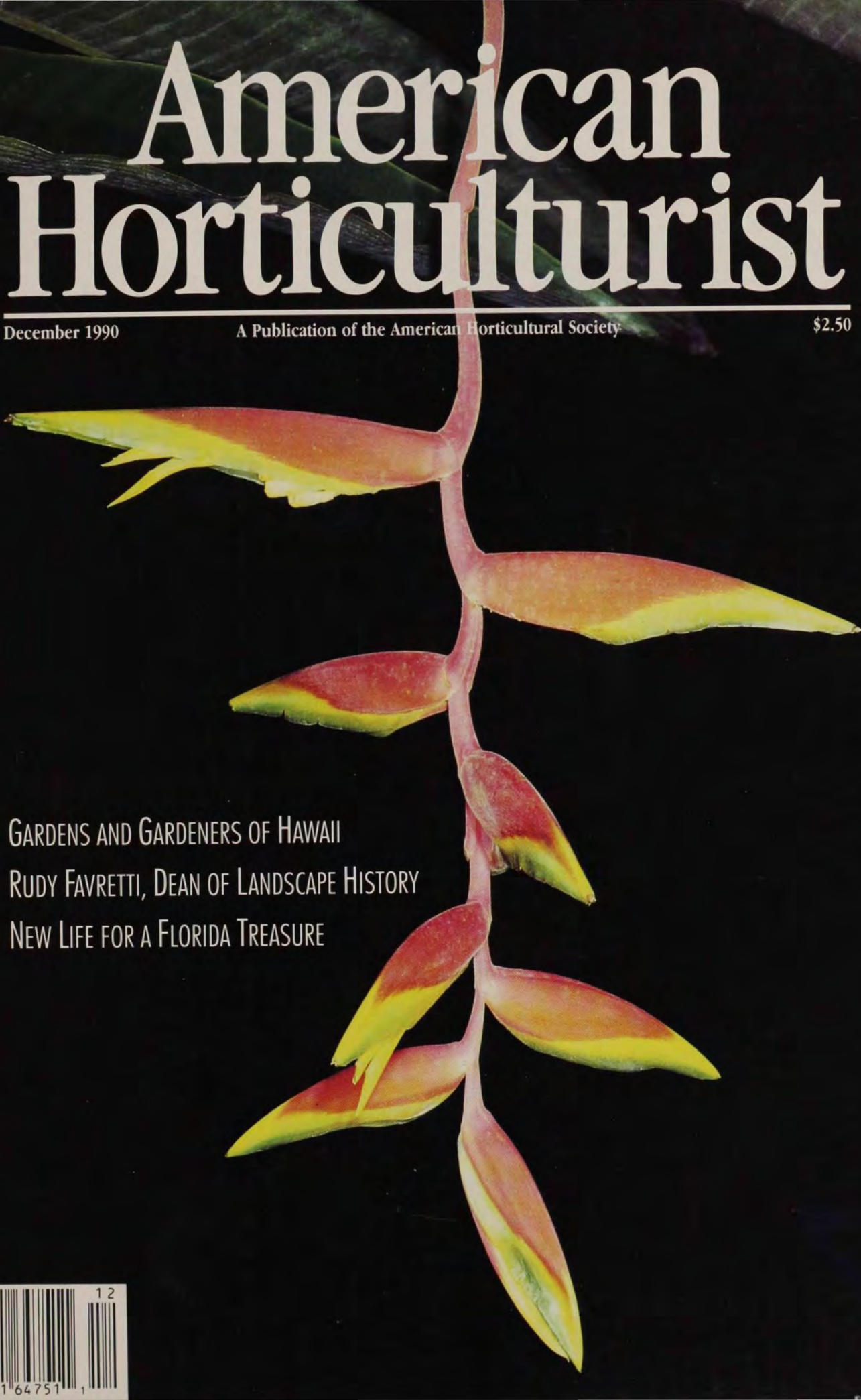


# American Horticulturist

December 1990

A Publication of the American Horticultural Society

\$2.50



GARDENS AND GARDENERS OF HAWAII  
RUDY FAVRETTI, DEAN OF LANDSCAPE HISTORY  
NEW LIFE FOR A FLORIDA TREASURE

12





# STUDY TOURS

## TRAVEL/STUDY TOURS FOR THE AHS GARDENER

### MARCH 1-14, 1991 NATURAL GARDENS OF PANAMA AND COSTA RICA

Join long-time AHS member Claude Hope on board the *Yorktown Clipper* on an extraordinary exploration voyage beginning in Panama City, Panama, and concluding in San Jose, Costa Rica. Explore the Caribbean coast of Panama, including the San Blas Islands. A daylight transit of the Panama Canal brings us to the Pacific coast of Costa Rica with its horticultural treasures coveted by botanists the world over. Explore quiet tropical rivers, major archaeological sites, cloud forests, volcanoes, and rain forest canopies brimming with orchids. Mr. Hope invites us for a special visit to Linda Vista, a 200-acre flower seed farm that he established at Cartago, Costa Rica. If you have ever planted petunias or impatiens in your garden, they were most likely from seed originated at Linda Vista.

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### APRIL 21-28, 1991 GARDENS OF THE MISSISSIPPI

Experience the grandeur of the Mississippi from New Orleans to Memphis on board the *Mississippi Queen*. Ports of call along the river include Houmas House, Saint Francisville, Natchez, Vicksburg, and Greenville. Experience true Southern hospitality as AHS members and friends along the river open their homes and gardens for this horticultural adventure.

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### MAY 12-23, 1991 ENGLISH COUNTRYSIDE GARDENS AND THE CHELSEA FLOWER SHOW

AHS members will have the unique opportunity to meet noted horticultural author, Rosemary Verey, and visit her home and garden—Barnsley House—during this visit to the rolling hills of the Cotswolds and Kent. Participants will visit the gardens of Hidcote Manor, Sudeley Castle, Oxford, Denmans near Arundel, Nymans Gardens, Wakehurst Place, Great Dixter, Sissinghurst Place, and Isabella Plantation before transferring to London to enjoy the Chelsea Flower Show. Guest lecturer for this program is David Wilson, popular panelist on the BBC's series, "Gardener's Corner." The tour will be led by Elvin McDonald, noted lecturer and author and an AHS Board Member.

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### JUNE 10-20, 1991 GARDENS OF THE COLORADO ROCKIES AND CANYONLANDS OF THE SOUTHWEST

Explore the diverse contrasts of plant materials from the alpine meadows of the Colorado Rockies to the desert plains of the Southwest. Explore unique, out-of-the-way parks like Arches National Park, the Goosenecks of the San Juan and Canyon de Chelly National Monument. See firsthand the varied uses of native plants as AHS members and friends open their gardens and homes for our special visit.

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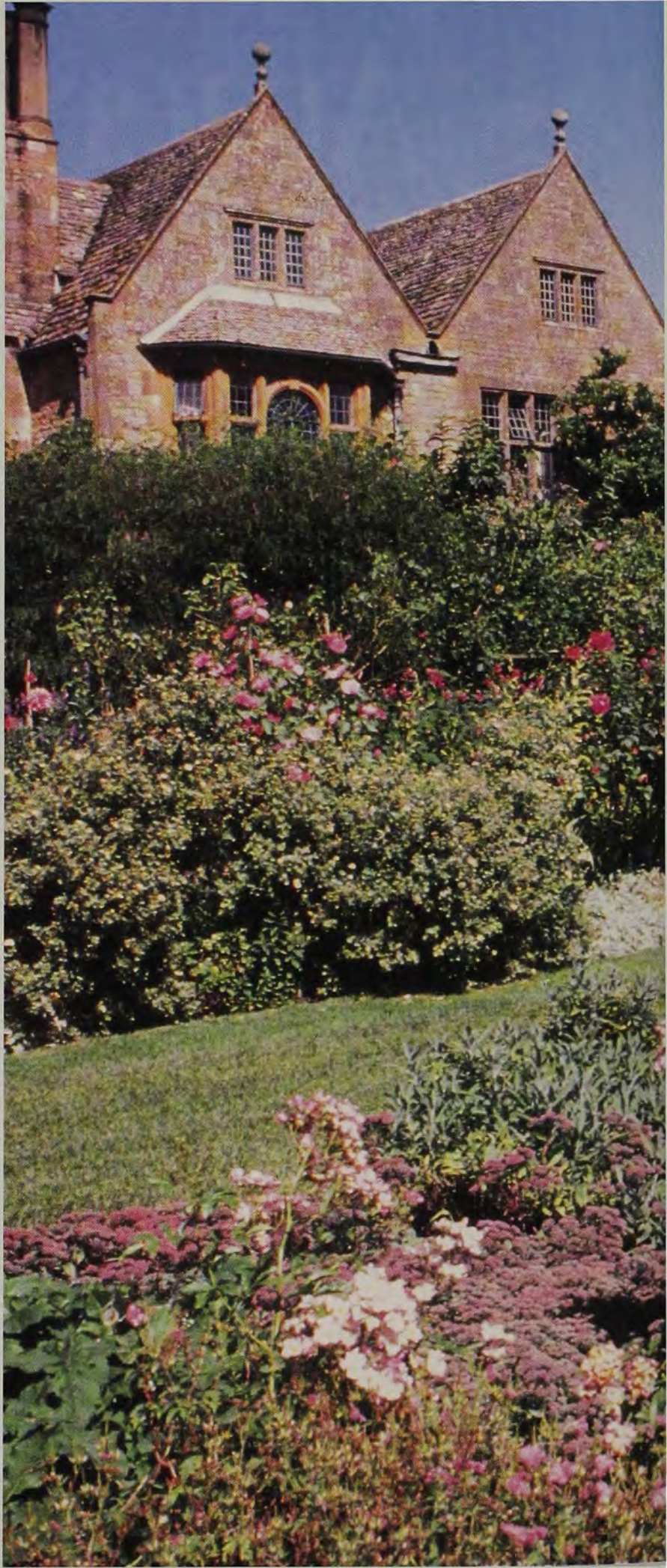
### AUGUST 14-27, 1991 GARDENS OF THE MEDITERRANEAN

Cruise aboard Sun Line's yachtlike *Stella Maris* along the northern coast of the Mediterranean Sea from Nice to Venice. En route we visit magnificent private and public gardens of France, Italy, and Yugoslavia as well as the wildflower meadows among ancient ruins and botanical gardens in Greece. The itinerary includes two nights in Nice and three nights in Venice as well as calling at the ports of Portofino, Elba, Sorrento, and Messina, Italy; Katakalon and Corfu, Greece; and Dubrovnik, Yugoslavia. The BBC's David Wilson will be guest lecturer for this memorable summer tour.

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Hidcote Manor Gardens, in the Cotswolds, are among gardens to be visited during an AHS Study Tour next May.

COURTESY OF THE BRITISH TOURIST AUTHORITY





# American Horticulturist

Volume 69, Number 12

December 1990

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### Gardening Challenges: Hawaii—Land of Endless Summer

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## DECEMBER'S COVER

Photographed by W. John Kress

*Heliconia rigida* is one of several pendulous forms of the genus, whose members are commonly called lobster-claws or false birds-of-paradise.

Growing heliconia outdoors is risky even in Florida, but in Hawaii, they are often seen in the landscape and are farmed for the cut flower market. This photo will appear in *Heliconia: An Identification Guide* by W. John Kress and Fred Barry, to be published by Smithsonian Institution Press in February.

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# COMMENTARY

In my business, I have several dozen research projects going at any given time. After much screening and testing in our greenhouses and outdoor plots, usually only a few new selections display the characteristics we're searching for. We subject these survivors to conditions in trial grounds across North America, Western Europe, and Japan. After several decades of data on the performance of our annuals and perennials in the United States, we are still astonished by the extremely different reactions the same plant can have to the different environments. Performance can even flip-flop from year to year for the same variety. For this reason, we must select new introductions with great care.

I make this observation to illustrate how variable the conditions are in which we tend to our plants. I don't believe there really is an "American horticulture" in the sense of a unified art or practice. Each part of the country has its unique set of circumstances. I'd rather define American horticulture as the sum of its parts; that is, the various activities of American horticulturists. This distinguishes the AHS from local or regional societies that focus on a given area or group of plants. The AHS is devoted to general issues and challenges facing all kinds of horticulturists. There are common desires, responses, problems, and practices that unite us, both amateurs and professionals. Our knowledge and willingness to share our jumble of experiences with plants define American horticulture for me.

The role played by the AHS has three parts. First, we promote and develop a general interest in horticulture and horticultural issues. Second, we monitor, interconnect, and promote the interests and activities of specific societies that deal with one or another aspect of horticulture: a region, plant, plant group, or particular subject. Finally, we serve you, our individual member, by providing you with news of the multifaceted events and important developments in horticulture here and abroad. We also travel to hold seminars, and we host lectures at our River Farm headquarters.

This month *American Horticulturist* reflects our nation's horticultural diversity by focusing on two of its more tropical states—Hawaii and Florida. While gardeners in these areas are to be envied for the ease with which they can grow beautiful and interesting plants such as heliconias and staghorn ferns, they face setbacks like the rest of us: a disastrous freeze for Florida in 1989 and challenging microclimates throughout Hawaii.

As a final thought, those of you who would like a view of American horticulture could do no better than to join us in March in Costa Rica. One of the premiere American horticulturists, Claude Hope, will accompany us. He pioneered much F<sub>1</sub> hybrid flower breeding and production. His career has spanned many decades, during which he has written articles and taken photographs that appeared in this magazine. He is something of a sage on many aspects of tropical horticulture and agriculture, and has graciously accepted the position of host on our Costa Rican trip. Please join us for this unique opportunity.

George C. Ball Jr.  
AHS President







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**APRIL 17-20, 1991**

Don't miss some of the nation's best-kept horticultural secrets! Our 1991 Annual Meeting in Birmingham, Alabama, will be centered at the Birmingham Botanical Garden, with lectures and classes taking place in the gardens themselves, led by the many talented gardeners, designers, and horticulturists from Birmingham and across the state.

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**PRIVATE AND PUBLIC GARDEN TOURS  
WILL BE INCLUDED**

And as always, a highlight will be honoring our annual award winners—another opportunity for you to meet and share your experiences with the horticultural leaders in America.

Our Birmingham meeting is a rare opportunity that will challenge and stimulate you—whether you are a fledgling amateur or a professional horticulturist. We look forward to your joining us and sharing a wonderful few days in Birmingham. See you there!

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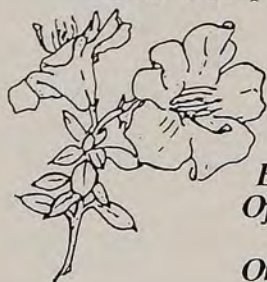
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## LETTERS

### Wrong Plant

In the August edition of your publication there was an interesting article on big plants for the back of the border. There was mention in the article of the virtues of the imposing *Angelica archangelica* and the use of its candied stalk in cooking.

Unfortunately, the accompanying photograph was definitely not that of an angelica plant, but one of *Ricinus communis*, the castor oil plant, one that I hope your readers do not attempt to candy. This



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RUTH ROGERS CLAUSEN

*Angelica archangelica*

whole plant is highly poisonous, but the seeds especially are very toxic due to the presence of a high concentration of the toxin ricin; one or two seeds can prove harmful or even fatal. The seeds provide an oil that is used medicinally, but this is extracted using a heat process that deactivates the poison.

The castor oil plant itself is a very "architectural plant," generally grown as an ornamental annual, although it has naturalized itself in many of the warmer parts of the United States. There are several different cultivars, showing a wide range of colored foliage from green through bronze



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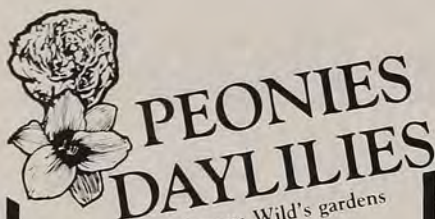
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and dark red to almost blackish.

David Palmer  
Beaverton, Oregon

Several other readers wrote to point out  
that the subject of our photo was the castor  
bean or castor oil plant. A photo of the real  
Angelica archangelica appears on page 6.

## Wrong Category

American Horticulturist came yesterday  
and the first thing I saw was a rose on page  
three! 'Gold Medal' is a grandiflora, not a  
hybrid tea as stated under the picture.

Thanks for such a great magazine!

Elinor J. Powell  
Ada, Ohio

We're glad you still like us! You are right,  
of course: the American Rose Society clas-  
sifies 'Gold Medal', which appears on our  
June cover, as a grandiflora.

## Book Source

In the October article, "People Love Plants,  
Plants Heal People," you made reference  
to a book *The Experience of Nature: A  
Psychological Perspective*. We are very in-  
terested in obtaining a copy. Can you help  
us out by suggesting where we might find  
a copy?

Karen K. Neubauer  
Montague, Michigan

This is one book not available through the  
AHS Book Program. Written by Rachel  
Kaplan and Stephen Kaplan, it is published  
by Cambridge University Press, 32 E. 57th  
Street, New York, NY 10022.

## Corrections, Omissions

Credits were inadvertently omitted on  
some of the photos in the October issue.  
The bottom photo on page 15 ("People  
Love Plants, Plants Heal People") was  
taken by Elvin McDonald. The photos on  
page 29, showing some of the beautiful  
wildflowers in Egan Gleason's Dallas gar-  
den ("Learning from Verbena") were  
taken by James F. Wilson. And we  
apologize to our good friends at Milaeger's  
Gardens, whose name was misspelled in a  
listing of sources ("Planting Flowers for  
Pressing") in the June issue.

American Horticulturist welcomes letters  
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ters may be edited for accuracy, clarity,  
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**W**illiam Lyman Phillips was one of the ablest and most imaginative associates in the fabled Olmsted Brothers landscape firm. His work, known for its bold creation of long vistas, innovative planting, and artful handling of light, shadow, and water, reached its creative peak in the private estates he designed in the 1930s. And now the best of these designs is being restored as a public garden.

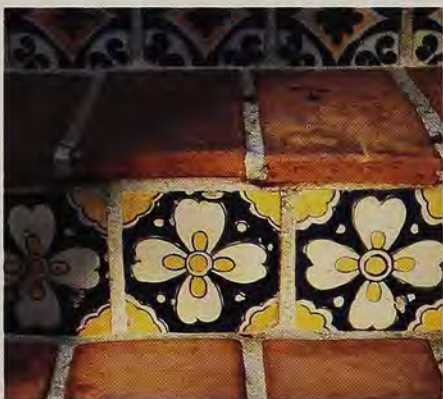
Bok Tower Gardens in Lake Wales, Florida, has begun rehabilitating an adjacent estate, now called Pinewood, that Phillips shaped in the 1930s for Bethlehem Steel executive Charles Austin Buck. Phillips was bold not only in mixing landscape styles and features, but in his choice of plants, and his vision for this parcel of not quite eight acres should re-emerge largely intact. The landscape was essentially untouched for thirty-five years, and the guesswork so often required for garden restoration projects will be unnecessary here: the designer's blueprints, plants lists, and correspondence with the original owner are still available.

Its completion will place side by side the work of Frederick Law Olmsted Jr., who designed the sixty-five-acre Bok Tower Gardens as a public preserve, and Phillips, who were professionally associated for twenty years and close friends for more than forty.

Olmsted and Phillips, says Jonathan Shaw, president of Bok Tower Gardens Foundation and director of the gardens, "were men of genius. Their stamp is still on the ground today. You can feel it when you walk around." In addition, he says, "Phillips practiced an incredible diversity of horticulture. He experimented, he learned—unlike the narrow specialization

FIRST CALLED EL RETIRO, PINEWOOD WAS AT ITS PEAK IN THE 1930S. PHOTO COURTESY OF BOK TOWER GARDENS FOUNDATION





PHOTOS BY DAVID M. PRICE

**Features such as bright flowering plants in containers and colored tiles on the floors, garden walls, and fountains reflect the original owner's fond memories of living in Cuba.**

you tend to see today." Phillips urged experimentation with plants from other countries, particularly Australia, where a similar soil and climate indicated successful adaptation in Florida. He collected seeds from around the world and encouraged others in the business to do the same; he virtually launched many nurseries in the state to supply his growing needs for thousands of plants, and unusual species, for his clients.

Sixty years, and hard freezes in 1940 and 1989, have spelled the end of many of Pinewood's original plants. But his formal gardens and garden rooms are still bor-

dered with a profusion of exotic and native shrubs that flower in masses of pinks, blazing yellow, cream, red, and lavender: azaleas, hibiscus, oleander, Chinese box orange (*Severinia buxifolia*), silk oak (*Grevillea robusta*), magnolias, orchid trees (*Bauhinia purpurea*), and butterfly flowers (*B. monandra*), and many acacias, including the pearl acacia (*Acacia podalyriifolia*), which was sure to bloom for its owner in winter. The air remains redolent of citrus, tea olive (*Osmanthus fragrans*), and jasmine.

Phillips's signature was his use of water—for the sense of serenity it imparted, for its shimmering reflections, for its sounds—and the plashing of water can still be heard from the fountain in the walled moon gate garden and the frog fountain on the patio; a soft drip-drip echoes from the back wall of the grotto. Palms, great oaks, and pines surround an impressive Mediterranean revival house—a style with strong Spanish influence that was fashionable during Florida's boom days in the 1920s and '30s. Pinewood is considered one of the best examples of this style in the state, because of its elegance, simplicity of form, and comfort. Its thick stucco walls, cross ventilation, and the protection from sun afforded by its many trees must have offered welcome relief in the days before air conditioning.

Olmsted first came to Lake Wales in 1914 to meet with Edward W. Bok, editor of *Ladies Home Journal*, about his plans to build Mountain Lake Sanctuary. This was to be a public park preserve of rare beauty and serenity—Bok's way of repaying the nation in which he had been so financially successful. The sanctuary would become the site of the magnificent marble bell tower, which dominates the preserve and houses a famous carillon.

At the same time, Olmsted was hired by developer Thomas Ruth to design a private enclave, Mountain Lake Colony, immediately adjacent to the preserve. It was to be divided into estates for prosperous winter residents, modeled after Olmsted's designs at Roland Park in Baltimore, Forest Hills Gardens on Long Island, and Palos Verdes, California. Later, the park's name would be changed to Bok Tower Gardens to eliminate confusion between the two "Mountain Lakes."

In 1923, when the work finally was ready to begin, Frederick Law Olmsted sent for Phillips to be his "representative in complete charge for Olmsted Brothers" for both projects. "F. L." as his associates

called him, was constantly on the go, meeting clients and bringing so much business into the firm that he needed representatives to fulfill the new contracts, implementing his ideas or carrying out their own. More often than not, Phillips got the call.

Brilliant and exceptionally gifted, Phillips was Olmsted's student at Harvard in an innovative program that trained him in architecture, engineering, and town planning in addition to landscape architecture. He graduated cum laude in 1910 and the next year joined Olmsted Brothers.

However, he remained free to take time out for his own work and before he arrived in Lake Wales at the age of 38, he had worked in Canada and New York, designed countless estates and parks for the firm, made the grand tour of Europe to study its gardens and villas, laid out the townships of Balboa and San Miguel Elende in the Canal Zone, built cantonments in the United States for the Quartermaster Corps during World War I, and was in charge of landscaping American military cemeteries in France. He married a French woman and rejoined F. L. in Palos Verdes.

While he was still working on the Mountain Lakes projects, the Great Depression brought private landscape projects to a halt, and with them, Phillips's travels. He would spend the rest of his life in Florida where he accomplished a phenomenal amount of work. He was U.S. Project Superintendent for the first Civilian Conservation Corps, supervising its crews in the construction of several state parks. He designed all of the Dade County Parks, including Greynolds in North Miami, which is now on the National Register of Historic Places. And he created his own masterpiece, the Fairchild Tropical Garden, in Coral Gables. He received many honors before his death in 1966, nine years after Olmsted's.

Thus to have a Phillips landscape design in Mountain Lake, where it would have the Olmsted seal of approval, had real cachet.

In 1929 the vice president of Bethlehem Steel, Charles Austin Buck, visited his sister in Mountain Lake Colony and purchased a little less than eight acres for himself directly on the Bok garden border. When he saw the stunning landscapes Phillips was designing, each one unique to the owner's taste, he immediately retained him to site his house and gardens on the property he called *el retiro*. In a reversal of standard procedure, he then brought in architect Charles Wait. This triumvirate of two professionals and a passionate amateur



gardener enjoyed a remarkable and unhurried collaboration until 1932.

As a young man, Buck had worked in Cuba, and the country made a lasting impression. Buck wanted his house to reflect the easy Latin lifestyle he remembered, in which one moved easily from cool interiors to outdoor patios with palms and agaves and bright flowering plants in tubs, and where he could sit and look at the rest of his gardens beyond terrace walls. Phillips understood; he'd fallen in love with the tropics when he worked in Panama and Puerto Rico. He would make Buck's dream a reality. Buck did his part, going to Cuba to buy tiles for the floors and garden walls and fountains. He brought back seeds to start in his Bethlehem, Pennsylvania, greenhouse for later transplanting to the estate, and ordered ten *tinajones*—huge, round terra cotta olive oil jars—to add to the exterior's feeling of grandeur.

Phillips's landscape design is based on a central long axis running from a rondel of cypress pines (*Callitris verrucosa*) at the southeast boundary of the property to a pond on the western edge. This imaginary line runs through the center of the house, which is set north-south. This is a classical European method of siting a villa in a park to produce a fluid integration of house and environment. It is most evident on the lower west, where Phillips used the natural lay of the land to the fullest. Here, house and garden are on the same level, doorsill to grass, producing the easy indoor-outdoor access that Buck sought.

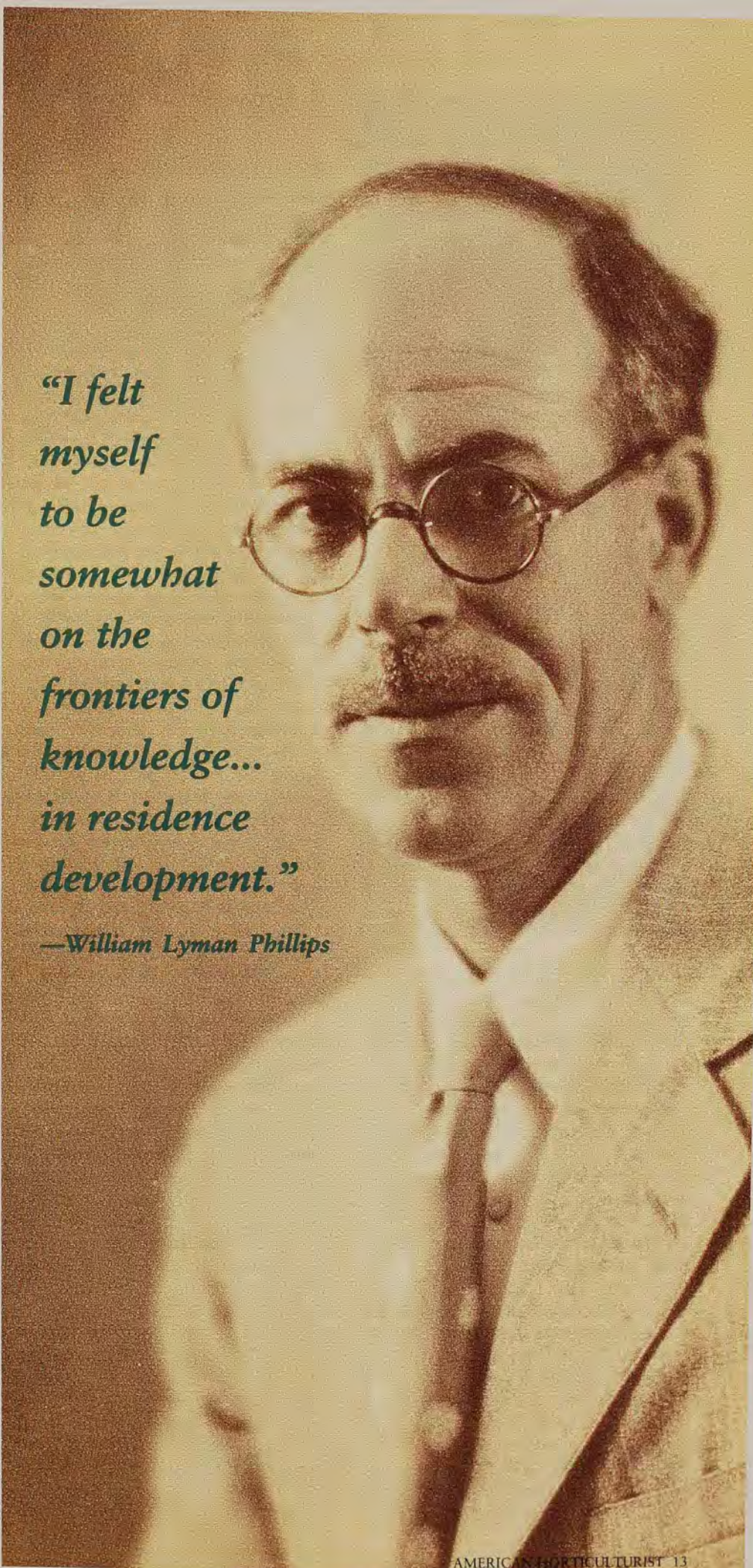
The moon gate garden on the northwest corner almost seems an extension of the dining and breakfast rooms. The eye travels across a small patch of lawn that is bordered by paths, a line of blue, white, and yellow annuals—a color combination Phillips borrowed from Gertrude Jekyll—and a hedge of ligustrum, through the octagonal gate to the fountain, which is invisible from the other three sides. "The Chinese," wrote Phillips, "placed a decorated gate screen behind the opening to keep out evil spirits, who can only travel in a straight line." But Buck never built the screen here; the result is a sunlit space privy only to the eyes of the residents.

One of the loveliest spots Phillips created was a cloverleaf pond at the bottom of the property. He put it there, he said, "to make a view, which otherwise would be uninspiring." From the house, one sees a grove of palms, a bench, a magnificent dogwood, two *tinajones*, and the pond reflecting trunks and sky.

*"I felt myself to be somewhat on the frontiers of knowledge... in residence development."*

*—William Lyman Phillips*

COURTESY OF JULIETTE PHILLIPS COYLE







**Above:** Orchid trees are among the plants still filling Pinewood's garden rooms with a blaze of color. **Right:** Huge tinajones oil jars add to the sense of grandeur; a frog fountain brings sound and sparkle to the terrace.

## VISITING THE GARDENS

**B**ok Tower Gardens is open all year, 8 a.m. to 5 p.m. It is located fifty-five miles south of Orlando and 200 miles northwest of Miami. Take exit 17A from alternate 27. Write to Visitors Services, P. O. Box 3810, Lake Wales, FL 33859-3810, or call (813) 676-1408. Admission is charged.

Pinewood House and Gardens can be seen by appointment only. During the restoration period, it will probably be closed in summer. For more information, write or call Bok Tower Gardens.

The east side really had the lesser view. At its far end, Phillips situated an orchard of various citruses. The fruit trees mark the edges of allees that divide the space into pie-shaped wedges meeting at a rondel—another classical ploy that serves to increase the sense of distance.

Below this slope is the “proper” front entrance, almost unnoticed; Phillips had designed a covered walk to the front door, which Buck vetoed. Whenever there were differences, the owner always won. “Your decision put me momentarily out of gear,” Phillips would write, and go back to the drawing board. If at times it was an exercise in providing a client with what he wanted while preserving artistic integrity, either in spite of it or because of it, the result was a masterful design.

Between door and orchard is an aggregate of stairs with colored tile risers connecting excavated levels and retaining walls bisecting the area into “rooms.” The terrace of gray coquina—Florida oolitic limestone—was bordered with formal

plantings and Buck's requested profusion of pots and flowering tubs, agaves and strelitzias and *tinajones* marking the corners. The tiled frog fountain was centered between the library's French doors and the grotto—a European gothic favorite—where water dripped down the rocks into a pool circled by ferns and dwarf cycads. To some eyes, this feature may not be of great beauty. A grotto, by definition, is a cave, and this one was dug because Phillips needed dirt somewhere else. Ever practical, he covered the front of the hole with stones and planted the top with citrus.

The house is as elegant and inviting as the gardens, with eight family bedrooms and sleeping quarters for seven servants, a vaulted living room, library, sitting rooms, large kitchen, and surprisingly small dining room. Great pains were taken to make it look instantly like an old Renaissance-Mediterranean villa, with round tower, vaulted windows, arched doorways, and hidden nooks. The exterior's salmon-colored paint, chosen to cut sun glare, was smoked and mottled, and the quick-climbing creeping fig, *Ficus pumila*, soon appeared to have been in place for decades. In keeping with the architectural style, into which Phillips had considerable input, he drew on his knowledge of Italian gardens to design the allees and paths and bosque—a wooded grove encircling the great park.

Central to the harmonious composition he achieved with a calculated repetition of plant themes were the many groups of tall, columnar, architectonic *Callitris verrucosa* and artfully placed specimen magnolias, camphors, palms, and oaks, which were already large when he planted them.

Rudy Favretti, the landscape architect and historian hired by Shaw to develop the master landscape restoration plan, calls Phillips one of the most “eclectic and trendy” members of a firm recognized for being a trend setter. It pleased Phillips to use his ingenuity and imagination to combine an English park with Spanish and Italian styles, and to include conceits such as the grotto and the moon gate and a color scheme borrowed from Jekyll. To this, he added his considerable artistry in handling open spaces and situating plantings to catch and influence light and shadows. He created long views, looking up to the Bok Tower three miles away, and short views, from house to pond, house to orchard, and through the trees to plantings on the slope. Such strong vistas in all directions made Buck's fewer than eight acres seem three times greater.

David M. Price, Bok Tower Gardens' head horticulturist, calls Phillips's plant selections “radical, even avant-garde” for the period, and Phillips probably would have been the first to agree with him. “In Mountain Lake in '26,” he wrote in the '40s, “I felt myself to be somewhat on the frontiers of knowledge...in residence development. I had to work out a whole new technique, for structural materials as well as for planting. There is no doubt that I established practices which have become standard.”

While owned by Buck, *el retiro* was maintained by seven gardeners, even though it was rarely used more than four weeks a year. Two subsequent owners, who renamed the property *el encierro* and then Keenwood, provided no more than minimal maintenance. In 1970, the estate was acquired by the American Foundation, the Bok Foundation's forerunner, to protect the Bok gardens' western flank. Nellie Lee Bok, then president of the board, urged the purchase to prevent the property from going to someone “more interested in revenue than sanctuary...who could build a night club, a shooting gallery, swimming pool...or put up a ferris wheel.” It then became Pinewood, for its 165-year-old longleaf pines (*Pinus palustris*).

The restoration project came alive in the 1980s with the arrival of Shaw as president, Susan Wallace as assistant horticulturist at Bok Tower, and Price as director of horticultural services and grounds. Already on the staff was Helena B. Caldwell, who has been keeper of records at the Bok Tower Gardens Library for the past sixteen years and who produced the original *el retiro* material that is the nucleus of the restoration bible.

In his plan, Rudy Favretti (see profile, page 24) tracked Phillips's work with enthusiasm and appreciation for the styles he adapted, his ingenious devices and solutions to problems, and the strong statement he made. He concluded that the very eclecticism of the garden became Phillips's own unique style, and he favors as close a restoration as possible; his immediate priorities would be the bosque and the orchard.

Interestingly, it was the years of benign neglect, from the time that Buck died in the mid-1940s until the property was purchased by the foundation in 1980, that prevented drastic and irrevocable changes and left the ground plan remarkably intact. Many of Phillips's designs elsewhere have been irrevocably altered. And while some of his thirty-odd other designs for the





DEREK FELL

Mountain Lake Colony have been lovingly retained, they are rarely if ever open to the public. But the minimal upkeep of Pinewood has left rank cherry laurel and camphor seedlings choking the bosque along the perimeter of the park and pond and the upper gardens. Unwanted vegetation has obscured views and destroyed carefully planned vistas. Full-grown trees must be cut out of the old paths. Many of the original plants were destroyed or severely damaged by hard freezes that hit Florida in 1940 and 1989, and decisions must be made about where to find replacements for the rarer plants, and when and how much to relinquish absolute authenticity for close substitution.

Wallace notes that a garden is organic; unlike a house, it is intended to grow and develop. Some changes are inevitable, even sound. "Subtropical gardens usually don't last long," she says. Borderline-hardy plants succumb, and plants well behaved in colder climates run amok. "When you are lucky enough to have a garden this strong, the best features will remain, even if we have to make changes," Wallace says. She believes Phillips and Buck would have been the first to try some of the species and methods that were not available then.

Those plants most critical to retaining the aesthetics of the Phillips design, says Price, if they cannot be kept or replaced by the same species, will have to be replaced by others whose size, shape, and texture make the same statement.

For example, the sixty-five-year-old *Callitris verrucosa* are an integral part of the design, but they were hard-hit by the last freeze. Everything possible is being done to revive them. If they die and can be replaced by other callitris, the new ones should grow fast—about fifteen feet in four years. But because these trees are not a popular stock item, and those seedlings in Wallace's nursery were likewise damaged by the cold, alternatives have to be considered. Italian cypress (*Cupressus sempervirens*) might work. Red cedar is possible where there is full sun. *Podocarpus*, junipers, and columnar magnolias have been suggested. Also hopelessly cold-damaged are the many palms so crucial to the design, such as the queen palm (*Arecastrum romanoffianum*) near the house. They too will have to be replaced, but are easily obtainable.

Another priority is to replant citruses in the upper east garden to meet once again at the rondel. Phillips used citruses as an integral part of his plan because Northerners who wintered in Florida were al-

ways thrilled with their beauty, scent, and fruit. But since the fruit crops were the most severely damaged plants during last year's freeze, the new seedlings will have to meet high standards of cold-hardiness as well as disease-resistance, desirable shape, and production of edible fruit.

Citruses also will be replanted atop the grotto and camellias, planted there after Buck's day, moved elsewhere on the grounds.

Price notes that changes in both plant availability and the environment may make some substitutions necessary.

"Not only have we had a freeze," he says, "but we are in the middle of a twenty-five-year drought. And while public gardens are not bound by the rules of the state's watering allowances, Bok Tower Gardens has always practiced water conservation, and that has an impact on planting."

New plants must be not only cold-hardy and drought-tolerant but also low-maintenance and nonaggressive. Wallace is charged with retaining, on the limited budget of a public garden, the essence of a '30s garden on which Buck lavished unlimited funds and labor. Still, she has made remarkable progress in the last two years. Her one full-time gardener, Gaye Brouen, plus modern equipment make it possible to provide at least low maintenance on a large scale. Five to ten once-a-week volunteers, whom she can't praise highly enough, have excavated and rebuilt the grotto and planted the moon gate garden and the area around the service entrance. Cleanup of dead trees and underbrush and removal of trees to regain the clear vista of the Bok Tower is ongoing.

Those involved in the restoration don't always see eye-to-eye on the solutions to these plant material problems. While Wallace thinks Phillips was a design genius, she is not thrilled to have to deal with some of his "horticultural disasters," such as cherry laurel, camphor, and Brazilian pepper. He apparently knew their invasive habits but used them anyway, counting on heavy maintenance to contain them. Nor is she happy that Favretti likes the cherry laurel.

But all agree on their main priority: to keep finding solutions, as Wallace says, "so that restoration will duplicate as closely as possible the original design and preserve the charm and the historic significance of this wonderful old garden."

*Faith Jackson, former book editor of the Miami Herald, is writing a biography of William Lyman Phillips.*



# HAWAII

## LAND OF ENDLESS SUMMER

*The greatest lament of gardeners  
in the fiftieth state may be  
"So many plants! So much time!"*

B Y R U B Y W E I N B E R G

"WELCOME TO PARADISE!" said Jean Thomas, tossing fragrant plumeria leis over our shoulders. Thomas is a landscape designer who lives on Oahu's eastern coast. An active member of the Garden Club of Honolulu, she would be introducing my husband and me to other island gardeners during our recent visit to four of the eight inhabited islands of the Hawaiian archipelago.

For those whose idea of heaven is beautiful plants, the fiftieth state is indeed paradise. Although Thomas had advised us to delay our trip until April's explosive burst of color, countless trees were already in flower in March: tiger's claw, African tulip, frangipani, ohia lehua, coral showers, jacaranda. Because 80 percent of the world's flora is tropical, islanders can successfully cultivate a huge array of ornamentals. Sue Girton, another landscape designer, came to Hawaii from Oregon, which I had always considered a paragon of horticultural variety. But the diversity of plants she can

grow now, says Girton, makes Oregon seem bleak by comparison.

Still, Hawaiian gardeners are not without travail. Like all of us, they experience difficult soil, too much rain or too little, insects, threats from development to the environment and to native species. But they also have some more unusual problems, such as temperatures that vary only from about 60° to the mid-80's, resulting in an endless and exhausting gardening season.

Hawaii is not just one climate, but many. The state's average rainfall is seventy inches a year. But on the eastern coast of the Big Island—Hawaii—125





*Heliconia psittacorum*  
*'Shamrock'.* The  
species is commonly  
called parrot's flower  
because of the brilliant  
hues of its bracts.



inches is common, while Honolulu, on Oahu's south coast, receives an average of twenty-four. Generally, gardeners on the leeward or south and west of any of the islands have to irrigate their plantings, while those on the windward or north and east sides do not.

In planning a garden, topography and elevation also have to be prime considerations. Temperate climate plants, such as proteas, flourish on Hawaii's hillsides. Residents of the leeward seaside are successful with cacti and succulents. Gardeners near the sea need to select plants based on their resistance to salt spray.

Sue Girton's garden is in a hilly suburb of Honolulu north of Diamond Head Crater in an area called Mariner's Ridge. Girton has designed beautiful solutions to the twin challenges of a difficult slope and frequent wind damage. Part of the garden is surrounded with redwood fencing that she and her husband, Alex, weave for both themselves and her clients. A hedge of *Clusia rosea*, which has waxy pink flowers, surrounds another boundary. A staircase down the hill ends in a menehune wall; in Hawaiian folklore, menehunes are elves that complete a difficult construction task in one night. Alex Girton says he built the

rock wall not to slow the wind but to keep Sue from planting farther down the hill! It is now covered with the night-blooming cereus, *Hylocereus undatus*, whose white, musky-smelling flowers all open simultaneously at dusk and close at dawn.

A level area—formerly a muddy dog run—has been turned into a lawn bordered with flowering trees and shrubs, palms, and hundreds of "exotica," notably her favorite, bromeliads. This includes several used as ground covers. In one place, *Neoregelia compacta* serves that purpose. On the steep slope below the house, *Aechmea fendleri* and *A. gamosepala*, two bromeliads with contrasting foliage, are planted with pale green *A. blanchetiana* and gray green rosemary. With the garden completed—as much as any garden is ever completed—Girton's biggest job is battling destructive insects, against which there is no cold weather to give the gardener relief.

Jean Thomas agrees with Girton that the greatest challenge for gardeners in Hawaii is the perpetual, year-round care of plants that allows far too little time for contemplating future projects. Like most gardeners here, Thomas begins every day by hand-watering her container plants. She and her husband Wes live high above Kaneohe Bay on Oahu's windward coast. Rainfall here is usually adequate, but she advises her landscape clients to invest in irrigation systems just to be safe. In summer, she uses a catchment tank to retain water for her plants. To increase the water retention of her adobe soil, she amends it with bagasse, a sugar cane residue.

Many of her prized plants are in containers woven of dried hapuu, a Hawaiian tree fern. Other charming features include a small tree hung with discarded birds'



MARTIN WEINBERG

The Girtons have tamed a steep slope to the rear of their property with rosemary and bromeliads.

## PUBLIC GARDENS TO VISIT

### O A H U

▲ **Contemporary Museum and Garden**, 2411 Makiki Heights Drive, Honolulu, HI 96822. (808) 526-1322. 20 minute drive from Honolulu International Airport. 3.44 acres. Open Monday and Wednesday from 10 a.m. to 4 p.m.; Saturday noon to 4 p.m. No admission fee.

This estate was the Alice Cooke Spalding House, deeded to the Honolulu Academy of Arts, resold as a residence, and then given to the *Honolulu Advertiser* newspaper for a private art gallery. Since Spalding first hired a Japanese landscape gardener to transform her barren ravine into a garden, it has been revamped several

times. Winding paths on both sides of a "dry stream" depict a valley with thousands of well-placed rocks and century-old trees such as macadamia, kopsia, and banyan forming a canopy over what is now mostly tropical shade-loving plants. An excellent place to study ground covers.

▲ **Foster Botanic Garden**, 50 N. Vineyard Boulevard, Honolulu, HI 96817. (808) 537-1708. Center city between Vineyard Boulevard

and Nuuanu Avenue. 21 acres. Open daily 9 a.m. to 4 p.m. Admission fee.

Foster is both a city park and one of four county gardens that are being developed into botanical gardens. It was the property of Queen Kalama of Hawaii until 1885 when she sold it to William Hillebrand, the author of *Flora of the Hawaiian Islands*. Mature trees include several species of *Ficus*, *Lagerstroemia speciosa* (crape myrtle) and *Adansonia digi-*



nests and a teddy-bear-on-a-swing topiary made of *Ficus pumila*. Their living room, which is completely open to the elements most of the year, is attached to a lanai, a roofed terrace without sides—one of Hawaii's most pleasing contributions to outdoor living. But fencing assures their seclusion, affording them the privacy so sought after in this overcrowded state with a population density only slightly lower than that of California.

Some privacy can be found on the hillsides. The garden of Maile and Paul Yardley—she is a cookbook author, he is an established painter—is a rambling nest above Kauai's southern coast. From their rear garden or small deck, they enjoy seclusion and mountain scenery. The nearby hills are covered with Australian eucalyptus, which have beautiful white, exfoliating bark. The Yardley garden is planted with flowering shrubs, coconut palms, bamboos, and many potted plants. The drawback of this site is that it is the target of every cloudburst that comes along, and each rain seems to bring a new generation of destructive thrips.

Property is expensive here. In 1988, the average resale price of a single family home on Oahu was \$410,000 (though appreciably less on the other islands). Those fortunate enough to have large gardens to maintain find that the scarcity of moderate-priced housing has severely limited the number of gardeners, landscapers, and other workers. Gardeners throughout the islands echo Warren McCord of Kula Botanical Garden, who says: "Getting help is our biggest problem." For public gardens, this means that volunteers are even more indispensable than they are elsewhere in the United States.



MARTIN WEINBERG

*A century plant in full flower at Moir's Garden in Koloa.*

*tata* (baobab). Foster also has excellent vine, orchid, heliconia, palm, and bromeliad collections, but its garden of terrestrial orchids is outstanding as a demonstration of their landscape use. Plants are well labeled here.

▲ **Ho'omaluhia Botanic Garden**, Box 1116, Kaneohe, HI 96744. (808) 235-6636. Near east coast off Kamehameha Highway. 400 acres. Open 9 a.m. to 4 p.m. daily. No admission fee.

Ho'omaluhia is a natural

forest preserve full of interesting trees, shrubs, flowers, and fruit trees. It is a relatively new addition to the county park system, and permits picnicking (in specified areas) and camping (with a permit obtained two weeks before use). It also offers guided nature hikes at 10 a.m. Saturday and 1 p.m. Sunday.

▲ **The Harold L. Lyon Arboretum** (a unit of the University of Hawaii), 3860 Manoa Road, Honolulu, HI 96822. (808) 988-7378. A few miles





## TIPS FOR VISITORS

**M**any Hawaiian hotels have colorful and extensive landscaping. Some are superb in this regard; others are overdone theatrical layouts that may include pink flamingos, waterfalls suddenly gushing forth from man-made hillsides, and florid plant combinations. Avoid the seduction of "the complete Hawaiian experience" centered around one hotel by renting a car, visiting a variety of gardens, and flying to several islands for a comprehensive view.

Most of the botanical gardens and arboreta are not merely plant collections but well designed with landscape ideas for gardeners in temperate, subtropical, and tropical locations. Those from colder climates may find useful ideas for their house plant, greenhouse, or sun room displays.

Since Hawaii is inundated with tourists, its residents value their privacy over all else, and home gardens are infrequently shared with the public. Contacting "a friend of a friend" who has a lovely Hawaiian garden may be the best approach. However, the city of Honolulu does have a group tour program that visits three private gardens in different locations. The cost, including transportation, is \$500 for a minimum of thirty people. They can arrange such tours for botanical or horticultural groups.

For more information contact Mrs. George Schnack, Tour Committee Chairman, Garden Club of Honolulu, 3860 Manoa Boulevard, Honolulu, HI 96822.



A *Guzmania* in the bromeliad garden at the Harold L. Lyon Arboretum.

John Walker and his wife live in Maui near the base of a road leading to Haleakala Crater, on a ten-and-a-half-acre estate with an 1893 house. They are lucky to have two gardeners, Laura Hudson and Lenore Jacobs, who shortly before our visit had removed seven wagonloads of branches knocked down by a typical windstorm. But while their location is blustery it is also mild. The cooler climate lets them grow camellias, azaleas, agapanthus, manukas (*Leptospermum scoparium*), Shasta daisies, and proteas. John Walker's favorites are orchids, and he has more than 500 pots under screening. But Hawaiian gardeners, like so many others, often wish for pie-in-the-sky. "If only we could grow peonies," laments Hudson.

Unwary newcomers soon discover that such things as spring bulbs are totally unsuited to the Hawaiian climate. Nor are Hawaiian gardeners as adventuresome as they might be. In some areas, it seems as though bougainvillea, crotons, and poinsettias are as omnipresent as forsythia on the mainland. This is not because more varied plant material isn't available. Although Hawaii is the world's most isolated landmass of any appreciable population, this has not discouraged its horticulturists from importing ornamentals. Hawaii grows a good deal of its own stock, but some plants and bulbs are brought in from Japan and California. Nurseries have become established on all the major islands, because as much as ninety-five miles of Pacific Ocean separates each from the other. But quality and selection vary greatly. Says Sue Girton: "Landscapers need to know where the best nurseries are to locate special goodies of significance in ornamental design." It is not yet possible to earn a

north of Honolulu near Paradise Park. 124 acres. Open 9 a.m. to 3 p.m. Monday through Friday; noon to 3 p.m. Saturday. For guided tours, telephone for reservations. No admission fee.

In cooperation with the university, the staff has a full-scale hybridizing program, disseminates unusual seeds and plants, tests newly imported foreign species, conducts outdoor labs and classes for botany students, directs workshops, and promotes the

use of native plants. Its long trails lead to collections of trees and shrubs, vines, orchids, bromeliads, ethnobotanical plants, etc. Located beneath a mountain, the site receives 170 inches of rain per year. It was originally owned by the Hawaiian Sugar Planters Association to grow reforestation trees. When the site reverted to pasture, it was deeded to the university, which began landscape and plant collecting projects that are constantly being ex-

panded. Robert Hirano, assistant researcher, specializes in crossbreeding calatheas and marantas and hybridizing tropical Vireya rhododendrons.

▲ **Senator Fong's Plantation and Garden**, 47-285 Pulama Road, Kaneohe, HI 96744. (808) 239-6755. Near Kaneohe Bay on east coast; one mile from Kamehameha Highway. 725 acres. Open daily 9 a.m. to 4 p.m. Admission fee.

This is the estate of Hiram Fong who was born in China and immigrated to Hawaii

where he became a successful lawyer, businessman, and U.S. Senator for seventeen years. After thirty-five years of planning and planting his property was opened to the public in 1988 and still may be seen only from a tram with a tour guide who does, however, make frequent stops. The site is steeped in Hawaiian history, which is duly explained by the guide. Besides the many exotic ornamentals, there are seventy-five kinds of fruit and nut



degree in landscape architecture on the islands, but the University of Hawaii gives design courses that stress avoiding the mundane by concentrating on Hawaii's unique aspects.

Native plants always add a unique quality to regional gardens. But like their counterparts elsewhere, Hawaiian gardeners prefer to landscape with exotics, and their reasons may be more compelling. They have a wealth of the world's flora from which to choose—plants from rain forests, swamps, monsoon areas, deserts, and tropical beaches. Although using native plants usually minimizes the challenges of climate and pests, here many require careful planting to closely duplicate their specific conditions before humanity's intrusion upon the environment. Thus, those natives of ornamental as well as botanical interest require educated cultivation before they can adapt to gardens.

The islands are young in geological time. Kauai, the oldest, emerged only twenty-seven million years ago. All the islands were subsequently clothed in a green mantle from seeds that floated in on their own, were blown in by wind, were carried on the feet and feathers of birds, or were attached to the sea's flotsam and jetsam. This produced about 400 ancestor plants that evolved into more than 1,000—perhaps as many as 2,000—flowering plants, each adapted to a specialized niche. Of these, 94 to 98 percent are endemics, meaning that they are found nowhere else on earth.

Ironically, the generally favorable climate has worked against the survival of these native species in a number of ways. About a thousand years ago, Polynesians arrived from the south, bringing with them thirty foreign species including sugar cane,



MARTIN WEINBERG

*A grove of flowering coral trees in Kualoa Park on Oahu's rainy eastern coast.*

trees. The Senator still works several hours a day in the garden; his wife collects flowers for arrangements. A demonstration of the art of creating leis is also given here.

▲ **Waimea Arboretum and Botanical Garden**, 59-864 Kamehameha Highway, Haleiwa, HI 97712. (808) 638-8511. North shore, part of Waimea Falls Park. 800 acres. Open daily, including holidays, from 10 a.m. to 5:30 p.m. Admission fee.

This is a combined botani-

cal and recreational facility, with the former in a 150-acre valley. Its thirty-seven gardens contain 8,000 plant species. Waimea's mission is cultivating endangered Hawaiian plants as well as those from East Africa, Ecuador, Guam, and other tropical areas. It has one of the world's largest collections of *Erythrina*.

## MAUI

▲ **Helani Gardens**, Box 215, Hana, HI 96713. Slight-

ly north of Wainapana State Park on Maui's east coast. 60 acres. Open daily 10 a.m. to 3 p.m. Admission fee.

The lower garden includes a walk through a bamboo grove, vine-covered bridge, and koi pond. The upper garden can be seen from your car. The site is also a working nursery.

▲ **Kapaniwai Heritage Garden**, Route 30, north central Maui near Kahului Airport. Turn left before reaching Iao State Park. No admission fee.

Formal gardens and pavil-

ions representing plants instrumental to the growth of Hawaii including imports from Japan, the Philippines, and China.

▲ **Kula Botanical Garden**, R.R. 2, Box 288, Kula, HI 96790. Kula Highway on Kekaulike Road, Central Maui. 343 acres. Open daily 9 a.m. to 4 p.m. Admission fee.

Members of the Protea family are grown here for the cut flower market, as are Monterey pines, (*Pinus radiata*) for Christmas trees.





The silversword (*Argyroxiphium sandwicense*), seen here on Haleakala Crater, is one of Hawaii's many endangered species.

taro, and sweet potato. Many endemics, unable to compete with introductions, began to die out. When Captain Cook landed in 1778, his botanist began an immediate catalog of the flora while the ship's crew became the first Europeans to assault the conditions under which these plants grew. Cook and his followers brought in goats, sheep, and cattle, which played havoc with the ecosystem. Today, agriculture and cattle ranching are being outdone by tourism in altering the environment. The more than six million people who visit the island each year have led to nonstop construction of roads, housing, hotels, and beach-front development. Hawaii, with only two-tenths of the United States' land, now has 72 percent of its plant extinctions.

Ardent gardeners, such as Sue Girton, haunt plant sales, botanical gardens, and estate auctions for rare natives. At one of the latter, Girton found the endangered *Brighamia citrinia* var. *napaliensis*, an inhabitant of rocky cliffs, which looks like a cabbage on a bulbous palm trunk. She pollinated the flowers with a brush shaped like the long, curved bill of a honeycreeper, an extinct bird that once did the job, and from the harvested seed, grew 200 plants that she distributed to members of the Garden Club of Honolulu.

The Harold L. Lyon Arboretum, along with other of Oahu's botanical gardens such as Foster, Waimea, and Ho'omaluhia, are among those promoting the culture of natives. The National Tropical Botanical Garden on Kauai recently gave away hundreds of interesting shrubs, trees, and vines of sixteen different species along with cultural information to help gardeners get them started.

Lyon's Robert Hirano notes that today,

Because of its elevation (on the climb to Haleakala crater), the hillside garden is a treasure trove of temperate climate plants such as protea, fruit trees, and flowering vines. President Warren McCord has grown many that people told him were impossible, and displays them in a lovely design between two stream beds. There is a vine-covered bridge, an arbor with benches for resting in the shade, and a beautiful pond surrounded by flowering shrubs.

## HAWAII

### BIG ISLAND

▲ **Hawaii Tropical Botanical Garden**, P.O. Box 1415, Papaikou, HI 96721. (808) 964-5233. Five miles north of Hilo, east coast, scenic Route 4 on Onomea Bay. 17 acres. Open daily 8:30 a.m. to 5:30 p.m. Admission fee.

This tropical rain forest garden is another superb landscape development. A sudden deluge is never unexpected, but umbrellas are

provided. The scene is one of waterfalls, meandering streams, and a splendid view of the rugged bay. Its inventory of 1,000 plants is constantly being augmented by owner Dan Lutkenhouse. The rare plants he collects in his travels are well labeled, and a numbered inventory list is available. A visit is well worth the long trip from the west coast where most visitors stay.

▲ **Nani Mau Gardens**, 421 Makalika Street, Hilo, HI 96720. (808) 959-3541. Three

miles south of Hilo on Highway 11. 17 acres. Open daily 8:30 a.m. to 5 p.m. Admission fee.

Set in the Panaewa rain forest, Nani Mau Gardens includes over 2,000 orchid varieties and tropical fruits and nuts, a ginger garden, a fern forest, a Hawaiian herb garden, and hibiscus and anthurium gardens.

## KAUAI

▲ **Limahuli Botanical**



“plants brought in by the early Polynesians are considered indigenous” because they flourish as though they had always grown here. He encourages contemporary gardeners to cultivate both, especially the more reliable endemics such as the fragrant, white-flowered *Hibiscus waimae*; the palm, *Pritchardia hillbrandii*, with silver blue foliage; and ohia lehua or *Metrosideros collinus*, an attractive red-flowering tree. Ho’omaluhia Botanical Garden experts suggest growing the shrubs *Gardenia brighamii* and *Dodonaea viscosa*, and *Wikstroemia uva-ursi*, which makes an interesting vine or ground cover for seaside sites.

Environmentalists are now warning tourists and residents to avoid bringing in untested exotics like the pretty white-flowered morning-glory (*Ipomoea aquatica*) that we saw choking out vacant lots and heading for gardens on the Big Island’s eastern shore.

The biggest challenge to the Hawaiian environment is probably that humans and the pests they have brought with them find the climate so attractive that they don’t want to leave. For humans, the state has the longest life expectancy in the nation. “Hawaii is ideal for healthy and vigorous growth,” observes Gregory Koob, assistant director of living collections at the National Tropical Botanical Garden, “but with no cold season to slow or kill weeds, fighting them is a constant battle.”

Many a gardener from severe weather climates would readily endure such a challenge if they could. Hawaii’s population explosion is proof of that.

Ruby Weinberg is a frequent contributor to *American Horticulturist*.



JESSIE M. HARRIS

A torch ginger (*Etlingera elatior* ‘Red Torch’) in Nani Mau Gardens on the Big Island.

**Garden,** Box 808, Hanalei, HI 96714. Kuhio Highway, North Shore, near Hana State Park. 15 acres. No admission fee.

A garden of wet-area flora featuring Hawaiian heritage plants. Call the National Tropical Botanical Garden to inquire about the date when it will be opened to the public.

▲ **Moir’s Garden,** 2253 Poipu Road, Koloa, HI 96756. (808) 367-7053. Near Poipu, a lovely public beach, and part of Kiauhuna Planta-

tion resort. 35 acres. Open daily 8:30 a.m. to 4:30 p.m. No admission fee.

Moir’s has a 4,000-plant collection of aloe, agave, euphorbia, and other succulents and cacti from the world’s hottest, driest areas. These well-landscaped grounds include lagoons, tropical trees and shrubs. Unfortunately, few plants are labeled.

▲ **National Tropical Botanical Garden and Allerton Garden,** P.O. Box 340, Lawaii, HI 96765. (808) 332-

7361. South coast on Hailima Road near Lawaii. Open Tuesdays 9 a.m. Advance reservations only by writing to Reservations Secretary. National is 186 acres. Allerton is 100 acres. Admission fee.

The National Tropical Botanical Garden is a private, nonprofit government-chartered corporation that serves as a research and education center. Plants range from Hawaiian natives to tropical ornamentals. Trails may be

closed without warning if conditions are muddy.

Allerton Garden, maintained and exhibited by the national garden, was once the home and property of Hawaiian Queen Emma, then was developed by Robert Allerton and his son, John. The plantation residence sits astride a sprawling, ocean-front lawn. The garden features rock walls and plants, stream plantings and waterfalls, and many exotics—a bit of old Hawaii at its grandest.



R U D Y F A V R E T T I

# LANDSCAPING'S TIME TRAVELER

*He's been talking restoration  
since he was a youngster,  
and now he has a lot of listeners.*

B Y T O V A H M A R T I N



As I mount the steps into the courtyard garden at Trystwood Farm in Mansfield, Connecticut, I can see Rudy Favretti talking on the phone with a deeply furrowed brow. Snatches of the conversation float through an open window—the subject is topsoil and there is some concern about the delivery date. The matter is resolved, the phone is hung up, Favretti waves from his office and takes two steps outside when the phone rings again. There is some concern about bricks: Can a few be lifted to place a commemorative plaque in a walkway? The matter is resolved, the receiver is returned to its



*Rudy Favretti at  
the front door of  
Trystwood Farm.  
He rarely uses it,  
preferring the back  
entrance, which  
looks out over a  
raised courtyard.  
Left: A window box  
in the courtyard.*







*Favretti ruffled feathers, then earned kudos, with his severe pruning of the aged boxwood at Bowen House in Woodstock, Connecticut. Above: A gazebo that overlooks the Bowen House garden. Right: The main house in its original pink.*



cradle and an answering machine fields further interruptions.

Rudy Favretti's days are filled with such calls and, in most cases, they involve one of the many gardens he has restored. Favretti has been practicing landscape architecture for over thirty-five years and, at one time or another, has worked on most of this country's important landscape restorations. His lengthy credentials include the former homes of four United States Presidents—Thomas Jefferson's Monticello; Woodrow Wilson's birthplace in Staunton, Virginia; James Madison's home in Montpelier; and Wheatland, James Buchanan's home near Lancaster, Pennsylvania. He is restoring the country's oldest formal garden at Bacons Castle, Virginia, to its seventeenth century charm (see story page 27). He has been a consultant for the Longfellow House in Cambridge, Massachusetts, as well as Old Sturbridge Village in Massachusetts, Old Salem in North Carolina, Colonial Williamsburg in Virginia, and Mystic Seaport in Connecticut. In fact, he has restored or consulted on over 500 gardens throughout the years.

He also teaches his techniques. Between 1955 and 1988 Rudy Favretti taught landscape history at the University of Con-

necticut and received an award from the National Trust for Historic Preservation for creating this country's first university program in garden restoration. He has published countless articles on the subject and written five books on period gardening. He is a much sought-after lecturer and has been featured as a speaker at symposia on landscape history throughout the country. His wife, Joy Favretti, is a botanist and fellow researcher of historic landscapes who co-authored several of his books and is often at Favretti's elbow when he visits restoration sites.

So I wasn't surprised when the Favrettis' phone continued to ring. But despite his busy schedule, Rudy Favretti is a refreshingly unhurried and modest man. Nothing flusters him. The phone might be ringing, but before he picks up the receiver, Favretti always takes time to smell the flowers. He has a very sincere, very boyish charm. His wavy hair is always tousled and, when he must wear a suit, it's offset by a voluminous 1930s-style tie embroidered with pansies. At home, you're most likely to find him with a bandanna tied as a sweatband across his forehead, laying his own brick path or tying wisteria into a newly constructed pergola. Plainly, he loves to gar-

den and enjoys every aspect of his work—including the dirtier duties that come with the turf. Although his brow might furrow momentarily when fielding calls concerning topsoil and bricks, Favretti always emerges with a toothy grin.

Nowadays, he has good reason to smile. The business of landscape restoration has grown by leaps and bounds in the last decade. Once, a landscape historian's life was a lonely one. Rudy Favretti was talking landscape restoration long before anyone was prepared to listen. In fact, he can trace his interest in the subject back to childhood. His father was an Italian craftsman who immigrated to this country to enjoy greater religious freedom and found an abundant demand for his skills restoring homes around Mystic, Connecticut. Favretti remembers marveling at the money and care his father's clients lavished on their homes, but he felt profoundly disappointed in their lack of concern for the surrounding landscape. It was an era in which gardens were believed not to contribute much toward the value of an estate; many landscapers consider the World War II years to be the Dark Ages of gardening.

Favretti never had any doubts about the vocation he would pursue. "My mother



## BACON'S CASTLE

In 1985, archaeologists excavating the site of an estate in the historic Williamsburg-Jamestown area of Virginia discovered wine bottle fragments and pottery shards out of sync with the nineteenth-century garden they were expecting to study. They had already found some evidence of an eighteenth-century garden, but the pieces they found that summer dated from the seventeenth.

Nicholas Lucchetti, the archaeologist in charge of the project, has called the Bacon's Castle garden "the largest, earliest, best-preserved, most sophisticated garden that has come to light in North America."

Some of the clearest evidence for the garden's age was provided by seals from wine bottles bearing the initials "AA," apparently for Maj. Arthur Allen Jr. Allen's English-born father built the house in 1665 and his son, who would become speaker of the house of Virginia's colonial legislature, inherited it in 1669.

The castle gets its name from Nathaniel Bacon, who in 1676 led a brief rebellion against the colonial government. Allen and his family reportedly fled from their home to Williamsburg for three months while seventy rebels holed up in the castle.

The one-and-a-half-acre garden has been called an American version of the English Renaissance style, similar to the Earl of Pembroke's seventeenth-century garden at Wilton in Salisbury, England. It is laid out in a grid, with a twelve-foot-wide central walk and three eight-foot crosswalks of white sand. The six raised planting beds, all seventy-four feet wide and nearly 100 feet long, were furrowed, showing that they were devoted to vegetables and small fruits.

Across the north end are smaller beds believed to have been starting beds because a brick wall sheltered that end of the garden. Such "forcing" walls often served as solar collectors and windbreaks for plants on their south side. Peach and apricot trees will be espaliered against the wall, and cold frames built at its foot.

At the west end of the garden were the remains of three brick foundations, believed to mark the former location of exhedras—roofless structures with built-in seats.

Excavation and written records have provided clues to the appearance of the garden in the eighteenth and nineteenth centuries as well. In 1935, Louis Hankins,

who lived with his family at the castle until 1871, drew a diagram of the garden as he remembered it. Archaeologists found fence post holes dating from the 1700s, but not from the Allens' tenure, leading landscape historian Rudy Favretti to conclude that the original Allen garden was probably enclosed by a hedge, which he recreated with mock orange.

Among the plants Favretti selected as appropriate to the period are chamomile, rosemary, and sage; currants, barberry, and gooseberry; and sweet William, hollyhocks, and columbine.

Although restoration is still not complete, Bacon's Castle has been open to the public since May 1989. It is on Route 617 just off Route 10, in Bacon's Castle, Virginia. It is open noon to 4 p.m. Tuesday through Friday and Sundays, and 10 a.m. to 4 p.m. Saturdays. There is an admission fee. For more information, call (804) 357-5976.



*Bacon's Castle and its garden's forcing wall.*

DARRELL SPENCER

had a flower garden," he recalls with a smile, "while my father tended a vegetable garden. At the age of four, I was given a plot to plant. Of course, I grew vegetables to imitate my father, but I immediately moved into flowers." While still in high school, he undertook his first attempt at preservation—for a 4-H project, he planted lilacs to rejuvenate a churchyard.

When Favretti was attending college, there were no courses in landscape restoration, so he wrote his thesis on landscape design instead. All the while, he was independently researching restoration. Although he could find no texts devoted to the topic, he collected old books on landscaping and studied them in his spare time.

When he was hired as a professor at the University of Connecticut, Favretti naturally began to talk about his first love, and he found many students eager to listen. Why the heightened interest in recent years? "Perhaps it's a reaction to the destruction of old, historic buildings during the war years," suggests Favretti. "People have become more concerned about historic sites. At the same time, there is an increased interest in horticulture for therapeutic and aesthetic reasons.





*Thomas Jefferson's Monticello is unusual in that the layout and contents of its grounds and gardens were well documented. Favretti guided the restoration of its vineyard and pavilion area, above, which appears in the lower right corner of the aerial view.*



Nowadays, gardeners are more educated and more sophisticated." Although several universities offer courses in preservation, he carved out the field of landscape restoration, and the University of Connecticut program—unfortunately allowed to lapse after Favretti retired in 1988—was unique.

Favretti explains that restoration is a vastly different field than preservation. Preservationists attempt to maintain an existing planting or surround a historically important home with an appropriately handsome landscape. A restoration project, on the other hand, tries to turn back the hands of time and reclaim a garden that once existed perhaps a century or two ago. Authenticity is of the utmost importance, and the task often calls for the additional talents of archaeologists and architects.

How does a historian envision a scene erased by centuries of wear and weathering? While we sat in the shade of Favretti's own eclectically planted back porch, he described his methods. First, he feels it safe to assume that most older homes had a garden of some sort, hence the name of his recently reprinted book, *For Every House a Garden*. The challenge lies in discerning exactly what type of garden surrounded a home and finding the appropriate com-

ponents to recreate the scene. The first and often most difficult decision is to choose precisely which period is to be recaptured. Quite frequently, clients ask Favretti to recreate a garden as it was during a certain decade—the 1790s, perhaps, or the 1880s. Such requests can be filled, but he feels it is more feasible to recreate a garden with a certain generation or a resident's lifetime as the time frame. The broader approach allows him to be more realistic about the components of the scene. After all, it's impossible to freeze time. A garden is always growing and a tree planted in 1880 would scarcely have time to reach maturity ten years later.

With a goal established, the work still cannot begin until Favretti carefully records the existing grounds. He makes a detailed drawing and photographic record of every plant and architectural element, and urges clients to annotate his plans with detailed notes about current microclimates, scenic views and land contours that the owner wants to preserve, and other pertinent information. Not only will these drawings become valuable in "before and after" comparisons, but they also provide a record for future landscape historians.

Next, Favretti begins to search for clues

about past gardens. He looks for plans, pictures, drawings, diary entries, household account books, property deeds, and town records that might give him a hint of what came before the present garden. In private homes, he might find these invaluable clues tucked away in attic trunks or in the basement. The estates of prominent people such as presidents might have archives where correspondence and diaries are stored. In many cases, a historian must play the sleuth. Only a few gardens, such as Monticello, have specific garden plans that can be consulted. In most cases, he must piece together random scraps of information. He reads diaries and sorts through family papers. He might discover a diary entry that mentions a certain tree standing near a wash yard. In one case, he found a child's drawing in an autograph and memento book that depicted a cider press with a few recognizable shrubs in the background.

Oral accounts from neighbors or surviving relatives often prove helpful, although Favretti finds them prone to inaccuracies and usually tries to corroborate "hearsay" with at least one other source. He occasionally places requests for information in local papers; my uncle, Richard Logee,





responded to one such ad seeking information about a Pomfret, Connecticut, estate for which he was once the head gardener.

Then the site is explored in greater depth—literally. Often Favretti will begin by looking at the lay of the land to find recessed areas that may once have held flower beds or mounds where trees once stood. He conducts a surface probe, searching for the skeleton of a garden.

Soil samples are taken to uncover seeds and search for telltale differences in soil color that might indicate the ghost of a bygone tree. On occasion, Favretti calls in archaeologists to excavate a site. But in his lectures, he is quick to point out that excavating is a risky business and should never be performed by an amateur. Not only can you ruin important features of the landscape and injure tree roots, but untrained eyes rarely know how to interpret their findings. At most, an amateur might safely remove an inch or two of topsoil to uncover walkways and expose seeds of plants buried too deep to germinate. Digging deeper, archaeologists can unearth revealing artifacts or hidden post holes. When a garden is very old, Favretti might probe further. At Bacon's Castle, a team of archaeologists performed infrared studies

on the site to document the exact age of all elements. They found that the nineteenth century garden they had begun to reconstruct was only two-thirds the size of the original seventeenth century landscape.

Finally, all this information must be interpreted. For example, at Bacon's Castle, the remains of a long wall were found. Since the wall had no connection with a structure, Favretti surmised that it must have been a forcing wall used to shelter marginally hardy fruit trees such as apricots. His next task was to decide how tall and wide it stood so it could be rebuilt in three dimensions. Similar decisions are encountered every time he finds a gate post or a fountain ruin. How tall was the gate? What style was the fountain? With luck, he can find photos that provide hints, but more often, he must rely on his extensive knowledge of the era in question.

When all the evidence is gathered, Favretti is left to decide whether the uncovered elements actually belong to the garden of the target period. On some sites, several generations of garden elements are discovered and all must be sorted into their appropriate time slots. For example, if a curved walkway is uncovered while searching for the bones of an eighteenth-century

garden, Favretti immediately assumes it must have been the work of a more recent generation, because he knows that serpentine walks were a nineteenth-century phenomenon.

Asked who sets the standards in the landscape restoration field, Favretti contemplates the floor for a minute and answers slowly. "Don't misunderstand," he says, "I don't want to appear boastful. But a lot of people refer to our books." He thinks another minute and adds, "I hope that doesn't sound immodest." In fact, his books, several of which are now being reprinted, are felt by most historians to constitute the bible on the subject of period landscaping.

When all possible avenues of research have been exhausted, plans are drawn up for the actual restoration. Although Favretti is painstakingly accurate when researching a garden's past, he does not insist on recreating an exact replica. "Gardens must reflect modern elements," he says. "For example, we often widen walkways to accommodate the circulation of visitors. Parking areas have to be provided."

The finished product should unobtrusively meet these practical needs while providing visitors with a retrospective ex-







# STAGGERED BY STAGHORNS

*A fern cynic does an about-face.*

STORY AND PHOTOS BY DIA SPRIGGS

**N**ot much impresses Floridians as far as plant life goes. We are used to green, everywhere and all the time. Flowers are blooming on something year round. Our shrubs are colored in brilliant reds, yellows, and oranges, and at certain times of the year, trees fill the horizon with bursts of bright orange and purple.

So when I was invited to the home of a friend of a friend to see his fern collection, my reaction was, "Ferns? Those common things with the fronds? How boring!" I went anyway. The friend's name was Lou, and he specialized in something called staghorn ferns.

When he met us at the door, he explained that staghorns, or *Platyceriums*, are Polypodiaceae, a family of about 180 genera and some 7,000 species of low-growing ferns. The word *platycerium* is from the Greek, meaning broad horns. The plants are so named because their fertile fronds grow into antlerlike lobes. "How nice," I thought, still wondering why I was there.

We went through the house to his enclosed back yard, which was more like a jungle. Growing on the high branches of his trees were strange things with enormous shield-shaped upright growths and, hanging down from them, what looked like five- to six-foot-long green antlers. Some were single specimens; others had babies popping out everywhere. I went closer to examine a small specimen that seemed to be growing on itself in a ball. It was formed of overlapping shields and was covered with tiny antlers. "Where's the pot?" I asked, since I could see no visible means for this plant to support itself—not only no pot, but no roots and no soil.

Lou explained that these ferns are native



*Platycerium holttumii*





Some “stags,” like this twenty-foot circumference *Platycerium bifurcatum* ball, are nice to visit but hard to bring home.

to tropical Africa, Asia, Australia, and South America, where they grow in the jungle canopy, clinging to the bark by tiny root structures. There they are nourished by fallen leaves and animal wastes.

As I began walking through his “jungle,” I noticed ferns that were small, waffled, crinkled, long, skinny, miniature; my mind was spinning with all the different sizes and shapes of these bizarre ferns. Lou explained that there are two types of fronds: the sterile or shield frond and the fertile frond.

The shield frond, which collects moisture and protects the fern’s tiny roots,

grows in two halves. The bottom half is rounded and clings tightly to the growing medium and to older shield fronds, starting out green and turning brown quickly. Lou took us to one side of the yard and showed us the ultimate result of this growth habit: suspended by gigantic chains on an equally gigantic tree was a ball of fronds that was easily twenty feet in circumference.

The fronds of the upper half turn brown more slowly, and are usually deeply lobed or forked and grow loosely on top of one another. Some grow upward into lobes of tremendous proportions. OK, I thought as I gazed up at one specimen, a plant that

looks as though it had swallowed half a tree really is pretty impressive.

The fertile fronds grow up or down or both from the center of the shield, and have four basic shapes: very broad along their entire length; broad at the base but with strap-shaped ends; strap shaped with lobes that carry spores; strap shaped with unspecialized surfaces for spores.

At this point, I knew I had to have one of these things. I thought a small fern would be best for me. Lou suggested that I might like to raise one from a pup, and showed me some he had taken off one of his plants. I gazed at the new “baby” he placed in my hand. “But how do you take care of it?” I asked, feeling as though I had taken on a new puppy.

Lou explained that, to keep staghorns healthy, I should try to duplicate their natural environment in the rain forest as closely as possible. In nature, they grow high in trees where they are protected from the elements, so they should be kept away from direct sun and winds that may damage leaves and dry them out. While some will withstand short periods of temperatures as low as 40° F, most plants will undergo some damage if exposed to temperatures lower than 60° F. The steamy conditions of the rain forests can be approximated using trays of pebbles or wet sand placed under the plants or by frequent misting, or indoors, by using a humidifier. For many, space will be a major consideration. “Really?” I thought to myself, wondering where I would put a twenty-foot ball like the one Lou had.

Because the root system is tiny, careful watering is essential, he went on. The growing medium—usually moss—on which they are mounted can hold moisture next to the roots but feel dry to the touch. To see if the plant has dried out to the point that it needs to be watered, he advised me to feel the moss at its innermost point or to push gently on the shield to see if water runs out or if the moss under the plant “gives” as though it were spongy. If it does need watering, water thoroughly. If the plant is small, dunking it in a tub of water will ensure proper soaking. If you are hand-watering, soak the plant completely. Fertilize it about once a month with a good organic fertilizer. “With time,” I was assured, “you will become aware of the watering needs of your particular plant.”

How would I protect my fern against insects and disease? Lou said that the pests most likely to attack staghorns are scale and mealy bugs, and that I should fight



back with a nonoil-based insecticide or by swabbing off the small insects with alcohol. Some species are more susceptible than others to fungus, but it shouldn't be a problem if the plant is given good air circulation and not overwatered.

After I had spent half the day looking at Lou's beautiful specimens, he suggested I pay a visit to Skula's Nursery, which proved even more wondrous than Lou's place. When I walked in, I left the hustle and bustle and concrete of the city behind and lost myself in a landscape of orchids, aroids, a waterfall and pond with koi big enough to make a good dinner. Staghorns were everywhere: high on trees, on shade-houses, on plaques, on balls. I photographed two *Platyserium ridleyi* that were magnificent, and asked Dorothy Skula, who owns the nursery with her husband, Frank, how she was able to grow such a difficult species. She shrugged. "I don't know; I just don't baby them." You can't guarantee success by giving a staghorn textbook growing conditions, she said. Each species is different and so are individual plants: one may like a spot that is drier, wetter, cooler, warmer. Her advice was to watch the plant and see what it seems to like rather than relying strictly on what it's supposed to like.

I asked if friends who don't have the advantages of our tropical climate can grow them indoors. Many people do, even in basements, she said. The plants will need a lot of fluorescent light and additional humidity from misting, a humidifier, or pebble trays, and should be put outside when the weather permits it. And of course, indoor gardeners will want to choose species that stay relatively small.

She showed me two dwarf pupping *Platyseriums*—a dwarf *P. bifurcatum* and *P. willinckii* 'Pygmaeum'—that would make wonderful small ball specimens. The *P. bifurcatum* had fronds a foot long at the most. "Ah ha!" I thought, "A playmate for Baby!", who was safely nestled under a cool tree waiting for his ride home.

I was given the grand tour and listened intently as Dorothy Skula described the different varieties of staghorn.

There are between thirteen and nineteen known and recognized species, and several of these have worthwhile cultivars. Here are those that are interesting and readily available:

***P. andinum*.** The only staghorn found in South America, it is extensively covered with hair that gives it a white appearance. The oblong shield fronds have irregularly

## MOUNTING A STAGHORN

If you want your staghorn fern to be a single specimen, it should be mounted on a flat surface. The mounting surface can be a nonpressure-treated board, a shadowbox frame, tree trunk, or a specially made tree fern plaque or ball. Tree fern products can usually be found where orchid supplies are sold. The surface area needs to be large enough to allow for a lot of growth, and rough enough to hold the moss in which it will grow; later the fern's roots will creep through the moss into the board.

To mount the fern, lay the mounting board or structure on a flat surface and cover it thickly with damp sphagnum moss. Secure the moss with monofilament line or covered wire that is criss-crossed over the moss and fastened at the ends of the board with staples, tiny nails, or brads. Some growers use sphagnum only; others leave an indentation where the roots will be and fill the area with a loose mixture of organic material such as leaf mold, peat, or shredded bark.

The plant should be positioned below the center line of the mounting surface to allow for upward shield growth. Make sure the root area is touching the moss. Small specimens that grow shields quickly can be secured by criss-crossing monofilament, plastic-covered wire, or strong tape right over the green shield. However, you have to be careful not to touch the bud in the center, as damage to the bud could kill the plant, and to pull the wire or tape tight enough to hold the plant but not tight enough to cut into the shield.

If you don't want to risk harming the plant, or if you have an older specimen with several layers of shields, you can secure the plant by gently lifting the green shield, running the wire under it and over the already brown fronds underneath.

When your plant has grown to the edge of the mounting board, if you want it to be a single specimen, you will want to remove pups before they get too large. Cut a deep circle around the pup and gently put your fingers behind it and pull it off, being careful not to damage the roots. Then mount the pup the same way you did its parents. Those who want to have single specimens may want to buy one of the nonpupping staghorns—*P. grande*, *P. holttumii*, *P. ridleyi*, *P. wandae*, and *P. superbum*.

If you want a ball specimen, start out with a tree fern ball or basket or a wire basket. Fill solidly (sometimes wire baskets can be difficult to pack solidly) with damp moss. Lay the plant on the moss and secure it. If you have several pups you can place them around the basket to give it a head start, making sure you place enough moss in back of each plant and securing it to the basket. This will start a ball-type of plant off quickly and within a short time you should have a small, full ball of staghorn.

—Dia Spriggs



A full-grown dwarf *P. bifurcatum* is mounted with criss-crossed wire.

lobed top edges that lean out from the plant. The straplike fertile fronds grow downward, dividing twice and then three to five times at the ends.

***P. angolense*.** This unusual African variety is called cabbage or lettuce fern because of its ruffled fronds. It is the only

staghorn with fronds that are not divided or fringed. The shield fronds are fan shaped and wavy. The fertile fronds are downward growing, broad, and wedge shaped.

***P. bifurcatum*.** Native to Australia and New Guinea, this is called the "common"





This *P. lemoinei* specimen is at home in a shadow box frame.

staghorn because of its hardiness, easy culture, and the ease with which it crosses with other species. These ferns make beautiful, very large ball specimens. They are easily grown outdoors in mild climates and can survive temperatures into the 40°s for brief periods. *P. bifurcatum* has several interesting cultivars:

'Majus'. The fertile fronds grow both erect and downward and have a sharply pointed, fringed end.

'Netherlands'. The fertile fronds of this gray green plant spread in all directions, giving it a very full appearance.

'Ziesenhenné'. An interesting plant combining the *P. bifurcatum* hardiness with a small-growing habit that makes it perfect for limited growing areas.

*P. coronarium*. This light green Asian staghorn fern can become huge and needs sturdy support. Top shields are more than two feet wide and tall, growing loosely upward with irregular lobes, prominent surface veins, and round, forked tips. Fertile fronds are over five feet long, growing downward unevenly, then branching into two short branches and one lobe.

*P. ellisii*. This oddly shaped, light green plant is from Madagascar. Shield fronds are kidney shaped with an unnotched outer edge. Fertile fronds are wedge shaped, mostly erect, with two lobes on the tips; each lobe has small "fingers." *P. ellisii* likes a humid environment that stays around 60° F.

*P. grande*. This beautiful nonpupping plant takes years to mature and is some-

what picky about its culture. It comes from Australia, Malaysia, and Java. Shield fronds are all that show on plants for many years. It can grow four to five feet high and three and a half feet wide. The shield is fan shaped with irregular lobes that eventually grow forward. The bottom part of the shield is kidney shaped with prominent surface veins. The light green fertile fronds grow downward, wedge shaped at the base, then forming two sections that are divided five times in pairs. They grow to three feet long. These stags like drier conditions and many have been lost to rotting and fungus. However, they can take short periods of colder temperatures.

*P. hillii* is a pretty, medium grower with some interesting cultivars. It originated in Australia. The dark green fertile fronds are erect with a long, slim wedge-shaped base. The upper part is broad and divided into a middle forked branch with two lateral branches. This is a hardy plant and can be treated like *P. bifurcatum*. Important *P. hillii* cultivars include:

'Drummond'. This plant is smaller and broader than *P. hillii*. The fertile fronds are semi-erect, very wide, dividing into several broad sections with sharply pointed tips.

'Bloomer' has interesting fertile fronds with short, slim stalks close to the shield frond, dividing into sharply pointed spear-shaped fingers.

'Pumillum' is medium green and hardy. The tops of the fertile fronds are both erect and down growing, broad, and divide into

many curling fingers.

*P. holttumii*. Another impressively large growing, nonpupping specimen, *P. holttumii* is native to Indochina and Thailand. The shield frond can grow from three to five feet tall and three to four feet wide. The unusual fertile fronds divide into two branches. Outer branches are short and close to the plant, broadly wedge shaped with a few outer lobes, giving a twisted appearance. The inner side continues to grow downward, forming a long wedge that divides into many long, strap-shaped lobes.

*P. lemoinei* has long, narrow, downward growing fertile fronds. It may be a cross between *P. veitchii* and *P. wilkinsonii*.

*P. madagascariense* is a truly beautiful staghorn from Madagascar. The shield fronds' raised, very prominent veining gives the plant a waffled texture. However, it is very fussy about its growing conditions and fungi and insects seem to love it.

*P. ridleyi* is a breathtaking, nonpupping species from Borneo, the Malay Peninsula, and Sumatra. *P. ridleyi* is as difficult to maintain as it is beautiful, requiring constant spraying for fungi and insects. The rounded shield fronds have very deep irregular grooves and prominent veining. The erect fertile fronds look like antlers.

*P. stemaria* is a gray green African species with an upward-growing shield and fertile fronds that are wider than they are long. Shield fronds are oblong, undivided



on top and wavy. The fertile fronds have two parts, one forking and wedge shaped and the other smaller and narrower.

*P. vassei*. A native of Madagascar and Mozambique, it is the only stag with a natural chestnut brown shield. It is a medium fern with long thin antlers growing upward. Shield fronds have visible veins and undivided edges. The gray green fertile fronds are narrowly strap shaped, extending upward above the plant, divided into two parts and four end divisions. Tips are sharply pointed. The plant is hardy enough to withstand temperatures of 40° F for brief periods.

*P. veitchii*, which comes from Australia, is covered with tiny white hairs. It has deeply lobed shield fronds, long erect fertile fronds, and is able to withstand 40° F for brief periods.

*P. wallichii* is native to Burma, the Malay Peninsula, and Siam. Shield fronds are roundish with a loosely growing top, eventually going outward. The yellow-green fertile fronds are very broad, divided unequally into two parts with branches twisting in strap shapes. It has a dormant period and is a difficult plant to keep going. Minimum temperature is 60° F.

*P. wandae* is another beautiful shield-type stag from New Guinea; its shield can grow to huge proportions, making it a magnificent specimen. It is nonpupping. The top shield fronds, which are highly elongated and irregularly lobed at the tips, can grow four feet high and six or seven feet wide. Fertile fronds are five feet long and grow downward in pairs, dividing into two branches; one being wedge shaped, short, and close to the plant and the other long and repeatedly forked.

*P. willinckii* is a pretty gray green plant from Java and the Indonesian island of Celebes with a short, upright, deeply cut shield and lots of long, thin, heavily forked branches. The shield tips are round to sharply pointed and the veins are prom-



*Spore patches on a fertile frond.*

## Sources and Resources

Fennell Orchid Jungle, 26715 S.W. 157th Avenue, Homestead, FL 33031, (800) 344-2457.

Jerry Horne, 10195 S.W. 70th Street, Miami, FL 33173, (305) 270-1235.

Logee's Greenhouses, 141 North Street, Danielson, CT 06239, (203) 774-8038. (*P. bifurcatum* only.)

Skula's Nursery, 130 N.W. 192nd Street, Miami, FL 33169, (305) 652-3955. (Send a self-addressed, stamped envelope.)

inent. Fertile fronds are about four feet long, downward growing, divided into two parts and five tip divisions. Divisions are narrow, strap shaped, and plentiful. The plant likes minimum temperatures of 50° F. It has an important dwarf cultivar:

'Pygmaeum' is only twelve inches wide and two feet long. The shield is irregularly lobed at the top and the fertile fronds are gray green and very thick.

I left Skula's with visions of bulldozers plowing up my back yard and landscaping plans running through my brain. Of course, "Baby" and his new little friend "Pygmy" were a long way from the jungles I had seen, but everyone has to start somewhere.

*Dia Spriggs is a free-lance writer who lives in Miami.*



*No winter  
vacation to the  
tropics this year?  
Consider a trip  
into the world of  
horrorculture.*


BY PETER LOEWER

**M**y introduction to the potential evil of plants was a Saturday matinee in 1943. Johnny Weismuller as Tarzan was forced to swing through the lianas to rescue Boy or Jane from a number of backlot threats, one of which was a colossal man-eating plant that threatened to devour a very young Nancy Kelly in the role of Jane. Its tentacles whipped hither, thither, and yon, and its six jaws gnashed about like a chlorophyllic meat grinder. Luckily Tarzan was stronger and Jane survived.

The next year I shivered in my theater seat as "Sherlock Holmes and the Spider Woman" pitted Basil Rathbone against Gale Sondergard. She grew night-blooming plants in a hot and dank

# *Demon Seeds*





*Dr. Miles Bennell (Kevin McCarthy) tries to stem the "Invasion of the Body Snatchers."*

# *& Roots of Evil*



basement south of Soho in order to feed a poison-producing spider of such venom that death was instantaneous. The plants moved about a lot but any clue to their botanical nature was effectively hidden by the mists that swirled in that underground hothouse.

It was twenty years later when I finally caught the 1935 movie "Werewolf of London" on Zacherly's television horror movie show in Manhattan. In this case a botanist, Dr. Wilfred Glendon, is bitten by another botanist, Dr. Yogami, while both are searching the mountains of Tibet for the rare plant that is the one effective antidote to the curse of lycanthropy. This fanciful flower, known as *Mariphasa lumena lupina*, will only unfold its stop-action petals for the two nights out of every twenty-seven when the full moon floats high. That's the only time the chemical cure is available. With one blossom per night and two scientists fighting it out, you know there is trouble ahead.

By then I was smitten with the lore of the menacing plant. I have stalked it not only through the cinema, but in the pages of novels old and new. It rears its terrifying petals in the form of voracious animated vegetables that wreak destruction with no assistance, fictional flora used by villains to do in their victims, and as real-life plants that take over for the ever-guilty butler in murder mysteries.

Sometimes plants are used merely to symbolize evil, as in a famous scene from the 1940 movie "The Big Sleep." Humphrey Bogart, as the private detective Phillip Marlowe, is ushered into the steaming greenhouse of General Sternwood. It is a place festooned with Spanish moss and blooming cattleyas.

"Too hot in here for any man who has blood in his veins," says the general, bundling a blanket around his shoulders. "I seem to exist largely on heat like a newborn spider. The orchids are an excuse for the heat. Do you like orchids?"

"Not particularly," answers Marlowe.

"Nasty things," says the general, waving his hand. "Their flesh is like the flesh of men—their perfume has the rotten sweetness of corruption."

Flowers have been used as symbolism since the days of classical Greece. But while I knew that daisies meant innocence and rosemary meant remembrance, I was surprised to learn that there is a dark side to the language of flowers. Hellebores symbolize calumny; asphodel translates to "my regrets follow you to the grave"; oleanders



A good tissue  
culture lab might  
have helped the  
Werewolf of London  
in concocting  
the antidote  
to his curse.

mean beware; scarlet auricula means avarice; and the white catchfly represents betrayal. If an enemy received a bouquet that contained lobelias, bilberries, and trefoils, it would inform him or her that the sender bore malevolence for treachery and would soon have revenge.

Such precise symbolism would be lost on modern viewers or readers, and the evil plant in general no doubt represents a broader type of discomfort. "Vegetable villains" may be partly a result of living in the Industrial Age, with the awareness that humans have destroyed much of nature in their search for wealth, and a feeling that nature will—and perhaps should—have some means of retaliation.

The plant as murder weapon theme may also stem from our increased distance from nature. Most of us, without resorting to a textbook, cannot recall the traditional uses of the herbs and roots in our own gardens. And while the average American may grow some tomatoes and some basil to give them zest, most plant life is suspect. Some are outright poisons, but which ones? Which parts? What time of year? Deaths from poison mushrooms—while common in Europe—are a rarity in this country. We much prefer to make a stop at the local supermarket than to traipse into the woods to look for salad ingredients.

Murder buffs will search *Hortus Third* in vain for *Radix pedis diaboli*, the murder weapon in *The Adventure of the Devil's Foot* (1922) by Sir Arthur Conan Doyle. Here, the author tells of Brenda Tregennis's death due to convulsions as her two brothers go mad while they sit around the dining room table playing cards. The next day Mortimer Tregennis dies with the same symptoms.

How to explain deaths that occur when there is no weapon or food about, a three-foot border of blooming flowers beneath the murder room's window, and not one footprint in sight? Then Sherlock Holmes discovers a slight powder on a lamp wick and reflects on the "horrible and depressing stuffiness" of the room. Watson, as usual, is baffled, but the final clue is provided by a conversation with one Dr. Sterndale, who draws from his pocket a paper packet bearing the name *Radix pedis diaboli* and a red poison label.

"I understand that you are a doctor, sir. Have you ever heard of this preparation?" Sterndale asks.

"Devil's-foot root! No, I have never heard of it."

"It is no reflection upon your profes-



sional knowledge,” said he, “for I believe that, save for one sample in a laboratory at Buda, there is no other specimen in Europe. It has not yet found its way either into the pharmacopoeia or into the literature of toxicology. The root is shaped like a foot, half human, half goatlike; hence the fanciful name given by a botanical missionary.”

Other convincing preparations appear in the 1931 pulp novel *Murder Madness* by Murray Leinster. “The Master” inhabits a large slice of Amazon jungle where he produces a dangerous and addictive drug from fields of brightly blooming plants. Those who ingest the drug go “murder-mad,” unable to stop killing unless given an antidote by the Master. The men who gather the plants, says the heroine, “do not dare to sleep near the fresh-picked plants. They say that the odor is dangerous, even the perfume of the blossoms.”

If that weren’t enough, the Master also produces “Yague,” an extract from the leaves of a plant not yet included in the *materia medica*. It has nearly the effect of scopolamine (an alkaloid produced from henbane or *Hyoscyamus niger* and used as a sedative and truth serum), producing a daze of blue light, an intolerable sleepiness, and nearly all the effects of hypnotism.

Terror from the garden is taken to the ultimate when the plants take on a life of their own as they have in a number of B (one or two A and quite a few D-minus) movies. There was Audrey, the giant, potted, man-eating plant in Roger Corman’s 1960 “The Little Shop of Horrors” who reappeared in a 1986 color remake (not as good as the original); the pod people in the 1956 “Invasion of the Body Snatchers” and the 1978 color remake (not as good as the original); and “The Thing” in the excellent 1951 movie of the same name, in which “Gunsmoke’s” James Arness appears in his first movie role as what is usually described as a giant walking carrot. (There was a 1982 remake of this film that was so bad it only merits half a star in most movie and video guides.)

No such list would be complete without “The Attack of the Killer Tomatoes” and “The Return of the Killer Tomatoes.” The first was a one-line joke that persisted for eighty-seven minutes, somewhat redeemed by the sight of a mob running in terror down sunlit streets, pursued by hordes of bounding red tomatoes—some small, some large—occasionally crushing the victim to death in a mass of puree without benefit of basil or oregano.

Its sequel, a—believe it or not—worse



PHOTOS FROM THE ARCHIVES OF GENE ANDREWSKI

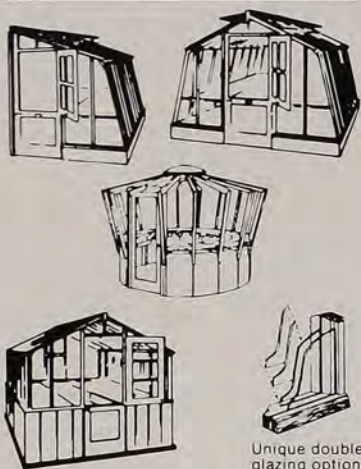
Vines  
were Tarzan's  
salvation;  
some other  
jungle plants  
swung back.

movie, stars the wonderful John Astin of TV's “The Addams Family” as a mad scientist who transplanted the minds of innocent folks into tomato bodies while making tomatoes human—so successfully that the hero falls for a former ‘Early Girl’.

To my knowledge, the first genuine garden flower in horror films was the monkshood or aconite, also known as friar's cap, helmet flower, and soldier's cap. Its botanical name is *Aconitum*, from a word used by Theophrastus, a Greek philosopher and botanist of the late fourth and early third centuries B.C., to mean a poisonous plant. It was by yet another common name, wolfsbane, that it attained cinema fame in the 1941 epic “The Wolf Man.”

After seeing the sign of the pentagram in Lon Chaney Jr.'s palm, the old gypsy woman (played by Maria Ouspenskaya), crosses herself and delivers her famous





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"The path you walk, my son, is thorny..." speech, which ends with the poem: "Even a man who is pure at heart and says his prayers by night, can become a wolf when the wolfbane blooms, and the autumn moon is bright."

Monkshood has also had a starring role in several books. In *The Murder of My Aunt* (1934) by Richard Hull, the sullen and selfish Edward does in his aunt with ground-up monkshood roots taken from her perennial border. *Death's Bright Dart* (1967) by V. C. Clinton Baddely has Dr. R. V. Davie, his elderly Cambridge don-turned-detective, deal with a campus murder involving aconitine, the lethal substance contained in monkshood. And in the medieval-setting thriller *Monkshood* (1981) by Ellis Peters, a monkshood poultice is dropped in the sauce of roasted partridge and eaten by one Gervase Bonel, who dies within an hour.

*Aconitum* is a good example of our loss of valuable plant lore. Because while the aconitine it contains can be quite deadly, in the twelfth century monkshood was often grown as a major ingredient in a poultice used for treating creaking and old joints (human, not furniture). The ground root of the monkshood was mixed with mustard oil and the oil from flax seeds, then rubbed into the aching joint where it created a warm, tingling sensation.

A more contemporary entry in the medicinal-plants-not-to-fool-around-with category is *Digitalis*. In a short story called "The Injured Party" (1989), Robert Barnard resolves his plot with the following dialogue:

"Funny to think back on it now, but I did [want her dead]. Desperately. Thought of going out and picking the good old foxglove leaves..."

"Foxglove leaves?"

"*Digitalis*. Good for the heart in small quantities, fatal for someone like Anne-Marie if she had a hefty dose of it."

In another thriller, *The Eye in the Museum* (1929), J. J. Connington mixes financial skullduggery and *digitalis* poisoning, throwing in a motorboat-car chase for good measure.

Deadly nightshade (*Atropa belladonna*), a winding backhouse plant with dull purple flowers and black berries that contain a number of disagreeable chemicals such as atropine and other belladonna alkaloids, is the poison of choice in *Murder's Choice* by Anna May Wells (1943) and the candidly titled *Deadly Nightshade* by Elizabeth Daly (1942).

## GATHERED FLOWERS "WE DIE TOGETHER"

The Victorians believed that massed picked flowers decomposed to such an extent that they made the air unfit to breathe, and even caused sickness and death. They backed this belief with the appropriate grimly moral tale which was called "The Revenge of the Flowers":

"Returning from a botanical excursion, two young girls enter their home, close the windows, lie down and fall asleep. At their feet in a basket are the flowers which they have collected. How indiscreet! Where is their mother? Who will warn them of the danger which surrounds them? Already the air is being decomposed, the atmosphere of the small apartment is heavy and unfit to breathe, and the youthful maidens, weighed down by it, writhe about unconsciously on the couch. Suddenly from amid the basket of flowers rise up the spirits of the narcissus and the tuberose. They appear as two light nymphs dancing and whirling about, meanwhile chanting ominous words: 'Young maidens! Young maidens! Why have you deprived us of life? Nature gives us but a day and you have shortened it! Oh, how sweet was the dew! How radiant the sun! And yet we must die. But we will be avenged!' Thus chanting, the two nymphs, continually whirling about and bewailing their fate, draw near the young maidens' couch, and breathe over their faces their poisonous exhalations. Poor children! Mark their livid cheeks! Their pale lips! Their arms closely interwoven! Alas! Their heart has ceased to beat; they no longer breathe the breath of life; they are dead together. The flowers are avenged!"—From *The Meaning of Flowers* by Claire Powell. *Shambhala*, 1979, reprinted with permission.

In *Death at the Medical Board* (1944), the detective is Dr. David Wintringham, a pathologist. The author, Josephine Bell, who practiced medicine in London until 1954, uses the toxicity of nicotine to good effect, and gives Wintringham a run for his money finding out who dosed out the nicotine and why.

In *Frequent Hearses*, a delightful 1950



book about the English movie business, Edmund Crispin (a pen name for Bruce Montgomery, a highly successful composer of motion picture music), has his murderer use colchicine, a toxin composed of coniine and related alkaloids, gathered from various autumn blooming crocuses, including *Colchicum autumnale*, *C. speciosum*, and *C. vernalis*.

"...it was a more or less arbitrary choice," the criminal writes in a confession to detective Gervase Fen, explaining that he was limited to the vegetable poisons, and could never understand why murderers insist on buying packets of arsenic at the chemist's when the fields and woods and gardens are smothered in things quite as deadly. "Perhaps," he muses, "I was influenced by the fact that to me the autumn crocus is one of the most beautiful of flowers..."

If you're uneasy with plants in the bogeyman role, the same genre of films and books occasionally lets them play the good guys.

Among the successors to the 1931 movie "Dracula" was the 1935 "Mark of the Vampire," in which a straggly plant called bat-thorn, collected in the mountains of Transylvania, is thought to act like garlic by repelling demons from the obligatory castle. In this movie, dispatching the vampire with a stake through the heart is passe; instead, the vampire must be beheaded and bat-thorn placed in the open wound.

In a series of contemporary mystery novels by English author John Sherwood, the heroine is Celia Grant, a widow botanist. The puzzles revolve around plants, and her horticultural knowledge leads to the solution. For example, in *Green Trigger Fingers* (1985), a body is discovered in a perennial border because the murderer had mixed up a stand of intermediate May-flowering irises with taller June-flowering varieties when burying the body and Grant notices the switch.

So take your pick—books or movies, factual plants or fiction, mindless escapism or intricate plot. But if the doorbell rings while you're enjoying yourself and you receive a bouquet of wild tansy, begonia, and rock roses, be on your guard. You've just been warned that someone has declared war against you, bears dark thoughts, and predicts you will die tomorrow.

Better eat out!

*Peter Loewer, co-author of A World of Plants: The Missouri Botanical Garden, has been watching horror movies and reading mysteries since he was nine.*



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Stephen Spongberg

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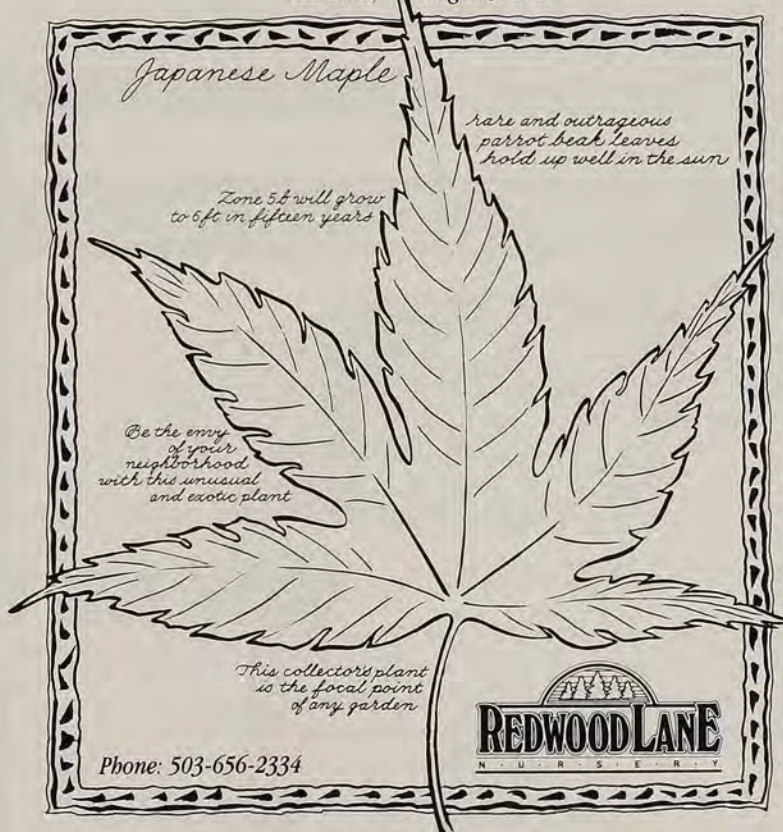
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# BOOK REVIEWS

## Focus on Flowers

*Photographs by Allen Rokach. Text by Allen Rokach and Anne Millman. Abbeville Press, New York, 1990. 228 pages. Color photographs. Publisher's price, hardcover: \$39.95. AHS member price: \$34.00.*

*Focus on Flowers*, subtitled "Discovering and Photographing Beauty in Gardens and Wild Places," is what I call a real book, meaning that it represents a body of work by the authors themselves and is not merely a collection of facts and illustrations put together by a team of journalists. Hardly anyone could be as well qualified as Rokach, who has been the director of photography and the staff photographer at the New York Botanical Garden for more than a dozen years, and, with Millman,

instrumental in the garden's certificate program for nature and garden photography. They have succeeded in putting together a text that is remarkably straightforward and refreshingly free of the sort of technical information that comes with camera manuals but does not necessarily help one take a better picture.

What I like most about *Focus on Flowers* is that the book is mostly photographs—225 of them—each presented with a caption, and on the same spread with a brief text that discusses one basic rule or concept. Photographers and gardeners alike will find something beautiful or inspiring on nearly every page.

Since much of my life involves photography, sometimes as buyer, sometimes as seller, and my middle child is a full-fledged professional photographer, it is not pos-

sible for me to be anything but passionate about *Focus on Flowers*. The complete book, including layout and design, photography selection and text, is such a *tour de force*, I am reluctant to point out that here and there is a fly in the botanical ointment, to wit: The succulents in flower on page eight are not cactus; the "anemone in Texas" on page 62 is an oriental poppy, *Papaver orientale*; the "extreme close-up of an anemone" on page 144 is also a poppy, probably *Papaver rhoeas*; and the "cactus orchid," page 145, is an orchid cactus of the genus *Epiphyllum*.

My favorite lines from *Focus on Flowers* are these: "Ernst Haas once said that he often took only one lens with him when he went photographing. The discipline of having to make the most of that one lens was a deliberate exercise designed to

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Because I serve as volunteer director of special projects at the Brooklyn Botanic Garden, I could not write this review without remarking on this statement from the book's introduction: "In Brooklyn, where I was born and grew up, the only greenery I recall was some unkempt hedges around the dusty yards down the block." Considering that the BBG and Prospect Park were here long before a lad named Allen Rokach, it is hard to understand how he could have missed what together amounts to over 600 acres of green space in the heart of the borough. Of course, one might also speculate that growing up in a bleak environment helped produce an artist with an extraordinary eye for beauty.

—Elvin McDonald

*Elvin McDonald is Secretary of the American Horticultural Society's Board of Directors.*

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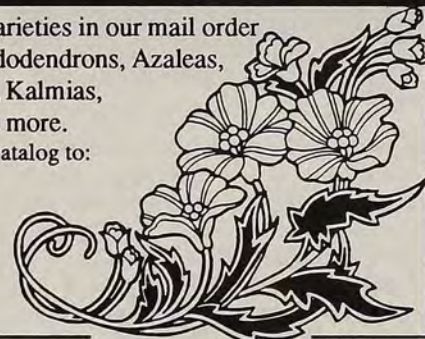
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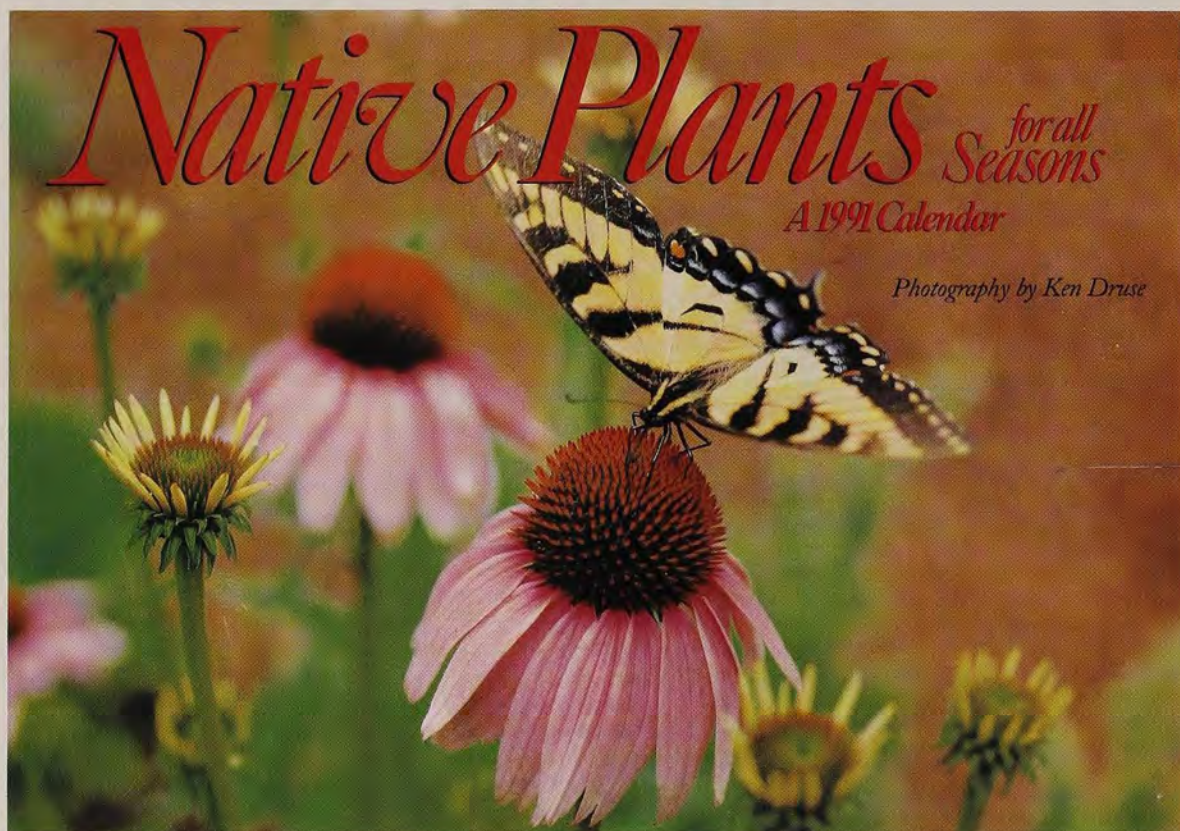
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*A. gamosepala* A. gam-oh-SEE-puh-luh  
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*Adansonia digitata* uh-dan-SONE-ee-uh  
dih-jih-TAY-tuh  
*Angelica archangelica* an-JEL-ih-kuh  
ark-an-JEL-ih-kuh  
*Arecastrum romanzoffianum*  
are-ee-KAST-rum ro-man-zof-fee-AY-num  
*Argyroxiphium sandwicense*  
are-gee-ro-ZIF-ee-um sand-wih-SEN-see  
*Atropa belladonna* uh-TRO-puh  
bel-uh-DON-uh  
*Bauhinia purpurea* bough-HIN-ee-uh  
pur-PEW-ree-uh  
*B. monandra* B. mo-NAN-druh  
*Brighamia citrinia* var. *napaliensis*  
brig-HAM-ee-uh si-TRIN-ee-uh var.  
nuh-pal-ee-EN-sis  
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ver-rue-KO-suh  
*Clusia rosea* KLU-see-uh ROSE-ee-uh  
*Colchicum autumnale* KOL-chih-kum  
aw-tum-NAL-ee  
*C. speciosum* C. spee-see-OH-sum  
*C. vernum* C. VER-num  
*Cupressus sempervirens* kew-PRES-sus  
sem-per-VIE-renz  
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*Dodonaea viscosa* doe-doe-NEE-uh  
vis-KO-suh  
*Epiphyllum* ep-ih-FIL-um  
*Erythrina* air-ee-THRINE-uh  
*Etlingera elatior* et-LIN-er-uh ee-LAY-tee-or  
*Eustoma exaltatum* ew-STO-muh  
eks-al-TAY-tum  
*Ficus pumila* FIKE-us PEW-mil-uh  
*Gardenia brighamii* gar-DEEN-ee-uh

brig-HAM-ee-eye  
*Grevillea robusta* gre-VIL-lee-uh ro-BUST-uh  
*Guzmania* guz-MAY-nee-uh  
*Heliconia psittacorum* hel-ih-KO-nee-uh  
sit-uh-KOR-um  
*H. rigida* H. RIDGE-ih-duh  
*Hibiscus waimae* hi-BIS-kus why-MAY-uh  
*Hylocereus undatus* hi-low-SAIR-ee-us  
un-DAH-tus  
*Hyoscyamus niger* hi-oh-SIGH-ay-mus NY-jer  
*Ipomoea aquatica* eye-POME-ee-uh  
uh-KWAT-ih-kuh  
*Lagerstroemia speciosa*  
lag-er-STREAM-ee-uh spee-see-OH-suh  
*Leptospermum scoparium*  
lept-oh-SPERM-um sko-PAIR-ee-um  
*Metrosideros collinus* met-ro-si-DER-os  
koh-LIN-us  
*Neoregelia compacta*  
nee-oh-re-GELL-ee-uh kom-PACK-ta  
*Nicotiana* nih-ko-shee-AY-nuh  
*Osmanthus fragrans* oz-MAN-thus  
FRAY-granz  
*Papaver orientale* puh-PAY-ver  
or-ee-en-TAL-ee  
*P. rhoeas* P. RO-ee-us  
*Pinus palustris* PINE-us puh-LUS-tris  
*P. radiata* P. ray-dee-ATE-uh  
*Platycerium* plat-ih-SER-ee-um  
*P. andinum* P. an-DEEN-um  
*P. angolense* P. an-go-LEN-see  
*P. bifurcatum* P. bi-fur-KAY-tum  
*P. coronarium* P. kor-oh-NAIR-ee-um  
*P. ellisii* P. EL-iss-ee-eye  
*P. grande* P. GRAND-ee  
*P. hillii* P. HIL-ee-eye  
*P. holttumii* P. hole-TOOM-ee-eye  
*P. lemoinei* P. leh-MOY-nee-eye  
*P. madagascariense*  
P. mah-duh-gas-kar-ee-EN-see  
*P. ridleyi* P. RID-lee-eye  
*P. stemaria* P. stem-AIR-ee-uh  
*P. superbum* P. sue-PER-bum  
*P. vassei* P. VAS-ee-eye  
*P. veitchii* P. VETCH-ee-eye  
*P. wallichii* P. wal-IK-ee-eye  
*P. wandae* P. WAND-ee  
*P. willinckii* P. wil-IN-kee-eye  
*Podocarpus* po-doe-KAR-pus  
*Pritchardia hillbrandii* pri-CHAR-dee-uh  
hil-ih-BRAND-ee-eye  
*Ricinus communis* RIH-sin-us  
kom-MEWN-iss  
*Severinia buxifolia* sev-er-IN-ee-uh  
bucks-ih-FO-lee-uh  
*Wikstroemia uva-ursi* wik-STREAM-ee-uh  
oo-vuh-UR-see





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