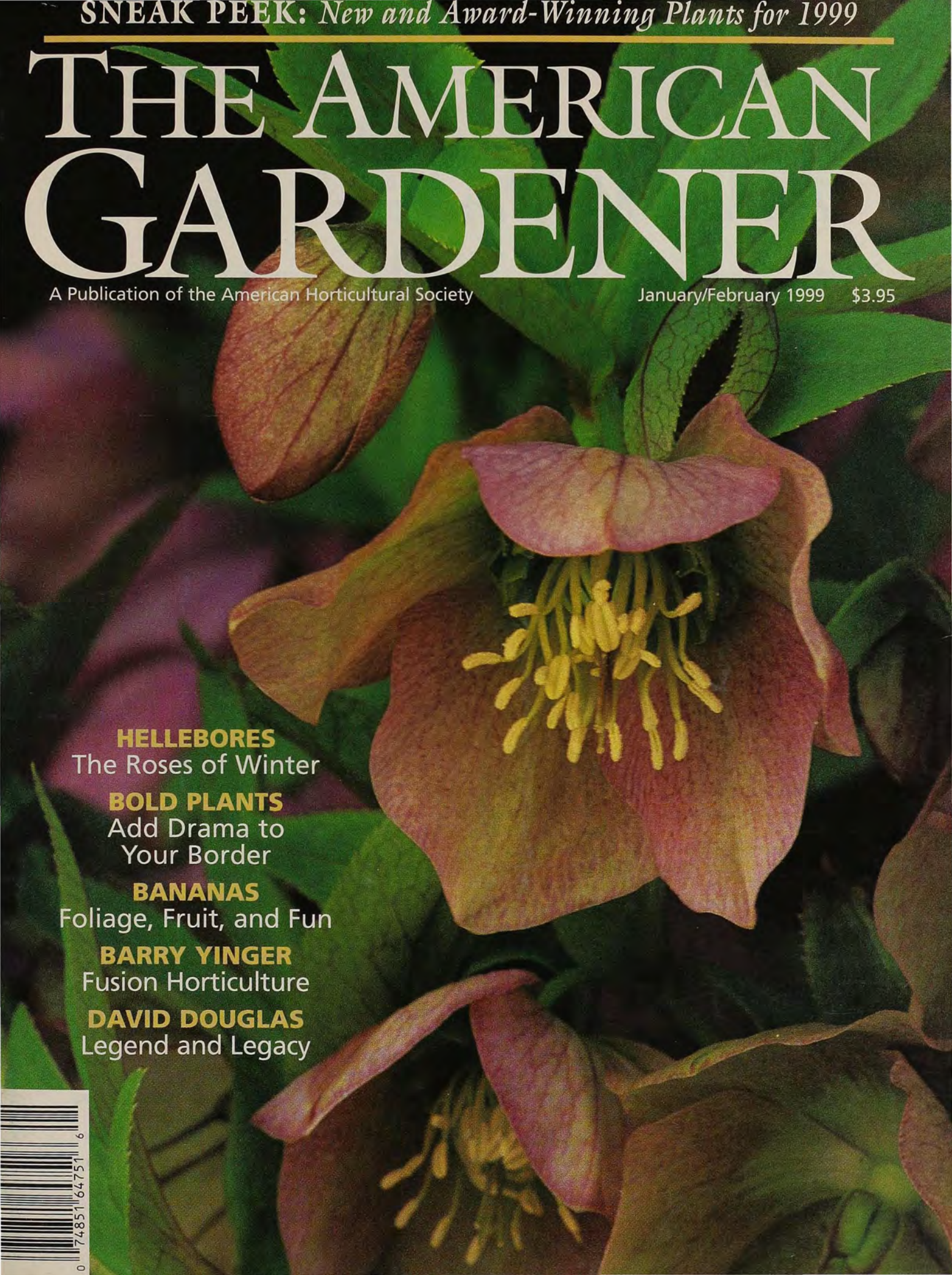
SNEAK PEEK: *New and Award-Winning Plants for 1999*

THE AMERICAN GARDENER

A Publication of the American Horticultural Society

January/February 1999 $3.95



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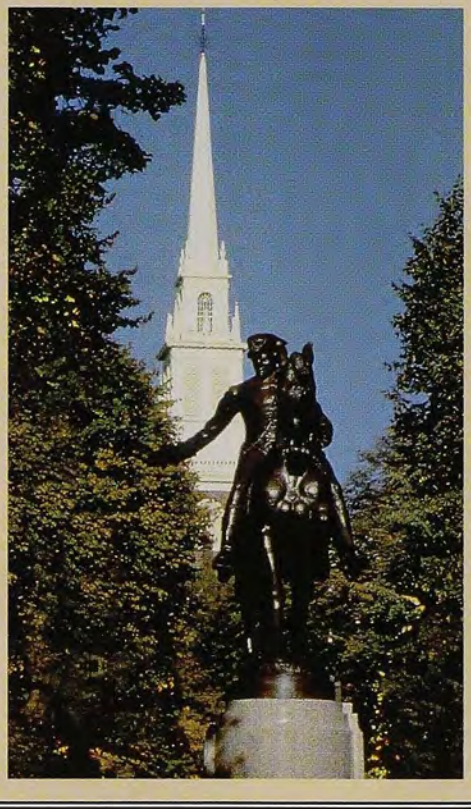

Boston, Massachusetts *June 9 – June 12, 1999*

Celebrate the accomplishments of American gardeners in the historic "City Upon the Hill." ***Join*** with avid gardeners from across the country to learn new ideas for gardening excellence. ***Attend*** informative lectures and demonstrations by nationally-known garden experts. ***Tour*** the great public and private gardens in and around Boston, including the Arnold Arboretum and Garden in the Woods. ***Meet*** the winners of AHS's 1999 national awards for excellence in horticulture.

For more information, call the conference registrar at (800) 777-7931 ext. 10.

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Volume 78, Number 1 January/February 1999

DEPARTMENTS

FEATURES

On the cover: *Blooming as early as late January, Lenten roses* (Helleborus orientalis) *are one of the nonpareil plants in the late winter garden. Photograph by Alan and Linda Detrick.*

commentary

Millennium fever! I've caught it and am a willing sufferer. It's all about new beginnings, fresh ideas, renewed creativity. As happens each new year, many of us have done some inner searching and made resolutions to improve the quality of our lives this coming year. Here at the American Horticultural Society, the Board of Directors, National Committees, and staff are actively developing programs and services that will enhance AHS's local and national presence. Why? Because promoting the value of gardening and the appreciation of gardens is critical to our nation's physical and emotional health in 1999 and beyond. As a member of AHS, you know how important gardening is to *you*. Now we must resolve, together, to educate and inspire *others* to become successful and environmentally responsible gardeners. How? This process starts in our own homes and communities by making resolutions about our own gardens.

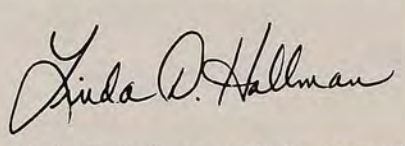
Perhaps this year we will replace some of that lawn with flower beds. Or strive to rely less upon synthetic fertilizers and pesticides as a means to cope with weeds and insect pests. Or maybe we will finally build that water garden we have been talking about for years.

If your resolution is to do something daring with your garden, you're in luck. In this issue, we take a look at bold and beautiful plants for winter and spring. Pam Baggett, a nursery owner and writer, describes a diverse selection of dramatic, architectural plants that will become the centerpiece of any design. And if you've always wanted to grow a banana tree, tropical fruit specialist Alice Ramirez tells us about some of the best cultivars and explains how gardeners can get these flamboyant plants to bear fruit.

Bold is also an appropriate adjective for hellebores, which are among the first heralds of spring for winter-weary gardeners. Frequent contributor C. Colston Burrell describes the best hellebore species and provides an update on the latest breeding work being done on these stylish and dependable perennials.

We take many of our most beautiful plants for granted, but often they were brought into cultivation only through the extraordinary efforts of plant hunters. We offer a peek into the lives and achievements of plant hunters past and present through articles on David Douglas and Barry Yinger. Garden historian Susan Davis Price tells us about Douglas, a 19th-century Scottish explorer who tramped thousands of miles through the American wilderness and left his legacy in the numerous plants that bear his name. And writer Rick Darke profiles the Pennsylvania-based Yinger, who is best known for introducing dozens of striking Asian plants to America during more than two decades of work for a variety of botanical gardens and nurseries.

Every year we learn more about the value and significance of plants. As we begin this new year, let's make one more resolution. Together, let's resolve to inspire others to understand that nurturing plants creates a sense of value for life. Happy New Year!



—Linda D. Hallman, *AHS President/CEO*

members' forum

PLATYCERIUM WILLINCKII 'LEMOINEI'

When I was growing up, only plants were acceptable to my father as birthday or Father's Day gifts. Anything else he turned down as unnecessary. Born in 1897 in New York, he struggled to become an attorney and was a defender in the best sense of the word.

In about 1965 I bought a staghorn fern *(Platycerium willinckii* 'Lemoinei') for him at Dave Barry's Jungleland Nursery in Brentwood, California. The staghorn fern was mounted on a 12-inch-square piece of redwood. My father was delighted with this exotic green plant and promptly hung it by a hook on a pittosporum tree that overhung his apartment patio. He and my mother lived there until they died in 1976, at which point my husband and I inherited the greatly enlarged staghorn.

After the plant went up on our redwood fence, the sterile fronds attached themselves to the fence itself and spread. Many friends have taken offshoots by cutting deeply to remove a portion of the base fronds and roots.

The staghorn subsists on weekly sprinklings from a garden hose and probably gets some nourishment from the deciduous golden rain tree *(Koelreuteria bipinnata)* overhead when it drops its leaves in December. We don't use any fertilizer on this easy-to-maintain and stunning tropical epiphyte, which continues to give joy to succeeding generations of our family.

Judith Campbell
Los Angeles, California

QUESTIONABLE ETHICS

I enjoyed C. Colston Burrell's piece on epimediums in the March/April 1998 issue and am happy these wonderful plants are getting more attention. One ambiguous statement in the article raised a big question, however. Burrell mentioned that three U.S. nurseries "have combed nurseries and wild places in Europe and Asia...." If this means these nurseries collect plants from the wild, I'm appalled at their practice and at your magazine's implicit endorsement.

I expect, however, they collect cuttings and seeds. If that's the case, Burrell should have made it plain.

Also particularly grating was the story's use of "trial" as a verb, as in "trialing." How about "testing" or "trying"? I'm all for a growing language, but when perfectly good verbs exist, please use them.

Leonard Pardue
Asheville, North Carolina

Thanks for your comments on Colston Burrell's article on epimediums. If you are a regular reader of our magazine, I'm sure you're

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The American Gardener (ISSN 1087-9978) is published bimonthly (January/February, March/April, May/June, July/August, September/October, November/December) by the American Horticultural Society, 7931 East Boulevard Drive, Alexandria, VA 22308-1300, (703) 768-5700. Membership in the Society includes a subscription to *The American Gardener.* Annual dues are $25; two years, $45. International dues are $60. $10 of annual dues goes toward magazine subscription. Periodicals postage paid at Alexandria, Virginia, and at additional mailing offices. **Postmaster:** Please send Form 3579 to *The American Gardener,* 7931 East Boulevard Drive, Alexandria, VA 22308-1300.

Botanical nomenclature is based on *A Synonymized Checklist of the Vascular Flora of the United States, Canada and Greenland* and on the *Royal Horticultural Society Index of Garden Plants.* Opinions expressed in the articles are those of the authors and are not necessarily those of the Society. Manuscripts, artwork, and photographs sent for possible publication will be returned if accompanied by a self-addressed, stamped envelope. We cannot guarantee the safe return of unsolicited material. Back issues are available at $5 per copy.

aware we try our best to ensure that the nurseries and horticulturists we profile are not in the habit of indiscriminately digging plants from the wild. The magazine, and the American Horticultural Society as a whole, promotes ethical plant propagation methods. In the last few years we have run several articles that directly discussed the ethical collection of plant parts for propagation and stressed that plants should only be dug from the wild under license from appropriate regulatory agencies or in emergency situations when ecosystems are threatened by human activities.

That being said, it is only fair to point out that although most propagation of wild plants is now done through cuttings, divisions, and seeds, many of the beautiful plants that adorn all our gardens were originally collected from the wild as plants. In recent years, plant collection has increasingly been done with proper authorization from governments and environmental protection agencies, but before that most plant collectors did not shy away from removing plants from their natural habitat.

As to the second part of your letter, we plead guilty to use of jargon and will strive to excise such use of "trialing" in future issues!

Leonard Pardue responds: It's simply because the Society has been so good on the issue of collecting plants in the wild that the phrasing in the Burrell piece stood out to me. Unfortunately, here in the Southern Appalachians irresponsible collecting continues, although no doubt to a lesser extent than in the past. We need to speak up for good practice every chance we get.

I should add that the conservation ethic of the Society is a key reason that I belong, and that I enjoy your magazine.

Correction

In the November/December issue, we listed an incorrect telephone number for ordering the book *California's Wild Gardens: A Living Legacy.* The book can be ordered by calling the California Native Plant Society at (916) 447-2677.

Write Us!

Do you want to voice an opinion or share some gardening information? We'd like to hear from you. Letters to the editor should be addressed to Editor, *The American Gardener,* 7931 East Boulevard Drive, Alexandria, VA 22308, or you can e-mail us at editor@ahs.org. Letters we print may be edited for length and clarity.

ORCHID HAVEN IN CAROLINA

I was very intrigued by your article in the May/June 1998 issue of *The American Gardener.* Author Paul Brown is not much of a venturing spirit, however, because the

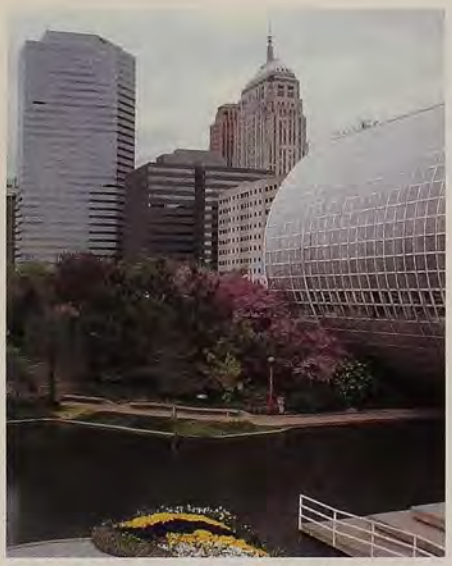
Pink lady's-slipper *(Cypripedium acaule)*

North Carolina mountains are home to many of the varieties he mentions. Sadly, deer populations are devastating them in the wild, but my garden is fenced in and I am enclosing photographs of some of the treasures I grow. The pink lady's-slipper *(Cypripedium acaule)* is just a small part of my patch; I had more than 350 of them in bloom last spring. I also have three fringed orchids *(Habenaria* sp.) rescued from the mowers at a local golf course, and a rosebud orchid *(Cleistes divaricata).* We used to have habenarias, but the deer ate those. The deer have also decimated the lily-leaved twayblade *(Liparis liliifolia),* and now, alas, the loggers are destroying great areas of showy orchids.

Ruth Stevenson
Roaring Gap, North Carolina

In fairness to Paul Martin Brown, we asked him to write about a variety of orchids from throughout North America, so of necessity he was not able to mention all the ones he encountered in the wild. But, in this case, he acknowledges that he has not yet had an opportunity to see first hand the orchids of the North Carolina highlands.

news from ahs



Thanks to a new horticultural partnership with the Oklahoma Horticultural Society, AHS members will be admitted free to the spectacular Crystal Bridge Tropical Conservatory at Myriad Botanical Gardens in Oklahoma City.

NEW PARTNERSHIP WITH OHS

We are proud to welcome the Oklahoma Horticultural Society (OHS) as an AHS Horticultural Partner. Members of this venerable organization, formed in 1970 as a statewide horticultural group for both professional horticulturists and hobby gardeners, will now receive *The American Gardener* and be eligible for all the other benefits of membership in AHS. "We are extremely excited about this partnership with AHS," says OHS president Warren Filley. "We share a similar mission and goals, and I'm sure affiliation with a national organization such as AHS will be of great benefit to the members of our society."

OHS is actively involved in gardening activities throughout Oklahoma, sponsoring lectures by prominent garden communicators and tours of private and public gardens, including Myriad Botanical Gardens in Oklahoma City. Members receive a quarterly newsletter and the society now has a website at connections.oklahoman.net/okhorticulture.

As a reciprocal benefit of this partnership, AHS members will now be admitted free to the Crystal Bridge Tropical Conservatory at Myriad Botanical Gardens by showing their AHS membership card.

LIGHTY RETIRES

Richard W. Lighty, director of the Mount Cuba Center for the Study of Piedmont Flora in Greenville, Delaware, for the last 15 years, retired at the end of last year. Lighty came to Mount Cuba as its founding director in 1983, following 16 years as coordinator of the Longwood Gardens Graduate Program in Public Garden Administration at the University of Delaware, Newark. Before that, he was a research geneticist at Longwood Gardens.

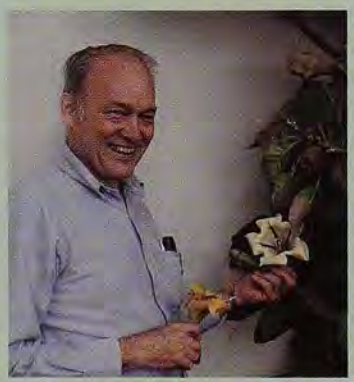
"I'll be doing things pretty much as usual, except I won't be going in to Mount Cuba," says Lighty, who plans to maintain his busy schedule of lecturing, writing, and serving on various boards and committees. He also hopes to spend more time in his seven-acre garden near Kennett Square, Pennsylvania.

In the course of his career, Lighty collected numerous horticultural awards, including the Perennial Plant Association's Distinguished Service Award, the Massachusetts Horticultural Society's Silver Medal, and the Arthur Hoyt Scott Medal of the Scott Arboretum of Swarthmore College. To add to his accolades, Lighty has been named the 1999 recipient of AHS's highest honor, the Liberty Hyde Bailey Award (see box).

At Mount Cuba, Lighty's mission was to educate the public about native plants and conduct research on plants native to the Piedmont geologic province, which runs along the eastern slope of the Appalachian mountains. Of the 20 new plants he introduced to the nursery trade, eight were developed while he was at Mount Cuba. Among these are *Aster novae-angliae* 'Purple Dome', *Cornus sericea* 'Silver and Gold', *Heuchera americana* 'Garnet', and *Solidago* 'Golden Fleece'. As part of an effort to prevent endangered wildflowers from being collected in the wild, Lighty also initiated research to develop marketable cultivars of difficult-to-propagate natives such as trilliums and terrestrial orchids.

As we went to press, it was announced that Rick Lewandowski, director of horticulture and curator of living collections at the Morris Arboretum in Philadelphia, has been hired to replace Lighty at Mount Cuba.

1999 Award Winner



Richard Lighty

It has just been announced that Richard W. Lighty is the 1999 recipient of AHS's Liberty Hyde Bailey award, the highest award the Society offers to an individual.

The award, which will be presented to Lighty at the Society's annual conference in Boston, June 9 to 12, is given to an individual who has made significant contributions in at least three of the following areas of horticulture: teaching, research, writing, plant exploration, administration, art, business, and leadership.

A complete list of 1999 AHS award winners appears in the Directory of Member Benefits.

LYONS TO HEAD J.C. RAULSTON ARBORETUM

Robert E. Lyons, formerly with Virginia Polytechnic Institute and State University in Blacksburg, has been hired as director of the J.C. Raulston Arboretum at North Carolina State University (NCSU), Raleigh. The arboretum, formerly known as the NCSU Arboretum, is named in honor of the arboretum's former director, who died in an automobile accident in 1996. Since that time, Bryce Lane, a member of the NCSU horticulture department faculty, has been serving as interim director of the arboretum, which is internationally renowned for its introductions of ornamental plants.


Robert E. Lyons

"We have been searching for someone to fill J.C.'s shoes for nearly two years, and I'm happy to say we have found him,"says James Oblinger, dean of NCSU's College of Agriculture and Life Sciences. "J.C. was a giant in the world of horticulture. He combined an encyclopedic knowledge of ornamental plants with a tireless dedication to teaching, public education, and industry outreach. Dr. Lyons has those same skills and qualities. He is the right person to build upon J.C.'s accomplishments and lead the arboretum into the next century."

"I'm really excited about the position with NCSU," says Lyons, "It's very much what I do here—but on a grander scale." In addition to directing the arboretum, Lyons will continue teaching, a condition he insisted on as part of the job. "I wouldn't have taken the job unless I would be teaching as well. That's what I do here [Virginia Tech] and I didn't want to lose that touch."

Lyons faces a couple of challenges in his new position. Raleigh, in USDA Zone 7, is a full zone warmer than Blacksburg. Not only will he have a wider palette of plants to embrace, but he will be changing his emphasis from herbaceous to woody plants. "My strength is really herbaceous materials," he says, "but I'm prepared to encounter the learning curve with woody plants and a warmer zone."

While acknowledging the decision to leave Virginia Tech was difficult because of his close involvement in the development of the university's Horticulture Gardens and his relationship with the students, Lyons describes himself as "stunned" by the reaction to his departure. "The fallout has been amazing," he says. "I've been delighted to realize that the impact I've had on the students and the industry has been valuable."

Lyons says he is honored to be carrying on the work begun by J.C. Raulston but hopes not to be immediately measured up against the standards of his legendary predecessor. "I want to further J.C.'s legacy but not be compared to what he has done," he says.

Lyons earned his master's and doctoral degrees in horticulture at the University of Minnesota at Minneapolis–St. Paul before moving on to Virginia Tech as an assistant professor in 1981. He was promoted to full professor there in 1995 and has directed the university's Horticulture Gardens since 1994. While at the university, he won several teaching and research publication awards; he has also won journalism awards from the Garden Writers Association of America for his writing and photography. He will officially begin work at NCSU on February 1.

UNWANTED FOXGLOVE

Conservation groups are keeping an eye out for Grecian foxglove *(Digitalis lanata)*, which appears to be potentially invasive in wild areas throughout the United States. Reportedly the plant has established itself in wild areas of Kansas, northern California, and several eastern states. A 120-acre infestation found on private property in eastern Kansas caused the state's Department of Agriculture to begin negotiations with the nursery industry to prohibi sale of the plant through the state's Plant Pest Act.

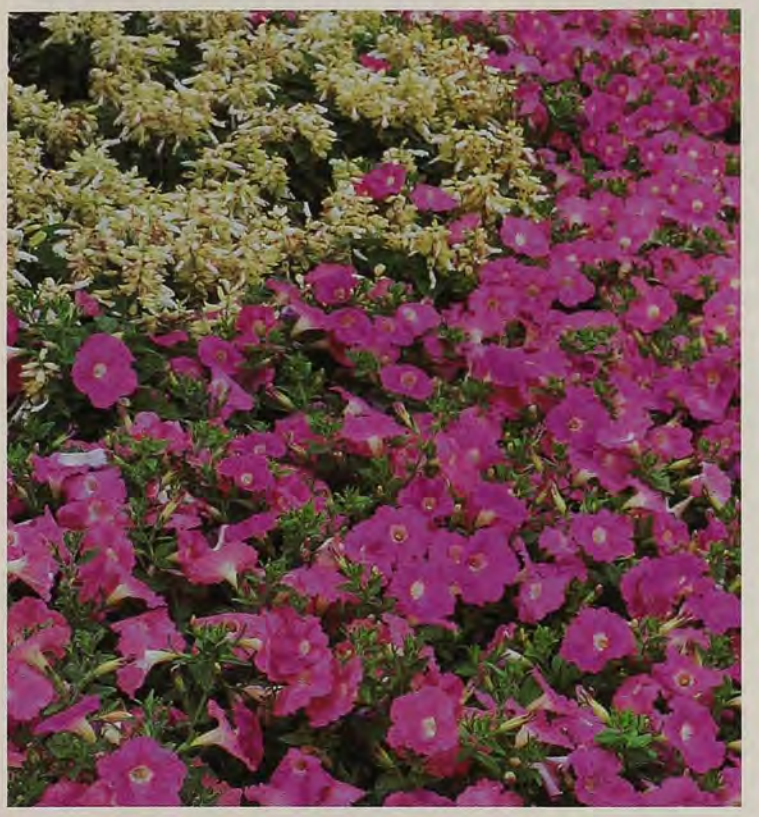

Grecian foxglove

Like all foxgloves, Grecian foxglove contains digitalis, a powerful cardiac stimulant that has been linked to fatalities in humans and grazing animals. Ingestion of plants at the infestation in Kansas reportedly caused the death of livestock.

The American Nursery and Landscape Association has suggested that nurseries offering Grecian foxglove "may wish to re-evaluate its importance and consider offering alternatives."

focus january/february

new for 1999



***Petunia* 'Rose Wave' and *Salvia* 'Vista White'—new from Ball.**

A NEW YEAR MEANS NEW PLANTS

listed in catalogs and arriving in nurseries. Each year we are promised new colors, new habits, new pest resistance, and new flavors. A very few new plants are destined to become garden classics; most fade into oblivion with the countless other plants that have gone before. Do we really need a petunia in another shade of pastel? Does the latest hosta, daylily, or azalea really have something distinctive to offer?

Time will be the test of most of these new plants, but we have scoured catalogs and read over-enthusiastic news releases from seed companies to preview some of the most promising new plants for 1999. We've also included plants that have been named award winners or "plants of the year" by various national organizations, from the Perennial Plant Association to the All-America Selections.

If you grow any of these new or acclaimed plants, let us know your experiences with them.

what's in

by Christina M. Scott

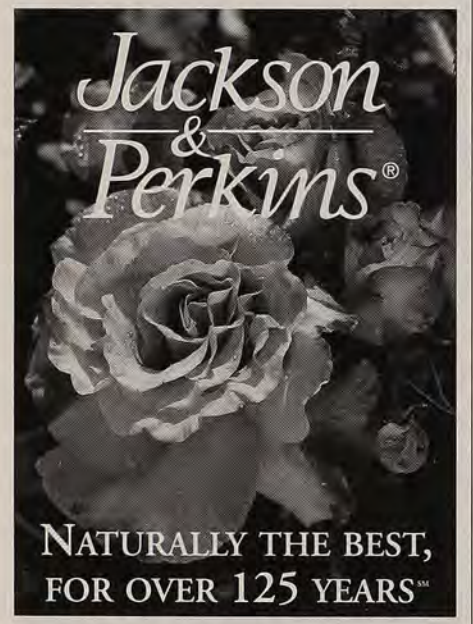
Each year, hundreds of new plants are introduced into the market. Many of these plants that find their way into seed catalogs or onto nursery shelves are truly new—the product of intensive breeding programs to develop new flower colors, habit, or disease resistance. Others have existed for some time but haven't been widely available to the public. Whether these plants are really new or simply new to us, the result is a wider variety of exciting plants to choose from when planning our gardens each year. Here are some likely candidates for1999.

ANNUALS

If pre-release publicity is any indication of a plant's potential for success, then *Petunia* 'Misty Lilac Wave' and 'Rose Wave' from Ball Horticultural Company, headquartered in West Chicago, Illinois, are sure to be as popular as their predecessors, 'Purple Wave', a 1995 All-America Selections winner, and the 1996 release, 'Pink Wave'. 'Misty Lilac Wave' has large, three-inch, light lavender blooms that fade to pale lavender or white. 'Rose Wave' has intense rose colored flowers that cover the plant in summer. All of the 'Wave' petunias grow to a height of four to six inches, spread three-and-a-half to four feet wide, and bloom all summer, thriving even in hot and damp conditions.

Gardeners will also find new colors of *Salvia* 'Vista', another popular annual from Ball. The most common salvia is bright red, but now you'll have the choice of burgundy, lavender, purple, and red and white. These plants are advertised as heat tolerant and fade resistant, growing 10 to 12 inches high.

Goldsmith Seeds, Inc., of Gilroy, California, is introducing a whole new series of snapdragons (*Antirrhinum* spp.) for 1999. The La Bella series promises to combine the best qualities of the other Goldsmith snapdragons: strong basal branching to create a full profile, an open flower form, and 10 bright colors, including bronze, lavender, red, yellow, red and white, and purple. La



Bella snapdragons grow 18 to 22 inches high in the garden.

Nemesia fruticans (also listed as *N. caerulea)* 'Compact Innocence', a new offering from Proven Winners, of Bonsall, California, has delicate, small white snapdragonlike flowers with bright yellow centers. The fragrant flowers on this tender perennial are suspended above compact, semi-trailing foliage. 'Compact Innocence' is heavy blooming and tolerant of full sun, yet is cold hardy to 15 degrees Fahrenheit.

PERENNIALS

At Heronswood Nursery in Kingston, Washington, owner Dan Hinkley is excited about this year's new offerings, including four new epimediums that are the result of Hinkley's 1996 expedition to China. Two new, as-yet-unnamed selections of *Epimedium acuminatum* will add to Heronswood's already large collection of this popular genus. But Hinkley's favorite plant this year is *E. chloandrum,* distinguished by deep red-spotted, lancelike foliage that grows to eight inches long. The yellow flowers stand on 18-inch stems. "This plant was only described in 1997," explains Hinkley. "Before that, no one even knew it existed."

Niche Gardens, in Chapel Hill, North Carolina, is promoting a new version of an old favorite. *Echinacea purpurea* 'Kim's Knee High' is a dwarf version of the purple coneflower that Niche has been working on since 1990. In summer, the plant produces clear pink flowers with drooping petals and the characteristic red-tipped cone of iridescent orange on stems that top out at 15 to 17 inches. In mid- to late August, the plant reblooms on slightly taller stems.

Other new perennials that will be hitting the catalogs and nursery shelves include *Geranium* 'Pink Spice', from Monrovia nursery in Azusa, California. The unusual dark purple-bronze foliage serves as a nice contrast to the dainty light pink flowers, which begin to bloom in late spring and continue throughout the summer.

EuroAmerican Propagators, headquartered in San Diego, California, is introducing *Scaevola aemula* 'Blue Shamrock'. This new cultivar branches well and grows more compactly than previous cultivars, reducing the need for pinching. Intense blue flowers cover this 10- to 14-inch-tall bushy plant in early spring and will continue to bloom through the winter in mild climates.

Two new mandevilla cultivars, *Mandevilla* 'Ruby Star' and 'White Delight', are being offered by Oglesby Plants International of Altha, Florida. Blooms of 'Ruby Star' mature from swirls of lush pink and white to deep red trumpet-shaped flowers. 'White Delight' has large white flowers with golden throats and is more compact than other cultivars of this tender perennial vine.

Gardeners who have a soft spot for daisylike flowers will be pleased to hear that Proven Winners has added two new selections to its Cobbity Daisies line: *Argyranthemum frutescens* 'Summer Melody' and 'Sugar Buttons'. 'Summer Melody' is a double, pink daisy that, according to its promotional material, outperforms other *Argyranthemum* cultivars. It has a strong, bushy habit and long-blooming flowers that are deep pink in bud, turning soft pink as they open up. 'Sugar Buttons' is a compact plant featuring large, white, double flowers with a yellow center.

Epimedium acuminatum

TREES AND SHRUBS

From Monrovia comes the variegated *Abelia ×grandiflora* 'Sunrise'. A dense evergreen shrub growing three to five feet tall and four to six feet wide, the foliage of 'Sunrise' emerges as small, pink-tinged green leaves with gold leaf margins. As the foliage matures, it turns creamy yellow. Fall color is bright yellow, orange, and red. Small white flowers appear in spring and summer. 'Sunrise' is also available through Fairweather Gardens.

Also from Monrovia comes a new ninebark, *Physocarpus opulifolius* 'Monlo'. A large deciduous shrub, 'Monlo' has dark red foliage that contrasts with two-inch-wide clusters of small creamy white summer. It grows nine to 12 feet high and wide, with arching branches that cascade to the ground.

Hydrangea sikkokiana, a very rare hydrangea species from Japan, was grown from seeds collected by Heronswood's Dan Hinkley in 1997. Enormous, bold,

Other New Annuals

***Abutilon* × *hybridum* 'Bella F1 Mix'.** Three-inch-wide, bell-shaped flowers on compact 14- to 16-inch plants. Pastel colors include apricot, coral, red, peach, rose, pink, ivory, and lemon yellow. (Ball)

***Begonia* 'Dragon Wing'.** Hanging clusters of red, bell-shaped flowers. Waxy, dark green wing shaped foliage. (Ball)

***Digitalis purpurea* 'Primrose Carousel'.** Primrose-yellow flowers circile stem. Dwarf, only 30 inches high. (Thompson & Morgan)

***Impatiens* Java New Guinea series.** 'Java Pearl', white with pink blush; 'Java Lilac Flame', lavender with scarlet star pattern; 'Java Pink', light pink with darker pink stripes. Bronze foliage. (Ball)

***Pelargonium* 'Disco'.** Large hot magenta flowers. Compact zoned foliage. (Fischer USA)

***Torenia* Summer Wave series.** Light and dark blue snapdragonlike bicolor flowers. Creeping/trailing habit. (Proven Winners)

***Verbena* Temari series.** 'Temari Violet'. Baseball-sized flowers, rich burgundy with hint of magenta. Resists powdery mildew. Trailing habit. (Proven Winners)

New Vegetables

***Capsicum* 'Early Sunsation'.** 4½-by-4½-inch green bell peppers mature to a sweet golden-yellow. Resists bacterial spot. 70 days to green bell; 2 extra weeks to golden yellow. (Seminis)

***Cucumis* 'Early Crisp'.** Honeydew melons bear 7- to 8-pound fruits. Firm crispy flesh. 80 days. (Seminis)

***Lactuca* 'Crispy Frills'.** Texture and crispness similar to head lettuce, but leaves are loosly packed and all-green. Bolt resistant. 80 days. (Burpee)

***Lycopersicon* 'Bucks County'.** Deep red, 8-ounce beef-steak. Crack-free skin and high tomato yield. Disease resistant. 74 days. (Burpee)

***Phaseolus* 'Shade'.** Dark green, slim 5½-inch bean pods. Tender and flavorful. Disease resistant. 54 days. (Harris)

***Zea* 'Sweet Riser'** Three different types of sweet corn on one ear. 65 days. (Harris)

scalloped foliage that is similar to oakleaf hydrangea grows along stems that reach eight feet tall. Large white lacecap flowers bloom in midsummer.

Argyrocytisus battandieri (formerly known as *Cytisus battandieri)* will be offered by Gossler Farms Nursery in Springfield, Oregon. This 15- to 18-foot-tall shrub, commonly known as pineapple broom because of the pineapplelike fragrance of its golden yellow flower clusters, has attractive silky gray-green foliage.

All of these plants should be available at your local nursery or through one of the mail-order sources listed on the next page.

Christina M. Scott is assistant editor of The American Gardener.

all-america selections

The All-America Selections, a non-profit organization that field tests new plants each year and awards those that offer superior garden performance, has honored 12 plants for 1999.

Of the plants chosen in 1999, two received AAS Gold Medals, which are reserved for plants that represent a breeding breakthrough such as improved disease resistance, improved flowering or fruiting, or other noteworthy characteristics.The gold medal winners are zinnia cultivars 'Profusion Orange' and 'Profusion Cherry'. According to the selections committee, these zinnias are tolerant of foliar diseases, such as powdery mildew and bacterial leaf spot, that commonly affect zinnias.

OTHER SELECTIONS

■ *Begonia* 'Pin-Up Flame'. A tuberous begonia with dramatic bicolor flowers that are yellow with red to orange edges.

■ *Cucumis* 'New Queen'. A watermelon cultivar with bright orange flesh that matures in about 75 days from seed.

■ *Cucurbita* 'Eight Ball'. This green summer squash is essentially an egg-shaped or round version of the zucchini. It is compact—growing to only five feet in diameter—and fruits can be harvested only five or six weeks after planting.

■ *Cucurbita* 'Wee-B-Little'. This pumpkin produces miniature fruit that weighs up to a pound. The plant also has a bushy habit that takes up less space than other pumpkins. Matures in about 120 days from seed.

■ *Kniphofia uvaria* 'Flamenco'. This new

selection of the perennial red-hot poker flowers the first year. Its tubular flowers, clustered around a spike, are creamy white to yellow at the bottom of the inflorescence and orange to red at the top.

■ *Lycopersicon* 'Juliet'. This new tomato produces elongated cherry-size tomatoes that resemble grapes. The tomatoes are resistant to cracking and mature about 60 days after being set out in the garden.

■ *Osteospermum* 'Passion Mix'. This selection of these South African plants with daisylike flowers includes pink, rose, purple, and white ray flowers around blue centers.

■ *Portulaca* 'Sundial Peach'. A new rose moss with large, shiny pink flowers.

■ *Tagetes* 'Bonanza Bolero'. A dwarf French marigold featuring flowers with an irregular gold and red bicolor pattern.

■ *Verbena* 'Quartz Burgundy'. This spreading verbena features deep pink flowers with a white eye in the center. These bloom throughout the growing season.

ROSES FOR 1999

Four roses with very different habits have been chosen All-America Rose Selections (AARS) winners for 1999. The winners were chosen from scores of new roses that went through rigorous evaluations at test sites throughout the United States. Rose experts judged the roses on 15 different traits, including color, fragrance, disease resistance, hardiness, and growth habit.

***Rosa* 'Fourth of July'**

'Candelabra', a grandiflora rose, has lightly scented coral and orange flowers and dark green, glossy foliage.

'The flowers of 'Kaleidoscope', a shrub rose, change color as they mature. The tan and lavender petals gradually fade to pink at the tip. This rose grows three to four feet tall and has medium green foliage.

'Fourth of July' is the first climbing rose to win an AARS award in 23 years. Canes reach 10 to 14 feet tall and the slightly fragrant, velvety red-and-white-striped flowers bloom in clusters.

The trademarked Betty Boop is a floribunda rose with ivory yellow flowers edged in red. It flowers early and often and has a slightly fruity but sweet fragrance.

A free brochure on the 1999 AARS winners can be obtained by sending a stamped, self-addressed envelope to AARS, Department 99, 221 N. LaSalle, Suite 3500, Chicago, IL 60601. —*AHS Staff*

Perennial Plant Association Winner

An old favorite, the 'Goldsturm' cultivar of the orange coneflower *(Rudbeckia fulgida* var. *sullivanti),* has been chosen as the 1999 perennial plant of the year by the Perennial Plant Association (PPA), a professional organization whose membership includes wholesale and retail nursery owners, garden communicators, and other horticulture industry professionals.

***Rudbeckia fulgida* var. *sullivantii* 'Goldsturm'**

As is the case with quite a number of popular cultivars of species native to North America, 'Goldsturm' actually originated overseas, in Foerster's Nursery in Germany in 1937. The cultivar was selected because it was more free-flowering and compact than the standard variety, which still has much to offer in the attractive contrast between its dark green leaves and golden yellow flowers.

"The intent of the award is not just to introduce a brand new plant," notes Steven Still, president of the PPA. "It's a promotional effort that brings awareness of worthy plants to the gardening public."

Under ideal conditions—full sun and evenly moist soil—flowering in this clump-forming perennial begins in midsummer and lasts into September or October. The slighty drooping ray flowers, which radiate out from a dark brown central cone, are up to four inches in diameter and stand 18 to 30 inches tall. 'Goldsturm' is hardy in USDA Zones 3 to 8 and heat tolerant in AHS Zones 9 to 4. It is not known to be susceptible to serious pests or diseases, offers nectar for butterflies and seeds for birds, and looks great when massed. —*AHS Staff*

Sources

■ WHOLESALE GROWERS

BALL HORTICULTURAL COMPANY. Ball is constructing a Web site to direct consumers to retail sources for its plants. In the meantime, ask your local nursery for Ball plants by name.

GOLDSMITH SEEDS, INC. Visit www.goldsmithseeds.com for a list of retail mail-order sources.

MONROVIA. Monrovia plants are offered in nurseries nationwide. Call (888) PLANT-IT for locations.

PROVEN WINNERS. Visit www.proven winners.com for retail mail-order sources.

SEMINIS GARDEN. One retail source is T&T Seeds, Ltd., P.O. Box 1710, Winnipeg, MB R3C 3P6 Canada. (204) 895-9962. Catalog $3.

EUROAMERICAN PROPAGATORS, FISHER USA, and **OGLESBY PLANTS INTERNATIONAL** do not have mail-order retail contacts. Ask your local supplier for plants by name.

■ RETAIL NURSERIES

FAIRWEATHER GARDENS, P.O. Box 330, Greenwich, NJ 08323, (609) 451-6261. Catalog $3.

HERONSWOOD NURSERY LTD., 7530 NE 288th, Kingston, WA 98346, (360) 297-4172. Catalog $5 for a two-year subscription.

NICHE GARDENS, Dept. AG, 1111 Dawson Road, Chapel Hill, NC 27516, (919) 967-0078. www.nichegdn.com. Catalog $3.

■ SEED COMPANIES

W. ATLEE BURPEE CO., 300 Park Avenue, Warminster, PA 18974, (800) 888-1447. www.burpee.com. Catalog free.

HARRIS SEEDS, P.O. Box 22960, Rochester, NY 14692, (800) 514-4441. www.harisseeds.com. Catalog free.

J.W. JUNG SEED CO., 335 S. High Street, Randolph, WI 53956, (800) 297-3123. Catalog free.

THOMPSON & MORGAN,INC. P.O. Box 1308, Jackson, NJ 08527. (800) 274-7333. Catalog free.

offshoots

WAITING FOR THE SNOW TO MELT

by Jewls Cohen

This morning the radio announced that we are halfway through the winter heating season. I looked at our woodpile, and for the first time in years I realized we would not be making an expensive late-winter firewood order. Despite the mild weather this year, I still find winter in Vermont difficult to endure.

Those of us who garden here are all too aware of the brevity of our growing season. When mud season finally releases its grip on the dirt roads, I feel a sense of relief and accomplishment for surviving another winter. Cross-country skiing this morning, I stopped in the woods and listened to the silence. There is a stillness in winter, a silence broken only by the occasional bird call or clump of melting snow falling from a branch overhead. I skied through my backyard and paused at a white mound that represents a temporary coffin for my perennial bed. Beneath the snow, astilbe, phlox, delphinium, purple coneflower, and heliopsis sleep contentedly beneath their blanket. I, however, yearn for my garden; I am impatient for its fragrance and ache for its beauty.

These days I watch the calendar, making up dates of importance that are not too far off. This way I can anticipate their arrival, live through their significance, and move on to the next one, progressively marking the passage of time as it inches closer to winter's demise. When the smell of earth first hits my nostrils, I have to pause and reacquaint myself with this first sign of botanical reincarnation. There is no sweeter sight than my sodden lawn finally rid of its snowcover. It is then I begin my daily rounds of the garden spaces, looking for signs of life.

Every year I am both awed and humbled by the tenacity of my perennials. I see their pointy heads pushing their way through the mulch and feel rejuvenated by their confidence in warmer temperatures and longer hours of sunlight. I have a small garden strip beside our leach field that floods every spring. I usually inspect this area last, giving it extra time to dry out. No matter how long I wait, though, it is still covered by standing water, yet closer inspection always reveals evidence of survival. The underwater community of black-eyed Susan, meadow rue, bee-balm, mallow, and astilbe earnestly withstands the floods, gratefully taking nourishment from the leach field. By mid-summer this patch becomes a lush backyard border of healthy foliage accented by feathery pinks and bold yellows.

I spend hours every summer gazing at my gardens. I sit on my back step with a cup of coffee and study the color combinations that are sometimes bold and other times subtle. The soft shades of powder-blue love-in-a-mist in front of a creamy yellow daylily and an airy pink prairie mallow can look like chiffon scarves of pastel blowing in the breeze. Watching my garden is like a form of meditation. My mind clears itself of thoughts and I am simply in the moment of enjoying incredible beauty.

Even after the winter snows settle, I continue my backyard contemplation. I shift from the step to the kitchen table, but I still gaze at the same view that until recently fed my eyes and nourished my soul. Now what I receive is a daily barometer of winter's hold on the world around me. Every day I calculate depth by watching the objects outside disappear under snow. The wooden bench that offers itself as a comfortable sunning station is slowly engulfed, while the pedestal for potted arrangements in the middle of the perennial bed is eventually swallowed up whole. Even the limbs of the apple tree that once stood high above the ground gradually lose their position of dominance until they are almost genuflecting.

I do not embrace this season called winter, I simply find ways to survive it. Sometimes I think I would do well to follow the cycle of my garden. If I could just pull a big blanket over myself for the winter and sleep it off, I could avoid a lot of negativity. As I am neither plant nor hibernating animal, I try to spend time more positively by looking for the beauty in a tree cloaked in ice and bathed in sunshine, or in a winter evening illuminated by a full moon. These images go a long way toward easing my struggle, and every full moon takes me closer to my first daffodil sighting, my first peeper's song, my first day spent in a T-shirt.

Today we are enjoying our fifth straight day of sunshine, and my indoor garden is responding. I keep an assortment of plants that spend the summer in outdoor containers. Every fall I evaluate each one's indoor survival capabilities and make my selection. This year I have four pots of mandevilla, two scented geraniums, and two glory bushes. They are all sending out new shoots in response to the slowly lengthening daylight hours. This evidence of rejuvenation is a vote of confidence in the future. Instead of being only halfway done with winter, we are on our way toward spring.

Jewls Cohen is a free-lance writer living in Warren, Vermont.

gardeners information service

I'm looking for a house plant ***that doesn't need sunlight but gives off lots of fresh oxygen. What do you recommend?***

—B.J., Kennebunkport, Maine

All plants give off plenty of oxygen, and some help to remove pollutants from the air. While no plant will grow without any light, there are many that can be grown under fluorescent lights. Unfortunately, few flowering plants will grow or thrive under standard artificial lighting, so unless you purchase and install professional-quality grow lights, you'll have to stick to foliage plants. Some plants that do well in low-light situations include: spider plant *(Chlorophytum* spp.), cast-iron plant *(Aspidistra elatior)*, golden pothos *(Epipremnum aureum)*, kangaroo vine *(Cissus antarctica)*, grape ivy vine *(Cissus rhombifolia)*, spotted evergreen plant *(Aglaonema costatum)*, Chinese evergreen *(Aglaonema commutatum)*, and snake plant *(Sansevieria* spp.). Many of these common indoor house plants can be purchased at your local garden center or greenhouse.

For more unusual houseplants, try a specialty nursery such as Lyndon Lyon Greenhouses, Inc., P.O. Box 249, Dolgeville, NY 13329-1249; (315) 429-8291; www.lyndonlyon.com. A good reference is *Taylor's Guide to Houseplants,* edited by Gordon P. DeWolf Jr., Houghton Mifflin Company, Boston, Massachusetts, 1987.

Over two years ago I planted two three-foot **Ginkgo biloba** ***'Princeton Sentry' trees near the front of our five-acre property. They have survived mostly on rainfall but have grown very little. Because I have to carry water to the trees during drought, I have decided to move at least one plant closer to a water source. What can I do to provide an optimal environment for the tree I plan to transplant? We live near the Gulf coast of Florida (USDA Zone 9). Our soil is sandy with some outcrops of limestone.***

—M.A., Chiefland, Florida

Ginkgos should perform well where you live, but there are a few steps you can take to help them along. Although they prefer a sandy, moderately moist soil, they may suffer in pure sand, which could be similar to what you have in Chiefland. If so, work organic matter, such as leaf mold or compost (about 10 to 15 percent by volume), into the soil to a depth of 12 to 15 inches. Do this 5 to 10 feet around the area in which you intend to plant the tree. This will help the soil retain water. The tree should be placed in full sun and watered regularly for the first year after transplanting. This remarkable tree is a relatively slow grower, but you can speed it up by top-dressing with compost or applying balanced slow-release fertilizer.

I have seeds of European beech ***and golden chain trees. How would I start these seeds?*** *—D.N., via e-mail*

The seeds of European beech *(Fagus sylvatica)* are known to be recalcitrant and should not be allowed to dry out. They lose their viability in storage, so they should either be planted in the fall or conditioned indoors for three months at 40 degrees Fahrenheit before sowing outdoors in the spring. Golden chain tree *(Laburnum anagyroides)* seeds will germinate without difficulty when properly scarified. Use a metal file to nick the seed coat before planting in the spring.

A friend wants to start a grape vine ***from a set of vines growing at his mother's house. Should we start from seeds, or would it be best to take cuttings of the old vines?***

—B.S., via e-mail

Although grapes can be propagated from seed, this is rarely done because most grape plants are cultivars and won't come true from seed. But you have three other options. The first option is to take hardwood cuttings. All grapes grown in the U.S., except Muscadine, can be propagated from hardwood cuttings. In the winter, take one-foot cuttings that have three buds and store them in moist sand or sawdust until early spring, when they should be planted with the top bud level with the surface of the soil. The cuttings should produce vines by the end of the first or second season.

Your other options are to take softwood cuttings or to layer a vine. Both methods work with all grapes, including Muscadine. Softwood cuttings should be taken before the stems harden in early summer and planted immediately. Layering involves taking a vine growing on the parent plant, breaking—but not severing—it at a node, and burying the node in the soil alongside the parent plant. Once roots form—usually within a year—the new plant can be separated and transplanted.

—Melanie Bonacorsa, Information Specialist, and William May, Gardeners Information Service

For answers to your gardening questions, call Gardeners Information Service at (800) 777-7931 ext. 31 between 10 a.m. and 4 p.m. Eastern time, or e-mail us anytime at gis@ahs.org.

RON FLEMMINGS

mail-order explorer

SEED SAVERS EXCHANGE

by Christina M. Scott

Like most gardeners, you'll probably spend a lot of time this winter thumbing through seed catalogs filled with "new and improved" cultivars, many of them fresh from the laboratory. Look in the Seed Savers Exchange catalog, however, and you won't find any exciting *new* plants. What you will find are thousands of seed varieties that your great-grandparents may have grown 100 years ago.

But then, Seed Savers Exchange is not a typical seed company. It's a nonprofit organization dedicated to conserving and promoting heirloom vegetables, fruits, herbs, and flowers. From its unheralded beginning in 1975 with a group of six interested heirloom gardeners, Seed Savers now has a membership of 8,000 and has become one of the most influential forces in the burgeoning heirloom seed movement.

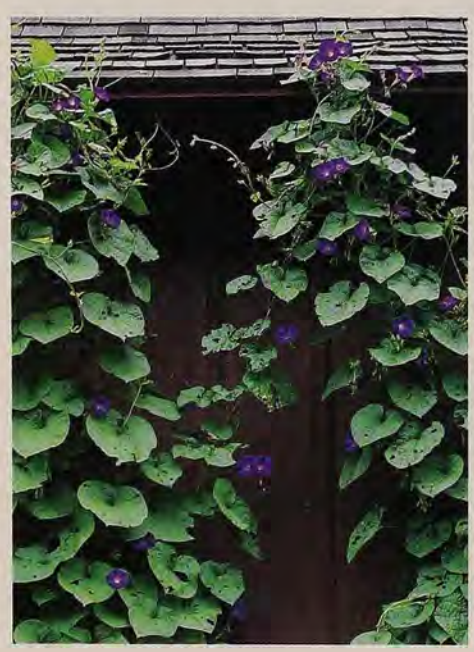
PRESERVING MEMORIES

Seed Savers Exchange was co-founded by Kent and Diane Whealy after Diane's grandfather gave the couple some seeds from a rare morning glory plant distinguished by small purple flowers with a red star in their throats. "My grandfather had these morning glories planted in front of the porch, and each year he would train them on twine to grow into some shape, such as a window pane," explains Diane. It turns out Diane's great-grandparents had brought the plants to America from Bavaria in the 1870s. When Diane's grandfather passed away the following spring, the Whealys came to the sobering realization that if they had not taken those seeds and planted them, this family heirloom could have been lost forever.

This sentimental attachment to family history—coupled with a concern over the steady erosion of genetic diversity that was occurring because the seed industry was being subsumed by a few large corporations—led Kent and Diane to search for other gardeners who were interested in preserving heirloom seeds. As their network grew, Diane says, "We realized that no other group was doing what we were doing," and Seed Savers Exchange was born.

Since that time, the exchange has gathered an amazing number of seed varieties. About 18,000 rare fruits, vegetables, flowers, and herbs are now maintained at Heritage Farm, the exchange's 170-acre property in Decorah, Iowa. Among these are 4,000 varieties of tomatoes, including six varieties of black tomatoes from the former Soviet Union. "These were a great find," says Kent. "There's an enzyme under the skin that keeps turning the tomatoes darker and darker in the sun and heat. They're very unique." Another favorite is the 'Moon and Stars' watermelon, a legendary melon that exhibits pea-sized yellow "stars" and a larger yellow "moon" on its dark green skin.

As the exchange's seed listings grew, it became apparent something had to be done. "The catalog was getting so big that it was unmanageable," says Kent. So, in 1990, the Whealys separated their offerings into two groups. Now Seed Savers Exchange focuses on rare fruits and vegetables—its 1998 yearbook was a whopping 460 pages featuring 11,000 varieties. The smaller



Left: The plant that inspired the founding of Seed Savers Exchange—Grandpa Ott's morning glory. Above: A display garden on the organization's Iowa property.

COURTESY SEED SAVERS EXCHANGE

Flower and Herb Exchange includes an impressive list of 3,000 old-time flowers and herbs in its '98 yearbook, including the flower that started it all—Grandpa Ott's morning glory. Another rare, heirloom favorite is the old-fashioned vining petunia *(Petunia multiflora)*, a low growing annual with delicate pastel blooms that emit a sweet fragrance at dusk.

A DIVERSE MEMBERSHIP

If you become a Seed Savers Exchange member—annual dues are currently $30—you'll receive the Seed Savers yearbook, which lists seeds currently available from other members. You can then place your order with the member who offers the seeds, paying a nominal fee for postage. In turn, it is hoped that members will grow out and offer their own heirloom or unusual seeds.

For more information about Seed Savers Exchange and the Flower and Herb Exchange, or to request a free color catalog, call (319) 382-5990. Heritage Farm, located at 3076 North Winn Road in Decorah, Iowa, is open to the public from 9 a.m. to 5 p.m. daily from June 1 to October 1; call ahead to arrange a guided tour.

But you don't have to be a member of Seed Savers Exchange or the Flower and Herb Exchange to purchase their seeds. Seed Savers offers a limited number of varieties grown at Heritage Farm through its free catalog, and some retail outlets carry the organization's seeds. Those who become actively involved in the exchange, however, say they feel a great satisfaction knowing they are doing something to help preserve these heirloom plants.

Darrell Merrell of Tulsa, Oklahoma, has been a Seed Savers member since 1994. Merrell learned about the exchange while caring for a terminally ill family member. "During that time, my only outlet was reading and gardening," he explains. "But when I started looking for the varieties of plants I had grown as a child, I found that they weren't commercially available anymore." Seed Savers was the only source for the plants he was looking for.

Since then, Merrell has become one of the exchange's most active members, offering 221 different seed varieties this year alone. "I get a deeper satisfaction with this than anything I've ever done in my life," he says. "We can't depend on the government to save our seeds. It's up to individual gardeners to preserve the genetic diversity that thousands of gardeners have given us over the centuries."

John Swenson, a seed collector living in Glenview, Illinois, praises the Seed Savers' staff for its "remarkable commitment." Swenson has traveled the world collecting plants, and at one time he had one of the largest collections of garlic in the world. Yet despite his numerous plant expeditions, he discovered Seed Savers was the only source for many of the varieties he grew. "There is just a wealth of plant material there," he says. "It's impossible to have a boring garden if you're a member of Seed Savers."

Kent and Diane are thrilled to see there has also been a resurgence of public interest in heirloom plants. "We've been doing this long before it was popular," says Diane. "Now we get 10,000 to 15,000 requests a year for information on heirloom gardening. It's very exciting." With the recent discovery of ways to genetically manipulate crops so they will produce sterile seeds, public interest in seed preservation and heirloom gardening is sure to increase even further. "Seed Savers has a sense of responsibility to the future of the human race and the planet," says Swenson. "They are much more than just a big seed catalog."

Christina M. Scott is assistant editor of The American Gardener.

urban
gardener

MY JAPANESE-STYLE GARDEN

story and photographs by Judy Hominick

Texas may seem like an unusual place for a Japanese-style garden, but the neglected shady area behind the bench in our perennial garden was begging for something unique. The spot is compact—about 80 square feet—and although the tried-and-true impatiens, begonias, and, sometimes not-so, obedient plants *(Physostegia* spp.) I had planted there had flourished, they overwhelmed the area and lacked pizzazz.

On the other hand, the area in front of the bench boasted a joyful profusion of perennials elbowing each other for growing room. A pond, with stream and waterfall, put in by my hard-working spouse, completed the garden's vibrant feeling. I wanted something different behind the bench—something that would surprise a visitor with its unexpectedness. After seeing a picture of a Japanese tea garden, with its vision of simple tranquillity, I knew I had found the answer. I soon discovered a Japanese-style garden is deceptive, however; what seems very simple is actually governed by a strict set of rules. Virtually everything in the garden has a reason for being there and symbolism is omnipresent—flat stones layered on top of one another imply a stream, while sifted sand brushed in swirls or lines suggests ripples or waves.

I read whatever I could find on Japanese gardening and also asked my brother's Japanese friend, Eiichi Watanabe, for his thoughts on the spirit of Japanese gardening. Proving that gardeners are the same everywhere, Eiichi told me that gardening is very popular in Japan—especially English gardening!

Eiichi offered the word "static" to describe the mindset of Japanese gardening, which at first seemed at odds with my own perception of that gardening tradition. A dictionary check offered another, more apt, meaning for static: "forces at rest or in equilibrium," which ties in with the garden's aim of balancing all elements to suggest repose.

CREATING SEPARATION

To separate the Japanese-style area from the rest of the garden, I built a *yotsume-gaki* bamboo fence, one of the less intricate lattice fences commonly used in Japanese gardens. The lengths of bamboo are tied with black twine using a specific, rather complicated, knot. Tying the many knots taught me about patience—and I have the calluses to prove it!

I then turned my attention to reshaping the Japanese maple tree *(Acer palmatum* var. *sango-kaku)* already growing in the center of the shady area. I did this by tying down individual limbs to give it the "twisted" look common to trees in Japanese gardens. This was done in the spring, when the branches were more flexible.

The compact size of the space lent itself to a courtyard tea garden—known as a *tsuboniwa*—and although I didn't plan to use it for that purpose, I wanted it to be as authentic as possible. A typical tea garden includes a path lighted by a stone lantern, which leads the way for the actual tea ceremony. I incorporated these elements, designing the path to run alongside the maple tree. Most tea gardens also include a basin—placed low to humble the participants—for the requisite pre-tea ablutions, but I haven't yet added this feature to my garden.

Stones are such an important element of a Japanese garden that entire books have been written on stone placement alone. Because

The author's Japanese garden, above, is separated from the rest of her garden by a bamboo fence, top left. Right: Japanese climbing fern behind the lantern.

this space is so small, however, I contented myself with putting three small rounded rocks near the back of the garden.

SELECTING PLANTS

Finally, it was time to add plants. In a Japanese garden, plants are meant to suggest serenity and symbolize a marriage of nature and art. In choosing plants, subtlety and restraint are the key. Plants that bloom continuously are eschewed in favor of those with ephemeral flowers that mark the passage of time—such as azaleas or cherry trees, whose blossoms announce spring. Likewise, the shedding of leaves in the fall is a poignant reminder of the impending arrival of winter.

Moss, a common ground cover in Japanese gardens, lends a very luxuriant, soft feeling to our site. We used local moss—harvesting a small quantity from the edges of extensive mats growing at a nearby creek—and laid it between the stepping stones in the path and in unplanted areas. Growing up through the moss, two patches of miniature horsetail *(Equisetum scirpoides)* offer a vertical contrast to the flatness of the moss.

A Japanese-style garden is very deceptive; what seems very simple is actually governed by a strict set of rules.

Fearing our intense Texas heat would be too much for the moss, we had a mister—regulated by a timer—installed in the garden. The thrice daily misting helps combat the heat and gives the garden a moist look so favored by Japanese gardeners. This has now become a favorite spot for my seven-year-old daughter, who loves to sit in the refreshing mist.

Ferns are another hallmark of a Japanese garden, providing both a graceful beauty and a primeval feeling, so I used them extensively to enhance the spirit of the garden. Three Japanese painted ferns *(Athyrium niponicum* 'Pictum') are growing in the front section, while maidenhair ferns *(Adiantum capillus-veneris)* are planted along the back for the airy, delicate effect they create.

Japanese climbing ferns *(Lygodium japonicum)* soften the wooden fence bordering one side and three small azaleas sit just behind the bench and will eventually form a screen of springtime pink blossoms. The blue green leaves of Hinckley's columbine *(Aquilegia chrysantha* var. *hinckleyana),* highlighted in spring by airy yellow blooms, grace the opposite edge of the garden. A small Japanese black pine *(Pinus thunbergiana)* anchors the back corner.

Completing the scene is a deer scare—*shishi odoshi*—which was originally used by Japanese gardeners to chase away deer threatening their crops. In the deer scare, a water line hidden in a piece of hollow bamboo drips water into a cuplike, hollow piece of bamboo fastened to one end of a see-sawlike rod. As the cup fills, the weight of the water eventually forces that end of the see-saw down, spilling out the collected water. At this point the other, weighted, end of the bamboo drops back down, striking a strategically positioned rock on the ground. The resulting clack, repeated at regular intervals as the cup end fills and spills, introduces a rhythm to the garden and notes the passage of time.

In the hectic scramble of our daily lives, our Japanese garden serves as a reminder for us to stop, take a breath, and gaze upon this soothing slice of nature.

Judy Hominick is a free-lance writer living in Dallas, Texas.

natural
connections

Winter seems a long way off for these gold finches feasting on thistleseed from a feeder, right, but when it comes, it can be as harsh for them as for the female cardinal, above, perching on a branch of ice-glazed hawthorn berries. Be sure that feeders are always well stocked—especially in winter.

KEEPING BIRDS SAFE THIS WINTER

by Sharon V. Buck

Birds are an integral part of the landscape, providing pollination and seed dispersal services for many of our trees, shrubs, and herbaceous plants. But increasingly the natural habitat of our native songbirds is being lost to development and agriculture. In some areas, neighborhoods that take pride in preserving trees, parks, and wild areas are the best—or only—available habitat.

Almost everyone enjoys the presence of birds in the garden, and putting up a feeder can be a source of entertainment for the whole family. But are our feeders safe? Sick birds will eat at feeders, too, and the feeder site can become a source of infectious diseases to which healthy birds are exposed.

Be on the defensive. Don't wait until you see a sick bird to start taking precautions. Familiarity with the causes of some common deadly, contagious diseases and a proper cleaning routine can help prevent their spread.

FOUR COMMON DISEASES

There are numerous avian diseases, but the four that are commonly spread around feeders and birdbaths are salmonellosis, asperigillosis, trichomoniasis, and avian pox.

Salmonellosis, caused by the well-known salmonella bacteria, is spread when food or water is contaminated by an infected bird's feces. This disease can cause birds to develop throat abcesses. Last year, birdwatchers witnessed an outbreak of salmonellosis in the Midwest and Northeast that decimated many songbirds.

Aspergillosis is caused by a fungus that grows on damp, moldy seed and on the debris that drops underneath feeders. Birds inhale the fungal spores, which can foster lung and air sack infections such as pneumonia or bronchitis.

Trichomoniasis is caused by a parasite that invades the lining of

Plant for the Birds

Bird Gardens, from the Brooklyn Botanic Garden's 21st-Century Gardening Series, suggests these bird-attracting plants for North America:

Northeast
Shadbush *(Amelanchier canadensis)*, winterberry *(Ilex verticillata)*, American elderberry *(Sambucus canadensis)*.

Southeast
Beautyberry *(Callicarpa americana)*, beach sunflower *(Helianthus debilis)*, purple muhly grass *(Muhlenbergia capillaris)*.

South Florida
Sea ox-eye daisy *(Borrichia frutescens)*, joewood *(Jacquinia keyensis)*, sea oats *(Uniola paniculata)*.

Prairies and plains
Hackberry *(Celtis occidentalis)*, rough-leaved dogwood *(Cornus drummondii)*, pale purple coneflower *(Echinacea pallida)*.

Western mountains and deserts
Manzanita *(Arctostaphylos pungens)*, wild strawberry *(Fragaria vesca* subsp. *californica)*, mesquite *(Prosopis velutina)*.

Pacific coast
Pacific madrone *(Arbutus menziesii)*, toyon *(Heteromeles arbutifolia)*, Pacific wax myrtle *(Myrica californica)*.

birds' throats. Infected birds develop sores in their mouths and throats that swell until they cannot swallow.

Avian pox, which causes warty growths on the featherless parts of birds, is spread by direct contact between birds, by insect vectors, and by healthy birds eating contaminated seeds. Large growths on the eyes and beak can be deadly: They can inhibit a bird's ability to eat, leading to starvation, and can obstruct a bird's sight, making it more vulnerable to predators.

SIGNS OF DISEASE

Sick birds often puff out their feathers, cower, and appear poorly groomed. They are also usually droopy and inactive. If you notice a large number of sick or dead birds in your yard, contact your local fish and wildlife office and ask to speak with the non-game biologist, or call your local extension office. Officials may want to examine the birds to determine the cause of illness or death.

Wildlife experts advise against handling sick or dead birds. Kimberli Miller, a wildlife disease specialist with the U.S. Fish and Wildlife Service's National Wildlife Health Center in Madison, Wisconsin, warns that salmonella bacteria, for example, infects all sorts of animals, including humans. "There are more than 2,000 strains of salmonella out there," she explains. "While there have not been any cases of human infection linked to birds so far, the potential is there." For safety's sake, *always* wear disposable protective gloves if you have to handle dead birds.

BREAKING THE CYCLE

What steps can we take to lessen the chance of these diseases being spread at our feeders and birdbaths? According to Margaret Barker, education coordinator for the Cornell Laboratory of Ornithology's Project FeederWatch program, "What it boils down to is common sense." Keeping feeders and birdbaths clean is the single most important way to prevent the spread of disease. Experts recommend washing feeders with soap and water at least once or twice a month. After cleaning, disinfect the feeder by soaking it in a 10 percent bleach solution for three to four minutes and allowing it to air dry. Birdbaths should be scrubbed down periodically as well but, Barker says, "The best way to keep birdbaths safe is to simply change the water every day." When cleaning your feeders and baths, make sure you rinse them thoroughly, leaving no cleanser residue. And for your own safety, always wear gloves when washing feeders and birdbaths, and only wash feeders in a bucket, not in the kitchen sink!

While you have the feeder down, examine it for any sharp edges that could scratch birds, making them susceptible to viruses and bacteria. After cleaning and examining the feeder, fill it with clean, dry food. Extra food should be stored in a dry, sealed, rodent-proof container. If the stored food goes bad, discard it and disinfect the container before putting good seed back into it.

Equally important is the cleanliness in the area around feeders and birdbaths. Make sure the ground is clear of waste and dropped food. On the ground, food can easily become contaminated by feces. A rake, broom, or indoor/outdoor vacuum is useful in maintaining a clean and safe environment.

Finally, make sure birds have enough space at your feeder. Crowding increases the chance of diseases being spread. If birds are overly plentiful, you may need more than one feeder. In addition, planting regionally native plants in your garden supplements the birds' diet and lessens demand for space at the feeder. Spread the word to neighboring gardeners to help ensure that the birds in your community stay free of disease.

Home gardens create a wonderful habitat for our native birds. Gardeners have the opportunity to support these delightful garden residents by providing food and water during the winter months when natural sources are hard to come by. At the same time, however, bird feeding carries with it an ethical obligation to provide a safe, clean environment for those birds. "Bird feeding is a popular pastime," says Miller. "But if you're going to do it, doing it responsibly is the way to go."

Sharon V. Buck is a free-lance writer in Bahia Honda Key, Florida.

Backyard Conservation

More than 75 percent of America's land is owned or managed by farmers, ranchers, and homeowners, so natural resource conservation on private land is vital to protecting the diversity and health of our native flora and fauna. It is estimated that much of the 92 million acres of developed land in the United States is cared for by homeowners, so conservation groups see private gardens—green islands in a sea of concrete—as critical habitat for wildlife.

To bring the importance of this role home to gardeners, the Natural Resources Conservation Service (NRCS), National Association of Conservation Districts (NACD), and Wildlife Habitat Council (WHC) are cooperating on a project, called Backyard Conservation, that they hope will make one million backyards throughout North America a friendlier place for nature.

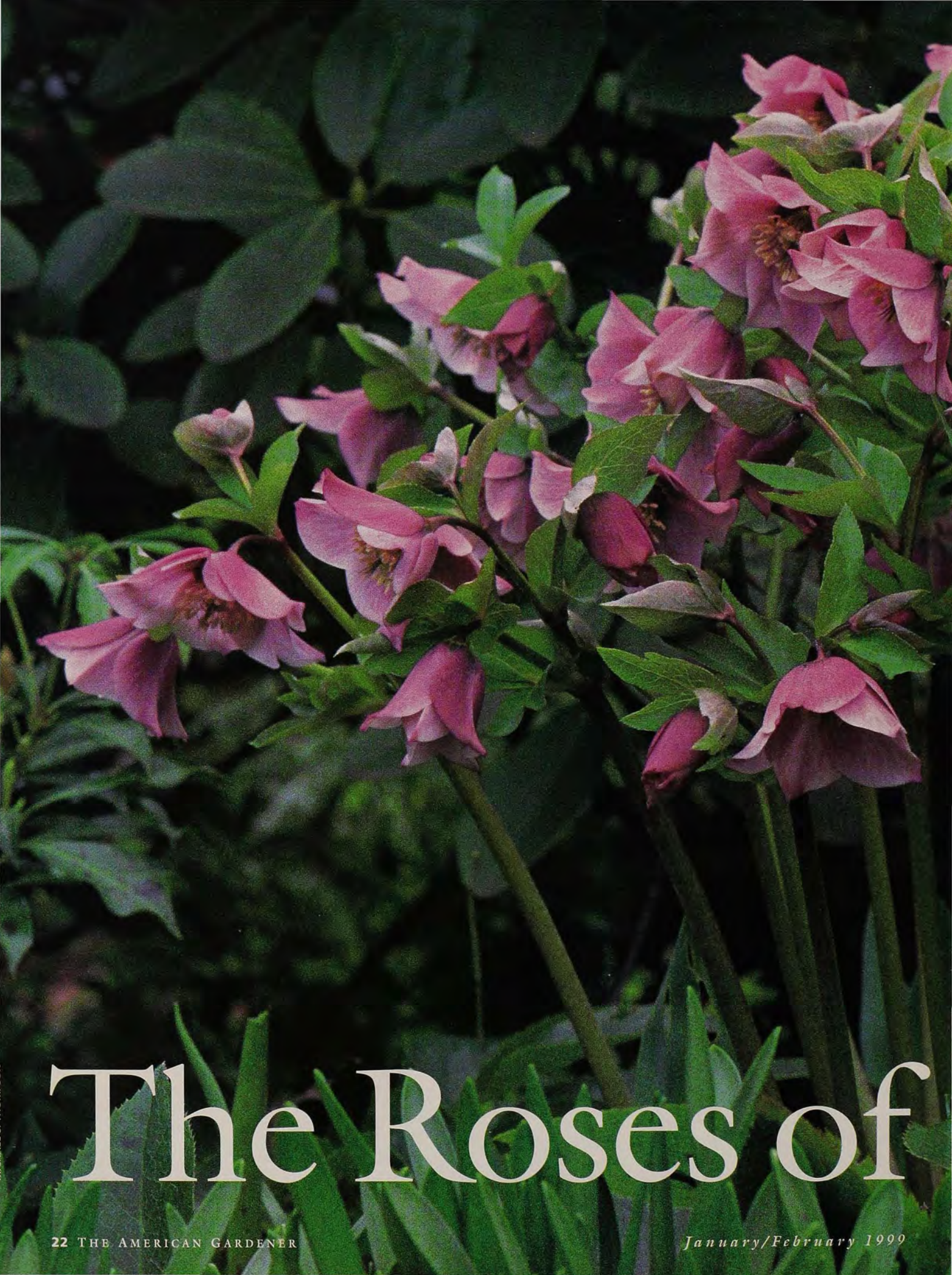
To achieve this goal, the conservation groups are offering homeowners a free, 28-page booklet that outlines 10 conservation practices home- or businessowners can carry out in their gardens or neighborhoods. The practices described in the booklet—many of which are already being used on a larger scale by our nation's farmers—include controlling erosion using techniques such as terracing; planting trees and shrubs; composting to reduce pressure on landfills; creating habitats that will attract birds, butterflies and other wildlife; and conserving water. The booklet also includes a list of organizations that can provide additional information or resources for many of the suggested projects.

A cedar waxwing tends her brood.

"You don't have to do a lot, or spend a lot to make your yard a more inviting place for beneficial birds and insects," says WHC President William W. Howard. "It's amazing what a few of the right plants or trees will do for nesting birds and other wildlife."

A copy of the Backyard Conservation booklet is available by calling toll-free (888) LANDCARE. Or visit the group's Web site at www.nhq.nrcs.usda.gov/CCS/Backyard.html. —*David J. Ellis, Editor*

ALL PHOTOGRAPHS BY STEVE MASLOWSKI COURTESY OF BACKYARD CONSERVATION



The Roses of

Winter

Hellebores add color and grace to the winter and spring garden.

by C. Colston Burrell

The first hellebores I encountered were the Lenten roses of late winter. The nodding pink bells dangled from the stems like the satin pulls on a Victorian window shade. That's not to say hellebores are fragile or delicate beauties. Quite the contrary; they are sturdy, serviceable plants that offer months of elegance for little effort on the gardener's part.

Hellebores grow from thickened, slow-creeping rhizomes with thick, fleshy, sparsely branching roots. The rhizomes grow horizontally and produce new buds at the bases of the current year's foliage. This thick rootstock accounts for the hellebore's longevity. The leaves and flowering scapes arise directly from the rhizome in most species. The flowers are carried on ephemeral, often branched, stems with leaflike bracts; leaves are borne on long petioles. The exceptions are the stinking hellebore *(Helleborus foetidus)* and Corsican hellebore *(H. argutifolius)*, which have poorly developed rhizomes, root from the bases of the erect stems, and have terminal flower clusters.

A sturdy stand of Lenten roses brightens up a shady border.

The hellebore flower is composed of five petal-like sepals, a characteristic shared by most members of the buttercup family (Ranunculaceae). These are borne on flowering stems, either singly or in loose clusters of three or four that emerge in winter or early spring before the new leaves.

The center of the flower sports three to eight pistils surrounded by multiple rings of stamens. The carpels—female reproductive organs—of the flower are an essential characteristic for distinguishing certain species. Some carpels are fused at the base, while others are free. Outside the stamens is a ring of scalloped nectaries, which may be green or purple. In some flowers the nectaries are petal-like, giving rise to double flowers, but this is rare. After pollination, the sepals fade to rose or green and often persist in an attractive state until the seed is ripe.

Flowers are by no means the only charms of hellebores. Their richly textured, often evergreen leaves add structure to the summer and winter garden. In mild winters, they may come through January unblemished. In severe weather, they can be easily damaged by cold, drying winds.

Where snowfall is consistent, the leaves lie hidden all season, but emerge unscathed in spring. In any case, as the flower buds begin to stir in the center of the rosettes, it's best to cut the plants to the ground to make way for the flowers. Nothing spoils the garden display like a tangle of flowers wrestling with winter-burned leaves. The juice in the leaves is caustic and can cause a rash, however, so take care when removing the old foliage.

Natural Habitat

Most hellebores are native to open oak and beech woodlands, scrub land, and grassy glades in central and eastern Europe, including many of the war-torn regions of the former Yugoslavia. These mountainous regions are characterized by limestone bedrock and calcareous, humusy soils. Western Europe is home to two species. The odd plant out is *Helleborus thibetanus,* a native of China that falls well outside the epicenter of hellebore distribution.

Throughout history, hellebores and humans have been intertwined. Although it is extremely poisonous, hellebore root was used medicinally beginning as early as the fourth century B.C. It reputedly was used in the treatment of worms, dizziness, and mental disorders. Other purported uses were as a pesticide and even as a cardiac stimulant. All hellebores are considered poisonous, however, and should on no account be ingested.

The metamorphosis from physic, or medicinal, gardens to ornamental gardens surely included hellebores. The Lenten and the Christmas roses were widely grown in America during Colonial times and have remained popular here ever since.

European gardens display the full range of species, as well as colorful selections and hybrids that will make your mouth water. Although the more unusual species and hybrids can still be hard to come by in America, fortunately for those of us who are continent-bound, these plants are slowly making their way to our nurseries.

Culture

Hellebores are easy to grow, quick to mature, and extremely long lived. This combination of traits, along with their abundant, early flowers, makes them indispensable for the winter and spring garden. The season-long foliar display makes them all the more valuable in the shaded garden, where so many plants are dormant in summer. Give them humus-rich, evenly moist soil. Most species are widely tolerant of soil pH, but they will benefit from the addition of ground limestone where soils are strongly acidic. Though hellebores are touted as shade plants, the more sun they receive—especially in spring while the foliage is expanding—the fuller the plants will grow and the more prolifically they will bloom. Part shade in summer is best for most species. Full sun tends to burn the leaves, while flowering is poor in deep shade. The stemmed species such as Corsican hellebore are likely to flop in shade and may tolerate full sun except in the Deep South.

Hardiness varies by species, but most are cold hardy to USDA Zone 5. I grew seven species in my Zone 4 garden using a winter mulch of marsh hay. If you try growing hellebores where they are marginally hardy, check the plants in early spring and lighten the mulch as the flower buds emerge. As with all early-blooming plants, late frosts can compromise or obliterate the flower display. Surprisingly, hellebores are generally quite heat tolerant; most species will grow into AHS Plant Heat Zones 8 to 10.

The Species

The genus contains 15 distinct species, though many subspecies and forms are recognized. Hellebore classification is somewhat problematic, however, because

Sources

GOSSLER FARMS NURSERY, 1200 Weaver Road, Springfield, OR 97478-9691. (541) 746-3922. Catalog $2.
GREER GARDENS, 1280 Goodpasture Island Road, Eugene, OR 97401-1794. (541) 686-8266. Catalog $3.
HERONSWOOD NURSERY LTD., 7530 288th NE, Kingston, WA 98346. (360) 297-4172. Catalog $5. (Heronswood's annual Hellebore Day is February 13 this year.)
PINE KNOT FARMS, 681 Rock Church Road, Clarksville, VA 23927. (804) 252-1990. Web site for online catalog under construction; call for information.
PLANT DELIGHTS NURSERY, 9241 Sauls Road, Raleigh, NC 27603. (919) 772-4794. www.plantdel.com. Catalog: Send 10 stamps or a box of chocolates.
ROSLYN NURSERY, 211 Burrs Lane, Dix Hills, NY 11746. (516) 643-9347. www.cris.com/~Roslyn/. Catalog $3.
WAYSIDE GARDENS, 1 Garden Lane, Hodges, SC 29695-0001. (800) 845-1124. www.waysidegardens.com. Catalog free.
WOODLANDERS, INC., 1128 Colleton Avenue, Aiken, SC 29801. Phone and fax: (803) 648-7522. Catalog $2.

Resources

The Gardener's Guide to Growing Hellebores by Graham Rice and Elizabeth Strangman, Timber Press, Portland, Oregon, 1993. AHS member price: hardcover, $21. Book code: **TIM 027**.

CLOCKWISE FROM TOP LEFT: MICHAEL S. THOMPSON; ALEKSANDRA SZYWALA; C. COLSTON BURRELL; MICHAEL S. THOMPSON

Corsican hellebore, below and right, is the largest of the species, reaching up to four feet wide and nearly three feet tall. It is easily distinguished by its sharply spined leaflets and cup-shaped pale green flowers.

The inelegantly named stinking hellebore, above, growing here beneath purple giant filbert (*Corylus maxima* 'Purpurea'), is short lived but self-sows readily and provides year-round interest. Despite its name, Christmas rose, left, is known to bloom anytime from late December to early March, depending on climate.

The nodding flowers of green hellebore, left, are usually the deepest green of any hellebore. Like many hellebores, *H. torquatus,* right, displays considerable variability in flower color; the purple form can be difficult to obtain and is highly prized by plant breeders.

of the plants' extreme natural variation and promiscuous propensity for natural hybridization; two individuals of a species can be distinctly different in the color and size of the flower, as well as in the dissection and serration of the leaves. This can lead to disappointment when buying open-pollinated seedlings. If you have a definite color scheme in mind, select your hellebores while they are in bloom.

A giant among hellebores, Corsican hellebore *(H. argutifolius,* formerly known as *H. lividus* subsp. *corsicus)* is outstanding, with erect stems topped by open clusters of stiff, three-lobed, coarsely saw-toothed leaves. The waxy, nodding, pale green flowers are carried in dense, multi-flowered cymes. Mature plants can reach two- to two-and-a-half-feet tall and three- to four-feet wide. One of the more tender species, it is sometimes listed as hardy only to Zone 6 or 7, although it has been known to survive—with protection—in Zone 4. In summer, the flowering stalks die back as fresh stems emerge for next year's blooms.

American horticulture has muddied the identity of *H. atrorubens,* an exquisite purple-flowered species. Most nurseries sell a dark-flowered selection or subspecies of *H. orientalis*—sometimes dubbed the *"H. atrorubens* of gardens"—under this name. The real McCoy is a delicate but quietly sophisticated plant 12 to 18 inches tall with purple nodding flowers flushed with green on the inside. As with most hellebores, flower color varies among individuals from purple-black to pale red-violet. The deciduous leaves have five elongated, oval leaflets, toothed above the middle. The paired, outermost leaflets may be further dissected into three to four narrow divisions. New leaves may be tinged with purple in spring. This species has been scarce in cultivation, but it is beginning to show up in the catalogs of specialty nurseries. Plants require humus-rich, limey soil for optimum growth.

The early-flowering stinking hellebore *(H. foetidus)* never fails to delight gardeners with its spidery, nearly black leaves and bright chartreuse bracts and flowers. This monstrous species may stand nearly three feet tall on succulent green stems clothed in hand-shaped leaves with five to nine narrow, toothed leaflets, the outermost with three or more segments. The common name refers mainly to the stench of crushed leaves, although the flowers, carried in large trusses at the top of the year-old stems, can also be skunky. Each nodding, cylindrical flower is apple-green with a red-brown lip. Mature clumps are multi-stemmed and may be several feet wide. After flowering, cut away the old stems to aid the new ones in emerging from the clump in summer. The bracts become conspicuous before the new year, and branched flower clusters begin to elongate in early winter. In a mild winter, buds may appear in Janu-

ary, though February and March are the main flowering months. Named selections of particular interest include 'Wester Flisk', with red stems and red-tinged petioles set off by gray-green leaves. Plant Delights Nursery lists several cultivars developed from seed strains, including the huge 'Green Giant', as well as 'Sienna', which has nearly black leaves.

Although *H. foetidus* may be short lived, don't despair; it self-sows readily. Be aware, however, that named selections may not come true from seed. Plants seem indifferent to soil, as long as it is humusy and not sodden, especially in winter.

The Christmas rose *(H. niger)* is one of my favorites. The perky, glistening white flowers open as early as late December—hence the name—where the climate is benign, although in my Minnesota garden it usually waited until the snow melted in early to mid-April. Unlike most hellebores, the flowers bloom on short, naked stalks and they face outward. The sepals open white and slowly fade to burnished pink. Many gardeners consider this tough and beautiful plant difficult to grow, but give it an annual sprinkling of ground limestone and it will reward you in time with broad clumps featuring more than 20 flowers.

Beauty and fragrance go a long way in creating a flawless plant. Add chartreuse flowers and perfection is attained. This tantalizing combination makes fragrant hellebore *(H. odorus)* a must for collectors and enthusiastic gardeners. The one-and-a-half- to two-inch luminescent flowers nod from leafy stems up to 20 inches tall. The flowers vary in fragrance from sweet to slightly musty. The basal leaves have five main oval leaflets; the outermost are divided variously to make up to 11 segments. Each leaflet is toothed on the upper third of its length. The newly emerging leaves are clothed in silken hairs that briefly persist on the undersides of the leaflets. This species is easily confused with *H. cyclophyllus,* but the latter's flowers are larger—to two and a half inches—and the carpels within its flower are not connected. They are fused for a few millimeters in *H. odorus.* Also, the leaves of *H. cyclophyllus* are usually deciduous, while those of *H. odorus* are leathery and evergreen.

Without doubt, the showiest species is the Lenten rose *(H. orientalis).* Likely the first species to be introduced in American horticulture, the plants have graced our gardens since Colonial times. Three subspecies, varying only in flower color, are

Color Waves for the Future

Specialty hellebores can be hard to find, but ongoing breeding in Europe and America will ensure more of the best selections will eventually reach a wider market. Selected hellebores are not cheap; flowered seedlings or divisions from superior forms sell for $15 to $25, compared to $6 or so for unselected forms.

The most exciting work is focused on the lenten rose *(H. orientalis).* Today's spectacular Lenten roses in shades of plum, burgundy, lime green, shell pink, and white are the result of hybridization with *H. odorus, H. cyclophyllus,* and *H. torquatus.* They are referred to collectively as the Orientalis hybrids *(H. ×hybridus).* Some of the key English players in this exciting metamorphosis are Will McLewin and Elizabeth Strangman. Robyn White of Blackthorn Nursery and Ashwood Nursery are the largest hellebore producers. In America, hybridizers have been busy selecting the best of the British introductions and making their own crosses.

Seed Strains

Most of the best *H. orientalis* hybrids available in America today are seed strains developed from named varieties. A seed strain is a lineage of plants—in this case of hybrid origin—that come nearly true to type from seed. Many seed strains are developed by making controlled crosses each season. Less reliable strains are developed from open-pollinated plants.

Dick and Judith Tyler of Pine Knot Farms in southern Virginia have developed a breeding program based on controlled crosses from named cultivars and seeds obtained from English sources. Their aim is to provide affordable seed strains in a good range of colors, rather than expensive and slow-to-propagate named selections. Upward-facing flowers, full, round petals, and rich, stable colors are valued, as well as good foliage.

Refining propagation techniques for hellebores will increase the availability of gorgeous flowers such as this selection of *H. orientalis* subsp. *guttatus.*

Gossler Farms in Oregon is marketing controlled selections made by Glen Withey and Charles Price of Seattle. Withey and Price have been hybridizing longer than most Americans, and some stunning seed strains are now available, including reliable color lines in white, yellow, clear pink, smoky purple, dark purple, and the elusive "black" flowers. Wayside Gardens in South Carolina is offering a seed strain—trademarked Royal Heritage—developed by John Elsley.

David Culp, a Pennsylvania breeder, has developed an open-pollinated seed strain—referred to as the DLC hybrids—from superior named forms. Other nurseries that are marketing superior introductions of Orientalis hybrids as well as other hard-to-find species include Heronswood in Washington, Piccadilly Farm in Georgia, and Plant Delights Nursery in North Carolina.

On the Horizon

Many hellebore collectors are particularly excited about the picotee strains that are emerging from breeding programs, including white with pink or purple margins, as well as reverse picotees with dark petals edged in white. Other new twists include flowers with contrastingly-colored nectaries—especially white and yellow flowers contrasted with deep purple—and double flowers.

So far, despite the efforts of breeders worldwide, hellebores have resisted propagation by tissue culture. But Tony Avent of Plant Delights predicts that within 15 years a breakthrough will be made and hundreds of named selections will become available. It's an exciting time to be a hellebore enthusiast. Stay tuned! —*C.C.B.*

distinguished in the wild. All are garden-worthy, but—because of their promiscuous nature—are hard to find in their pure form. Because of this, some nursery owners prefer to list Lenten roses as *H.* ×*hybridus.*

H. orientalis subsp. *orientalis* has large, pure white to cream flowers, while those of *H. orientalis* subsp. *guttatus* are white with maroon spots. *H. orientalis* subsp. *abchasicus*—the plant sometimes referred to as the "*H. atrorubens* of gardens"—is most often represented in America by the clone known as 'Old Early Purple'. It sports dusty mauve flowers and red-tinged spring foliage. Mature clumps are quite large, with leathery evergreen leaves formed of wide leaflets. The ephemeral, leafy flower stalks rise from the center of the clump, bearing one to three flowers apiece. Plants are variable in flowering time, often starting in late January and continuing through April, and do best in rich, well-drained soil in light shade.

Foliage alone is reason enough to grow purple hellebore *(H. purpurascens)*. The deeply divided hand-shaped leaves resemble origami parasols. The deciduous circular leaves, which disappear by mid-winter, cap stiff petioles up to two feet tall. Saucer-shaped flowers vary from rich plum-purple to sea-green and can open as early as December in mild climates. In my Minnesota garden, this was the first species to bloom, often sending up its buds before I removed my winter mulch in March. For best growth and flowering—in northern areas—give it full sun to light shade.

Getting ahold of the exquisitely beautiful *H. torquatus* can be tough. This plant is sure to be proudly displayed in the gardens of collectors, but mere mortals will have to beg, borrow, or bribe to find a source. The elegantly divided, rounded leaves resemble those of *H. purpurascens,* but each of the five leaflets is intricately divided into many linear, toothed segments. The leaves are completely deciduous, even in mild winters. Like most hellebores, this plant can be extremely variable in size, form, and flower color. At its best, the flowers are rich plum-purple inside and out. Most plants are rich purple outside and sea-green inside with flaring sepals. At worst, the flowers are dull gray-green. They hang on leafy, 12-inch stalks that, after flowering, are overtopped by the upright foliage.

Opposite: Purple hellebore's flowers come in a range of pastel hues.

OPPOSITE: MICHAEL S. THOMPSON. ABOVE: LYNNE HARRISON.

Companion Plants

Combining hellebores with other plants is easy, because winter and spring are the peak bloom period for so many bulbs and wildflowers. Wood anemones *(Anemone nemorosa),* trilliums, dog's-tooth violets *(Erythronium* spp.), snowdrops *(Galanthus* spp.), hyacinths *(Muscari* spp.), and corydalis are a few of my favorite bulbous partners for hellebores. Other spring bloomers that excel in the company of hellebores are primroses, hepaticas, lungworts *(Pulmonaria* spp.), and epimediums. Foliage from ferns, bleeding hearts, sedges, and wild gingers *(Asarum* spp.) carry the summer display.

The two-tone purple flowers of *Muscari latifolium* make a good foil for Lenten rose.

To complement the evergreen foliage of hellebores in fall, add bulbs such as cyclamen, colchicums, autumn crocuses, sternbergias, and spider lilies *(Lycoris* spp.). Other good associates are toad lilies *(Tricyrtis* spp.) and asters, as well as baneberry *(Actaea pacypoda)* and Solomon's seal for their colorful fruits.

—*C.C.B.*

Give them rich, fertile soil. Plants may be slow to establish but are worth the wait. This species is a major player in hybridizing programs, contributing its deep purple flower color and the metallic sheen that creates "black" flowers.

I love green flowers, so naturally I was thrilled to acquire the green hellebore *(H. viridis)*. A variable species with a wide distribution in western and central Europe, the outstanding forms are gorgeous. The nodding, apple-green flowers are one to two inches across in groups of two to four. The stiff, lustrous, deciduous foliage has up to 13 divisions and is coarsely saw-toothed. The leaves stand up to a foot high and combine well with sedges and ferns in the summer garden. This species seems to tolerate more moisture than the others and does well in a humus-rich clay loam.

Collector's Plants

H. dumetorum is a collector's plant, grown for a complete hellebore collection rather than for its individual horticultural prowess. The small green flowers and divided leaves superficially resemble *H. viridis,* but the plant is not as prepossessing.

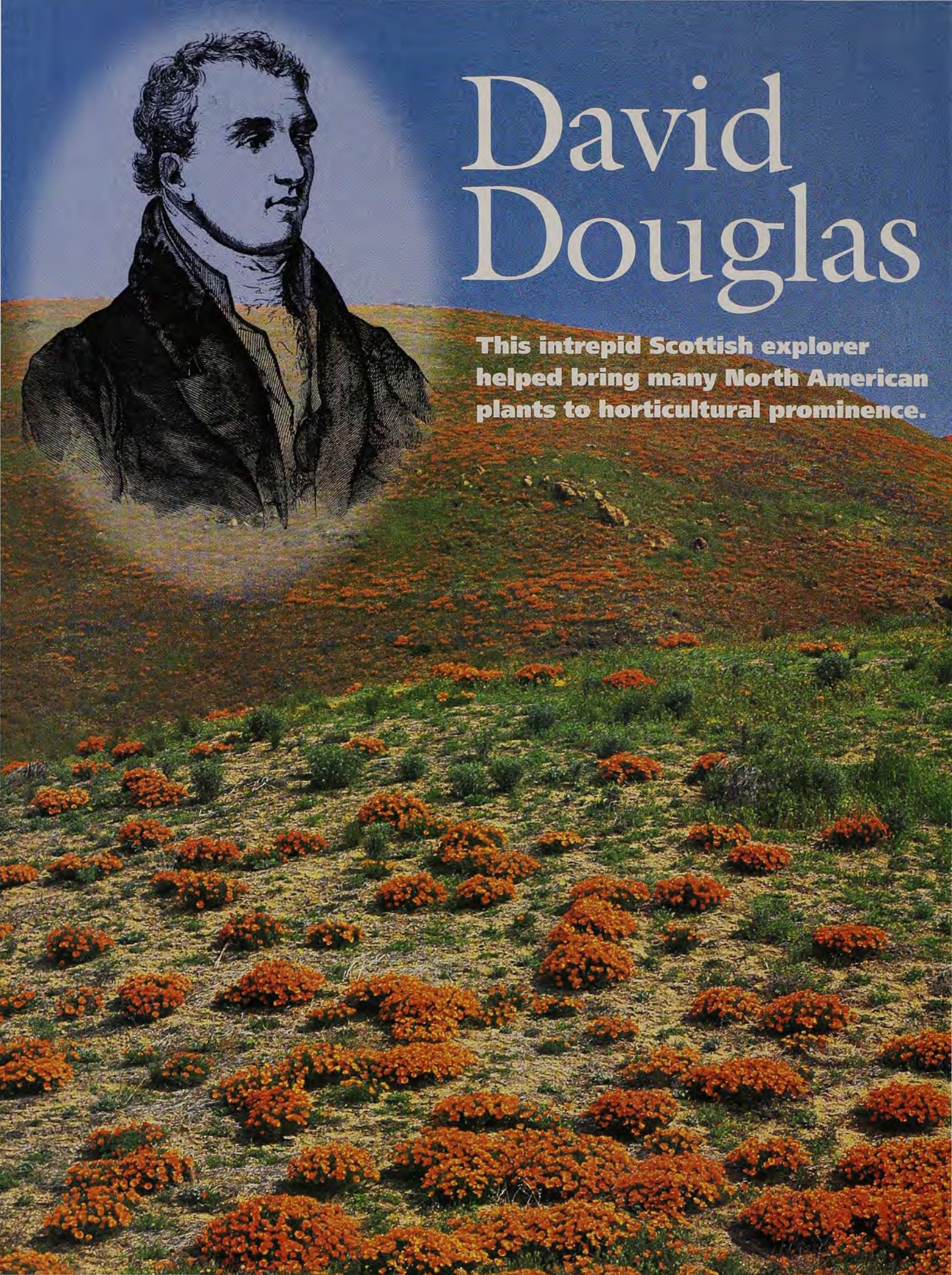
H. lividus is the most tender of the species. It is touchy in Zone 7 and may be bud-killed at 10 degrees Fahrenheit, though the plants will survive. The stiff, three-lobed, slate-green leaves are attractively mottled with cream. The petioles and veins may be rosy red or green. The outfacing, saucerlike flowers are rose-pink.

H. multifidus is noteworthy for its delicately divided foliage and its apple-to lime-green flowers. A number of subspecies vary in height, flower size, and leaf dissection. Look for specialty nurseries to offer this enchanting species in the next few years.

H. thibetanus is a blowsy species with white, nodding to outfacing flowers with pointed petals that fade to pale pink. The flowering stems sport several flowers, accented by large, leafy bracts. The erect leaves have seven to nine toothed divisions. The overall effect is reminiscent of *Glaucidium palmatum,* a woodland plant native to the mountains of northern Japan, rather than of a hellebore. Plants go dormant in summer after flowering.

Seed pods rather than flowers are the charm of *H. vesicarius.* The small brick-red flowers are edged with green and the soft, dissected leaves set off the inflated carpels that hang like Chinese lanterns from the 10-inch stems. This summer-dormant species is tender and difficult to grow.

Author and landscape designer C. Colston Burrell recently moved himself and his hellebore collection from Minnesota to the Blue Ridge Mountains near Charlottesville, Virginia.



David Douglas

This intrepid Scottish explorer helped bring many North American plants to horticultural prominence.

In the great age of scientific exploration in the early to mid-19th century, the bravest and best plant hunters tramped across the world, risking their lives for the plants they sought. Loneliness, hunger, and sickness were all routine, but these men—and in that day and age they were nearly all men—continued on because botany was the new frontier, much as outer space or the deep oceans are for today's scientists. The vast green landscape of America fascinated many—including the Pennsylvania farmer John Bartram, the Swedish clergyman and botanist Peter Kalm, and the shy Englishman Thomas Nuttall.

Important they were, but the one explorer in a category all his own is Scotsman David Douglas (1799–1834), whose life and death have made him

by Susan Davis Price

The hills of Gorman, California, are brilliant with the state's native poppy *(Eschscholzia californica)*, collected by Douglas in 1829. Inset: This dapper portrait of Douglas was first published by *Gardener's Magazine* in 1836 to accompany the explorer's obituary.

"When Douglas first explored and fell in love with the Northwest Territory in 1824, the country was immense and largely unexplored by Europeans; the air was sweet and clean."

Above: This stately specimen of Douglas's most famous namesake, the Douglas fir, grows at Scotland's Scone Palace. Plants Douglas is credited with discovering include, opposite, clockwise from top left: lodgepole pine; yellow fritillary; Douglas fir ; vine maple.

something of a folk hero to plant lovers around the world. In life, Douglas was an extraordinary plant collector whose success is apparent from the fact that he has more plants named for him than anyone else in the history of botany. One thinks first of the Douglas fir *(Pseudotsuga menziesii)*, which University of Georgia horticulturist Michael Dirr regards as "one of the noblest forest trees." Others are the mountain pink *(Douglasia nivalis)*, Douglas's maple *(Acer glabrum* var. *douglasii)*, water-hemlock *(Cicuta douglasii)*, and Douglas's knotweed *(Polygonum douglasii)*. Douglas's death—he was apparently trampled to death by a wild bull during a hike across what is now the island of Hawaii—provided an appropriately dramatic and mysterious ending to a short but fulfilling life.

Douglas made three trips to North America, exploring both the east and west coasts. But it was his work on the west coast that earned him the most acclaim. When Douglas first explored and fell in love with the Northwest Territory in 1824, the country was immense and largely unexplored by Europeans; the air was sweet and clean. The slopes of the Cascade Mountains were covered with dense evergreen forests filled with hemlock, Sitka spruce, cedar, and Douglas firs up to 250 or even 300 feet tall. Clear rivers teemed with salmon and sturgeon. In his travels, Douglas walked thousands of miles and sent hundreds of plant and animal specimens back to London. These expeditions, the culmination of his life's work, were adventures for which he was uniquely suited.

A Humble Beginning

Born in Scone, the ancient seat of Scotland's rulers, Douglas was the son of a stonemason. The young Douglas is said to have had continual conflicts with his teachers, preferring outdoor examination of the plants, birds, and small animals of the hills and moors to the tedium of schoolwork. Since university life was not in his future, Douglas left school at 11 and was apprenticed to the head gardener at Scone Palace.

This was an education Douglas could get excited about, and he passionately studied the names of plants and their processes. After work hours he went on botanical excursions into the rugged Scottish Highlands. These trips whetted his appetite for adventure and strengthened his love of travel in wild and remote country.

When, in 1818, Douglas moved to the splendid Valleyfield Estate in Fife, with its large collection of exotic plants, his interest in botany was given a spur. After two years at the estate, he took a post at the famous botanic garden in Glasgow. There, as though their meeting had been foreordained, Douglas met the eminent William James Hooker, newly appointed Professor of Botany at Glasgow University.

Hooker quickly recognized young Douglas's intelligence and dedication to botany and enlisted his help in collecting botanical specimens for a second edition of his book on Scottish flora. In writing of Douglas at this early period, Hooker remarked on "his great activity, undaunted courage, singular abstemiousness, and energetic zeal [which] at once pointed him out as an individual eminently calculated to do himself credit as a scientific traveler." Later, when Joseph Sabine, secretary of the Horticultural Society of London (which later became the Royal Horticultural Society), asked for a suitable person to work as plant collector for the Society, Hooker at once recommended Douglas.

Douglas's first assignment in 1823 took him to the eastern United States and Ontario in search of fruit trees and other "unusual botanical specimens." In just six months, Douglas amassed a large collection of new apple, pear, plum, and fruit varieties. His collection also included seeds of the Oregon grape *(Berberis aquifolium)*, which had been gathered by Lewis and Clarke. Douglas was the first to bring the plant back to England, and the Oregon grape was soon widely cultivated throughout Europe. His accomplishments on the expedition drew high praise from the horticultural society. With this brief expedition, Douglas had already made a name for himself as a plant collector.

Douglas's brief glimpse of the New World left him hungry for more, and his successful first mission prompted the horticultural society to organize a second trip a few months later. His goal this time was to explore the Pacific Northwest. To prepare for his trip, Douglas studied up to 18 hours a day to increase his scientific knowledge of the plants he was likely to encounter.

On July 26, 1824, Douglas set sail aboard the *William and Ann*. As he left the shores of England, Douglas may have recalled that of the last three plant collectors sent out by the horticultural society, only one had returned alive.

After a long and arduous journey, the ship dropped anchor on April 7, 1825, at the mouth of the Columbia River in what

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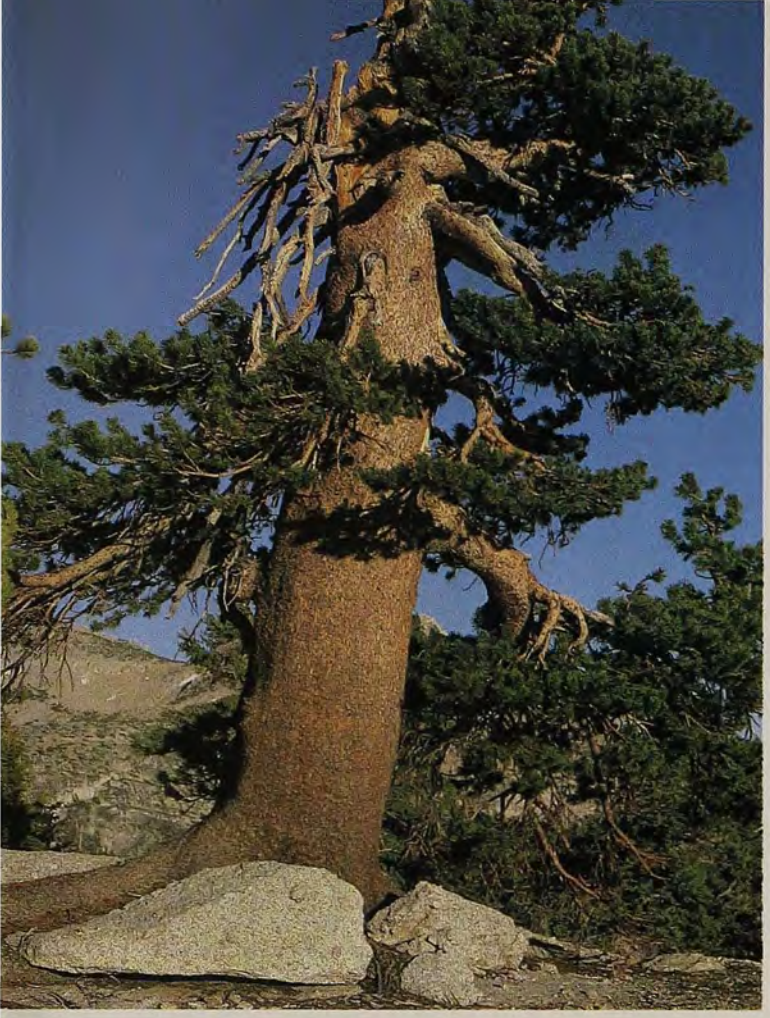
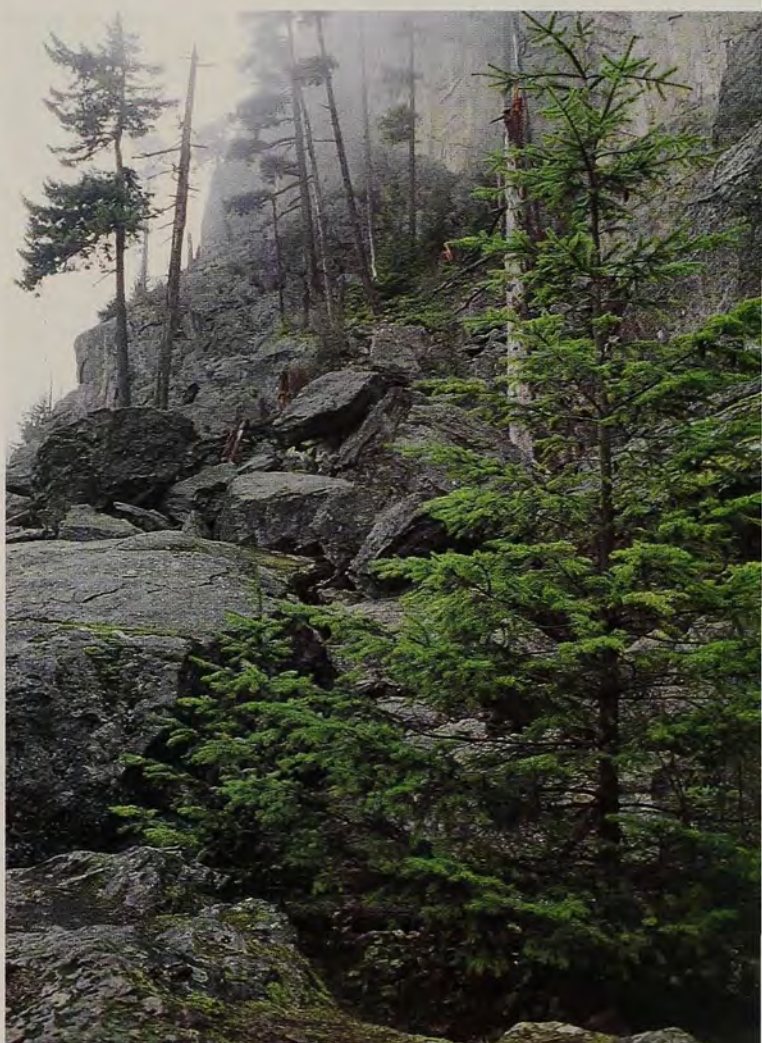
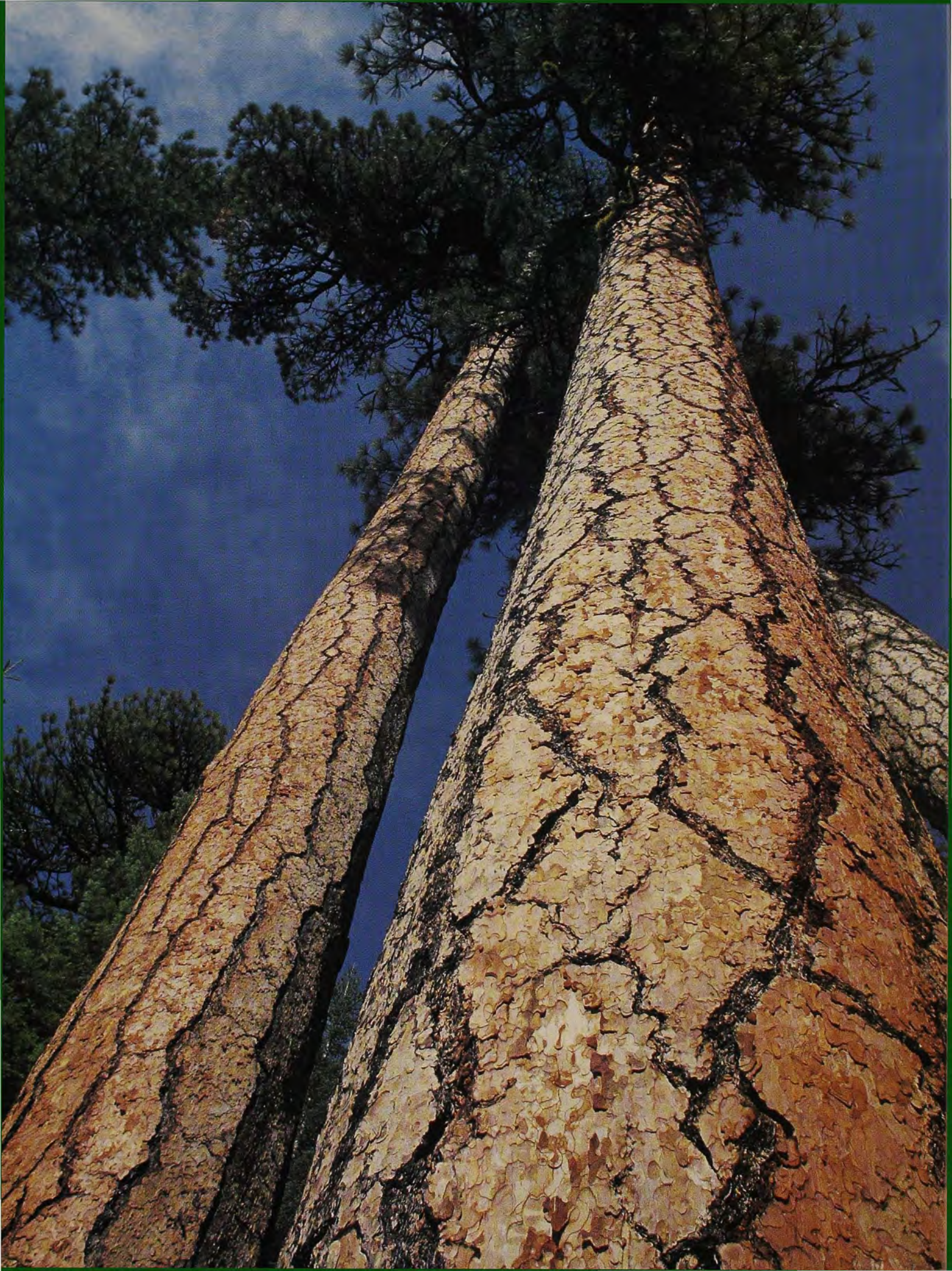






is now Washington State. The first hours of botanizing made an indelible impression. *"With respect to the appearance of the country and its fertility my expectations were fully realized. It is very varied, diversified by hills and extensive plains, generally good soil. The greater part of the country as far as the eye can reach is closely covered with pines of several species,"* Douglas wrote enthusiastically in his journal.

The "pines of several species" were what we now know as Western hemlocks *(Tsuga heterophylla)*, balsam fir *(Abies amabilis)*, and the tall straight tree—that though it was later renamed Douglas fir in his honor—is neither a pine nor a true fir. These were among the first plants Douglas described and collected in the area.

The world that lay before Douglas is now difficult to imagine. The area from the Yukon down to the California border was claimed by both the United States and Britain. Although trading camps had been established along the rivers by the Hudson's Bay Company, much of the region was sparsely populated. The main inhabitants were small bands of Native Americans—Clatsop, Chinook, and others.

Tier upon tier of majestic evergreens grew along the Cascades from northern California to the Canadian border. Clear streams and lakes dotted the wilderness. Under a canopy of branches, explorers moved along the trails in the half light of the forest or paddled down rivers between towering rock precipices.

Douglas was soon at work, setting out on a four-month journey up the Columbia and Multonomah (now Willamette) rivers, sometimes traveling with a guide but more often on his own. His aim was to gather as large a plant collection as possible to send on the *William and Ann* when it left for England in October.

In the Field

The life of a plant collector was hard. One account in Douglas's journal offers a glimpse of the conditions he endured:

On my journeys I have a tent where it can be carried, which rarely can be done; sometimes I sleep in one, sometimes under a canoe turned upside down, but most commonly under the shade of a pine tree without anything. ...I confess, at first, although I always stood it well and never felt any bad effects from it, it was looked on by me with a sort of dread. Now I am well accustomed to it, so much so that comfort seems superfluity.

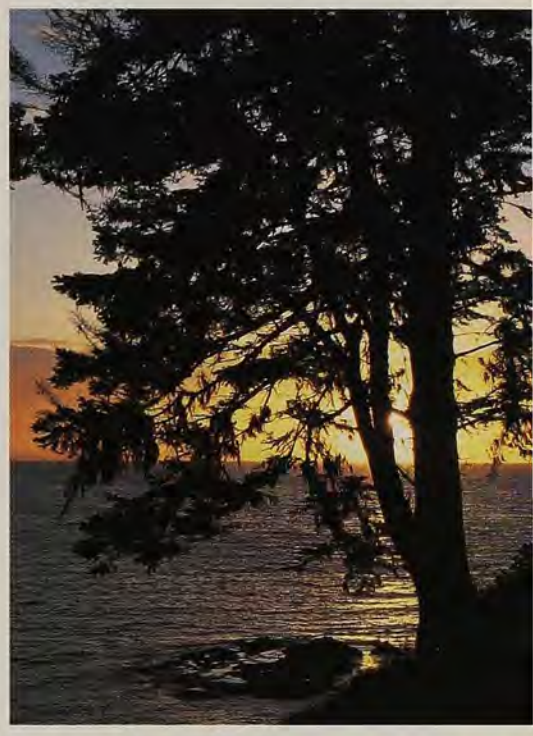
Most of the time he traveled on foot, in good weather and bad, in rain and in scorching drought. But there were compensations. In one journal entry, Douglas writes of the scenery as *"grand beyond description; the high mountains in the neighborhood,...the rainbow from the vapor of agitated waters,...the reflections from the snow on the mountains, together with the vivid green of the gigantic pines, form a contrast of rural grandeur that can scarcely be surpassed."*

Collecting was a joy. During the six months following his arrival on the Pacific coast, the young botanist collected 499 species, many new to botany, which he carefully dried and described in his journals. Among these were several varieties of lupines, penstemons, evening primroses, honeysuckles, firs, and grasses.

Douglas spent the winter of 1825–26 in Fort Vancouver recovering from an infected knee and classifying, mounting, and preserving more specimens. As spring arrived, he set off along the fur traders' route up the Columbia River Gorge. He tramped along the banks and climbed the nearby hills, finding several new plants, including the beautiful yellow fritillary or mission bell *(Fritillaria pudica)* and the lavender-flowered farewell-to-spring *(Clarkia pulchella)*. When the *William and Ann* set sail for London in October 1826, it carried 24 large boxes of plants and seeds and one box of stuffed birds and mammals from Douglas.

Douglas's main interest, though, was in conifers. Identifying a previously unknown conifer thrilled Douglas, and he discovered many, including the Western white pine *(Pinus monticola)*, Western silver fir *(Abies amabilis)*, Ponderosa pine *(Pinus ponderosa)*, and the Sitka spruce *(Picea sitchensis)*. Any suggestion that a new conifer might be found was an irresistable lure. Hearing of an enormous pine with huge foot-long cones, the explorer was determined to find it. On advice from Native Americans, he headed south, toward the area that is now central Oregon.

After a grueling month-long hike through dense forests drenched by constant rain, the red-haired botanist and his Native American guide at last stood beneath the tallest of all pines—sugar pine *(Pinus lambertiana)*—its high-held boughs and pendant cones far above them. The tree's size was amazing; one that had been blown down in a storm measured 215 feet long, with a circumference of 57 feet and nine inches. Douglas relied on his excellent marksmanship to shoot down three fine



Opposite: Ponderosa pine. Above, top to bottom: Detail of leaves and cones of Sitka spruce; a Sitka spruce growing by the water's edge in Washington State; and yellow-and-white *Limnanthes douglasii* growing among buttercups.

OPPOSITE: MICHAEL S. THOMPSON; THIS PAGE, TOP AND BOTTOM: DAVID CAVAGNARO; CENTER: MARK TURNER.

A Legacy of Plants

In his short life, Douglas created a tremendous legacy in the plants that he introduced into cultivation all over the world, including those he brought to Europe that returned, improved, to us. He had a genius for spotting new plants and a tenacity at collecting and bringing them back.

Above all, Douglas is remembered for the conifers he introduced to the world, all of which he loosely called "pines." The Sitka spruce now covers over one million acres in Britain, where its moisture-loving, wind-tolerant nature thrives. In addition, he brought back several firs—including white fir, noble fir, lovely fir, and seven pines—lodgepole, ponderosa, and Monterey among them. In the mild climates of New Zealand, Australia, and South Africa, the fast-growing Monterey pine is a popular plantation tree.

And of course, he sent back the Douglas fir, although he was not the first to discover the tree named for him. That distinction belongs to another Scotsman, Archibald Menzies, who explored the Vancouver area in the 1740s. But Douglas was the first to ship seeds back to England. Because of his work with the trees of the Pacific Northwest, he is something of a folk hero there to this day.

Douglas brought seeds of California poppy to Europe. He did not collect *Iris douglasiana;* it was named for him after his death.

Naming the explorer's other contributions is akin to making a nursery catalog of the finest sort. Such a catalog would include fruits such as gooseberries, several currants, and raspberries; flowers including mariposa lilies, and California poppy, to name a few; as well as numerous ferns, grasses, and shrubs.

Descendants of many of those western plants, propagated by seed companies in Europe, have come back—sometimes as improved varieties—to the nurseries of America. Among them are Virginia clematis *(Clematis virginiana)*, Oregon grape *(Berberis aquifolium)*, California trout lily *(Erythronium californicum)*, blue flax *(Linum perenne)*, a dozen lupines, mariposa lilies *(Calochortus* spp.), yellow fritillary *(Fritillaria pudica)*, 11 kinds of evening primrose, phloxes, the golden currant *(Ribes aureum)*, 18 penstemons, coral bells, and one of America's only two wild peonies *(Paeonia brownii)*. It is fitting that the land he loved so well would become the benefactors of his great legacy. —*S.D.P.*

specimens. Unfortunately, the shots also attracted eight unfriendly Native Americans. Outnumbered, Douglas offered them tobacco if they would help him search for cones. Apparently this was an acceptable agreement; the eight dispersed and Douglas slipped away with his cones in tow.

In April 1827, having already covered 6,000 miles mostly on foot, Douglas undertook a journey to Hudson's Bay where he hoped to catch a ship to England. He scaled glaciers and climbed the craggy mountains, making the first recorded ascent of the northern Rockies, alone and without the aid of mountain-climbing gear.

When Douglas finally reached England in the autumn of 1828, he was a famous, but exhausted, man. London, which adored explorers, greeted him with acclaim. He had introduced more plants into England than any man before him, and he apologized for seeming to "manufacture" so many plants "for my own pleasure."

But Douglas was peevish and short-tempered in high society. In October 1829, bored of civilization, he once again set off for the Pacific. His prime focus this time was the flora of California, but he managed journeys into his beloved Columbia Basin and up into Alaska, accompanied by his Scottish terrier, Billy. In California he missed the majestic views of the north but felt the lush vegetation was compensation. "It was beautiful country," he wrote, "the land of the vine, the olive, the fig, and the banana."

Once again his collections were staggering. Among his nearly 500 finds were the Monterey *(Pinus radiata)* and Coulter *(P. coulteri)* pines. He also collected beautiful wild flowers that he felt would do well in cultivated gardens, including California poppy *(Eschscholzia californica)*, mariposa lilies *(Calochortus* spp.), and dozens more.

A Mysterious Ending

Despite his successful collections in North America, Douglas was frustrated by logistical and monetary problems in his desire to cross Siberia on his way home to England. In protest at the removal of one of his friends at the Horticultural Society of London, he also resigned his membership in the society. Lacking support for further explorations, in 1833 Douglas finally embarked on the long journey back to England.

Along the way, he spent several months botanizing on the Hawaiian islands. In spite of problems with his eyesight, he hiked the lush forests of the island, collecting new ferns, flowers, and trees. He climbed to the summits of both Muana Kea (13,796 feet) and Mauna Loa (13,680 feet) and hiked up the active volcano of Kilauea.

On July 12, 1834, while hiking across the big island of Hawaii toward the port town of Hilo, Douglas stopped—presumably to get directions—at the hut of Edward Gurney, a former member of Australia's notorious Botany Bay convict colony. Gurney warned Douglas about several camouflaged pits—used to capture wild cattle—along the course he planned to take. What happened next is pure speculation. Some historians suggest Gurney murdered Douglas, but most agree Douglas more likely was the victim of his poor eyesight or unrelenting curiosity. Whatever the cause, Douglas's mangled body was discovered at the bottom of one of the camouflaged pits in which an enraged bull was already entrapped. His faithful dog, Billy, was found waiting near the pit. David Douglas, intrepid traveler and passionate naturalist, had reached the end of his journey.

Although he was only 35 years old when he died, Douglas may have explored more of America on foot than anyone else in history. His tireless collecting brought hundreds of North America's most splendid trees and flowers to the attention of European gardeners and botanists and inspired later European explorers to seek the floral treasures of the New World.

Susan Davis Price, author of Minnesota Gardens, *and the forthcoming book,* Growing Home, *lives and gardens in St. Paul, Minnesota.*

JERRY PAVIA

Bold Plants

Adding a few visually dominant plants can make a drab garden dynamic.

by Pam Baggett

Have you ever planned a brilliant border on paper, only to have it prove to be a design disaster in real life? When I planted my first large border, I thought I had the perfect design. I combined new plants I had selected based on catalog descriptions with existing plants moved from trial beds in the garden. The color scheme was precisely organized and the bloom seasons carefully considered. Yet, after two years, my color-coordinated but unsatisfying 100-by-16-foot border barely reached four feet in height at the peak of the growing season. It lacked focal points: bold plants that would contribute height, form, and solidity among the delicate beauties already in place.

It was easy to see that I needed taller plants in the center of my freestanding border. A friend with an eye for garden design suggested I also add an occasional lofty grower near the edges to break the static effect of planting in rows according to height. Despite knowing that my garden lacked pizzazz, it took me another year or two of planting to grasp what had been missing in my design. Asters and other perennials with tiny leaves and flowers had been included in my original plan to contrast their diminutive foliage with the larger leaves of plants such as hardy geraniums and variegated obedient plant *(Physostegia virginiana* 'Variegata'). What was missing were plants bearing leaves six inches or longer with simple, clear outlines. I needed

Flanked by purple fountain grass, castor bean, and Mexican sunflower, *Canna* 'Bengal Tiger', center, anchors this bold border at the New York Botanical Garden.

bold foliage to provide a visual resting place for eyes fatigued by the relentless details of fluffy flowers and fussy foliage. After several years of experimenting, I have now identified a gallery of dramatic plants that make my borders as exciting as I had originally hoped they would be.

Semihardy Subtropicals

My North Carolina garden is in the warmer half of USDA Zone 7 (AHS Zone 7), so I can grow bold subtropicals such as cannas and ginger lilies with impunity. North of Zone 7, these plants must be treated as expensive annuals or dug and wintered over in the same manner as dahlias. Without a long, sultry growing season, however, they may not achieve the grand stature they do in southern gardens.

The exotic leaves and showy white flowers of butterfly ginger, above, are highlighted by the airy pink flowers of bush clover *(Lespedeza* sp.) in the author's garden. *Canna* 'Bengal Tiger' and the hardier Joe-Pye weed, above right, make a dramatic pairing.

Cannas were the first bold-foliage plants to grace my borders, and I admit I felt pretty brazen planting my first canna, 'Bengal Tiger' (sometimes listed, incorrectly, as 'Pretoria'). A sought-after plant just a few years ago because of its sunny yellow-and-green-striped foliage edged with a fine tracery of burgundy, 'Bengal Tiger' is now fairly easy to find. I placed mine in the midst of a nice but not very compelling composition, and the change was immediately satisfying. The canna's foot-long leaves contrasted dramatically with the slim blades of six-foot-tall maiden grass *(Miscanthus sinensis* 'Gracillimus'), which I had added for its height and graceful, fountain-like form. Prairie coneflower *(Ratabida pinnata)* complemented the canna's colors with its airy, swept-back, clear yellow petals. And the smoky pink petals and burnished orange cones of purple coneflower *(Echinacea purpurea)* echoed the outrageous orange flowers and pink stems of 'Bengal Tiger'. In effect, 'Bengal Tiger' became the whisky in the punch, taking this section of my border from polite and proper to impassioned and energized.

Cheered on by my initial success with cannas, I now include several in my garden's design. A recent introduction, *Canna* 'Phaison' (trademarked Tropicana), elicits either delight or dismay from visitors as they take in its shocking foliage—striped dark purple and rich coral-red with tinges of steely blue and bright green—and its huge orange flowers. It is hard to imagine a gaudier plant, or one that will develop a more loyal following among gardeners who like color. I firmly believe that summer is meant to be celebrated in all its garish splendor and so took 'Phaison' into my garden on first sight. My favorite companion thus far for this brazen beauty is a shrubby willow *(Salix purpurea* 'Pendula'). In contrast to the density and firm verticality of the canna, 'Pendula' is a flighty wild child. She flings her slender purple stems and narrow, blue-gray leaves out in all directions, as if unable to choose which way to go first. Slightly less ostentatious plants that go well with this compelling combination include the tender purple-leaved fountain grass *(Pennisetum setaceum* 'Rubrum'), blackberry lily *(Belamcanda chinensis),* and globe amaranth *(Gomphrena* 'Strawberry Fields'), which produces fire-engine red, cloverlike blooms from summer to frost.

For those who dislike the frantic foliage and jumbo flowers of 'Bengal Tiger' and 'Phaison', I recommend several small-flowered cannas. *Canna indica* has tiny, pale salmon-orange flowers held above tightly wrapped, upright, green or dark purple

PAM BAGGETT; MICHAEL S. THOMPSON, OPPOSITE, TOP; ALEXANDRA SZYMALA, BOTTOM; PAM BAGGETT

leaves. Highly fashionable *Canna glauca* 'Panache' bears slender, salmon-pink flowers and long, narrow green leaves. Be forewarned: 'Panache' forms runners that will weave throughout your border.

At more than $50 per plant, *Canna* 'Stuttgart' seemed destined to remain on my wish list for several more years, but a friend recently sent me a root. Its tricolored leaves feature bold blocks of pale green, blue-green, and creamy white; small, peach-colored flowers are a late-season highlight. In hot climates, 'Stuttgart' does best where light afternoon shade prevents scorching of the white sections of each leaf.

Ginger Lilies

With their chunky stalks and lush leaves, ginger lilies *(Hedychium* spp.), like cannas, add a delightfully tropical texture to the border. Butterfly ginger *(Hedychium coronarium)* sends up five-foot-tall stems clothed in glossy, lime-green leaves. From these stems emerge cones of white, butterfly-shaped flowers that open every evening from August until frost. Even if butterfly ginger were not so attractive, I would still grow it for its fragrance, a sumptuously sweet perfume that wafts through the garden on an evening breeze. But its bold leaves are a designer's delight. In my garden, it contrasts perfectly with the lacy, maplelike leaves of *Vitex negundo* 'Heterophylla'. Each summer afternoon, the vitex—pruned annually to maintain its eight-foot height—casts its delicate shadows onto the broad surfaces of the ginger lily's leaves. Other choice companions for butterfly ginger include the white-fruited Asian beautyberry *(Callicarpa dichotoma* 'Albifructus'), pink-flowered bush clovers *(Lespedeza* spp.), and tender rosebud sage *(Saliva involucrata* 'Bethellii'), which bears hot pink flowers on five-foot stems.

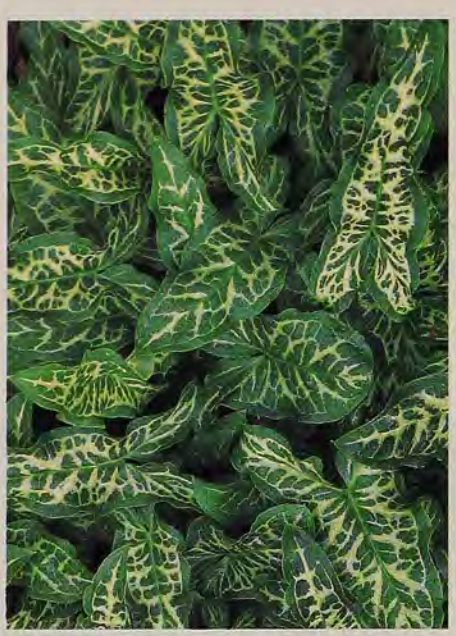
Another excellent ginger lily is *Hedychium coccineum* 'Aurantiacum'. Its leaves are narrower than those of butterfly ginger, but they are still large enough to provide a strong contrast to more delicate foliage. While butterfly ginger opens just a few flowers each day, 'Aurantiacum' explodes into full bloom in August and produces several flushes of flowers before frost. In addition to using 'Aurantiacum' in the perennial bed, I pair it with the wine-red fountain grass *(Pennisetum* 'Burgundy Giant') and colorful coleus in terra-cotta containers.

Hardier Perennials

While my garden happily hosts plants hardy to Zone 7, what is a northern gardener to do? Relax, there are a number of hardy perennials that can make great centerpieces for gardeners in cooler areas of the country. My favorite is Joe-Pye weed *(Eupatorium purpureum),* hardy from Zone 4 to 8. In my garden I have a low-growing selection of unknown origin that produces expansive, deep green leaves in whorls around dark burgundy stems. While regular Joe-Pye towers over the garden at seven to 12 feet tall, this "dwarf" form tops out at a mere six feet. *E. fistulosum* and its more compact cultivar, 'Gateway', would create a similar effect. Joe-Pye's midsummer domes of thready, smoky pink flowers are complemented by the arching, airy inflorescences of *Panicum virgatum* 'Rotstrahlbusch'. I also include a spectacular elephant ear *(Colocasia* 'Black Magic'), which has two-foot-long, dusky black-purple leaves borne on black-cherry stems. The colocasia is hardy only to Zone 7, but further north an ornamental rhubarb *(Rheum* spp.)—or even an edible cultivar like red-stemmed 'Valentine'—would make a good substitute. Tender *Salvia van-houttii*—bearing brilliant red tubular flowers that weep from burgundy bracts and dainty pointed leaves that emphasize the strength of the Joe-Pye weed's form—completes the picture.

Joe-Pye weed is native to my area, as is another local resident I recommend: pokeweed *(Phytolacca americana).* I know what you're thinking: "Is she crazy?" After all, this is a plant commonly seen along roadsides and in abandoned fields. But consider it just for a second. The strapping, six-inch green leaves on ruby stems are gorgeous, and the clusters of berries, changing to the color of port wine, glow irresistibly in the slanting rays of late summer's sun. In the last days before frost, ripe with fruit and overhanging a clump of pale pink *Dendranthema* 'Venus', there is hardly a more beautiful plant than purple pokeweed. If wine and rubies aren't in your color scheme, there is a selection called 'Xanthocarpa' that has

Pokeweed, top, is not a standard choice for the border, but its rich purple berries provide an attractive late-summer show. The statuesque leaves of *Colocasia esculenta* 'Illustris' and blue salvia, above, complement one another in the author's garden.



For the smaller garden, painted arum offers dramatic foliage for the winter garden, followed by showy red berries in summer.

Sources

FORESTFARM, 990 Tetherow Road, Williams, OR 97544-9599. (541) 846-7269. Catalog $4.
GLASSHOUSE WORKS, Church Street, Stewart, OH 45778-0097. (740) 662-2142. www.glasshouse works.com. Catalog $2.
GOODWIN CREEK GARDENS, P.O. Box 83, Williams, OR 97544. (541) 846-7357. Catalog $1.
PLANT DELIGHTS NURSERY, 9241 Sauls Road, Raleigh, NC 27603. (919) 772-4794. www.plantdel.com. Catalog: Send 10 stamps or a box of chocolates.
WE-DU NURSERIES, Route 5, Box 724, Marion, NC 28752-9338. (704) 738-8300. www.wedu@ wnclink.com. Catalog $2.

green stems and yellow berries. Just make sure to clip the berry clusters before they drop or are eaten by birds and scattered so they don't seed throughout your garden.

Cup plant *(Silphium perfoliatum)* is another underused dramatic plant hardy in Zone 4 to 9. Simple, rich green leaves up to a foot long clasp the stems in opposite pairs to form a central cup that catches and holds rainwater for birds and butterflies. Cup plant thrives in poor soils and may become lanky in rich soils; most of the plants I've seen have been six to eight feet in height, but it can reach 10 feet. In summer, cup plant bears bright yellow daisies that resemble small sunflowers. Later, the seedheads provide the additional benefit of attracting goldfinches and other birds. Match cup plant with other less formal natives that don't require rich soils or lots of attention, such as asters, goldenrods *(Solidago* spp.), beebalms *(Monarda* spp.), and grasses.

Although most asters are narrow-leaved, Tatarian aster *(Aster tataricus)* produces broad paddle-shaped leaves with ruffled edges. Tatarian aster makes a fine patch of foot-tall foliage from which rise five-to-seven-foot-tall stems bearing pale purple blossoms that open in early autumn. The cultivar 'Jindai', with sturdy five-foot stems, makes an excellent screen for obscuring the spent remains of summer's past glories.

Another sun-loving plant with paddle-shaped leaves is giant coneflower *(Rudbeckia maxima)*. Its powdery blue-gray foliage, the size and shape of good old southern collard greens, is wax-coated to preserve moisture in the heat of its native Texas. In early summer, six-foot spikes of brilliant golden flowers with swept-back petals and protruding brown cones rocket forth from its 18-inch-tall basal rosette of leaves. I use the early summer bloom of *Rudbeckia maxima* as a screen in front of *Canna* 'Wyoming' and love the contrast of the canna's rich purple leaves and tangerine-orange flowers with the cooler colors of the rudbeckia.

For the Smaller Garden

These huge plants are all well and good, but what if your garden is just too small to host a five-to-eight-foot-tall giant? First of all, be sure that it *is* too small. Often, a tiny space will look larger with the addition of a lofty plant or two. Bold plants create the impression of a bigger space because the viewer doesn't feel like Gulliver amongst the Lilliputian vegetation. Also, since tiny gardens often tightly embrace the gardener's dwelling, a few grandiose plants can bring the garden closer to scale with the adjacent buildings. In my large garden, low-growing bold-leaved plants bring foliar contrast down to ground level, but if your garden—or your temperament—doesn't allow for giant elephant ears or jumbo Joe-Pye weed, consider the visually simple lines of the following smaller plants.

At only two feet high, pineapple lily *(Eucomis comosa)* still provides a strong presence with its soft, sword-shaped, olive-green leaves. In midsummer, a sturdy flower shoot emerges from the center of each foliage rosette, bearing many outfacing, starry blossoms and crowned—as its common name suggests—with a terminal tuft of leaves. Even better is *Eucomis* 'Sparkling Burgundy', introduced by Tony Avent of Plant Delights Nursery in North Carolina. This selection has wine-colored leaves and pink-tinged blooms. In my garden, 'Sparkling Burgundy' provides a powerful form and color contrast to delicate pink *Salvia coccinea* 'Bicolor' and white-flowered *Gaura lindheimeri.* Pineapple lily is hardy to Zone 7, but the small bulbs can be easily dug and overwintered.

In a shady area, a similar sword-like texture can be had from aspidistras and rohdeas. *Aspidistra elatior,* cast-iron plant, has historically been used as an indoor plant because of its tolerance for poor lighting, but in Zone 7 to 10 it can be grown in the garden. The best cultivar I've seen is 'Asahi', the leaves of which are frosted creamy white on the upper third. Cultivars of *Rohdea japonica* are similar enough in appearance to aspidistras that I occasionally have trouble remembering which is which, and they have the advantage of being hardy in Zone 6 to 10. Plant Delights has recently introduced a long list of evergreen rohdeas, many of which are spotted, splashed, or streaked with white or cream.

My garden is in full sun, but an herbaceous perennial I greatly admire for shady gardens is spiny bear's-breeches *(Acanthus spinosus)*. Its boldly architectural, foot-long leaves are armed with fierce-looking but relatively soft spines. A mature clump grows to three or four feet in height before blooming in late spring here in North Carolina. White or mauve flowers are enclosed by hooded purple bracts and arranged in spires up each stalk. Although bear's-breeches are actually native to Southern Europe and the Mediterranean, its slightly sinister look makes me think of medieval British castles and hooded highwaymen. Spiny bear's-breeches is hardy to Zone 5 and has the advantage of tolerating hot, humid summers, which distress its better-known cousin, common bear's-breeches *(Acanthus mollis)*. If you can accommodate its preference for cool summers and Zone 7 winters, *Acanthus mollis* provides broad, rounded leaves to two feet long and half as wide.

If you don't have room for five-foot-tall *Colocasia* 'Black Magic', perhaps the smaller but equally attractive *Colocasia*

MICHAEL S. THOMPSON. OPPOSITE: MICHAEL S. THOMPSON; OPPOSITE TOP LEFT: ROGER FOLEY; TOP RIGHT: DAVID CAVAGNARO.

In this artfully designed border, above left, the dramatic black leaves of *Colocasia* 'Black Magic', center, are softly framed by purple fountain grass, maiden grass, and cleome. Above right: Through its striking, dark green leaves and architectural flower spikes, common bear's-breeches makes a bold statement in a shady garden; this plant grows best where summers are cool.

esculenta 'Illustris' will fit your garden. 'Illustris' bears arrowhead-shaped, charcoal-black leaves with bright green veins. It grows to only 30 inches tall, making it an excellent contrast for yarrows, hardy geraniums, and other low-growers. 'Illustris' prospers in light shade as well as sun, especially in hot gardens, and prefers moist to boggy soils.

Arum italicum subsp. *italicum* (also listed as 'Pictum') provides a similar arrowhead leaf form for shady sites, but it emerges in autumn, filling the space left vacant by winter-dormant shade-lovers such as hostas. 'Pictum' produces some interesting seedling sports; my favorite is a new selection called 'Legs', which bears two-foot-long leaves with gleaming silver veins. The leaves stand nearly parallel to the ground and are larger and better variegated than other forms. Arum foliage is a blessing in the winter garden, and its short spikes of fat red berries strike a cheerful note in summer, long after the foliage has faded.

No matter the size of your own garden, incorporating bold plants into your design is the key to creating a vibrant, balanced masterpiece. As I've expanded my palette to include grand plants, my motto has been, "If in doubt, try it!" I recommend this spirit of adventure to gardeners everywhere who want to tackle the timid corners of their own designs.

Pam Baggett is proprietor of Singing Springs Nursery, 8802 Wilkerson Road, Cedar Grove, North Carolina, 27231; e-mail: nightair@mindspring.com. Catalog $3.

Other Bold Plants

Be willing to experiment and you'll find dozens of plants whose foliage forces the viewer's eye to stop and peruse its bold outline. Others I grow—or would consider growing if they were suitable in my region—include brightly striped New Zealand flax *(Phormium* spp.). These agave relatives from New Zealand have erect linear leaves in a variety of colors but are only hardy in Zones 9 and 10.

If you have a silver or blue color scheme, consider cardoon *(Cynara cardunculus)*, sea hollies *(Eryngium* spp.), or Scotch thistle *(Onopordum acanthium)*. Cardoon is a sensational silvery addition to the border. Hardy to Zone 7, this giant artichoke relative grows four or five feet tall and, given a long-growing season, will produce deep purple thistlelike flowers in late summer. Sea hollies are branched, erect perennials distinguished by thistlelike flowers protected by collars of spiky bracts. Different species are suitable for a wide range of soil types and hardiness zones.

Cardoon, seen here in combination with roses and bergenia, has eye-catching—but prickly—silvery foliage.

For dry climate gardeners, agave relatives such as yuccas (see *The American Gardener* November/December 1997), agaves, and dasylirions are perfect choices for a bold centerpiece. The erect, swordlike leaves of these natives of our Southwest and Central America offer a dramatic vertical element that makes a welcome change from the rounded form of other border plants. Hardiness varies from Zone 7 for some yuccas to Zone 10 and 11 for agaves and dasylirions.

Other worthy bold plants include castor bean *(Ricinus communis)*, an erect, multistalked subtropical shrub grown as an annual north of Zone 9, and red hot poker *(Kniphofia* spp.), a perennial in the lily family famous for its spikes of tightly clustered red, orange, yellow, or multicolored tubular flowers. —*P.B.*

Going Bananas

These leafy tropicals have tremendous appeal even for gardeners in temperate regions.

by Alice L. Ramirez

Even in gardens where climate prevents the development of ripe bananas, the rustling fronds and dramatic habit of banana plants are worthwhile for the tropical ambiance they create. Not to mention the excitement they will create among the neighborhood children, who are likely to set up camp beneath the shady, spreading leaves.

While gardeners in USDA Zone 9 through 11 can, with minor protection from occasional frosts, grow bananas outdoors year round, in cooler regions bananas can be grown year round in containers or even transplanted into the ground from last to first frost. Like many other tropicals, bananas are quite easy to overwinter in a dormant state. If you have a warm greenhouse or well-lighted sun room, cold-climate gardeners can even keep bananas growing in containers through winter.

Bananas are members of the banana family (Musaceae), which includes two genera—*Musa* and *Ensete*—and about 40 species. Most bananas cultivated for their fruit—technically classified as a berry—are hybrids of *Musa acuminata* and *M. balbisiana*. These selections are often collectively grouped under the name *M.* ×*paradisiaca*.

Fruiting selections fall into two main categories: eating bananas and cooking bananas. The bananas most Americans are familiar with are the sweet, tender-fleshed eating bananas whose green outer skin turns a deep yellow at maturity. These are usually eaten out of hand or blended with cereal or desserts. Eating bananas with reddish-orange to purple skins and flesh are also available.

In tropical regions of South and Central America, Africa, and Asia, however, it is the starchy, blander-tasting, cooking banana—also known as plantain or vegetable-banana—that is a culinary staple. Plantains typically are larger than eating bananas, with creamy to pink flesh and green skins that ripen to a muddy yellow.

Bananas are native from Central and Southeast Asia south to the northern part of Australia, where their natural habitat is the edges of tropical forests. These clump-forming, herbaceous tropical perennials sprout from underground rhizomes, forming spongy tapering pseudostems that are topped by an umbrellalike cluster of glossy leaves. The leaves emerge nearly vertically as a tightly wound bud and unfurl gracefully, gently drooping to give bananas a palmlike appearance. Whereas palm leaves are formed of hundreds of narrow leaflets, however, banana leaves are whole but have finely etched creases that run from the central rib of the leaf to the outer edges.

Where they can achieve full growth, dwarf varieties top out at eight to 10 feet and non-dwarf selections can reach anywhere from 15 to 30 feet. But in cooler regions, where

Opposite: The ornamental blood banana brings a hint of the tropics to a northern Virginia garden. Above: What appears to be a dramatic flower bud at the end of a banana's flower stalk is actually a formation of bracts that enclose the flowers. These flowers later develop into bunches of fruit, seen higher up on the stalk.

the growing season is six months or less, even the larger cultivars are unlikely to top 10 feet; dwarf cultivars confined to containers will stay at a manageable three to five feet tall.

Cultivation

Bananas can be purchased as tissue-cultured plantlets, potted or bare-root suckers, or as semi-dormant rhizomes. A number of selections can be raised from seeds—which have been bred out of bananas cultivated for fruit—sown in soil warmed by a heating mat.

Grow young plants in five-gallon containers prior to in-ground planting using a very rich growing medium—a three-to-one blend of organic matter to coarse sand or vermiculite is ideal. To encourage vigorous growth, maintain high heat and humidity, feed the plants every 10 days, and provide abundant water. Move young plants into their permanent location only after four full leaves have developed. This will take approximately six to eight weeks in spring or early summer.

Good tilth is essential because banana roots won't curve around a buried obstruction. Instead, they will grow straight on, getting crushed and injured. The soil should be slightly acidic, with a pH of between 5.5 and 6.5. Bananas require a great deal of moisture and warmth during the growing season, but drainage must be good because the fleshy roots will decay in overly wet soil. Too little water, however, induces dormancy. The plant then ceases to grow until watering is resumed. Mulch, if used, must be renewed; roots will grow into it and can be burned if they become exposed to sun.

The purple flowering banana *(Musa ornata)* is an easy-to-grow ornamental that produces flowers and decorative fruit when it reaches three feet tall.

After planting, spray leaves with commercial foliar fertilizer or dilute manure soup. Western gardeners should water heavily on a regular basis to leach out accumulated soil salts. After a month to six weeks, begin a regular fertilization program.

Bananas are heavy feeders. Choose a balanced fertilizer containing nitrogen, potassium, and phosphates plus trace elements such as iron, boron, and zinc. Soil can also be amended with organic products such as kelp, blood meal, and bone meal. Many successful banana gardeners rely on commercial citrus and avocado fertilizer; others swear by the water-soluble fertilizers you can buy at any home supply store. If you are growing a number of banana trees, well-composted litter from old banana plants makes an ideal fertilizer because it supplies precisely the micronutrients needed. During summer, a time of maximum growth, feed monthly. Leaf-margin burn and entanglement of newly emerging leaves are symptoms of over-fertilizing. Fertilization is particularly important if you are trying to produce fruit; sufficient stored food in the rhizome is necessary to bring on and support flower and fruit development.

Bananas do best with a dormant period, so stop fertilizing and withhold all or most water from December to February in warm climates. In cooler regions, stop feeding as soon as nighttime temperatures drop below 60 degrees Fahrenheit. This is the time to bring your bananas inside. In spring, start coaxing your bananas back into growth by resuming a regular feeding and watering schedule when early deciduous trees break dormancy.

Wind is the enemy of all bananas. The fleshy roots resemble stout cords and do not branch. Threadlike rootlets grow out of these and sprout hairs that absorb nutrients from the soil. If heavy wind shakes the pseudostem, the threadlike roots, along with the root hairs, are torn off; even the cordlike roots can break. The tattered appearance of wind-damaged leaves is also unattractive. 'Pisang Raja', 'Rajapuri', 'Saba', and 'Orinoco' are somewhat wind-tolerant varieties.

Desert-climate banana gardeners should minimize exposure to north, northwest, and northeast winds. Banana plants stop growing at temperatures over 100 degrees, and fruit and leaves are vulnerable to sun scorch. To reduce heat and block excess light, use plastic sun screening where necessary. Be vigilant about watering and mulching. Misting heads on a sprinkling system can be used to raise humidity to adequate levels. A good choice of fruiting banana for the desert is 'San Jose'.

Cold Tolerance

Most banana plants stop growing at air temperatures around 53 degrees or when soil temperatures drop below 68 degrees. When the temperature drops to 35 degrees, the fruit on hardier varieties and the foliage on tender ones will die; on most, the buried rhizome itself survives only to 22 degrees.

There are, however, a couple of ornamental species that are reasonably cold

tolerant. *Musa basjoo*, native to Japan, is the most hardy of all bananas. It survives outdoors in winter as far north as Canada, Belgium, and Switzerland. It produces a pseudostem to eight feet tall and a yellowish inflorescence that hangs down like that of a fruiting banana.

Edible banana varieties known to have survived below-freezing cold snaps include 'Red Banana', 'Ice Cream', 'Manzano', 'Golden Rhino Horn', as well as 'Orinoco', a plantain grown extensively along the Gulf Coast, Arizona, and in California.

Overwintering Bananas

Some gardeners in cooler parts of the country have managed to overwinter tender varieties under shelter, although some would call this overzealous. When the first hard freeze threatens the bananas in Rodney Hader's Independence, Missouri, garden (USDA Zone 8), he digs around his in-ground plants, keeping far enough away from the pseudostem to include most of the roots. He cuts each leaf off at the main stalk.

After wrestling each plant out of its hole, he knocks off the soil from its roots, being careful not to damage them in the process. If suckers coming out of the rhizome are two feet or taller, he separates these and treats them as individual plants. Smaller ones are discarded. He stands the rhizomes in large plastic containers without planting mix or soil. He monitors the plants over winter and pours in a quart of water when they seem to be drying out. Spring replanting is a matter of educated guesswork. He has learned that if he puts them in the ground when the weather is too cool and wet, the bananas won't grow—and sometimes they even rot.

Short-season gardeners who would like to harvest bananas or bring ornamentals to flower must maintain their plants in containers year round and bring them indoors before the first frost. House or greenhouse temperatures of 60 to 70 degrees are ideal. Use a mixture of sand and loam amended with coarse bone meal. Maintain humidity by using misters or setting the pot on gravel in a large tray of water. Bananas do well in filtered sunlight, but using a growlight is necessary when interior light is inadequate.

Start fruiting varieties in five-gallon pots. Smaller ornamental species, such as *M. uranoscopus* (formerly *M. coccinea*), require smaller containers for initial planting. Repot in a larger container at least once during the growth process.

For most varieties of mature fruiting bananas and large ornamentals the minimum final pot size is a 15-gallon container. A half-wine barrel is better. Before the plant becomes full-grown and impossibly heavy, it's best to place the pot on a wheeled plant cart.

If space is really limited, *M. acuminata* 'Super Dwarf Cavendish' stands two to four feet tall, is sturdy, and produces good fruit. It can be grown in containers as small as eight inches. 'Honey' ('Nino'), which reaches only six to eight feet tall and is best grown in part shade or morning sun, is another excellent container choice. 'Double Mahoi' reaches five to seven feet at maturity.

If foliage is your main interest—and back-breaking work not to your liking—propagate your banana plant by potting up the suckers that develop around the base of mature plants. Take those at greatest distance from the main stalk because they are more likely to have significant root development. Treat these as winter houseplants while sacrificing the parent. If you want to keep the parent plant, use a very sharp trenching shovel when cutting away suckers so as to minimize damage to the parent rhizome. Leave the suckers exposed 24 to 48 hours before planting in order for scar tissue to form over the fresh cuts. In humid regions, dust the suckers with an anti-fungal powder before planting.

Pests and Diseases

To protect against gophers, moles, and other such burrowing, root-eating creatures, line the planting hole with galva-

Sources

BANANA TREE, INC., 715 Northampton Street, Easton, PA 18042. (610) 253-9589. For plant listings, visit www.banana-tree.com.
GOING BANANAS, 24401 SW 197 Avenue, Homestead, FL 33031-1174. (305) 247-0397; Fax (305) 247-7877. Catalog free.
PACIFIC TREE FARMS, 4301 Lynwood Drive, Chula Vista, CA 91910. (619) 422-2400. Catalog $3.
STOKES TROPICALS, P.O. Box 9868, New Iberia, LA 70562-9868. (800) 624-9706. www. stokestropicals.com/tropical_plants.html. Catalog $4.

Many bananas are easily propagated by separating offshoots from the parent plant. Each offshoot, like the one shown above, left, should have its own set of roots. Above: The fruiting end of the appropriately-named pink banana *(Musa velutina).*

nized wire mesh. Snails and slugs can mass in leaf petioles, feeding on emergent growth. Aphids might infest unfurling leaves but cause little damage. Thrips sometimes disfigure the fruit, and spider mites can infest greenhouse plantings. These pests can often be controlled by judicious use of insecticidal soaps and strong jets of water, but in some cases you may opt to use pesticides.

Most North American banana growers are, fortunately, spared dealing with the worst problems that banana plants suffer in the tropics—the list of blights and bugs afflicting tropical commercial groves numbers over 70. Banana plants growing in warm humid areas such as Zone 10 in southern Florida, however, can succumb to a form of fusarium wilt *(Fusarium oxysporum)* known as Panama disease. Nursery experts at Going Bananas, a mail-order nursery in Homestead, Florida, recommend that gardeners in such climates avoid planting the following susceptible, but otherwise excellent, cultivars: 'Apple', 'Ice Cream', 'Gros Michel', 'Hua Moa', 'Namwa', and 'Orinoco'.

***Musa basjoo,* top, is a very hardy species that can be grown outdoors year round in gardens as far north as Canada. Above, Abyssinian banana *(Ensete ventricosum* 'Maurelii') is noted for its maroon-tinged leaves.**

What to Grow

'Ele Ele', a plantain sometimes listed as 'Black Hawaiian', offers unusual black and green coloration, with almost-black leaf sheathes, petioles, pseudostem, and midribs in contrast to green leaves. 'African Rhino Horn' and 'Jamaican Red' produce a red and green combination. *M. variegata* (formerly *M. vittata)*, variegated green and white, produces fruit but is grown primarily for its foliage.

The ornamental *M. uranoscopus* maintains a vertical habit and tops out at about eight feet. Its erect inflorescence produces bracts of brilliant scarlet tipped in yellow. This tender species needs a soil pH below 6.5 and tolerates medium shade to full sun. *M. beccari,* similar in habit to *M. uranoscopus,* produces deep red flowers with golden yellow tips. *M. mannii*—at maturity standing about four-and-a-half feet tall—is ideal for growing indoors and will do fine in a five-gallon pot. It produces pale crimson flower bracts.

M. ornata, one of the easiest ornamental bananas to grow, will bear flowers at about three feet in containers. Grown outdoors in a warm climate, however, it can reach the size of a small tree. The flower bracts are lavender in the species, but cultivars produce flowers ranging from bronze to white, magenta, and even red.

M. sanguinea grows to about four feet, its terminal bud producing blood-red bracts with yellow flowers. Fruit, when it develops, is yellow, spotted in red. This native of India can be grown from seed.

M. velutina, a slender plant with pinkish leaf stalks and midribs, grows to about seven feet. Its chubby rose-pink fruits are covered in a fuzz of short hairs. They are tasty but seedy. The fruits pop open when ripe, revealing white pulp.

Nomenclatural confusion surrounds the popular ornamental "blood banana" (*M. acuminata* 'Zebrina'), which has reddish stems and attractive deep red to purple mottling on its upper leaves. Some sources list this or a similar selection as *M. sumatrana, M. acuminata* 'Sumatrana', or 'Rubra'. From my experience, selections labeled 'Sumatrana' are generally shorter than 'Zebrina', with broader foliage and lighter red markings. Either way, blood banana grows well with other tropicals in a lush bedding display or headlining a blend of ornamentals in a container.

Experienced banana growers advise growing 'Zebrina' in a large container for several seasons before planting it in the ground to allow it to build up a robust root system and multiple stems.

Abyssinian Bananas

"Abyssinian bananas," of the genus *Ensete,* are not for the compact garden. These noble plants reach 30 to 40 feet tall at maturity, producing huge, boat-sail size leaves. They take part to full sun, require prodigious amounts of water, are fast growing, and must be protected from wind to prevent the leaves from shredding.

The bold, red-brown inflorescence resembles an edible banana flower, but the bracts are less colorful and don't drop. After fruiting, the plant dies. Abyssinian bananas can be grown indoors in pots if you have enough space. By restricting the roots, size is limited, fruiting delayed, and lifespan therefore extended.

E. ventricosum is the standard green form. *E. ventricosum* 'Maurelii' features large amounts of maroon on the pseudostem and its upper leaves are tinged maroon. This variety is perennial in Zone 9 or warmer. The fruit, which is edible but not very palatable, is brilliant red and gold upon ripening. *E. ventricosum* 'Montebeliardii' produces a slender maroon pseudostem that appears as if varnished. It grows to 20 feet and sprouts red-tinged foliage.

Although the number of banana varieties are not limitless, enough are available to American gardeners to keep a banana enthusiast busy for as long as time—and space—holds out.

An expert on tropical fruiting plants, Alice L. Ramirez lives in Los Angeles, California.

Growing Bananas for Fruit

Getting bananas to produce fruit is a function of temperature, day length, and appropriate feeding. Bananas stop growing when the soil is colder than 68 degrees, so if you want your plants to produce fruit, choose a growing site known to have warm soil, or warm the soil with black plastic mulch. Bananas flower and set fruit once they have developed a certain number of leaves, 12 to 20 depending upon variety. Soil temperature determines the speed of leaf output and stalk production, as does day length and the differential between daytime high temperatures and nighttime lows. The nine-month planting-to-harvest process that occurs in the tropics takes 24 to 30 months in a climate such as California's, where nights tend to be about 20 degrees cooler than days, and soil temperature is below 68 degrees most of the year. Banana gardeners in southern Florida enjoy speedier results.

A mature, standard-sized plant in fruit needs 1½ to 2 pounds of 6-percent nitrogen fertilizer each month. Young plants need a quarter to a third that amount. Avoid getting fertilizer on the pseudostem when spreading it. A mature banana in fruit additionally needs one cup (8 ounces) sulfate of potash or some other potassium source every six weeks to two months. Commercial banana fertilizer can be purchased by mail order. (See page 45 for sources.)

Fruiting bananas tend to sprout a great many "pups," or suckers, at the base. These side growths compete with the main stem for nutrients. All but one or maybe two should be cut away carefully to avoid harming the main pseudostem. The largest sucker remaining on the plant will become next year's fruiting stalk.

It's also important to leave at least eight to 12 feet between plants so that they are not competing for nutrients.

Flowering Stalk

Once you have met a banana's conditions for flowering, a spike will emerge from the pseudostem, then arch downward. A huge and dramatic mahogany bud develops at the bottom of this spike. As layers of showy red bracts furl upward from this bud, they reveal tiered rows of female flowers. These are at first the size and shape of toes but quickly grow into recognizable hands of bananas. When the plant has produced all its little green fingerlings, cut off the remainder of the inflorescence—which includes the male flowers—that hangs beneath. Leave about five inches below the bottom hand of bananas. The goal is to channel the plant's energy into the developing fruit rather than sustaining a spectacular but useless blossom.

A bunch of ripening bananas can weigh more than 50 pounds. As the bunch develops, you need to brace the plant to keep it from falling over. One method involves drilling and wiring together two lengths of bamboo in an asymmetrical 'X' shape. The pseudostem then leans into the crotch at the smallest end, its weight supported by the two long legs below. You can also slip sturdy wire through a length of old garden hose and attach the wire to a chain link fence frame, a pipe, or a 2-by-4 board anchored securely into the ground. The fruiting stalk rests cushioned against the hose.

During the winter months, cover the fruit spike with an opaque open-ended plastic bag. Bagging keeps the fruit dry and minimizes damage from pests, fungal infection, cold, and wind. Bananas give off ethylene oxide as they ripen, so bagging keeps that gas close to the fruit and accelerates the ripening process.

Some cultivars—particularly 'Dwarf Cavendish'—are vulnerable to cigar end rot, a fungal infection that in humid climates attacks the fruit tips during cool, wet weather, turning them black. It then works its way up, like the burning ash of a cigar. Reduce chances of infection by removing dessicated floral parts.

Harvesting

A bunch ready to be harvested will have reached its full size, achieved a mature yellow—or red or blue, depending on variety—coloration and will have rounded out. Immature bananas have an angular look that softens as fruit ripens. When in doubt, cut off just one hand of your bunch and let it ripen indoors. If the fruit ripens properly and tastes good, then cut down the rest. You will not have sacrificed the whole bunch to a mistake. Harvest while the fruit is still hard; its flavor deteriorates if you wait until the bananas soften on the plant.

After harvest, cut down the spent stalk; it will never produce again. Glenn Young, a banana gardener in California, eliminates a step by simply cutting off the entire stalk with the fruit bunch still attached. Leave about four feet of stem above ground, enabling the juices to flow down and sustain the parent plant. Remove this remaining stem once it has dried out. Make sure to wear old clothes when working with banana plants, because the clear juice running out of the plant contains tannin, which permanently stains fabric a dark brown color. —*A.L.R.*

A closeup view of 'Jamaican Red', above left, shows how the bracts of a banana bud peels back, revealing a row of female flowers that will later become a hand of fruit. As the bud's spike elongates, more bracts peel back for yet another row of flowers. Above, right: Clusters of developing fruit are borne high up on the the flowering stalk of *Musa acuminata.*

Fusion Horticulture

Plant hunter Barry Yinger is bringing the best of the East to the West.

by Rick Darke

Opposite: Near his home, a restored barn on his family's farm in Pennsylvania, plant hunter Barry Yinger stands below a purple-flowered angelica that he introduced from Korea. Above: The chartreuse-leaved variegated dwarf sweet flag (*Acorus gramineus* 'Ogon') is an early Yinger introduction that is only now becoming widely popular.

On the back pond slope, Asian native *Angelica gigas* reaches mightily toward the Pennsylvania sky. It is late July, and the purple-black blooms tower over Barry Yinger on the rolling rural farm where he was born, and where this bizarrely beautiful species was first introduced to America.

The giant angelica is only one of many superb discoveries Yinger has brought to North American gardens during more than two decades of international plant collecting. During that period, he sought out new plants both for prominent American public gardens—including the U.S. National Arboretum in Washington, D.C., and Longwood Gardens in Kennett Square, Pennsylvania—and for commercial nurseries such as his present employer, Hines Horticultural, Inc., headquartered in Santa Ana, California. In all, he has organized and carried out more than 50 trips, including 40 to Japan, five to Korea, three to England, and others to Taiwan, Pakistan, and Indonesia.

"He's living his dream, which is remarkable for this day and age," says Carl Hahn, former director of the natural resources division of the Maryland National Capital Park and Planning Commission (MNCPPC). "Frankly, I've never met anyone more dedicated to plants than he is."

Yinger's deep connection to the culture and plants of both North America and Eastern Asia, enhanced by a tremendous eye for detail and an abiding passion for context, have resulted in a unique fusion of horticultural influences. "I think Barry just has a very pragmatic and refined eye for plants that offer utility and value to the American gardener," says Joe Gray, general manager of Hines's Vacaville, California, nursery. "It's really tough to divorce your personal feelings about a plant from how the American public might like it, but he has an innate ability to cut through the minutiae and zero in on what we are looking for." Yinger's work for Hines is currently focused on Asia, particularly Japan, but as the popularity of tropicals grows, he is extending his search for new plants throughout Southeast Asia to Thailand, India, and Singapore. He sees one of the main aspects of his job as "trying to anticipate horticultural trends, to be far enough ahead of the core of public interest that we can have plants selected, propagated, and ready for sale when people want them, not five years after they're ready for them."

Anticipating fashion sometimes requires a thick skin. "*Acorus gramineus* 'Ogon' is a good example of how horticultural tastes change," says Yinger. "At the time I brought it back [1976] there was no commercial interest in plants like that. Everyone I talked to at the time said it was 'a collector's plant', meaning it was a plant for people who didn't have good taste in garden design. Now it's a mainstream plant with tremendous commercial success."

GALEN GATES; OPPOSITE: RICK DARKE

Yinger named this cultivar of the Japanese hydrangea vine, top, 'Moonlight' for its luminescent leaves. The silvery catkins of another Yinger introduction, Japanese pussy willow *(Salix chaenomeloides)*, above, show up well against a background of heather.

In addition to *Acorus gramineus* 'Ogon', a dwarf sweet flag that has pale green-and-cream-striped leaves, Yinger's introductions include such notables as *Schizophragma hydrangeoides* 'Moonlight', a woody climber native to Japan and Korea. 'Moonlight' features fragrant creamy white flowers that bloom in terminal cymes in midsummer and heart-shaped, smooth, blue-green leaves highlighted by prominent green veins. He has also brought into the trade a number of ornamental sedges, including *Carex dolichostachya* 'Kaga Nishiki', *C. morrowii* 'Ice Dance', and *C. phyllocephala* 'Sparkler'; two selections of bush clover, *Lespedeza bicolor* 'Avalanche' and *L. thunbergii* 'Edo Shibori'; and a new willow species, *Salix chaenomeloides.*

Gray believes Yinger has another sure winner in *Spiraea thunbergii* 'Ogon'. "This is a fantastic plant for USDA Zone 4 through 7 or 8. It has phenomenal early spring flowers and beautiful yellow foliage that flushes out to chartreuse," says Gray. "It turns an apricot-red color in fall and it has shown good heat tolerance—it's doing well in the Mid-Atlantic states."

Pennsylvania Roots

The family farm, located near Lewisberry in York County, provided Yinger's early introduction to living, growing things, and to the self-sufficiency of rural life. "Being born here, having lived so long on the farm, and being relatively isolated, I have a highly developed awareness of place," he observes. His considerable knowledge of the native flora dates to childhood days spent cultivating wildflowers from around the farm.

Yinger credits grandmother Elsie Mummert with influencing him toward ornamental horticulture. He describes Mummert's Altoona, Pennsylvania, garden, a three-hour trek in his youth, as "casually outrageous: a wonderland of grasses, variegated plants, purple foliage, tropicals used as annuals, plants in containers, gardenias, succulents, cacti—all set against a great Edwardian house."

In the early '70s, Yinger left the farm for the University of Maryland in College Park to pursue an interdisciplinary degree in Plant Science and Asian Languages. Born of a concern that too few students in agriculture and plant sciences had ability in Asian languages, the innovative program included four years of instruction in Chinese and two in Japanese.

In 1974, Robert Baker, an associate professor of horticulture at the university, arranged for Yinger to spend the spring semester in Japan on independent study, an experience Yinger calls "the turning point in my life." It opened his eyes to Asia's aesthetic and cultural traditions and the incredible richness of its flora. This initial journey to Japan, centered on Kyoto, introduced Yinger to two distinct aspects of Japanese horticulture: the centuries-old traditions of temple gardening and the modern, Western-influenced landscapes and plant collections typified by the superb Kyoto Botanic Garden. Most important, the trip provided introductions to prominent Japanese botanists and horticulturists, many of whom have become lifelong friends and professional associates of Yinger's.

Key among these was Yotaro Tsukamoto, head of ornamental horticulture at Kyoto University, and Toshio Ando—at the time one of Tsukamoto's graduate students—who would figure prominently in Yinger's later visits. Yinger returned to the States intent on furthering his Asian experience.

While at the University of Maryland, Yinger worked part-time for Gustin Gardens, a garden center near Washington, D.C., where he gained important early insights into the world of commercial horticulture. During this period, he got to know William H. Frederick Jr., then president of Longwood Gardens' Board of Trustees. A noted plantsman, landscape architect, and author, Frederick combined an expertise in plants with the knowledge of how to use them in the landscape. "Bill taught me to

TOP: GALEN GATES; BOTTOM: MICHAEL S. THOMPSON. OPPOSITE TOP: LYNNE HARRISON; BOTTOM: RICK DARKE

think clearly, carefully, and boldly about color," Yinger says.

Wishing to provide Yinger with some early career direction, Frederick introduced him to George H.M. Lawrence, a consummate horticultural taxonomist who had headed Cornell University's Bailey Hortorium and become the founding director of what is now the Hunt Institute for Botanical Documentation in Pittsburgh.

Frederick recalls anticipating that Lawrence might encourage Yinger toward an academic life in horticultural taxonomy. But, after lengthy conversation, Lawrence instead suggested that Yinger's abilities were most needed in the commercial arena, where he might bring horticulture in the United States and Japan closer together.

Forging New Relationships

After completing his degree, Yinger began planning return trips to Japan. Supported by Longwood Gardens, he made his first bona fide plant-collecting trip there in 1976, bringing back plants to be shared between Longwood and the U.S. National Arboretum. One of these was *Acorus gramineus* 'Ogon'. It was on this trip that the University of Maryland studies really began to prove their worth. "My language facilities, even though limited at the time, made me different," he says. "They allowed access and insights otherwise not available."

The trip also reinforced Yinger's appreciation that in Asia, and especially in Japan, "relationships are as important as horticultural knowledge." Toshio Ando, Yinger's earlier acquaintance, became his best contact on this trip and on others that soon followed. Ando's broad interests embraced both wild and cultivated plants, and the access he provided to nurseries and unspoiled natural areas proved invaluable.

"I think it was more than just knowing the language," says Carl Hahn, the former director of the natural resources division of MNCPPC. "The thing about modern plant exploration is that it's hard to find new species. Particularly in Japan, where cultivars are the objects of the search, it's critical to have respect for the culture and ways of the people. I don't think somebody with just a smattering of Japanese could have achieved what he has achieved."

This respect for Asian culture has carried through into some of the cultivar names that Yinger has assigned his plants. "Barry often tries to preserve a sense of the culture in naming a plant," says Phil Normandy, plant collections manager at Brookside Gardens in Wheaton, Maryland. Normandy worked with Yinger in the early 1980s when evaluating plants Yinger brought back from Asia. As an example, Normandy cites the name Yinger bestowed on a new cultivar of Japanese hornbeam *(Carpinus japonica)*. "'Ebi odori' means 'dancing shrimp' in Japanese," says Normandy, "which is an allusion to the way the tree's shrimplike catkins move in the wind. It ties back to the cultural sensitivities of the Japanese."

Yinger's interest in Japanese culture also helped him become familiar with some horticultural practices few Westerners know about, including *koten engei*. "*Koten engei* is one of the few horticultural traditions in Japan that is strictly and purely a native Japanese tradition." says Yinger. "If I were ranking all Japanese traditions, it would be near the top. Most of the traditions people think of as Japanese, including ikebana and bonsai, are largely borrowed from Chinese and Korean tradition."

Yinger describes *koten engei* as "an obsession with selecting, displaying, and speculating in cultivars according to a strict set of rules or criteria. The plants are most often Japanese species grown primarily for features other than floral beauty. This has resulted in a focus on variations in size, shape, and color of leaves, including variegation."

Although the popularity of *koten engei* is somewhat diminished in current times, Yinger's strong relationship with another early contact in Japan, Masato Yokoi, enabled him to locate and introduce a num-

Yinger discovered this dramatically variegated sedge *(Carex phyllocephala* 'Sparkler'), top, through nursery industry contacts in Japan. A purple-leaved silk tree *(Albizia* spp.) highlights other exotic container plants, above, at Yinger's Pennsylvania home.

Sources

ASIATICA can be contacted by e-mail at asiatica@ezonline.com.

FAIRWEATHER GARDENS, P.O. Box 330, Greenwich, NJ 08323. (609) 451-6261. Catalog $3.
- *Schizophragma hydrangeoides* 'Moonlight'
- *Sedum* 'Frosty Morn'
- *Spirea thunbergii* 'Ogon'

HERONSWOOD NURSERY LTD., 7530 N.E. 288th Street, Kingston, WA 98346-9502. (360) 297-4172. Catalog $5.
- *Acorus gramineus* 'Ogon'
- *Angelica gigas*
- *Salix chaenomeloides.*

PLANT DELIGHTS NURSERY, 9241 Sauls Road, Raleigh, NC 27603. (919) 772-4794. www.plantdel.com. Catalog: Send 10 stamps or a box of chocolates.
- *Acorus gramineus* 'Ogon'
- *Carex phyllocephala* 'Sparkler'
- *Hosta yingerii*
- *Sedum* 'Frosty Morn'

ROSLYN NURSERY, 211 Burrs Lane, Dix Hills, NY 11746. (516) 643-9347. www.cris.com/~Roslyn/. Catalog $3.
- *Acorus gramineus* 'Ogon'
- *Salix chaenomeloides.*
- *Schizophragma hydrangeoides* 'Moonlight'

Yinger credits Phil Normandy, plant collections manager at Brookside Gardens in Wheaton, Maryland, for the evocative name of *Sedum* 'Frosty Morn'.

ber of superb variegated plants from the *koten engei* tradition, including *Carex phyllocephala* 'Sparkler'.

Longwood

Encouraged by Baker and Frederick, Yinger entered the two-year University of Delaware Longwood Graduate Program in 1977. Yinger's masters' thesis, a monograph on Japanese members of the genus *Asarum,* was unusual for the Longwood program, which is primarily focused on public garden management. The monograph remains a unique and important treatment of the Japanese native wild gingers and a testament to Yinger's long-term interest in Asian woodland plants.

Yinger also values the Longwood years especially for helping him to establish further contacts in public horticulture. Particularly important among these was former Winterthur Gardens taxonomist Hal Bruce. Yinger says Bruce, with whom he remained close friends until Bruce's death in 1987, was an enormous influence. "Hal's approach to plants was both academic and poetic," he says. "We were good friends who spent a lot of time looking at plants, talking about plants."

After earning his degree, Yinger headed for Korea, where he had accepted a job with Carl Ferris Miller, an American expatriate who was developing his hobby garden and vacation home into what would eventually become the internationally renowned Chollipo Arboretum, located southwest of Seoul.

While he was there, Yinger also took the opportunity to research aspects of the Korean flora that had been overlooked by most previous explorers. Yinger realized Western explorers since E.H. Wilson just after the turn of the century had all traversed similar paths, mostly through Korea's northeastern mountains, virtually ignoring the west coast and its islands. His interest was piqued after reading an article about the broadleaf evergreen flora of Korea's west coast islands written at the turn of the century by Japanese botanist Homiki Ueki. Ueki had visited many islands and documented populations of *Camellia japonica* and other horticulturally desirable species farther north than anyone had expected they could survive. If they still existed, Yinger reasoned, these populations were likely to include plants with superior adaptations for cold-hardiness. Unfortunately, the political division of Korea that had occurred since Ueki's time made it extremely difficult—and even dangerous—to visit the northern islands.

That August, shortly before leaving Chollipo Arboretum, Yinger, Ando, and a Korean friend, Young June Chang, spent three days hiking the slopes of Mount Odae in northeastern Korea. They revelled in the richness of the native flora, which survives due to the protective proximity of ancient Buddhist temples.

It was then that Yinger discovered *Angelica gigas* growing in an area visited by E. H. Wilson in 1917 and was surprised that such an extraordinarily showy plant had escaped attention. Yinger still vividly remembers discovering the angelica in a subalpine meadow, towering above the "splendid chaos" of chrome-yellow *Patrinia,* billowing white bugbane *(Cimicifuga* spp.), blue-purple *Adenophora* and *Aconitum,* and bright orange *Lychnis* flowering below.

No seeds were available at the time, but, fortunately, Chang was able to return to Odae in October and collect a few seeds that he sent to Yinger. The seeds germinated readily and the angelica grew to flowering size on his farm in 1983. It has since proved amenable to cultivation in much of USDA Zone 5 to 8, which intrigues Yinger. "Judging from where it grows in the wild, you would never think it would be widely adapted to cultivation," he says. "It is a reminder that you can't make too many assumptions."

The opportunity to explore the western Korean islands also arrived that year with Yinger's appointment to the newly created position of Curator of Asian Collections at the U.S. National Arboretum. Yinger's responsibilities included design and development of the Arboretum's Asian Valley area, which initially displayed Japanese plant introductions brought in by Arboretum horticulturists John Creech and Sylvester (Skip) March. In addition, under the auspices of the Friends of the National Arboretum, Yinger initiated a new series of plant expeditions focused on Korea. With the assistance of the South Korean army, he was able to locate remnants of Ueki's camellia populations and collect seed.

The offspring of these plants proved to be one-half to one full zone more cold hardy than any *Camellia japonica* previously known to Western horticulture. Additional seeds of *Angelica gigas* were also brought back to the Arboretum during the Korea expeditions. Lewis Ginter Botanical Garden Managing Director Holly Shimizu, then curator of the Arboretum's Herb Garden, grew seedlings and distributed them

LYNNE HARRISON; OPPOSITE: RICK DARKE.

widely, ensuring the species' presence in American gardens.

Hosta yingeri, found by Yinger in 1985 and named in his honor by botanist Sam Jones—then with the University of North Carolina—is another product of the National Arboretum trips to Korea. *H. yingeri* has proved a valuable plant for breeding due to its thick, glossy foliage and the fact that its flowers are arranged symmetrically around the stem.

Yinger left the Arboretum in 1987, taking career turns toward administration for the next few years, first as director of Powell Gardens in Missouri, then as head of horticulture for New Jersey's Sommerset County Park Commission. Though he enjoyed this work, Yinger missed the connection with Asia. He began consulting for commercial nurseries, first for Isley Nursery in Oregon, then for Hines, a wholesale supplier of container plants with operations across the United States.

The consulting work for Hines allowed Yinger to renew his travels to Japan, once again seeking new plants for American gardens. The arrangement proved so mutually beneficial that in 1993 Yinger became Hines's full-time new products resources manager, with primary responsibility for selecting and acquiring new plants for evaluation. "We've come full circle. The great early plant collectors from England were sponsored by owners of large private estates or by large nurseries," says Yinger. "We went through a long period where much of the international exploration was conducted by botanical gardens, but we're now seeing more and more commercial nurseries associating themselves with individuals to bring in plants from other countries."

The list of horticultural successes Yinger has introduced is already long, but his knack for finding plants that are ahead of current plant trends makes it entirely possible that more of his introductions may, over time, achieve wider appeal. "I believe that it may still take a while for some of these plants to become recognized," says Hahn.

Back to His Roots

Yinger moved back to the family farm in 1993, purchasing title from his parents, who continue to live in the main house. He began working on the barn, transforming the lower story into a stunning residence. The bearing walls are built of characteristic red-brown York County sandstone, held together with prominent white mortar in keeping with local tradition. It is a superb hybrid, deftly melding the flowing spaces of traditional Japanese architecture with the sturdy utility of rural Pennsylvania.

Yinger, right, and Hines co-worker Andrew Wong survey some of the out-of-the-ordinary plants that grow around the porch of Yinger's home.

In addition to his work for Hines, Yinger has maintained a personal fascination with unusual Asian plants of all types, including many rarities that, because of their life cycles, difficulty of propagation, or other cultural requirements, are not practical for large-scale commercial production. Along with Andrew Wong, a plant collector and explorer who also works for Hines, Yinger formed Asiatica, a micro-nursery that caters to specialty plant collectors. Yinger and Wong intend Asiatica to fill a niche the larger nurseries can't serve, offering mostly Japanese woodland natives such as hardy gingers (*Asarum* spp.), liverworts (*Hepatica* spp.), and may apples (*Podophyllum* spp.). Asiatica also offers specialist Japanese horticultural books of limited distribution that are generally unavailable in the U.S.

In the last four years, the new garden Yinger has built in front of his renovated barn has developed into a sophisticated assemblage that includes an array of horticultural gems. Through artful design, it evokes both the "splendid chaos" of Mount Odae and the serene spareness of old Kyoto while sitting comfortably against the local stone. In similar fashion, a unique confluence of academic, artistic, cultural, and commercial themes have melded to make Yinger's a singularly interesting career.

Rick Darke is a landscape consultant, writer, and photographer living in Landenberg, Pennsylvania. His most recent book, The Color Encyclopedia of Ornamental Grasses, *is due out in March by Timber Press.*

Yinger on Native Plants

Asked how the apparent North American trend toward native plants affects plant introduction and commerce, Yinger replies, "Many of my favorites are North American natives, but I have a hard time understanding why anyone would want to limit the gardening experience exclusively to plants that are currently native to North America. The issue raises questions that, even theoretically, are hard to answer, like: 'How far away from home do you go before a plant is not native anymore?' or 'Do you consider populations that are now gone, but once clearly existed, as native or non-native?' Native plants do sell when they're good garden plants, but I haven't observed that the general public will buy a plant that is not their first choice simply because it's native. I believe open public places should be planted with plants that don't disturb the feeling of place if one exists, but how could it possibly matter what you grow in downtown Las Vegas, for example? Part of the Japanese lesson to me is that you can preserve a sense of place and enjoy growing non-native plants if you do so in a controlled setting." —*R.D.*

book reviews

- *general reference*
- *pest identification*
- *CD-ROM reference*

THE BROOKLYN BOTANIC GARDEN GARDENER'S DESK REFERENCE.

Janet Marinelli, general editor. Henry Holt and Company, Inc., New York, 1998. 816 pages. 7 5/8" × 9 1/2". Publisher's price: hardcover, $40. AHS price: $28. **HOL 019**

The Brooklyn Botanic Garden Gardener's Desk Reference is a great book for the beginning gardener as well as for the expert who already owns a dozen specialty garden books. It is a superb information source for a wide range of subjects.

Say, for example, you suddenly wonder how many flowering shapes there are. A quick check in the chapter called "Botany for Gardeners" will lead the reader to drawings and descriptions of the most common inflorescence types. Perhaps the most useful part of the book is the section on weights, measures, and conversions, which make dilution rates and estimating the weight of root balls a snap. In fact, this section has useful information that I have never seen elsewhere.

As with looking through an almanac, random meandering leads to interesting discoveries. I was mesmerized by a chart in the plant conservation chapter that lists declines in crop diversity. Did you know that in the United States, 75 percent of our potatoes come from only four varieties? Other useful topics covered in the book include ecology in plant communities; kitchen, ornamental, indoor, and city gardening; poisonous plants; plants in literature and folklore; garden tools; and gardens that every horticultural traveler should visit.

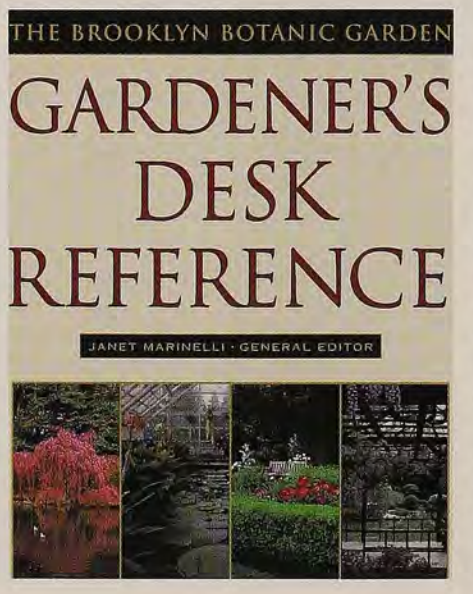
Of course, the book does have its limitations. Because it tries to cover so many different topics, you won't find in-depth information on all your gardening questions. It didn't take me long to stump this book with a question I truly wanted an answer to: How dangerous is *Brugmansia?* This plant is famous for its narcotic properties, and although the book has a large, nicely illustrated section on 40 poisonous plants, it did not include the ornamental *Brugmansia*. On the flip side, each section contains a list of books to read for further information.

Also, because it tries to be all things to all gardeners, the book is inadequate in some sections, particularly in its lists of recommended plants for different regions of the country. But it does contain a large resource section, which contains addresses and phone numbers for hundreds of organizations that can help you with more localized information.

The true merit of the *Gardener's Desk Reference* lies in the odd facts and issues that are of interest to gardeners. It packs a lot of information in one place for a modest price. While the information may be skimpy on any one subject, it certainly is an introduction to a great many subjects. For instance, I may not be interested enough in endangered plants to buy a book on the subject, but I am interested enough to read a small section on plants threatened by collection. I highly recommend this book for every gardener's library.

—Katherine Grace Endicott

A garden columnist with the San Francisco Chronicle, *Katherine Grace Endicott is also author of* Northern California Gardening.

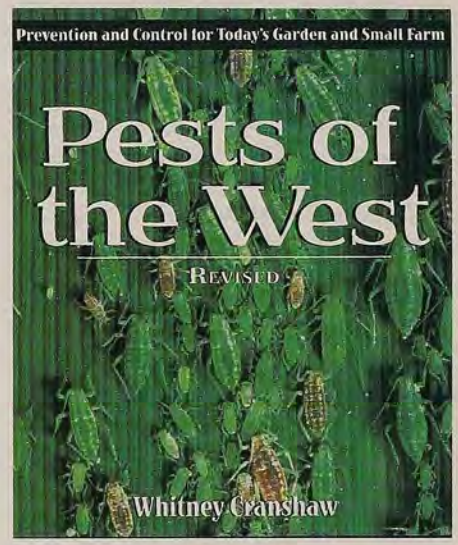


PESTS OF THE WEST, REVISED: PREVENTION AND CONTROL FOR TODAY'S GARDEN AND SMALL FARM.

Whitney Cranshaw. Fulcrum Publishing, Golden, Colorado, 1998. 248 pages. 9" × 9". Publisher's price, softcover: $19.95. AHS price: $16. **FUL 017**

BALL IDENTIFICATION GUIDE TO GREENHOUSE PESTS AND BENEFICIALS.

Stanton Gill and John Sanderson. Ball Publishing, Batavia, Illinois, 1998. 244 pages. 6" × 9". Publisher's price, hardcover: $67. No AHS discount available. **BP 001**



All gardeners, no matter how hard they try to avoid it, are eventually faced with an infestation of aphids, whiteflies, or other common pest on their favorite house or garden plants. These two new books are welcome additions to the literature available on pest control.

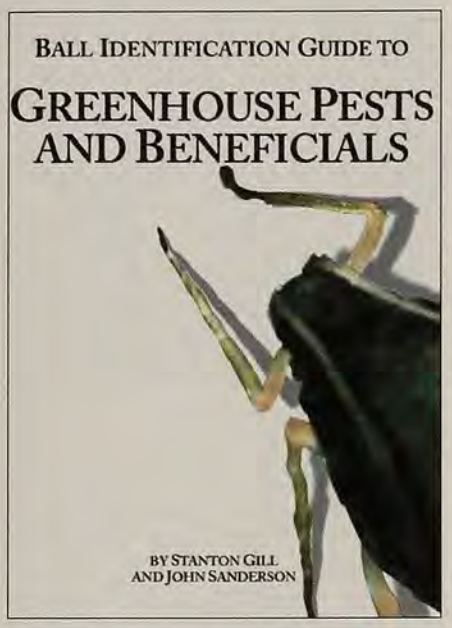
The revised edition of Whitney Cranshaw's *Pests of the West,* first published in 1992, addresses garden problems ranging from improving unhealthy soil to preventing and controlling weeds, insects, and a host of diseases.

Cranshaw starts by discussing biological control methods, using black-and-white photographs and descriptions of many predators, parasites, and pathogens of common garden pests. The author approaches this sometimes morbid topic with a sense of humor, describing one plant disease as making the "Black Death of the Middle Ages seem like a mild head cold."

A chapter on cultural and mechanical controls brings together many commonsense approaches to insect control, including site preparation, crop rotation, sanitation, solarization, and the time-honored method of spraying pests off

with a strong jet of water. Chemical controls are also explained in detail, but Cranshaw advises using pesticides only when all other methods have failed.

To help gardeners find solutions quickly, one chapter lists the insect and disease



problems associated with many garden vegetables, fruits, and some ornamental plants. After each disorder, there is a reference to the page on which each of the pests or disease-producing organisms—as well as ways to control them—are discussed in detail.

Useful appendices include sources for biological control organisms and other pest management products, characteristics of common garden pesticides, methods of attracting insectivorous birds to your yard, and a chart for approximating dilution ratios for pesticides. Scattered throughout the book are useful sidebars with in-depth information on such topics as ants and aphids, honeybee decline, insect pheromones, companion planting, and slime mold. In all, *Pests of the West* is an excellent book for the gardener or horticulturist who lives in the Intermountain and High Plains regions of the country.

The Ball Identification Guide to Greenhouse Pests and Beneficials moves us out of the gardens addressed in *Pests of the West* and into the greenhouse. This reference, put together by two entomologists who specialize in greenhouse insects, is more technical than Cranshaw's book.

The guide is divided into three sections: IPM (integrated pest management) in the Greenhouse, Identification of Major Pests, and Identification of Plant Damage of Specific Crops. The first section explains the essentials of establishing an IPM program in the greenhouse.

The largest and most informative section covers identification of major pests. The 10 chapters, each devoted to a different pest, feature descriptions and photographs of the insects and suggestions for biological controls. These chapters are very thorough; in one on aphids, 15 different species are described and five biological controls listed. Other chapters focus on caterpillars, fungus gnats and various flies, leafminers, mites, thrips, white flies, scale insects, mealybugs, and beetles and weevils. The final chapter addresses miscellaneous pests, including pillbugs, millipedes, mollusks, and earwigs.

The third section, diagnosing the cause of plant damage, offers good descriptions of symptoms produced by different insects, as well as numerous useful color photographs. There is some repetition of plant symptoms and insect descriptions, but the book contains so much information that the repetition is actually helpful.

Though written principally for professional growers, any home gardener who owns a greenhouse or who simply has an interest in insects and their lifecycles will find this book most useful.

—Robert D. Raabe

Robert D. Raabe is professor emeritus of plant pathology at the University of California, Berkeley.

PERENNIALS AND ANNUALS II.

Horticopia, Inc., 1997. Publisher's price: one CD, $120. AHS price: $108. **HOR 001**

TREES, SHRUBS AND GROUNDCOVERS II.

Horticopia, Inc., 1998. Publisher's price: two-CD set, $180. AHS price: $162. **HOR 002**

Publisher's price for both programs: $288. AHS price: $270.

Horticopia, Inc. has recently released updated versions of its CD-ROM reference works: *Perennials and Annuals* and *Trees, Shrubs and Groundcovers.* Perhaps to a greater degree than similar products on the market, these two programs—which complement each other but can be purchased separately—have something for everyone: Students, professors, landscape architects and designers, and serious gardeners will all find value in these programs.

Together, the two CD-ROMs contain more than 11,000 high-quality photographs of over 5,000 plants in close-up shots and landscape views. The plant list—displayed on the opening page, called the "workbench"—is user-friendly and can be customized. You can arrange the list alphabetically by botanical or common name or by plant family. You can also quickly and easily generate a list of plants having specific attributes or cultural requirements. Customized lists can be saved for later use or set to run in a slide show presentation.

Each plant is described and illustrated in an information sheet when you click on the plant's name in the workbench. The sheet contains thumbnail images of all the photographs of the plant—which can be enlarged by clicking on them—as well as cultural requirements and other data. A map of the United States shows where the plant will grow. You can also add your own notes to a plant's information sheet and hear the pronunciation of the plant's botanical name.

The printing options with these programs is almost endless and allows reproduction of any or all of the photographs and information sheets in almost any fashion.

Both programs are true Windows applications and anyone familiar with Windows should have little trouble with them. One drawback is that the voluminous amount of

data necessitates the use of two CDs. Horticopia provides a utility that allows the data to be copied to hard disk; this requires about 800 MB of memory but eliminates the need to constantly switch disks.

Overall, these two programs should appeal to all gardeners who are equipped with the proper computer hardware. Although they are not likely to ever replace a library of good reference books, they do provide an excellent complement.

The recommended system requirements for using the CD-ROMs are: Microsoft Windows 95, 98, or NT 4.0; Pentium processor with at least 16MB RAM; Windows compatible sound card; 256 colors; and 800 × 600 resolution. Quad speed or faster CD-ROM drive.

—William May

A Master Gardener, William May volunteers with AHS's Gardeners Information Service.

gardeners' books

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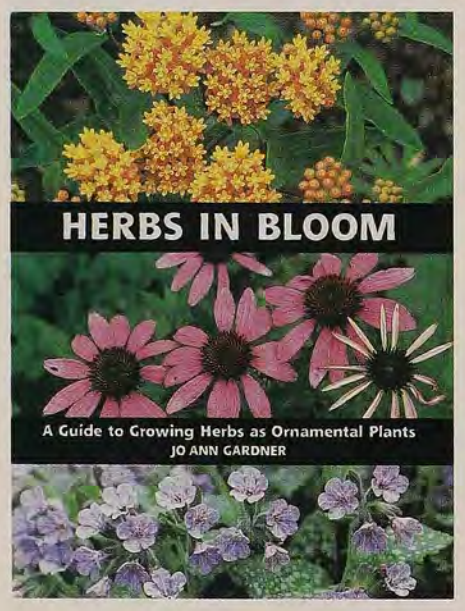
PLANTS

HERBS IN BLOOM: A GUIDE TO GROWING HERBS AS ORNAMENTAL PLANTS.

Jo Ann Gardner. Timber Press, Portland, Oregon, 1998. 394 pages. Publisher's price, hardcover: $34.95. AHS price: $24.50. **TIM 154**

By focusing on herbs as beautiful ornamentals that can be used anywhere in the landscape, Gardner aims to dispell the notion that "herbs are primarily foliage plants snipped for flavoring and grown in a formal arrangement of types called 'the herb garden'." Detailed information on 80 flowering herbs is provided, including propagation, transplanting, landscape uses, and the history and folklore associated with the plant. In addition to the herbs discussed at length, more than 600 other herbs get brief mention as related plants of interest. An appendix grouping herbs by bloom time will help the gardener ensure a full season of color. Contains 117 color photographs.



A CELEBRATION OF HEIRLOOM VEGETABLES: GROWING AND COOKING OLD-TIME VARIETIES.

Roger Yepsen. Artisan, New York, 1998. 192 pages. Publisher's price, hardcover: $35. AHS price: $24.50. **ART 002**

This large-format book describes the flavors, scents, and textures that distinguish heirloom vegetables from the store-bought varieties. The author details the history of plants from beans to turnips and provides information on growing, harvesting, and saving seeds. The book's recipes will allow you to taste these heirlooms at their best. Seed sources, a bibliography, and a list of heirloom plant conservation organizations are also included. Contains more than 50 watercolor illustrations by the author.

100 HEIRLOOM TOMATOES FOR THE AMERICAN GARDEN.

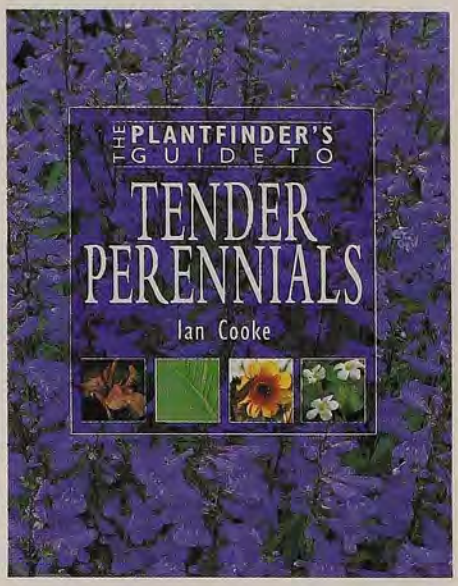
Carolyn J. Male. Workman Publishing, New York, 1999. 272 pages. Publisher's price, softcover: $17.95. AHS price: $14.50. **WOR 017**

A biologist and founder of an heirloom tomato newsletter, Male knows tomatoes as well as anyone in the U.S. In this book she introduces us to the many forms—from white to gold, sweet to smoky, and fluted to flattened—of our most popular heirloom plant. The book is designed as a manual for cultivation as well as a field guide. It begins by helping you choose the correct variety for your area and ends by teaching you to become your own seed saver.

THE PLANTFINDER'S GUIDE TO TENDER PERENNIALS.

Ian Cooke. Timber Press, Portland, Oregon, 1998. 192 pages. Publisher's price, hardcover: $34.95. AHS price: $25. **TIM 153**

This new resource on these marvelous, delicate plants is sure to become an invaluable gardening reference. The book contains an extensive encyclopedic section in which the habit, culture, and propagation of more than 250 different species is detailed. Separate chapters focus on displaying these tender plants in containers or conservatories and using them to create an "exotic look." Overwintering tender plants and controlling their pests are also covered. Includes more than 120 color photographs.

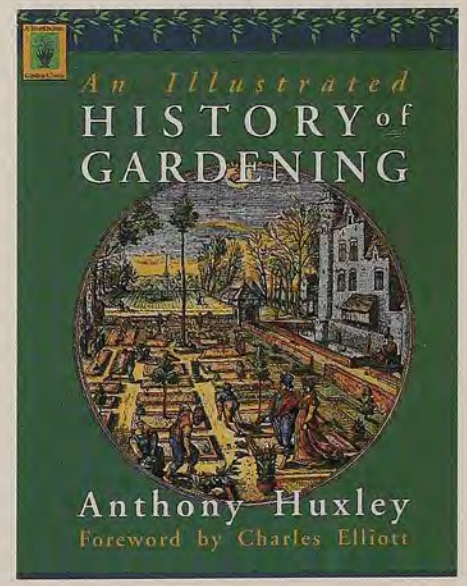


GARDEN HISTORY

AN ILLUSTRATED HISTORY OF GARDENING.

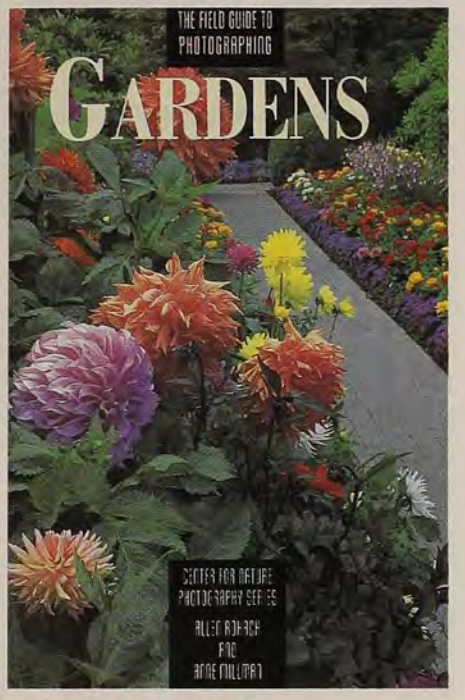
Anthony Huxley. Lyons Press, New York, 1998. 386 pages. Publisher's price, hardcover: $35. AHS price: $24.50. **LBP 013**

First published in 1978, this classic garden history book tracks the craft of gardening from ancient times to the present. Huxley



focuses on the gardener as artisan, discussing the history of tools, techniques, and procedures—from propagation and irrigation to composting and greenhouse culture—that make plants actually grow. Includes hundreds of historical prints, drawings, and black-and-white photographs.

PHOTOGRAPHY



THE FIELD GUIDE TO PHOTOGRAPHING GARDENS.
Allen Rokach and Anne Millman. Amphoto Books, New York, 1998. 128 pages. Publisher's price, softcover: $16.95. AHS price: $13.60. **AMP 001**

A guide in both the artistic and the technical senses, this book will assist anyone who has wanted to capture gardens or plants on film. It includes chapters on equipment, design, working with natural light, and seasonal changes. Illustrated with more than 130 color photographs.

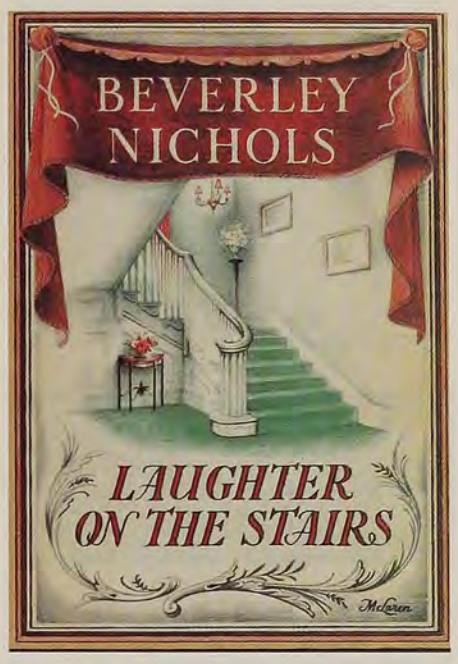
Also available from the same series:

BIRDS	**AMP 006**
FLOWERS	**AMP 002**
LANDSCAPES	**AMP 003**
THE SEASONS	**AMP 004**
TREES	**AMP 005**

WINTER READING

MY GARDEN IN AUTUMN AND WINTER.
E.A. Bowles. Timber Press, Portland, Oregon, 1998. 348 pages. Publisher's price, hardcover: $24.95. AHS price: $17.50. **TIM 155**

First published in 1915, the third and final volume in Bowles's classic garden chronicles provides an enchanting look at his Myddelton House garden during the time of year when most people put their gardens to bed. Faced with the decline of his treasured spring and summer plants, Bowles turns to a wide variety of other plants to keep his garden fresh and alive. Chapters on colchicums, autumn crocuses, ferns, evergreens, and berries—eloquently written in Bowles' passionate and witty style—offer the reader a multitude of plant choices for the winter garden. This reprint includes a map of the garden at Myddelton House and an appendix with updated plant nomenclature.



LAUGHTER ON THE STAIRS.
Beverley Nichols. Timber Press, Portland, Oregon, 1998. 260 pages. Publisher's price, hardcover: $24.95. AHS price: $17.50. **TIM 156**

The second book in Nichols's Merry Hall trilogy, this reissue of the 1953 classic continues the narrative—begun in *Merry Hall*—of the author's rescue of a derelict country estate. In this volume, the main plot shifts from the garden into the house, but Nichols can't resist straying outdoors. We learn the "four L's of gardening" and the reason why geraniums are a test of one's morality. The final two chapters, which involve the local flower show, are the highlight of this hilarious novel.

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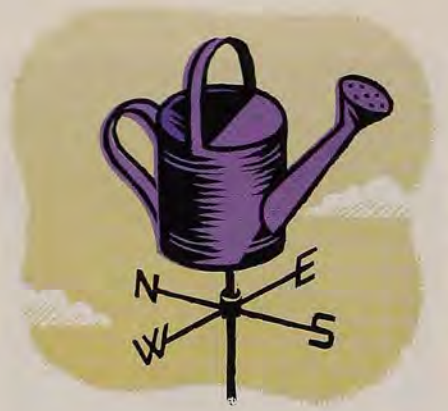

regional happenings

a look at what's happening around the nation

MID-ATLANTIC

JAN. 7–FEB. 25 ■ Gardening for the Home Landscape. Lecture series. Rutgers University, New Brunswick, New Jersey. (732) 932-9271.

JAN. 16–MAR. 14 ■ Romance of the Orchid. Exhibition. Brookside Gardens Conservatory, Wheaton, Maryland. (301) 949-8230.

JAN. 22–24 ■ Virginia Flower and Garden Show. Virginia Beach Pavilion, Virginia Beach, Virginia. (757) 853-0057.

JAN. 23–FEB. 28 ■ Women of Flowers: A Tribute to Victorian Women Illustrators. Exhibit. Longwood Gardens, Kennett Square, Pennsylvania. (800) 737-5500.

FEB. 1 ■ U.S. National Arboretum by Moonlight. Nighttime walking tour. U.S. National Arboretum, Washington, D.C. (202) 245-4521.

FEB. 5 ■ Today's Horticulture. Symposium and plant sale. Longwood Gardens, Kennett Square, Pennsylvania. (610) 688-2919.

FEB. 13 & 14 ■ Orchid Festival Weekend. Brookside Gardens Conservatory, Wheaton, Maryland. (301) 949-8230.

FEB. 18–21 ■ Maymont Flower and Garden Show. Richmond Centre, Richmond, Virginia. (804) 358-7166.

FEB. 20 ■ Paphiopedilum Orchid Forum. U.S. National Arboretum, Washington, D.C. (703) 360-6920.

FEB. 20 ■ Western Pennsylvania Gardening and Landscaping Symposium. Pittsburgh Civic Garden Center, Pittsburgh, Pennsylvania. (412) 441-4442.

FEB. 25–28 ■ New Jersey Flower and Patio Show. Garden State Exhibit Center, Somerset, New Jersey. (732) 785-9174.

MAR. 4–7 ■ Washington Flower and Garden Show. Washington Convention Center, Washington, D.C. (703) 823-7960.

NORTH CENTRAL

JAN. 30–FEB. 28 ■ Azalea and Camellia Flower Show. Chicago Park District. Lincoln Park and Garfield Park Conservatories, Chicago, Illinois. (312) 746-5100.

FEB. 6–14 ■ Bella Italia: National City Cleveland Home and Garden Show. I-X Center, Cleveland, Ohio. (800) 600-0307.

FEB. 10–14 ■ Festival of Flowers and Homes: Home and Garden Show. Rosemont Convention Center, Rosemont, Illinois. (847) 888-4585.

FEB. 24–28 ■ Fort Wayne Home and Garden Show. Memorial Coliseum, Fort Wayne, Indiana. (800) 678-6652.

FEB. 27–MAR. 7 ■ Cincinnati Home and Garden Show. Cincinnati Convention Center, Cincinnati, Ohio. (513) 281-0022.

NORTHEAST

JAN. 9 ■ Invasive Plant Species: Issues and Management. Lecture by Glenn Dreyer. The Rhode Island Wild Plant Society. Corless Auditorium,

The National Herb Garden Gets A Facelift

The National Herb Garden at the U.S. National Arboretum in Washington, D.C., is closed to the public this winter while modifications are underway to make the gardens more accessible to visitors. "The garden has seen quite a lot of heaving as a result of freezing and thawing, which has made access for handicapped patrons difficult," explains Jim Adams, the garden's curator. "Many new guidelines for handicapped visitors have evolved since the garden's opening, so we are bringing it up to code." The addition of flagstone paving, a new ramp, and root barriers to decrease trip hazards will smooth out the pathways for all visitors.

The herb garden at the U.S. National Arboretum.

Although improving handicap accessibility is the primary motivation for the project, many other improvements are being accomplished at the same time. These include refinements to irrigation and drainage systems, and the installation of new lighting fixtures to enhance safety for evening events and programs at the Arboretum.

Jointly developed by the Arboretum and the Herb Society of America (HSA) the herb garden opened on June 12, 1980, when it was dedicated as a gift to the American people from HSA. Several HSA members were among the volunteers who helped transplant more than 800 species and cultivars of herbs in the garden to safety in a temporary holding nursery before renovations began in November.

The herb garden will officially re-open in mid-March, although some modifications will continue through June. For more information about the herb garden, call the U.S. National Arboretum at (202) 245-2726, or visit its Web site at www.arsgrin.gov/ars/na/.

—Mark C. Mollan, Communications Assistant

COURTESY OF U.S. NATIONAL ARBORETUM

University of Rhode Island, Bay Campus, Kingston, Rhode Island. (401) 783-5895.

JAN. 27 ■ East Meets West. Lecture by Dan Hinkley and Darrel Probst. Arthur and Janet Ross Lecture Hall, New York Botanical Garden, Bronx, New York. (718) 817-8747.

FEB. 18–21 ■ A Garden To Celebrate: 18th Annual Connecticut Flower and Garden Show. Connecticut Expo Center, Hartford, Connecticut. (860) 529-2123.

FEB. 18–21 ■ Rhode Island Spring Flower and Garden Show. Rhode Island Convention Center, Providence, Rhode Island. (800) 766-1670.

FEB. 20 ■ Gardening With Wildflowers. Slide show by Doris Anthony. Peace Dale Library, Peace Dale, Rhode Island. (401) 783-5895.

MAR. 11–14 ■ Garden Classics. Capital District Garden and Flower Show. Hudson Valley Community College, Troy, New York. (518) 356-6410 ext. 418.

NORTHWEST

FEB. 3–7 ■ Tacoma Home and Garden Show. Tacoma Dome, Tacoma, Washington. (253) 756-2121.

FEB. 17–21 ■ Northwest Flower and Garden Show. Washington State Convention and Trade Center, Seattle, Washington. (800) 789-5333.

FEB. 24–28 ■ Portland Home and Garden Show. Portland Expo Center, Portland, Oregon. (800) 343-6973.

SOUTH CENTRAL

JAN. 1–MAY 31 ■ Bayou Bend Collection and Gardens Tour. The Museum of Fine Arts, Houston, Texas. (713) 639-7758.

JAN. 8–10 ■ St. Louis Flower Show. Junior League of St. Louis. America's Center, St. Louis, Missouri. (314) 569-3117 ext. 234.

JAN. 13–MAR. 5 ■ Lucia Boles Exhibition. Floral and garden landscape paintings. Monsanto Hall, Missouri Botanical Garden, St. Louis, Missouri. (800) 642-8842.

JAN. 30 ■ Wornall House Museum Annual Garden Seminar. Lecture by H. Marc Cathey. The John Wornall House Museum, Kansas City, Missouri. (816) 444-1858.

JAN. 30–MAR. 14 ■ Annual Orchid Show. Orthwein Floral Display Hall, Missouri Botanical Garden, St. Louis, Missouri. (800) 642-8842.

FEB. 13 ■ Herbal Beginnings in the Garden. Workshop. International Festival Institute. The McAshan Herb Gardens at Festival Hill, Round Top, Texas. (409) 249-5283.

FEB. 19–21 ■ Arkansas Flower and Garden Show. Statehouse Convention Center, Little Rock, Arkansas. (800) 459-7469.

MAR. 4–7 ■ Gateway to Spring: Wichita Lawn, Flower, and Garden Show. Century II Convention Center, Wichita, Kansas. (316) 721-8740.

SOUTHEAST

JAN. 9 ■ Camellia Show. Tampa Bay Area Camellia Society. Tampa Woman's Club Building, Tampa, Florida. (941) 688-0916.

JAN. 16 & FEB. 7 ■ Marie Selby Gardens: Behind the Scenes Tours. Marie Selby Botanical Gardens, Sarasota, Florida. (941) 366-5731.

JAN. 20–23 ■ Interior Landscape Con-

Bringing Life to the Landscape at Davidson

The theme of the 15th Annual Davidson Horticultural Symposium, "Personal Edens: Creating Unique Spaces in Southern Gardens," was inspired by Julie Moir Messervy's book *The Inward Garden*. The symposium, sponsored by the Davidson Garden Club, will be held Tuesday and Wednesday, March 2 and 3, at Davidson College in Davidson, North Carolina.

Messervy—who will speak Wednesday morning—and several other well-known gardening experts will offer insights into creating a garden charged with memories and meaning. "The symposium is aimed at helping gardeners identify meaningful associations—either personal or even historical—from the past and bring them to life in their gardens," explains Polly Brockway, spokesperson for the event.

The first day of the symposium will include a tour of the Davidson College Arboretum, a book-signing session by the symposium's speakers, and a tour of the Allison Woods Demonstration Garden. Following a wine reception and dinner, Peggy Cornett, director of the Thomas Jefferson Center for Historic Plants at Monticello, will offer an historical perspective on garden design in her keynote address, "The Evolution of the Home Landscape."

After Messervy's Wednesday morning lecture, Kurt Bluemel, nursery owner and ornamental grass expert, will lecture on "Alternative Plants for Conventional Uses." Other experts offering simultaneous afternoon workshops include Renee Shepherd, proprietor of Renee's Garden Seed Company, who will enlighten participants on the age-old practice of creating gardens for the kitchen, as well as more contemporary gardens for romance; Kim Tripp, director of the Botanic Garden of Smith College, will speak on the merits of using woody plants in the garden; and Craig Tufts of the National Wildlife Federation will lend his expertise in creating natural habitats in the garden.

Spring comes to the Davidson College campus.

All indoor events will be held in the Chambers Building on the Davidson College campus. Registration, due by February 20, is $83. Single-day registrations are also available. For more information, write to: Davidson Horticultural Symposium, P.O. Box 1145, Davidson, NC 28036, or call (704) 892-8285.

—*M.C.M.*

Statement of Ownership, Management, and Circulation
(Required by 39 U.S.C. 3685)
1. Publication Title: *The American Gardener*. 2. Publication No.: 1087-9978. 3. Filing Date: September 23, 1998. 4. Issue Frequency: Bimonthly. 5. No. of Issues Published Annually: 6. 6. Annual Subscription Price: $45. 7. Complete Mailing Address of Known Office of Publication: *The American Gardener*, American Horticultural Society, 7931 East Boulevard Drive, Alexandria, VA 22308-1300. 8. Complete Mailing Address of Headquarters or General Business Office of Publisher: Same as above. 9. Full Names and Corporate Mailing Addresses of Publisher, Editor, and Managing Editor: Publisher—American Horticultural Society, same address as above; Editor—David J. Ellis, same address as above; Managing Editor—Mary Yee, same address as above. 10. Owner: American Horticultural Society, same address as above. 11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities: None. 12. The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes have not changed during the preceding 12 months. 13. Publication Name: *The American Gardener*. 14. Issue Date for Circulation Data Below: Nov./Dec. 1997–Sept./Oct. 1998. 15. Extent and Nature of Circulation:

	Average No. Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Issue Published Nearest to Filing Date
a. Total No. Copies (Net Press Run)	28,801	29,818
b. Paid and/or Requested Circulation		
(1) Sales Through Dealers and Carriers, Street Vendors, and Counter Sales (Not Mailed)	6,500	6,500
(2) Paid or Requested Mail Subscriptions	21,392	22,002
c. Total Paid and/or Requested Circulation (Sum of 15b(1) and 15b(2))	27,892	28,502
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e. Free Distribution Outside the Mail (Carriers or Other Means)	0	0
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h. Copies Not Distributed		
(1) Office Use, Leftovers, Spoiled	433	400
(2) Return from News Agents	3,030	633
i. Total (Sum of 15g, 15h(1), and 15h(2))	31,505	29,685
Percent Paid and/or Requested Circulation (15c/15g x 100)	99%	99%

I certify that all information furnished above is true and complete.
—David J. Ellis, Editor

ference and Tropical Plant Industry Exhibition. Associated Landscape Contractors of America. Embassy Suites Hotel and Broward County Convention Center, Fort Lauderdale, Florida. (800) 395-2522.

JAN. 22–24 ■ Southern Gardening Symposium. Callaway Gardens, Pine Mountain, Georgia. (800) 225-5292.

JAN. 23 & 24 ■ Camellia Promenade. Flower Show. Camellia Garden Club, Lakeland, Florida. (942) 688-0916.

JAN. 28–31 ■ Atlanta Garden and Patio Show. Cobb Galleria Center, Atlanta, Georgia. (770) 998-9800.

FEB. 17–21 ■ Southeastern Flower Show. City Hall East Exhibition Center, Atlanta, Georgia. (404) 888-5638.

FEB. 19–21 ■ Palm Beach Tropical Flower and Garden Show. Horticultural Society of South Florida. Intercoastal Waterway, West Palm Beach, Florida. (561) 655-5522.

FEB. 25–28 ■ Ikebana Society and Sumi-e Society Flower and Art Show. Marie Selby Botanical Gardens, Sarasota, Florida. (941) 366-5731.

FEB. 26–28 ■ African Violet Society of America Show and Sale. Tampa African Violet Society. Westshore Plaza, Tampa, Florida. (813) 681-1910.

FEB. 27–MAR. 7 ■ Southern Spring Show. Charlotte Merchandise Mart, Charlotte, North Carolina. (704) 376-6594.

MAR. 4–7 ■ Nashville Lawn and Garden Show. Tennessee State Fairgrounds, Nashville, Tennessee. (615) 352-3863.

MAR. 5 & 6 ■ Tampa Spring Expo. Florida State Fairgrounds, Tampa, Florida. (813) 655-1914.

MAR. 6 ■ Hellebore Day. Picadilly Farm, Bishop, Georgia. (706) 769-6516.

SOUTHWEST

JAN. 30 & 31 ■ Incredible Edibles: Tropical Harvest. Denver Botanical Garden, Denver, Colorado. (303) 370-8187.

FEB. 1 & 2 ■ *Horticulture* Magazine Symposium: Landscape Design. Denver Botanical Garden, Denver, Colorado. (303) 370-8019.

FEB. 17–APR. 17 ■ Wildflower Tour. Tohono Chul Park, Tucson, Arizona. (520) 742-6455.

WEST COAST

JAN. 20–23 ■ Ecological Farming Conference: Tending Our Grassroots Farming Community. Committee For Sustainable Agriculture. Asilomar Conference Center, Pacific Grove, California. (408) 763-2111.

JAN. 24 ■ Camellias Class. California Arboretum Foundation. The Arboretum of Los Angeles County, Arcadia, California. (626) 447-8207.

FEB. 6 ■ Feng Shui in Exterior Design. Class. California Arboretum Foundation. The Arboretum of Los Angeles County, Arcadia, California. (626) 447-8207.

FEB. 13 ■ Camellia Show. Huntington Botanical Gardens, San Marino, California. (626) 405-2141.

FEB. 20–24 ■ Landscape Contractors Executive Forum. Interactive Forum. Associated Landscape Contractors of America. Westin Mission Hills Resort, Rancho Mirage, California. (800) 395-2522.

FEB. 26–28 ■ San Francisco Orchid Society's Pacific Orchid Exposition. Festival Pavilion, Fort Mason Center, San Francisco, California. (415) 546-9608.

FEB. 27 ■ Lyon Arboretum's Spring Plant Sale. Blaisdell Exhibition Hall, Honolulu, Hawaii. (808) 988-7378.

FEB. 27 ■ Musical Instruments From the Garden. Youth workshop. Huntington Botanical Gardens, San Marino, California. (626) 405-2272.

MAR. 12–14 ■ The Romance of Orchids: 54th Annual Santa Barbara International Orchid Show. Earl Warren Showgrounds, Santa Barbara, California. (805) 967-6331.

CANADA

FEB. 21 ■ Mediterranean Food and Wine Festival. Mediterranean Greenhouse, Royal Botanical Gardens, Hamilton, Ontario. (905) 527-1158.

MAR. 10–14 ■ Toronto Flower and Garden Show. Metro Toronto Convention Centre, Toronto, Ontario. (800) 730-1020.

classifieds

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hardiness and heat zones

For your convenience, most of the cultivated plants featured in this edition of the magazine are listed here with their USDA Plant Hardiness Zones and AHS Heat Zones. If 0 is listed in place of USDA hardiness zones, it means that plant is a true annual—it completes its life cycle and dies in a year or less. Tropical plants that require minimum temperatures warmer than 40 degrees Fahrenheit—the minimum average temperature in USDA Zone 11—will be listed by minimum average temperature rather than by zone numbers.

A–C

Abelia ×grandiflora 'Sunrise' USDA 6–10, AHS 12–6
Acanthus mollis 7–11, 12–4
A. spinosus 6–9, 9–5
Acorus gramineus 'Ogon' 3–11, 12–2
Actaea pachypoda 4–9, 9–3
Adiantum capillus-veneris 7–11, 9–3
Anemone nemorosa 4–8, 8–1
Angelica gigas *4–9, 8–2*
Aquilegia chrysantha var. *hinckleyana* 3–8, 8–1
Arbutus menziesii 7–9, 9–7
Arctostaphylos pungens 7–9, 9–7
Argyrocytisus battandieri 7–9, 9–7
Aspidistra elatior 7–11, 12–4
Begonia 'Dragon Wing' 11, 12–1
Begonia 'Pin-Up Flame' 0, 6–1
Berberis aquifolium 6–9, 9–6
Callicarpa americana 5–10, 12–3
C. dichotoma 'Albifructus' 5–8, 8–7
Canna 'Bengal Tiger' 8–11, 12–1
C. glauca 'Panache' 8–11, 12–1
C. indica 7–11, 12–1
C. 'Phaison' 7–11, 12–1
C. 'Stuttgart' 8–11, 12–1
C. 'Wyoming' 8–11, 12–1
Carex dolichostachya 'Kaga Nishiki' 6–9, 9–6
C. morrowii 'Ice Dance' 5–9, 9–5
C. phyllocephala 'Sparkler' 5–9, 9–5
Clarkia pulchella 0, 9–1
Colocasia esculenta 'Illustris' 9–11, 12–1
Cornus drummondii 3–8, 8–1
Cynara cardunculus 7–9, 9–7

D–G

Douglasia nivalis 8–9, 9–8
Echinacea pallida 4–8, 8–3
Ensete ventricosum 9–11, 12–9
Epimedium chloandrum 5–9, 9–4
Equisetum scirpoides 3–10, 12–4
Eschscholzia californica 8–10, 9–2
Eucomis comosa 8–11, 12–8
Eupatorium fistulosum 4–8, 8–3
E. purpureum 5–11, 9–1
Fragaria vesca subsp. *californica* 5–9, 9–5
Glaucidium palmatum 6–9, 9–6

H–K

Hedychium coccineum 8–11, 12–8
H. coronarium 8–10, 10–8
Helleborus argutifolius 5–9, 9–6
H. atrorubens 5–8, 9–5
H. cyclophyllus 6–8, 9–6
H. dumetorum 6–8, 9–6
H. foetidus 6–9, 9–6
H. lividus 7–9, 9–8
H. multifidus 7–9, 9–7
H. niger 4–8, 8–1
H. odorus 6–8, 9–6
H. orientalis 4–9, 9–1
H. purpurascens 5–8, 8–1
H. thibetanus 5–8, 8–1
H. torquatus 6–8, 9–1
H. vesicarius 6–8, 9–1
H. viridis 6–8, 8–1
H. ×hybridus 6–9, 9–1
Heuchera americana 'Garnet' 3–8, 8–2
Hosta yingeri 3–9, 9–2
Hydrangea sikkokiana 8–10, 12–8
Jacquinia keyensis 10–11, 12–9
Kniphofia uvaria 'Flamenco' 5–9, 9–1
Koelreuteria bipinnata 7–9, 9–7

L–R

Laburnum anagyroides 6–8, 8–5
Lespedeza bicolor 'Avalanche' 5–8, 8–5
L. thunbergii 'Edo Shibori' 6–8, 8–6
Lygodium japonicum 10–11, 12–9
Miscanthus sinensis 'Gracillimus' 4–9, 9–1
Musa species and cultivars 10–11, 12–7*
Myrica californica 2–9, 8–1
Onopordum acanthium 6–8, 12–7
Panicum virgatum 'Rotstrahlbusch' 5–9, 9–5
Pennisetum 'Burgundy Giant' 9–10, 6–1
P. setaceum 'Rubrum' 9–10, 10–1
Petunia 'Wave' 9–11, 12–1
Physocarpus opulifolius 'Monlo' 3–7, 7–1
Physostegia virginiana 'Variegata' 4–8, 8–1
Phytolacca americana 5–9, 9–5
Pinus lambertiana 6–8, 8–6
P. ponderosa 5–8, 8–3
P. thunbergiana 5–8, 8–5
Platycerium willinckii 'Lemoinei' 9–11, 12–9
Pseudotsuga menziesii 4–7, 7–1
Ratabida pinnata 3–9, 9–1

S–Z

Salix chaenomeloides 7–9, 9–2
S. purpurea 'Pendula' 3–7, 7–1
Salvia involucrata 'Bethellii' 9–11, 12–2
S. vanhouttii 9–11, 12–1
Sambucus canadensis 4–9, 9–1
Schizophragma hydrangeoides 'Moonlight' 6–9, 9–6
Silphium perfoliatum 6–9, 9–6
Vitex negundo 'Heterophylla' 6–9, 9–5

*A few bananas, such as *Musa basjoo* and several cultivars named in the article, are cold hardy to USDA Zone 8 or 9.

The codes above are based on a number of commonly available references and are likely to be conservative. Factors such as microclimates, plant provenance, and use of mulch may affect individual gardeners' experiences. To purchase a durable two-by-three-foot poster of the AHS Heat-Zone Map, call (800) 777-7931 ext. 45.

pronunciations

a simple speaking guide to plants found in this issue

Abies amabilis
AY-beez uh-MAB-uh-liss
Acorus gramineus
AK-or-us gruh-MIN-ee-us
Adiantum capillus-veneris
ad-ee-AN-tum KAP-ih-lus-ven-AIR-iss
Amelanchier canadensis
am-eh-LANG-kyer kan-uh-DEN-siss
Aquilegia chrysantha **var.** *hinckleyana*
ah-kwi-LEE-juh kris-AN-thuh var. hink-lee-AN-uh
Arbutus menziesii
AR-byew-tus men-ZEES-ee-eye
Arctostaphylos pungens
ark-toh-STAFF-ih-loss PUN-jenz
Argyranthemum frutescens
ar-jih-RAN-thuh-mum froo-TESS-enz
Argyrocytisus battandieri
ahr-jih-ro-SY-tih-suss bat-ton-DEER-eye
Aspidistra elatior
as-pih-DIS-truh ee-LAY-tee-or
Aster novae-angliae
ASS-ter NO-vee-ANG-lee-ee
Carex dolichostachya
KAIR-eks dol-ih-ko-STAKE-ee-uh
Cicuta douglasii
sik-YEW-tuh dug-LASS-ee-eye
Cleistes divaricata
KLEE-iss-teez dih-vair-ih-KAY-tuh
Colocasia esculenta
kol-o-KAY-see-uh es-kyew-LEN-tuh
Cynara cardunculus
SIN-uh-ruh kar-DUN-kyew-lus
C. scolymus
C. SKO-lih-mus
Cypripedium acaule
sip-rih-PEE-dee-um uh-KAWL-ee
Epimedium chloandrum
ep-ih-MEE-dee-um klo-AN-drum
Equisetum scirpoides
eh-kwi-SEE-tum skeer-POY-deez
Eschscholzia californica
es-SHOLTZ-zee-uh kal-ih-FORN-ih-kuh
Fragaria vesca **subsp.** *californica*
frah-GAY-ree-uh VES-kuh subsp. kal-ih-FORN-ih-kuh
Glaucidium palmatum
glaw-SID-ee-um pal-MAY-tum
Hedychium coccineum
heh-DEE-kee-um kok-SIN-ee-um
Helleborus argutifolius
hel-eh-BOR-us ar-GEW-tih-FO-lee-us
H. atrorubens
H. at-ro-ROO-benz
H. cyclophyllus
H. sigh-klo-FIL-lus
H. dumetorum
H. doom-eh-TOR-um
H. foetidus
H. FEE-tih-dus
H. orientalis **subsp.** *abchasicus*
H. aw-ree-en-TAL-iss subsp. ab-KAS-ih-kus
H. thibetanus
H. tih-BET-an-us
H. torquatus
H. tor-KWAY-tus
H. vesicarius
H. ves-ih-KAIR-ee-us
Hydrangea sikkokiana
high-DRAN-juh sih-ko-kee-AN-nuh
Jacquinia keyensis
juh-KWIN-ee-uh kay-EN-sis
Kniphofia uvaria
nih-FO-fee-uh yew-VAIR-ee-uh
Laburnum anagyroides
lah-BUR-num uh-nah-jih-ROY-deez
Lygodium japonicum
lie-GO-dee-um jah-PON-ih-kum
Musa basjoo
MEW-suh BAS-joo
M. beccari
M. beh-KAR-eye
M. ×paradisiaca
M. par-uh-dih-SEE-ak-uh
Nemesia caerulea
neh-mee-see-uh see-ROO-lee-uh
Panicum virgatum
PAN-ih-kum vur-GAY-tum
Phytolacca americana
fie-toh-LAK-uh uh-mair-ih-KAN-uh
Picea sitchensis
PIE-see-uh sit-KEN-sis
Platycerium willinckii
plah-tih-SEE-ree-um wih-LINK-ee-eye
Prosopis velutina
pro-SO-piss vel-oo-TEEN-uh
Pseudotsuga menziesii
soo-doh-SOO-guh men-ZEES-ee-eye
Ratabida pinnata
ruh-TIB-ih-duh pin-NAY-tuh
Salix chaenomeloides
SAY-liks kee-nom-uh-LOY-deez
S. vanhouttii
S. van-HOO-tee-eye
Sambucus canadensis
sam-BOO-kus kan-uh-DEN-siss
Scaevola aemula
skee-VO-luh EE-mew-luh
Schizophragma hydrangeoides
skiz-o-FRAG-muh high-DRAN-jee-OY-deez
Silphium perfoliatum
SIL-fee-um per-fo-lee-AY-tum
Spiraea thunbergii
spy-REE-uh thun-BER-jee-eye
Uniola paniculata
yew-NEE-o-luh pan-ik-yew-LAY-tuh

What's in a Name: *Equisetum scirpoides*

Widely distributed in northern temperate regions of the world, members of the horsetail family (Equisetaceae) are among the oldest plants identified from the fossil record, evolving some 300 million years ago. The family is now represented by just one genus, which includes about 25 species. Closely allied to ferns, these primitive wetlands plants reproduce by spores that form in conelike structures called strobili at the top of virtually leafless stems. They also spread—some species quite aggressively—by creeping rhizomes.

The genus name—derived from the Latin *equus,* or "horse," and *saeta,* which means "bristle"— refers to the plant's resemblance to a horse's tail. The specific epithet acknowledges the plant's resemblance to *Scirpus,* a genus of sedges.

The hollow, jointed evergreen stems of horsetails contain the abrasive mineral silica. Native Americans used the dried stems to clean cooking bowls and sharpen arrows and early American settlers used them to smooth and polish woods, ivory, and metals, hence the derivation of another common name, scouring rush. *E. scirpoides* is a dwarf species of scouring rush, growing a mere four to eight inches tall on sprawling, wiry stems.

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These hour-long shows will offer advice from *Southern Living* experts on such topics as landscape design and use of color in your garden.

1999 Gardening School Schedule

Disney Institute	February 27
Atlanta Botanical Garden	March 2
Memphis Botanic Garden	March 9
Riverbanks Zoo & Botanical Garden (Columbia, SC)	March 16
New Orleans Botanical Garden	March 18
Callaway Gardens	March 19
Ribbonwalk, Charlotte's Botanical Forest	March 23
San Antonio Botanical Garden	March 24
Dallas Arboretum and Botanical Garden	April 7
Bellingrath Gardens & Home	April 17
Missouri Botanical Garden	April 24
Biltmore Estate	May 22