visitors. We wanted to share with you some of the responses which we have received.

To begin, here are some replies from visiting school group tour leaders:

The Cabot School, Newton, MA

This school group of third and fourth graders was extremely enthusiastic about its tour. In addition to the completed Tour Survey, we received a thank-you note from the teachers, 19 beautifully printed and written student thank-you letters, plus a group of pictures from the tour!

To the Evaluation Form question of "What new information did the students glean?", school contact Gwen Fuller gave a substantive answer on her form:

"Information on different environments and their effect on plants. Students really enjoyed their first-hand look at the Rain Forest and the Desert Room. They also enjoyed things made from trees, such as the rubber tree and the edible bananas,

as only a few of them had traveled. And they also liked seeing the art students enjoying and painting plants."

One of the students, named Alyssa, echoed Gwen's response in her own thank-you letter, as she itemized some of the highlights of her tour:

"I saw the different types of cactuses, the fern room, pond room, and the chrysanthemum room. Two of my favorite things were the mango tree, and the banana tree...I thought the flower that started in one room and ended in another room was really interesting. I've never seen a flower do that before."

Bates Elementary School, Wellesley, MA

To the question of "What appealed to the students the most, and why?", first-grade teacher Amy Kapinos replied:

"They loved the tour of the Greenhouses. The tour guide was wonderful in having the students go on a hunt for specific plants based upon their names."

Next, here are some Evaluation Form answers from non-school visiting groups, from which we had wonderful replies:

Brownie Troup # 3127, Needham, MA

Our docents received another accolade in this survey, from our contact, Claire Cole, as she filled out the "Overall impression of the tour" segment of the form:

"The tour was fabulous! The tour guide was great; and, since she was a teacher,

she could relate well to the children . . . Our interest in plants was stimulated. Our tour guide taught the children to pick their favorite plants; and they drew pictures of them after the tour."

Postcomers' Garden Club, Wellesley, MA

From Margie Magowan, Chairperson of this Club, we received a warm thank-you note in addition to the Evaluation Sheet. To the question on the sheet of "What was your overall impression of the tour?" She enthused – "The entire tour of the Wellesley College Greenhouses proved to be an enchanting horticultural experience for our group. An amazing variety of lush plants were available for our viewing enjoyment; combined with the very knowledgeable and gracious volunteer tour guides, this added up to a wonderful afternoon."

The Tour Evaluation Project so far has yielded some delightful feedback on our Tour Program. It has been very gratifying to receive the positive comments and constructive suggestions on the returned Evaluation Sheets. We appreciate that responders were very willing to be quoted in this column. WCFH is proud to be able to provide such highly enjoyable as well as educational trips through the Ferguson Greenhouses. 

First Year Plants

Every fall, the majority of the six-hundred-plus incoming Wellesley students find their way to the Ferguson Greenhouses to pick up a plant to brighten their dorm room as well as acquaint them with the Botanic Gardens. Chosen for the varied dorm room light conditions across campus, seven different plant species were propagated by the Botanic Gardens staff and summer interns, or purchased by the Friends for this year's plant give-away. Extra plants are always on hand to ensure that an adequate supply is maintained during the plant give-away. During their four years at Wellesley, students are encouraged return to the Ferguson Greenhouses with a larger pot to have their plants repotted by the staff.

For a *Boston Herald* January 18, 2004 article, Book Review Editor and Garden Columnist Rosemary Herbert interviewed Lindsay Karloff '07, who said, "I arrived here wondering how I'd survive and right away there was something to take care of. It was like I was handling an exciting experiment. It's been such a success that I decided to take on (caring for) a fish!"

Although the students are given plant saucers and special care instructions, inevitably some of these plants do fail to thrive in the erratic environment of a dorm room. Fortunately, this is not the case for all plants as the Friends often hear reports of plants that survive for the college years and go on with their caregivers to graduate to a life after Wellesley College. 🌱



Photo by John Wilcox. Reprinted with permission of *The Boston Herald*.

Lindsay Karloff '07 in her dorm room with her carefully tended Jade Plant.



A member of the Class of 2008 making her plant choice.

INVASIVE PLANTS *continued from page 3*

buckthorn population was reduced by about 60% on top of ongoing removals in previous years. The yellow iris is down 95% and bittersweet about 70% (though much of the bittersweet will resprout.) The effect of the removal of these invasive plants on biodiversity would provide important information about the impact of active management of invasive plants on native or non-invasive ornamental plants. But for now the only information available is the

observations I make when I return to areas to weed. It would be a good project for an ecology student to monitor the changes in plant diversity.

I sympathize with land managers who have large expanses of land infested with a pest like purple loosestrife, eradicating it would seem like an impossibility. But after this summer I see that managing invasive plants on a parcel of 22 acres is possible and worthwhile. However,

monitoring for new invasive plants is necessary so the massive colonies of a single plant, like buckthorn, do not happen again. We currently have garlic mustard, Japanese knotweed and black swallowwort trying to establish populations and surprisingly cork tree (*Phellodendron* sp.) is trying to supplant buckthorn as our biggest invasive tree problem in the red maple swamp. But all in all it was a very successful summer. 🌱

**YOUR
MEMBERSHIP
DOLLARS
AT WORK**

Providing free guided tours for small groups of adults and school students. (See Visitors' Voices article on page 8)



Docent Co-Chair Nancy Webb explaining a plant part to some fascinated young visitors.



Wellesley College Botanic Gardens Visitor Center

Helping to strengthen the Botanic Gardens plant collections and informational displays.

In FY 2002-2003 database software was purchased for tracking the collections. In FY 03-04, 250 new plants were purchased for the collections and the WCBG *Floraphiles* program was launched (See article page 12).

Encouraging interest in horticulture and the botanical sciences as well as introducing the valuable resource of the Botanic Gardens by giving each Wellesley College first year student a plant of her own. (See article page 9)



The Class of 2008 discovering the Ferguson Greenhouses and picking up their free plants and saucers.



Summer '04 WCBG Interns Melissa Spenser '05 (right) and Tara Tresner '06 (left) at work cleaning scale off the smaller cycads.

Underwriting student and curatorial interns who enrich their own horticultural knowledge while providing much needed assistance to the Botanic Gardens staff.

I am Class of 2005, from Albuquerque, New Mexico, studying Economics. I really enjoyed working in the greenhouse--I felt like I learned a lot, and the best part was working in the Arboretum and discovering beautiful places that I never knew existed. —Melissa Spenser

I'm in the Class of 2006, from West Hartford, CT studying (tentatively) political science, but reconsidering biology. I thoroughly enjoyed my experience and am looking forward to working for the greenhouse in the fall. —Tara Tresner



Learning about leaves at Family Hort Time, Reunion '04.

Hosting College events to encourage appreciation for the Botanic Gardens by prospective and current students, alumnae, and others.

Last year, the Friends organized an Open House for *Friends and Family Weekend*, student evening study breaks, and tours for *Open Campus*. During *Reunion '04* the Visitor Center was alive with Greenhouse and Arboretum Tours and children's activities. Excellence in the field of Horticulture was celebrated with a luncheon for 2004 Alumnae Achievement Award recipient Carol Johnson '61, and with a community reception in memory of Biological Sciences Professor Emeritus Harriet Creighton '29.

Funding guest lecturers, student research grants, course-related field trips, as well as purchasing books for the Science Library and more.

In June 2004 after the hustle and bustle of graduation and reunion, a lunchtime demonstration of container planting was sponsored by the Friends for the College Community. Also last summer, four Wellesley students received funding to attend a scientific conference (See article page 14).



Alison Campbell of Hen and Chick Gardens explaining the finer points of inspired container gardening to a gathering of forty members of the College Faculty and Staff on the knoll across from the Visitor Center.



Techniques Botanical Art student Barbara Wells learning to accurately represent a yellow Primula during class at WCBG.

Offering an ever-expanding variety of programs, courses, botanical art classes and field trips to members and the general public.

Volunteering many hours to staff the Visitor Center, providing on-going volunteer training, and managing the Friends of Horticulture Office and its many activities.



A visit to The Food Project in Lincoln, MA (www.thefoodproject.org) to see first hand how today's students learn about and work in sustainable agriculture was part of Volunteer Appreciation Day 2004.

THANKS FOR SUPPORTING THE FRIENDS OF HORTICULTURE!

From the WCBG Floraphiles

by Gail Kahn, WCFH Docent

Our recent 20th anniversary retrospective brought to mind some favorite Friends of Horticulture traditions that had fallen by the wayside. So, several enthusiastic docents have volunteered to work on two important projects which we are hoping will lead to a body of information to include on the WCFH Web site.

The first is the resurrected "Plants in Bloom". One of the Visitor Center bulletin boards is now dedicated to labeled pictures of the plants currently in bloom in the Ferguson Greenhouses. Along with the newly created plant labels, this display helps to identify plants of interest to the public as well as for the volunteers who staff the Visitor Center. An integral part of this project is to track the blooming cycles of plants in the collection for inclusion in the Botanic Gardens' database. This will help document how certain species perform in the unique conditions here at Wellesley College.

The second project is the former "Plant of the Week" program now called "From the WCBG Floraphiles". This takes the form of a small poster with photos and a short, but informative write-up about one of the major plants in the collection. A poster is located just as you enter the Desert House from the Visitor Center. Longer, more scientific write-ups are being collected in a WCBG Floraphile notebook to assist in docent training. Below is the full treatment for the *Monstera deliciosa*, one of our visitor favorites.

Look for these exciting, new displays next time you visit the Botanic Gardens!!

FLORAPHILES TRAINING NOTEBOOK

Description/Features:

Monstera is a climbing plant native to Mexico and Central America but found in tropical climates throughout the world. Vines can grow to 16 feet and large plants may even reach over 70 feet. Foliage is alternate, ovate, entire or deeply cut (pinnatifid) varying with light conditions and age. The



A favorite of visitors of all ages, it is easily apparent why this plant's common name is the Swiss Cheese Plant.

inflorescence is a white 8-12" long spathe and spadix. The spadix takes a little over a year to mature and develops into an aromatic fruit resembling a long green

cone. The unripened flower spike is covered with hexagonal scales that dry out and separate as the fruit ripens from the base upwards, revealing the white pulp. Since it represents a cluster of many ripened ovaries from many female flowers, the plant is called a multiple fruit. (Pineapple is another example of a multiple fruit.) The plant begins bearing fruit after three years. Since the plant needs ideal conditions in which to flower, flowers and fruit are rarely produced by houseplants.

Also known as Split-leaf Philodendron, Ceriman, Mexican Breadfruit, and Windowleaf.

Environment/

Adaptations:

Indigenous *Monstera* live in the rainforests of tropical America. The seeds are shed from the parent, falling from the heights of the canopy.

Once on the ground, the seeds germinate within a day or two. They will grow in the direction of the darkest area (not just merely away from light) until they encounter the base of a

tree to grow on. They will then begin to climb toward the light, which is generally up into the canopy of the tree they are growing on.

The initial shoot is not recognizable as a shoot, but looks like a green root. It will run across the forest floor, but it runs away from the light, seeking the shade of a tree whose trunk it will then climb. The only energy this green shoot has is what was stored in the seed. It has been reported that if the shoot does not find a vertical surface within 6 feet of where it germinated, the plant runs out of energy and dies.

When the shoot reaches a vertical surface, it grows two small leaves and begins vining, climbing toward the light. The cordate (heart-shaped) leaves first grow appressed (pressed closely) to the surface it is climbing. As the vine climbs, the new leaves grow much larger and stand away from the surface offset from each other. The alternate arrangement prevents the upper leaves from shading the lower leaves.

The leaf blades will split or grow holes. The function of this 'self-tattered' leaf is not known, but perhaps it lets more light to the leaves below or reduces the force of the wind.

Public Display Text for SWISS CHEESE PLANT

Monstera deliciosa

(*Monstera*: monster; *deliciosa*: delicious)

Araceae (Arum Family)

Located in: Tropical House

The Swiss Cheese Plant is a large liana (climbing plant), native to Mexico and Central America, now found growing in many tropical regions of the world. It is perfectly adapted to the low-light environment of the rain forest. It has developed an ingenious method to get enough sunlight: **holes!**

The many holes in the leaves of the Swiss Cheese Plant are what give this plant its name. Sunlight shines through the holes in the upper leaves of the plant, allowing the lower leaves to also receive some light. Look closely at the Swiss Cheese Plant. Are there some leaves which have more holes? Why do you think the plant has grown this way?

Like all members of the Arum family, the Swiss Cheese Plant's flower consists of a leaf-like **spathe** cupped around a cylindrical group of tiny flowers called a **spadix**. After the flowers are pollinated, the spathe withers and the spadix develops into a cone-like fleshy fruit, called a ceriman or a monstera. It can take over a year for the fruit to ripen.

The Latin names of plants can be very informative. What does the translation of the Latin name tell you about the Swiss Cheese Plant? Its fruit really is delicious! When it's ripe, it is soft and custardy, tasting like a combination of banana and pineapple. (But don't just walk up and munch on a fruit! It is **poisonous** when unripe.)

If no accidents occur to the *Monstera*, it will change its lifestyle, letting go all connections to the soil. The lower vine will die and the plant will live, vining through the canopy as an epiphyte (a plant that grows above the ground, supported non-parasitically by another plant or structure, and deriving its nutrients and water from the rain, air, dust, etc.) Because it starts out rooted in the soil, the plant is classified as a roving hemi-epiphyte.

Related Plants:

Monstera deliciosa is an aroid (a member of the Arum family). Arums are characterized by flowers comprised of a spathe and spadix. Most arums have flowers that are male at the top and female at the bottom of the spadix. Most members of the Arum family are poisonous.

Related plants in the Wellesley Ferguson Greenhouses:

Philodendron, Taro, *Caladium*, Dumb Cane (*Dieffenbachia*), Flamingo Tongue, *Anthurium*, Duckweed.

Related native plants:

Jack-in-the-Pulpit, Golden Club, Skunk Cabbage, Wild Calla.

Monstera is still sometimes called split-leaf or cut-leaf philodendron because it was formerly classified in that genus.

Care:

Monstera needs a humid environment, bright to low light, and moderate to warm temperatures. Do not put the plant in direct sun. It



Inside the *Monstera* spathe, the tiny flowers of the spadix are visible.

requires well-drained soil and moderate watering. *Monstera* can be prone to leaf spots, scale, spider mites, and mealybugs

(often common). Brown leaves and tears indicate excess water; small leaves or non-perforated leaves indicate low light. It needs a large space in which to grow, and requires frequent pruning. Dust leaves with a damp towel. Do not cut the aerial roots but redirect them into the soil if possible.

Economic Importance:

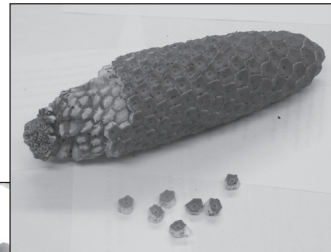
This plant was common and popular during Victorian times, where it was cultivated in English hothouses for its edible, large, cone-shaped compound fruit. Called a ceriman or monstera, it has a flavor between pineapple and banana. All parts of the plant are poisonous other than the ripe fruits. The plant contains oxalic acid and even the ripe fruits can cause irritation in sensitive people. The fruit can be induced to ripen by picking when the base has started to wrinkle and wrapping in a bag for a few days. When unwrapped, the scales should have separated.

The plant is cultivated outdoors for the fruit in Central America, Australia, California and South Florida. The plant needs ideal conditions in order to bear fruit, consisting of high humidity, constantly warm temperatures, and bright indirect light.

Sources:

Bown, Deni; [Aroids: Plants of the Arum Family](#), 2nd ed.; Timber Press; 2000. Desert-Tropicals.com: <http://www.desert-tropicals.com/> FloriData.com: <http://www.floridata.com/> The University of Connecticut Ecology & Evolutionary Biology Conservatory:

<http://florawww.eeb.uconn.edu/> The University of Durham Botanic Garden: <http://www.dur.ac.uk/botanic.garden/dubg/bghomep.html> The University of Vermont Plant and Soil Science Department: <http://pss.uvm.edu/> Wayne's Word—An Online Textbook of Natural History: <http://waynesword.palomar.edu/> 



Monstera fruits are even found seasonally in New England markets.

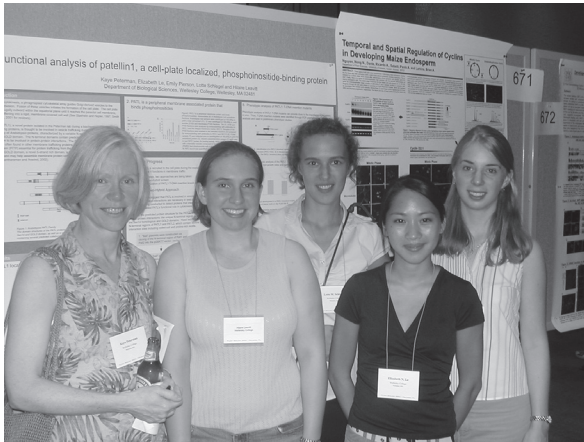
Student Grants

Dear Friends of Horticulture,

We would like to express our great appreciation for your sponsorship of our trip to the American Society of Plant Biologists Annual Meeting, and to share some of our experiences with you. From July 23-28, 2004, Elizabeth "Lisa" Le, Hilaire Leavitt, Emily Pierson, and Lotte Schlegel attended symposia and

We had the opportunity to present our poster in a special undergraduate poster session, where we shared our work with other students. This was followed by two evenings of poster presentations in the big exhibit hall, where all of the conference attendees and many vendors showed their work. Our poster received a lot of attention because Professor Peterman presented her research in a symposium on Cell Division.

We were one of the few labs at the conference in which all of the undergraduate members were present, which we know is unique to Wellesley and the support of organizations such as the Friends of Horticulture.



In front of conference poster, from left to right: Kaye Peterman, Hilaire Leavitt, Lotte Schlegel, Lisa Le, and Emily Pierson.

Among the highlights of the meeting were some presentations of new plant technologies that have the potential to do much good in the world. One keynote speech introduced the potential for plant-generated vaccines, focusing on the production of the Hepatitis B vaccine in potato and tomato plants. Not only was the vaccine able to be used needle-free, but its method of production was much more cost effective, reducing the price of the vaccine to only 1-2 cents per dosage. Lisa

The breadth of scientific investigation in the realm of plant biology was astounding. As a rising junior, Hilaire has been thinking about the field of study and degree program that she might like to pursue in the future. This experience helped her to see the type of work that happens in the field, from biotechnological applications to signaling pathways. The meeting offered us the unique opportunity to examine potential careers in plant-related research and meet people currently working in that field.

poster sessions, and mingled with plant biologists from all areas of the field at Disney's Coronado Springs Convention Center in Orlando.

We presented research that we have been working on in Professor Kaye Peterman's lab, characterizing the patellin proteins, a family of proteins in *Arabidopsis thaliana* that are believed to be involved in the process of cell division. Through our projects, we are attempting to fully understand the function of the patellin proteins. Lisa performed a screen for proteins that interact with patellin1 in a project that included her senior honors thesis. Emily, in an independent study, began a similar screen with patellin2, a project that Hilaire has continued in her first summer of research in the lab. Lotte has been working to characterize the phenotype of mutant plants that do not express the patellin protein.

was inspired by this research and other examples of the practical applications of plant biology: "Heading for medical school, I did not think that any of my future research would again involve plant biology but this conference has convinced me otherwise. The possibilities for plant biology to be used in the medical world are limitless."

Several groups of researchers are looking into the use of plants for phytoremediation, where plants will uptake toxins in the soil, such as mercury, and either volatilize them or convert them into less toxic forms. Lotte, who hopes to integrate her studies of molecular biology and environmental science, saw this project as an example of potential future career work. Emily, who may pursue biotechnology research, was particularly interested in these practical applications of plant research and learning about the benefits of using plants instead of other organisms.

In our free time, we enjoyed a trip to the EPCOT greenhouses, where hydroponic techniques are used to grow produce. We were impressed by nine-pound lemons and massive watermelons hanging from trellises and growing down support wires. We took a trip to Mars in a space simulator, and learned about the benefits and limitations of fossil fuels and other energy resources. While at the hotel, we tried to explore the grounds as best as possible, and found egrets, tiny frogs, and even a baby alligator.

We are grateful for having had the opportunity to attend this scientific conference as undergraduates. We were one of the few labs at the conference in which all of the undergraduate members were present, which we know is unique to Wellesley and the support of organizations such as the Friends of Horticulture. Thank you for promoting our interest in plant biology research.

With best wishes and many thanks,
Lisa Le '04, Hilaire Leavitt '06, Emily Pierson '04, and Lotte Schlegel '04 

Desert House Note Cards

Last Spring, Sarah Roche's Botanical Illustration Techniques Class took on a special project. They created representations of several desert plants from the Ferguson Greenhouses collection for Friends of Horticulture use. The drawing of *Euphorbia milii* by Tsun Ming Chmielinsky was the cover illustration for the 2004-2005 Art Classes Brochure (see sketch on page 7) and the other four of these exciting desert plant designs pictured below – *Echeveria agavoides* by Sandy Adams '59, *Echeveria elegans* by Becky Saunders '59, *Kalanchoe gastonis-bonniieri* by Carol Govan, and *Kalanchoe tomentosa* by Robin Wilkerson – are now on a series of note cards for office use and for sale.

These cards are being sold at the Visitor Center in packages of 8 (two of each design) for \$5.00. The Friends would like to offer them to those of you who are unable to drop by and purchase the cards in person, so we are selling 24 cards (3 packages of 8 cards and envelopes) for \$20 including postage.

Please send me _____ package(s) of 24 Desert House Note Cards with envelopes for \$20 each.

Name: _____

Address: _____

Phone: Home _____

Phone: Work _____

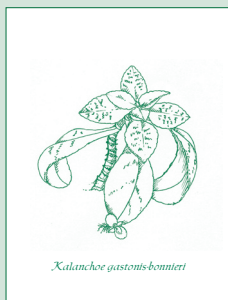
E-Mail: _____

If applicable: Wellesley College Class of _____

Make your check payable to: Wellesley College Friends of Horticulture

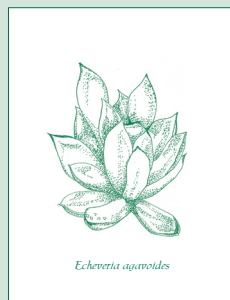
and mail to: Wellesley College Friends of Horticulture, 106 Central Street, Wellesley, MA 02481-8203

Call the Friends' Office 781-283-3094 or email horticulture@wellesley.edu with questions.



Kalanchoe gastonis-bonniieri

by Carol Govan



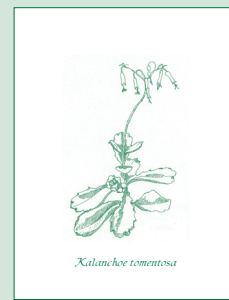
Echeveria agavoides

by Sandy Adams '59



Echeveria elegans

by Becky Saunders '59



Kalanchoe tomentosa


by Robin Wilkerson

DESERT HOUSE *continued from page 7*

August, always after a watering. Mealy bugs and scale, probably not the same pests encountered in the real desert, may attack the plants especially at the site of buds. This is more likely to occur when our artificial desert environment receives an increase of water to simulate the rainy season and encourage blooming. When such a problem is observed nowadays, a beneficial beetle (*Cryptolaemus*) may be released or horticultural soaps or oils may be used.

The Desert House currently contains about as much diversity as it can hold; new acquisitions are made only after very careful consideration. Hopefully, your desire to see more has been piqued. Perhaps you will include in your virtual or actual desert travels, trips to the Succulent Karroo in Namibia and S. Africa or the Mohave in the southwest USA, both known for their hundreds of endemic desert species, and certainly more amazing

desert survivors to pause and ponder.

Note to desert travelers: It seems deserts around the world are all threatened by over-grazing, motor vehicles, hunting and collecting, salination from irrigation, and rising temperatures. However the barren sands of the southern Sahara are reported to have been retreating northward since the mid 80s as nature has provided more rain and people have adopted better farming methods. 

Art Courses at Wellesley College Botanic Gardens

Experienced Watercolor Classes

Winter 2005:

Wednesdays 12:30 – 3:30 p.m.

Jan. 26; Feb. 2, 9, 16; Mar. 2, 9, 16, 2005

Wellesley College Botanic Gardens' Visitor Center

Discover your unique artistic vision through direct response to the treasury of forms and structures in the greenhouses. This is a course for those people with some watercolor experience. The basics - drawing, color theory, design and technical skills - are an important part of the class. Students will also be encouraged to discover their own visions and means. Group critiques will develop critical analytical skills in trying to determine why a painting works or how it might be improved. With the opportunity for prolonged, intense observation in our greenhouses, students will heighten their awareness and ability to see, discovering a personal language of form and color.

Per seven class series:

Members \$165 / Non-Members \$210

WCC 0502

Botanical Drawing and Painting:

Foundations

Winter 2005: Tuesdays, 10:00 a.m. – 1:00 p.m.

Jan. 11, 18, 25; Feb. 1, 8, 15; Mar. 1, 8, 2005

Wellesley College Botanic Gardens' Visitor Center

Be inspired by the many beautiful plants in Wellesley College's Margaret C. Ferguson Greenhouses and learn to realistically render botanical forms in pencil and watercolor under the guidance of Sarah Roche, professional botanical illustrator. Sarah will introduce the traditional art and science of botanical drawing and painting. Instructional focus will include observational skills, drawing development, composition, design, and watercolor technique. Classes will include plenty of demonstrations and tutorials. A materials list will be distributed at the first class. All abilities are welcome!

Per 24-hour course:

Members \$195 / Non-Members \$245

BAC 0513

Botanical Drawing and Painting:

Techniques

Winter 2005: Fridays, 10:00 a.m. – 1:00 p.m.

Jan. 14, 21, 28; Feb. 4, 11, 18; Mar. 4, 11, 2005

Wellesley College Botanic Gardens' Visitor Center

Using specimens from the Wellesley College Botanic Gardens' collections for inspiration, continue to develop the traditional watercolor painting skills necessary to create accurate representation of botanical forms. Botanical accuracy is emphasized by examining plant structure. Demonstrations of painting are given and individual instruction is available.

Students enrolling in this course should have successfully completed two Foundations courses and have the permission of the instructor.

Per 24-hour course:

Members \$195 / Non-Members \$245

BAC 0523

Holiday Botanicals

BAC 0501

Tuesdays: 10:00 a.m. – 1:00 p.m.

Nov. 16, 23, 2004

Wellesley College Botanic Gardens' Visitor Center

Use your skills as botanical artist to create a unique piece of artwork to enhance your holiday celebrations. Work in watercolor and pen and wash to produce accurate representations of botanical subjects as a camera-ready image. Sarah will provide examples of how to creatively use your artwork. Then on your own you can integrate your work into a card design or holiday decoration.

Students enrolling in this course should have successfully completed a session of Foundations or Techniques, or have prior Botanical Drawing experience and the permission of instructor.

Members \$75 / Non-Members \$95

Painting a Plant Portrait

Foundations

BAC 0514

Tuesdays, 10:00 a.m. – 1:00 p.m.

Mar. 29; Apr. 5, 12, 26, 2005

Wellesley College Botanic Gardens' Visitor Center

Techniques

BAC 0524

Fridays, 10:00 a.m. – 1:00 p.m.

April 1, 8, 15, 29, 2005

Wellesley College Botanic Gardens' Visitor Center

Add polish to your botanical illustration skills. Refine your observations and record them as you intensively study a plant. The goals of this seminar are to accurately represent the many dimensions of a plant's structures in a balanced composition and to have a finished plant portrait ready to frame and exhibit. This 12-hour course is for students who have previously completed at least one 24-hour Foundations or Techniques Botanical Art Course.

Per 12-hour course:

Members \$100 / Non-Members \$125

Drawing Flowering Plants

SBA 0502

Mondays 10:00 a.m. – 1:00 p.m.

Jan. 10, 17, 24, 31; Feb. 7, 14, 28; Mar. 7, 2005

Wellesley College Botanic Gardens' Visitor Center

Learn the fundamentals of basic botany through the drawing of plants with an amazing variety of forms and structural adaptations. Following an introduction to the terminology of the vegetative and reproductive plant parts, we go into the greenhouse or arboretum to observe, record and label several examples of topics covered in that day's lecture. Study the growth of one plant over the 8-week course to see, record and understand the functions of leaves and stems, then track the development from a flower into a fruit and finally seeds. Learn to recognize and record the various plant parts of several major families: orchids, grasses, legumes, composites, mustards, etc. (whatever is in bloom), and discuss reasons for the differences.

Members \$120 / Non-Members \$150

Programs, Courses, and Travel

Edible and Useful Plants in the Margaret C. Ferguson Greenhouses

HOR 0506

Monday, November 1, 2004

1:30 p.m. Reception; 2:00 p.m. – 3:00 p.m. Program
Wellesley College Botanic Gardens' Visitor Center

Horticulturist Richard Stomberg, Glasshouse Manager of Harvard University and an enthusiastic and popular lecturer on botanical subjects, will share stories of economically important plants contained in the Wellesley College Botanic Gardens' Ferguson Greenhouses collection. We will learn about plants that give us food, fibers, medicines, fruits, nuts, seeds, wood, paper, and more. Following Rich's lecture, come with us as we visit the Ferguson Greenhouses.

Members \$10 / Non-Members \$13

Arboretum America - A Philosophy of the Forest with Diana Beresford-Kroeger

HOR 0508

Offered in collaboration with the New England Wild Flower Society and the Arnold Arboretum of Harvard University

Thursday, December 2, 2004 7:00 – 8:30 p.m.

Wellesley Community Center

Diana Beresford-Kroeger is a self-described "renegade scientist" who believes that a more natural approach to the care of forests and gardens will be the salvation of nature. In this slide-illustrated lecture, Diana Beresford-Kroeger explains her concept of the Bioplan -- a blueprint for all connectivity of life in nature and how this applies to our forests and trees. She will explain her perceptions of what our roles should be, from advocating for our forests to replanting the healthiest, local tree stock. All the while, she keeps an eye to design and the needs of native habitat so that all will thrive in the balance that is nature

Members \$18 / Non-Members \$23

Creating "A Garden for Life" with Diana Beresford-Kroeger

HOR 0509

Offered in collaboration with the New England Wild Flower Society and the Arnold Arboretum of Harvard University

Friday, December 3, 2004 10:00 a.m. – 2:00 p.m.

Hunnewell Building, Arnold Arboretum

This program introduces landscape specialists, designers, and gardeners to the concept of using components of the natural world -- the Bioplan -- as tools. The author of *Arboretum America* and *A Garden for Life*, Diana Beresford-Kroeger will define all elements of the Bioplan so that the gardener views the site as a biological system and the activity of gardening as an ecological task. She will discuss the significance of airways, fragrance, plant morphology, and water. Basic techniques for inviting beneficial creatures into the garden are explained along with these creatures' relationships and importance to the garden.

Lunch with the speaker is included.

Members \$45 / Non-Members \$56

Check our Web site

www.wellesley.edu/FOH

or contact the office 781-283-3094

or via email horticulture@wellesley.edu

**to be sent a program brochure
about the rest of our programs.**

Cultivating the Written Word: Creative Garden Writing from Production to Publication

HOR 0507

Co-sponsored with the Arnold Arboretum of Harvard University and New England Wild Flower Society

Tuesday, November 9 – Friday, November 12, 2004

4 Sessions: 9:00 a.m. – 5:00 p.m. daily

The Garden in the Woods, Framingham, MA

Join Cole Burrell and Lucy Hardiman, authors and contributing editors for major U.S. garden publications, for this intensive four-day writing seminar designed to explore the world of garden writing. The emphasis will be on skills that cover a range from fine-tuning the short article or essay to targeting audiences and publishers. The workshop is designed for experienced writers as well as the inexperienced and will include individual and group critiques. The topics will include: Channeling the Inner Voice, Finding Inspiration, Choosing a Subject, Targeting an Audience, Self-Discipline, Point-of-View Writing, Critiquing and Editing Yourself, The Publishing Industry, Getting Published, and Building Your Reputation.

Fee includes reading packet, morning refreshments, lunches, and instruction.

Thanks to *Fine Gardening* for their financial support of this course.

Area hotel information is available from the Friends' office upon request.

Members \$525 / Non-Members \$595

FALL SYMPOSIUM

SYM 0500

Co-sponsored with Arnold Arboretum of Harvard University, Massachusetts Horticultural Society, and New England Wild Flower Society

Evolving Gardens:

New Aesthetics for 21st-Century Designs

Saturday, November 13, 2004

8:30 a.m. Registration, 9:00 a.m. – 4:00 p.m. Program
MassBay Community College, Wellesley, MA

The 21st-century may bring real changes to our way of looking at urban and suburban landscapes. Gardeners and designers can and must make a contribution to the ecological functioning of urban and suburban ecosystems while building gardens of beauty and utility. In this day-long seminar, three practitioners will present and discuss their views of today's evolving gardens, from incorporating the influence of wilderness to planting right out to the curb.

Every Inch a Garden: Maximizing Space and Creating Intimacy with Lucy Hardiman

Touching on both small, urban gardens as well as those in sister suburbia, garden designer, consultant, writer, and speaker, Lucy Hardiman explores ways to manipulate space — to enfold, embrace, and cocoon — as she discusses issues of scale, proportion, and artful furnishings. Her approach embraces both community by advancing more of one's garden toward "the street" and personal retreat by creating intimate settings.

WINTER LECTURE SERIES

Co-sponsored with Arnold Arboretum of Harvard University, Massachusetts Horticultural Society, and New England Wild Flower Society

Exploring the Design Process:

WLS 0501

De-constructing the Garden

Thursday, January 13, 2005 7:00 – 8:30 p.m.
MassBay Community College, Wellesley, MA

How does the design for a new garden happen? The homeowner/client and designer often have different but not necessarily conflicting ways of thinking about landscapes. Using case studies, Tim Thoelecke takes you through the steps in his design process with before, during, and after illustrations from the drafting board to installed project. Join Tim to explore a wealth of ideas about how to make the process work well for everyone, resulting in highly satisfying outcomes.

Members \$18 / Non-Members \$23

Digital by Design:

WLS 0511

Managing Your Landscape Images with Tim Thoelecke

Friday, January 14, 2005 9:30 a.m. – 12:30 p.m.
Hunnewell Building at the Arnold Arboretum

You bought that digital camera. You've filled your hard drive with images. Now what? In this workshop, landscape designer and regular contributor to landscape and design publications, Tim Thoelecke will share his techniques and tricks for best utilizing and organizing images in the digital age. This "not-for-geeks" program includes basic information about file formats (.jpg, .tif, .gif), megapixels and resolution, but it is more an exploration of creativity than a lesson in technology.

Member \$45 / Non-Member \$55

Front Yard Gardens: Changing the Neighborhood Environment with Liz Primeau

The North American seduction by front lawns may be waning, as landscape designers have developed new ways of conceiving eye-catching, environmentally friendly gardens instead of the monotonous green grass sward. In this seminar, author and Canadian television personality, Liz Primeau will use her own conceptual conversion as a basis to explore front yard gardens of different styles and splendid expressions of individuality. Her coast-to-coast case studies of front yard designs tell us as much about the gardener as the garden.

Envisioning a New Wilderness: Ecological Design for the Home Landscape with C. Colston Burrell

In an exploration of our modern notions of wilderness, former curator at the U.S. National Arboretum, Cole Burrell suggests ways to integrate those ideas into our built landscapes. Although Thoreau penned the words "In wilderness is the preservation of the world" some 150 years ago, it is time to reassess both our definition of the wilderness and its influence on our lives. Cole's seminar will cover practical design approaches that treat the built landscape with the same respect usually reserved for wilderness areas. Learn why this is not a radical notion!

Registration fee includes parking, handouts, morning coffee/Danish, lunch, and afternoon snack.

Members \$90 / Non-Members \$110

The New England Gardener's Palette:

WLS 0502

Plants for Creating Exceptional Color Schemes

Thursday, January 27, 2005 7:00 – 8:30 p.m.
MassBay Community College, Wellesley, MA

Tom Fischer, editor of *Horticulture* magazine, will divulge his favorite plants for creating dazzling color effects. He will include such color schemes as hot and cool, monochromatic, and contrasting, as well as highlight the outstanding individual plants in each color group.

Members \$18 / Non-Members \$23

The Pollinator Partnership:

WLS 0503

Design and Plants for Pollinator Gardens

Thursday, February 17, 2005 7:00 – 8:30 p.m.
MassBay Community College, Wellesley, MA

Join Holly Shimizu, Executive Director of the U.S. Botanic Garden in Washington, D.C., to explore design schemes and plants that will attract butterflies, bees, hummingbirds, moths, bats, wasps, beetles, and flies. Included is a focus on native and night-blooming flowers, careful placement of larval food plants, and a discussion of certain hybrid flowers to avoid.

Members \$18 / Non-Members \$23

On the Wild Side:

An Experiment in New Naturalism

WLS 0504

Thursday, March 3, 2005 7:00 – 8:30 p.m.

MassBay Community College, Wellesley, MA

Keith Wiley is at the forefront of the naturalistic planting revolution and is famous for turning his unique design ideas into a spectacular reality. Join Keith as he explains how to put the wild back into our gardens, providing ideas for successfully selecting from the treasure trove of gardening ideas found in nature, those from right under our noses, and those from far-flung corners of the globe.

Members \$18 / Non-Members \$23

Join the Friends of Horticulture

Membership in the Friends of Horticulture provides a wide variety of benefits for you, your family, and the community at large. You receive the Newsletter twice yearly, keeping you abreast of the latest developments here at the WCBG. Membership automatically includes discounts of up to 20% on the many educational programs, courses, and horticulturally inspired trips the Friends offer.

Most importantly, your membership dollars support the preservation and enhancement of the beautiful Wellesley College Botanic Gardens, which include the Margaret C. Ferguson Greenhouses, the Hunnewell Arboretum, the Alexandra Botanic Garden, and all of the resources available to you and the general public at the Botanic Gardens Visitor Center.

WELLESLEY COLLEGE FRIENDS OF HORTICULTURE

Register for all programs. Please print and fill out this registration form.

Make your check payable to: **Wellesley College Friends of Horticulture.**

Mail to: Wellesley College Friends of Horticulture, 106 Central Street, Wellesley, MA 02481-8203

NAME: _____

ADDRESS: _____

PHONE: HOME _____

WORK _____

E-MAIL _____

If applicable: Wellesley College Class of _____

I would like information on the Friends of Horticulture volunteer program.

I would like information on Summer 2005 trip to Mount Desert Island, Maine.

MEMBERSHIP IN THE FRIENDS OF
HORTICULTURE
(for the academic year July 2003-June 2004)

Sponsor: \$100
Donor: \$250
Supporter: \$500
Sustainer: \$1,000 and beyond (thank you!)
Young Alum: \$15 (five most recent classes)

MEMBERSHIP TOTAL _____
(Separate check, please, made payable to
Wellesley College Friends of Horticulture)

INSPIRED CONTAINERS

HOR 0512__Summer: Saturday, May 21, 2005, M \$44/NM \$55

EDIBLE AND USEFUL PLANTS

HOR 0506__Monday, November 1, 2004, M \$10/NM \$13

CULTIVATING THE WRITTEN WORD

HOR 0507__Nov. 9 - 12, 2004, M \$525/NM \$595

ARBORETUM AMERICA - A PHILOSOPHY OF THE FOREST

HOR 0508__Thursday, December 2, 2004, M \$18/NM \$23

CREATING "A GARDEN FOR LIFE"

HOR 0509__Friday, December 3, 2004, M \$45/NM \$56

THE AMERICAN CHESTNUT: OUR LOST HERITAGE

HOR 0510__Monday, March 21, 2005, M \$10/NM \$13

A MORNING WITH LESLIE LAND

HOR 0511__Thursday, March 24, 2005, M/NM \$20

ANNUAL MEETING OF FRIENDS OF HORTICULTURE

HOR 05AM__Sunday, May 22, 2005, M RSVP/NM \$5

FALL SYMPOSIUM

EVOLVING GARDENS:

NEW AESTHETICS FOR 21ST-CENTURY DESIGNS

SYM 0500__Saturday, November 13, 2004, M \$90/NM \$110

WINTER LECTURE SERIES

EXPLORING THE DESIGN PROCESS

WLS 0501__Thursday, January 13, 2005, M \$18/NM \$23

DIGITAL BY DESIGN

WLS 0511__Friday, January 14, 2005, M \$45/NM \$55

THE NEW ENGLAND GARDENER'S PALETTE

WLS 0502__Thursday, January 27, 2005, M \$18/NM \$23

THE POLLINATOR PARTNERSHIP

WLS 0503__Thursday, February 17, 2005, M \$18/NM \$23

ON THE WILD SIDE

WLS 0504__Thursday, March 3, 2005, M \$18/NM \$23

ART CLASSES IN THE BOTANIC GARDENS

EXPERIENCED WATERCOLOR CLASS

WCC 0502__Winter 2005, M \$165/NM \$210

THE LANDSCAPE IN SPRING

WCC 0503__Spring 2005, M \$165/NM \$210

BOTANICAL DRAWING AND PAINTING

Foundations: Tuesdays

BAC 0513__Winter 2005, M \$195/NM \$245

Techniques: Fridays

BAC 0523__Winter 2005, M \$195/NM \$245

HOLIDAY BOTANICALS

BAC 0501__M \$75/NM \$95

PAINTING A PLANT PORTRAIT

Foundations: Tuesdays

BAC 0514__Spring 2005, M \$100/NM \$125

Techniques: Fridays

BAC 0524__Spring 2005, M \$100/NM \$125

DRAWING FLOWERING PLANTS

SBA 0502__Winter 2005, M \$120/NM \$150

PROGRAM TOTAL _____



WELLESLEY COLLEGE
Friends of Horticulture
Science Center
106 Central Street
Wellesley, MA 02481-8203

Non Profit Org
U S Postage
PAID
Boston MA
Permit No 12548