# American Horticulturist

A Publication of the American Horticultural Society

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February 1990

Berkeley's Refuge for Rare Plants
The Best Water Lilies, Camellias, Hostas, and Dahlias
The Dwarf Conifers of Watnong Terrace



Adventure and rugged beauty await those exploring the natural gardens of Alaska this June.

# AHS STUDY TOURS A wonderful way to go!

#### March 28-April 8, 1990 Botanical Paradise of Costa Rica

Costa Rica is known for its beautiful tropical gardens, spectacular wildlife, and fascinating culture. Stops on this tour include CATIE, the largest tropical research center in Latin America; Monteverde Cloud Forest Reserve; Marenco Biological Station near Corcovado National Park; and a visit to Linda Vista, Claude Hope's 200-acre flower seed farm. Atlanta Botanical Garden's Ann L. Crammond, also an AHS board member, is tour leader for this adventure.

#### April 21-May 6, 1990 Belgium and Holland

Begin in Brussels by visiting its botanical garden, arboretum, and the University Herb Garden. Other stops in Belgium include the Floralies of Ghent, a flower festival that occurs every five years, and the Royal Botanical Garden in Bruges. In Holland, spend seven days cruising its canals with stops at Boskoop, the largest nursery in the Netherlands; the world's largest flower auction at Aalsmeer; and the magnificent Keukenhof Gardens. The tour will be led by Richard Hutton of Conard-Pyle/Star Roses.

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#### June 23-July 3, 1990 Natural Gardens of Alaska

Join the adventure aboard the 138-passenger Yorktown Clipper as she sails between Juneau and Ketchikan in search of natural wonders including wildlife as well as spruce forests, fields of lupines, and giant ferns. See, up close, Tracy Arm, Glacier Bay, and Le Conte Bay as you cruise along the sheltered inside passage of Alaska. Then enjoy a post-cruise stay in Vancouver to enjoy Nitobe Japanese Gardens and VanDusen Botanical Gardens as well as the famed Butchart Gardens on Vancouver Island. Join AHS President Carolyn Marsh Lindsay and Bob Lindsay on board this luxury yacht cruise.

#### Leonard Haertter Travel Company

#### September 20-October 5, 1990 Castles and Gardens of Scotland

In the Western Highlands of Argyll, see Culzen Park Castle and Crarae Woodland Gardens. Spend two days at the Isle of Skye's Clan Donald Center, forty acres of woodland gardens and nature trails on the grounds of Armadale Castle. Visit the highland gardens at Inverewe before traveling on to Inverness and Edinburgh. You'll be welcomed by the castles' owners and guided by Everitt Miller, former director of Longwood Gardens and past AHS president.

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Board the Nantucket Clipper in Florida and travel north to old Southern gardens on Sea Island; private gardens in Savannah and on Hilton Head; the beautiful Brays Island Plantation; the significant gardens of Charleston; Drayton Hall, a 1738 plantation; and Middleton Place, site of the oldest landscaped gardens in America, dating back to 1741. Join Carolyn and Bob Lindsay on board this luxury yacht cruise. Mrs. Lindsay is the current AHS president.

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#### FEBRUARY'S COVER

Photographed by Bill Heritage

Lovers of blue flowers will find many beauties among tropical water lilies, such as 'Daubeniana'. This cultivar, named one of the best dayblooming tropicals by members of the International Water Lily Society, is also very fragrant, and because it needs less sun than most tropical water lilies, is ideal for partially shaded pools and tubs. Tropical water lilies are often grown as annuals where climates are too harsh to keep them outdoors year-round.

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# Commentary

arden symposia are becoming more numerous all across our country. But forty years ago, the Colonial Williamsburg Garden Symposium was the premier gardening symposium in our country, and it remains so today. Your American Horticultural Society is proud to share in the sponsorship of this great tradition.

As we were planning this year's program, I was fascinated to review the past and see the world-class horticulturists who have been brought together here each year. In 1953, both Fletcher Steele and Lanning



Roper spoke about landscape design. Donald Wyman was featured five times from 1950 to 1965. John Wister, Cynthia Wescott, Henry Skinner, the Rockwells, John Grulleman, T. H. Everett, Jan De Graff, George Avery, and Ruth Stout are only part of a star-studded cast who offered solutions to pressing problems and expanded current knowledge.

The 1990 program is the best ever. Urban beauty is high on many agendas these days. Each year the program focuses on the horticultural accomplishments of one American city. This year's featured city will be Birmingham, Alabama—site of the AHS Annual Meeting in 1991—and John Alex Floyd Jr. of *Southern Living* magazine, who won the AHS Horticultural Communication Award for 1988, will share some of Birmingham's gardening secrets.

We also decided that if hundreds of thousands of trees are going to be planted across our country this year as a way to help reduce the greenhouse effect, William Flemer III of the Princeton (New Jersey) Nurseries should tell us the very best trees to plant. Bill represents the fifth generation of his family in this great nursery.

Other past AHS award winners that will be featured include Rachel Snyder, founder and editor emeritus of *Flower and Garden* magazine; perennial expert and author Fred McGourty; Marc Cathey, director of the U.S. National Arboretum; and former Toro Company executive David Lilly.

Three Birmingham flower arrangers — Virginia Bissell, Lula Rose Blackwell, and Beverley White Dunn, who is an AHS Board member — will demonstrate the "Elegance in Flowers" for which they and their city are famous. Designers Elsa Bakalar and Rosalind Creasy will enrich the program with their great knowledge and enchanting humor. Colonial Williamsburg's own John Austin will share his expertise on flower containers, and Virginia horticulturist and researcher Bonnie Lee Appleton will explain the process of "Making Old Gardens New."

Your entire Board of Directors joins me in extending a special invitation to all our members and friends to join us at this great tradition in garden symposia, an association your AHS and Colonial Williamsburg have shared for many years. AHS Executive Director Frank Robinson and I will be there to welcome new friends and renew treasured acquaintances.

See you there April 1. Please note the program change from previous years; come early so you won't miss Rachel Snyder at 5:30 p.m. before the reception!

Carolyn Marsh Lindsay AHS President

## 44th Williamsburg GARDEN SYMPOSIUM

#### April 1-4, 1990

The American Horticultural Society and the Colonial Williamsburg Foundation invite you to come to Williamsburg for the annual Garden Symposium, America's oldest and most prestigious gathering of garden enthusiasts.

This will be a fabulous opportunity to explore what's old and what's new in America's gardens. An array of renowned speakers will discuss the theme, "Vintage Plants and Contem-porary Gardens." The Garden Symposium will entertain some of the newest ideas in American gardening, including the increasingly popular practice of using "old-fashioned" or "heritage" plants in today's gardens. Surprisingly, these antique flower and vegetable cultivars are found in gardens everywhere.

Through slide lectures, presentations, tours, exhibits, and clinics, practical ideas about updating gardens as well as innovative garden designs will be offered. In addition to the extensive group of speakers, there will be gardeners' clinics, special presentations, and an assortment of exhibitions and activities. "Garden Magic in the Magic City" is the theme for this year's featured city, Birmingham, Alabama.

Speakers in order of appearance are: Rachel Snyder, garden writer and editor emeritus, Flower and Garden magazine: "Long Vistas from the Garden Path"

Elsa Bakalar, lecturer and garden designer: "Old Fashioned Flowers for Modern Gardens"

Frederick McGourty, author, nurseryman, and garden designer: "A Modern Old-Fashioned Garden"

John Alex Floyd Jr., Southern Living magazine: "Garden Magic in the Magic City—Birmingham"

Rosalind Creasy, author, lecturer, and designer of culinary gardens: "Heritage Vegetables and New American Cuisine"

William T. Flemer III, author, nurseryman, and horticulturist: "A New Look at Old and New Trees"



Virginia Bissell, Lula Rose Blackwell, Beverley White Dunn: "Elegance in Flowers: Flower Arranging Birmingham Style"

Henry Marc Cathey, director, U.S. National Arboretum: "The New USDA Plant Hardiness Map of North America"

John C. Austin, senior curator and curator of ceramics and glass, Colonial Williamsburg: "Did They Really Use These as Flowerpots? Eighteenth-Century Flower Containers"

Bonnie Lee Appleton, horticulturist, Cooperative Extension Service: "Making Old Gardens New"

David M. Lilly, retired chairman of the board, the Toro Company: "Welcome Spaces: User Friendly Gardens for Public Spaces"

Come to Williamsburg this spring for a new look at America's rich garden heritage and an opportunity for insightful discussions with America's leading garden authorities.

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## Letters

#### **Applause for Viburnums**

American Horticulturist has been favorite reading for me for the past few years, and October's issue was more than a surprise with Kathleen Fisher's article on "Donald Egolf's Viburnums."

I am a rhodoholic by nature, but I have a few viburnums mixed in with my rhododendrons, and the article has gotten my gardening research imagination flowing. Somehow I have a terrible viburnum itch at present. Is it possible to get a listing of sources for the newer selections mentioned: 'Erie', 'Conoy', 'Shoshoni', 'Chippewa', and 'Huron'? Is there a "Viburnum Society"? A book with an emphasis on viburnums?

Boris F. Bauer Easley, South Carolina

We were unable to locate retail, mailorder sources for 'Conoy' or 'Chippewa'. For some of the others you mention, try two of the sources we mentioned in our October Sources column—Appalachian Gardens and Wayside Gardens—or Roslyn Nurseries, 211 Burrs Lane, Dix Hills, NY 11746; and Weston Nursery, Inc., P.O. Box 186, Hopkinton, MA 01748. We know of no Viburnum Society, nor any books for laymen solely about the subject. Don Egolf says that books about woody plants written by Michael Dirr, Harrison Flint, and Donald Wyman all have sections on viburnums.

#### Hisses for "Klem-ATE-us"

Now you've gone and done it! I have always accepted your "Pronunciations" as the ultimate, but now I don't know: the October issue shows anemone as a-NEEMonee and clematis as klem-ATE-us.

The Timber Press Dictionary of Plant Names and The Random House Dictionary of the English Language both show a-NEM-o-nee and KLEM-ă-tis.

I once had a neighbor who corrected my pronunciation, saying klem-ATE-us, but I thought she was rather affected. She did not say a-NEEM-o-nee, but those are hidden away in my garden.

I can always call the anemone a pasque flower, but when it comes to clematis I'm

stuck. Help! Are you going to stick to your guns or could you possibly be wrong?

Charles B. Gardiner Shaker Heights, Ohio

How did you derive "klem-ATE-us"? Most lay people—at least the ones I know—call it klim-AT-us. The correct horticultural pronunciation, as I learned, is KLEM-uhtis. Etymologically, it probably should be KLEE-muh-tis—but klem-ATE-us?!

Then again, pronunciations have a way of changing—sometimes on the whim of a current lexicographer. (Enjoyed the articles on viburnums—one of our favorite plant groups. I always enjoy articles about dedicated individuals—more so than those about country estates.)

Alex Henderson Jr. Lancaster, Pennsylvania

Our source for the pronunciation of anemone, as for horticultural nomenclature in general, is Hortus III.

For the last word on the word clematis, we have now turned to British garden writer Christopher Lloyd's book on the topic. In his pronunciation guide he opines: "The correct pronunciation is, unequivocally clematis, with a short e and the accent on the first syllable. All the dictionaries are agreed on this, and even Fowler's Modern English Usage, in a (to me) impenetrable article on False Quantity, comes down in favour.

But 'This climber's common fate is

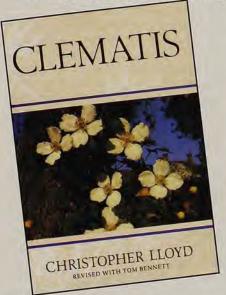
To be pronounced clema'tis with the accent on the second syllable and a long ā. In America clema'ttis is a common, rhyming with lattice.

"The Continentals have a hard time of it. Magnus Johnson (a Swede) confided . . . that he had to be very careful while in the U.K., lest he commit the heresy of saying 'clemartis' (the long a is the norm over there). What an intolerant lot we are—the poor man sounded quite intimidated.

"Most nurserymen in this country use clem'atis correctly: Pennell, Fisk, Picton, Treasure, Jackman, to wit, though the Saunders family of Knight's Nurseries prefer clema'tis. So did Margery Fish, while

Percy Thrower, as another sinner, must have had a considerable influence on box viewers. When he brought his programme to my garden he kindly tied in with my pronunciation. In return, I referred with him to the grey foliage plant as Cineraria maritima instead of Sinecio cineraria as I normally should have. What's known as being flexible.

"For the plural of clematis I (and many



others) use the same word. I cannot say this is correct, but if enough of us go on doing so for long enough it will become correct. The English language is overburdened with sibilants, especially in the final syllable or syllables. Crocuses and irises are tolerable, but clematises leaves the tongue congealed and torpid. Imagine 'she possesses 66 clematises.' Most unpleasant."

It's hard to argue with the dictionary and Christopher Lloyd. This delightful and open-minded explanation has persuaded us both to adopt his pronunciation, and to add the revised edition of his book to our Book Program. We'll offer the \$32.50 hardbound volume of 216 pages for \$26.95 plus postage. See page 9 for ordering information.

#### Clearing Up Jensen

It was heartening to open the October American Horticulturist and find Peter Loewer's interesting article on "Jens Jensen's Beloved Midwestern Vistas." I should like, however, to comment on several points of fact. Jensen's Siftings (1939) was not his only book, as a second one called The Clearing was published in 1950 in similar

Also, The Friends of Our Native Landscape was started in 1913, not 1925, and

it was preceded, not followed by the Prairie Club, which was organized in 1908 and incorporated in 1911. The Friends of Our Native Landscape, and Jensen in particular, were indeed influential in calling attention to the need to preserve the Indiana Dunes. Equally important were their publications on "Proposed Park Areas in the State of Illinois . . . " (1921) and "A Park and Forest Policy for Illinois" (1926) which, along with personal influence of this group, were the foundations for the establishment of the state park system in Illinois.

> Carol Doty Curator Jens Jensen Collection of the Morton Arboretum

Peter Loewer responds: I never thought of The Clearing as being a book in the true sense of the word, so I called Keith Crotz of the American Botanist Booksellers who confirmed my suspicions: these essays first appeared in a reprint of Siftings published in 1950, one year before Jensen's death. and his involvement, if anything, was slight. You are quite correct in dating the Friends of Our Native Landscape as 1913; however, many references, including the National Council of State Garden Clubs, list the club's beginnings as 1925.

I was delighted to find Peter Loewer's article on Jens Jensen in your October issue. Loewer understandably quotes liberally from Jensen's only book, Siftings, calling it a book that "should be looked into when the world is too much with us, late and soon," and then notes that Siftings is out of print.

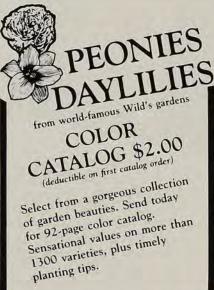
The situation will be remedied soon. The Johns Hopkins University Press is reprinting the book in our American Land Classics series. We expect to have it available again in the spring.

> J.G. Goellner Director

#### **Needlepoint Pattern**

A reader wrote to suggest that we make the patterns of the needlepoint cushions in the River Farm ballroom, featured in an article in the October magazine, available for sale to members. Two talented members of our staff, Stephanie McLellan and Beth Wiesner, have been copying some of the flower designs on the cushions as crossstitch patterns that can be adapted to needlepoint. Watch your News Edition for more information on their availability.





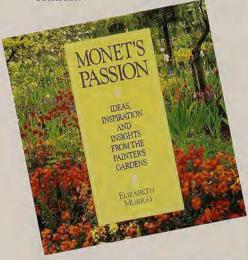


# **Book Reviews**

#### Monet's Passion

Elizabeth Murray. Photographs and garden designs by Elizabeth Murray. Illustrations by Heather O'Connor. Pomegranate Art Books, San Francisco, California, 1989. 115 pages. Publisher's price, bardcover: \$24.95. AHS member price: \$20.95.

Claude Monet was a gardener as well as a famous painter. He planned Giverney, his garden in France, with an artist's trained eye, using color relationships and the effects of light and atmosphere to create living canvasses for his paintings. The artist understood the complexities of color, and arranged the pure colors of plants to create richly textured patterns with harmony and contrast.



On a trip to visit European gardens, professional gardener Elizabeth Murray fell in love with Giverney and offered her services gratis to M. Gerald van der Kemp, conservator of the Musée Claude Monet. This beautiful book is the result of her joyous experiences working in his garden for seven months.

The first section covers Monet's finding Giverney and his life and work there. Copies of several of his masterpieces show the beauty and success of his plans.

The gardens cover three acres. The Clos Normand Flower Garden in front of the house was planned in formal patterns to display the exuberance of color sequences planned for each season. Across the road is the Water Garden with its pond, water lilies, and Japanese-style footbridge intertwined with wisteria—a tranquil spot where light and reflections are design features.

In the second section, Murray's beautiful photographs show Monet's expert and abundant use of color as it has been recreated today. In front of the charming pink house with green trim are masses of pink and deeper rose tulips underplanted with pink, rose, and red English daisies. Later, pink and red geraniums repeat the scheme, which integrates the house with the garden.

A grand allée leading to the front entrance serves as the main axis, tying the flower garden to the water garden. Thirteen-foot-high arches of rambling roses frame the house. On either side of this wide walk there are seven-foot-wide perennial borders with tall flowers at the back and progressively shorter plants in front. In the fall, trailing nasturtiums almost cover the walk.

The book's third section explains the lessons one can learn from all this beauty. It shows similar gardens designed to a small scale that can be followed to the letter or serve as inspiration. The Monet type of gardening is practical as well as beautiful, since perennials and bulbs, once established, are easy to maintain. Monet found that native plants, too, did well with little care and reseeded themselves.

This book, which includes instructions for following Murray's Monet-inspired designs and a section on plants and cultivation, imparts know-how, inspiration, and hours of pleasure.

-Alice Upham Smith

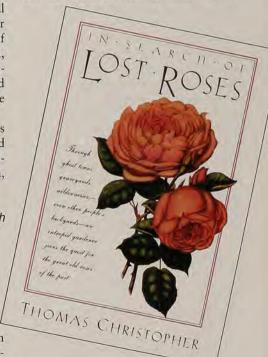
#### In Search of Lost Roses

Thomas Christopher. Summit Books, New York, 1989. 240 pages. Publisher's price, hardcover: \$18.95. AHS price: \$15.95.

Primarily, In Search of Lost Roses is an extensive chronicle of the old-rose movement in the United States, augmented with plenteous history of Western rose-breeding and cultivation. Concurrently, it is the author's inquiry into the character of the old-rose enthusiast. The reader travels throughout the country and abroad, discovering the original intentions and personal eccentricities of notable forerunners of this crusade.

Like many great works, Christopher's epic history involves a quest: retrieving lost roses that have survived in the wild, in graveyards, ghost towns, and along roadsides. We mark how the sport of rescuing vanished varieties has evolved into an extravagant social affair with Texans. These "rose rustlers" travel in motorcades, snatching cuttings at many stops and visiting old friends who serve "sand cakes and cider."

The earliest rustling was by far the most audacious. Instead of cuttings, old varieties were often transplanted whole. One rustler complained to the author about her "faint-hearted husband. If only he could cooperate, he could be so useful as the driver of her getaway car." Another Texan, "a respectable dowager, recalled the time she joined forces with a stranger to rustle a rosebush from a vacant lot. Only upon leaving did she discover that her im-



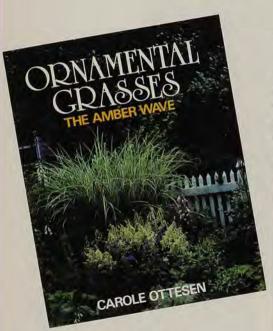
promptu assistant was actually the landowner." With these finds, Christopher shows how recovered specimens speak of their local history.

In his survey of classicist rosarians, we are made aware of the full scope of old rose forms. Old-rose enthusiasm, we learn, is more than a rejection of modern roses.

It is great detective work and often "an opportunity to reach back . . . to look at the same colors and smell the same perfumes as long-dead uncles, aunts, cousins, friends . . . " The author's expertise in the ancients reanimates the Romans' passion for roses and brings new significance to R. damascena bifera. The journey follows the rose cult through French and British involvement, into antebellum Charleston for the creation of 'Champney's Pink Cluster'-forefather of the noisettes. Our denouement is 'American Beauty', a hybrid perpetual that was one of the most popular red florist roses of all time.

Within this symphony of rose lore, history is recounted; nostalgia and romance are reborn. Christopher's research is golden, expert, and uncompromising. His style beguiles the reader with nothing short of finesse. Old-rose scholars will find it tasty and the novice, comprehendible. At last, a well-grounded rosarian text written with a vivacity worthy of its subject!

-John Babich



#### Ornamental Grasses: The Amber Wave

Carole Ottesen, McGraw-Hill, New York, 1989. 230 pages. Color photographs, black and white drawings. Publisher's price, bardcover: \$29.95. AHS member price: \$24.95.

For several years now ornamental grasses have been riding a wave of popularity, and gardeners and landscapers are still as excited as ever over this versatile addition to the garden. I was curious to know what all the fuss was about. Reading Ornamental Grasses: The Amber Wave not only satisfied my curiosity but gave me great pleasure.

Through interviews with such notable figures as Hans Hanses, Kurt Bluemel, John Elsley, John Greenlee, and Wolfgang Oehme, Otteson gives the book depth and personality. Their individual feelings, experiences, and advice add to every gardener's palette of possibilities and create a book that not only gives cultural information but historical background and personal experiences as well.

Because grasses are a soft, downy vegetation that covers the entire surface of the earth, one enthusiast, the German plantsman Karl Foerster, called them "Mother Earth's Hair." From Ornamental Grasses: The Amber Wave

One especially interesting chapter is "How Grasses Came Into Our Gardens." Otteson relates the flow and ebb of the popularity of grasses in other countries as well as our own. She credits well-known designers and horticulturists - Jens Jensen, Karl Foerster, Richard Simon, William Frederick Jr., and Richard Lighty-and significant landscapes that use ornamental grasses with breakthroughs in the general public's acceptance of these untraditional perennials.

Those seeking landscaping ideas, especially, will benefit from her combination of ideas and lists of grasses for various situations: for rock gardens, ponds and pools; as a transition to meadow or woodland; as ground covers, hedges, and screens; and in the perennial border. She emphasizes that grass is not synonymous with green, but comes in yellow, red, blue, brown, or variegated-each of which can contribute to a garden's design. Those interested in grass prairies and meadows will find a whole chapter on the how-tos and wherefores of creating such landscapes.

The author also includes a list of grasses suitable for specific conditions, a chart of grass characteristics, information on bamboos and grasslike plants, and a comprehensive list of suppliers. Color photographs illustrate the effectiveness of grasses throughout the seasons and in combination with other plants. Ideas abound in this enjoyable book: so many interesting landscaping effects, in fact, that one can't wait to try them all.

-Peggy Lytton

Alice Upham Smith is a retired landscape architect and fellow of the Garden Writers Association of America.

John Babich is a southwestern Pennsylvania writer who spends much of his leisure with old-rose literature.

Peggy Lytton is an assistant editor for American Horticulturist.

#### **Book Order Form**

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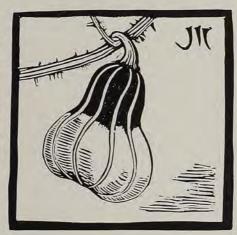
# The Complicated, Dedicated Benjamin Yoe Morrison

hile the American Horticultural Society possesses many treasures of both monetary and sentimental value, its greatest treasure by far is not things but people: members and friends who support us with their labors and loyalty. It is doubtful that anyone gave more of themselves than Benjamin Yoe Morrison (1891-1966), azalea breeder, first head of the National Arboretum, and past AHS president who logged thirty-seven years as principal editor of the society's magazine.

By profession a horticulturist and landscape architect, he practiced the latter art in New York only briefly before joining the United States Department of Agriculture at the age of 29. When the famous plant hunter David Fairchild retired as head of the division in 1934, Morrison was probably a hands-down choice to succeed him. John L. Creech, who first met Morrison in 1947 when Morrison hired him as a junior horticulturist in the agriculture department's Division of Plant Exploration and Introduction (PEI), recalls that, like most of the staff, Morrison had served in the division since the late 1920s, but Morrison was a relatively young 43. "Some of the 'old-timers,' like Walter Swingle and Robert Young and O. F. Cook were pretty much living in past worlds."

That job, which Morrison held until 1948, overlapped his unpaid duties as acting director of the National Arboretum, which was at that time a function of the PEI. Morrison took the "acting" title in 1937; he would not be given the full title until shortly before his retirement in 1951. It wasn't the only job he held without pay.

Left: A charcoal drawing of B.Y. Morrison that hangs in River Farm's executive offices captures him without his trademark black suit and bow tie. Right: Some of the Morrison block print designs that served as covers for the Society's magazine for many years.







In 1926, two organizations-the National Horticultural Society and the American Horticultural Society-had merged. The combined organization took the "American" name, but would call its official publication The National Horticultural Magazine until 1960. Morrison, listed as chairman of the magazine's editorial board when that first joint publication was issued, would continue to be chief editor until 1963, twelve years after his retirement from the agriculture department and only three years before his death. The editor title was in no way an honorary one: he solicited most of the manuscripts, and wrote many of the stories himself.

"For many years, Morrison was pretty much the heart and soul of the American Horticultural Society and its magazine," says Creech. "During the World War II years, he carried the publication almost single handedly, both editorially and financially. But he was tough on contributors no matter who they were."

In writing Morrison's obituary for The American Horticultural Magazine-the publication's name from 1960 to 1971-Frederic P. Lee, a brilliant Washington, D.C., amateur horticulturist and longtime Morrison intimate, made a similar observation: "For the Magazine, Morrison insisted on a high standard of original contributions, scholarly, forthright and accurate, genuinely to inform the serious amateur. He was bluntly inimical to authors whose manuscripts were rehashes or embodied uninformed opinions."

But in sharing his vast knowledge with others, he was not the stuffy scientist. "Morrison spoke and wrote with an excellence of style that included a special verve and charm," observed Lee. Like Lee, one of his great loves was daffodils, and after watching his own come up in 1946, he wrote in that year's April magazine: "One reason daffodils are so universally loved is because they come so early in the spring. We have spent the winter months with just the green of the conifers and evergreens

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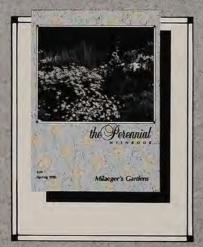
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#### TREASURES OF RIVER FARM

"In Morrison's early days at Harvard he had a traveling fellowship to Japan, and being naturally artistic, some of Japan rubbed off on him."

— John L. Creech

against the gray of the leafless trees and we are hungry for color. As a harbinger of spring they are as authentic as the bluebird or the kite tails on the telephone wires."

Morrison never named any daffodils, but he may have been one of the first in this country to begin making crosses and showing their seedlings. He edited the Society's first five American Daffodil Handbooks, and encouraged the formation of local daffodil societies and eventually the American Daffodil Society.

He also drew delicate sketches of daffodils to accompany his own and others' articles on the subject. Morrison "had an extraordinary capacity for carrying in mind over long periods the precise details of flowers and plants," recalled Lee. For many years, his botanical woodcuts served as the magazine's cover illustrations.

Creech says that to the best of his knowledge, Morrison had no formal art training, except perhaps any he might have received in his education as a landscape architect. "In his early days at Harvard he had a traveling fellowship to Japan," Creech says, "and being naturally artistic, some of Japan rubbed off on him."

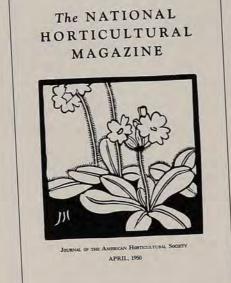
Fortunately for Morrison, he didn't have to serve as his own photographer as well. Creech explains that the plant exploration division had its own photographic laboratory, operated by Robert Taylor, and Taylor was able to supply many of the five-by-seven photographs that appeared in early issues of the magazine.

As a plantsman, Morrison is best known for his azaleas, particularly the more than 400 Glenn Dale hybrids, named after the plant introduction station at Glenn Dale, Maryland, and the Back Acres hybrids, named after the Mississippi estate to which he retired. Shortly before he died, he acquired the first major collection of Satsuki azaleas to be brought out of Japan. Creech believes that he wrote a manuscript for a book on the subject that was never published.

As a personality, Morrison could be gruff and uncompromising, but he held affection for every one of his azaleas. Creech recalls that on one occasion, Morrison was asked by a horticulturist whose stature was comparable to his own which of his 400 Glenn Dales he liked best. "Morrison came back with a reply to the effect that the question must surely be a joke, since it was like asking which of one's children a person liked best."

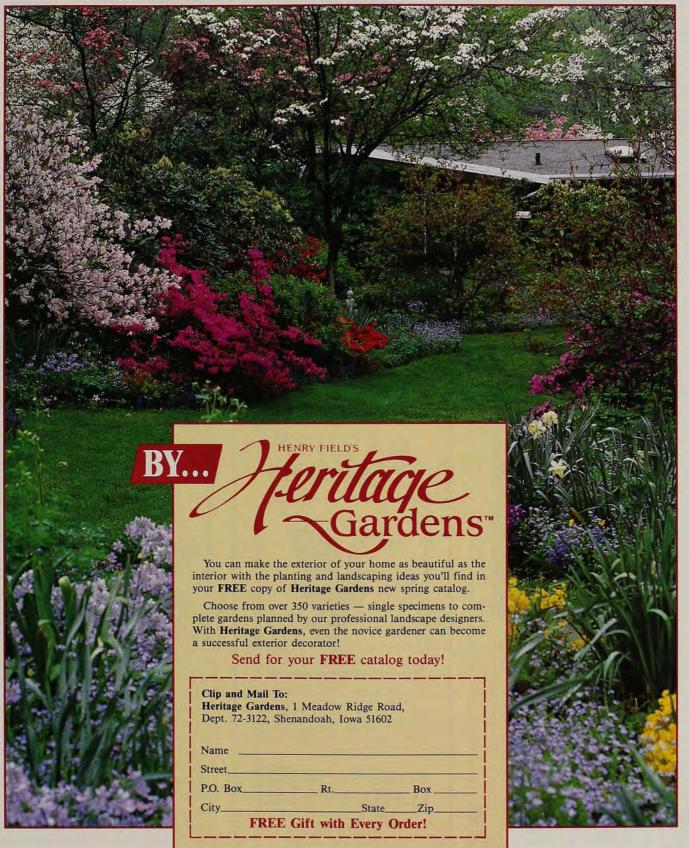
His outspoken nature was combined with a commanding physical presence. "B. Y. Morrison overwhelmed most people," Creech says. "He usually dressed in black suit, white shirt, and bow tie, except in his garden on Piney Branch Road, in Takoma, Maryland, where he wore nothing but a pair of ragged shorts when working with his azaleas. He never learned to drive a car, but relied on close friends on the staff to see that he got to the office. Once there, he kept two secretaries busy with domestic and foreign correspondence.

"At home he was totally self-sufficient around the large white house and often in the evening, would organize a musical. He played the piano and sang quite well; Carl Erlanson, a botanist assistant in the divi-



The primroses that served as the cover of the April 1950 issue of the National Horticultural Magazine represent just one of the many block prints created by B.Y. Morrison as covers for the magazine in the 1940s and '50s.

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#### TREASURES OF RIVER FARM

sion, accompanied him on the violin."

"Sang quite well" is perhaps an understatement. As a young man, Morrison had considered a career in opera and had gone so far as to try out at the Metropolitan Opera. But a failed love affair ended that episode and added fuel to an aversion to women that apparently stemmed from an unhappy childhood. He redirected his dreams toward landscape architecture and never married.

The view many women had of him, however, was quite the opposite. Relates Creech: "Occasionally I drove him to lectures, as he was the darling of the garden club ladies, and I well remember sitting in the rear of a small lecture hall where he was speaking to a rapt female audience. I overheard one lady whispering to her companion: 'Isn't he the most charming man you can imagine?' The other sighed: 'Oh my, it is so true!' If you look through the list of azalea cultivars, you will see among the Glenn Dale azaleas the names of several of his admirers."

A recently printed story that Morrison named hundreds of his Glenn Dale azaleas in one night when he was threatened with losing government funding is a fiction, according to Creech. But Morrison did eventually run afoul of his government bosses with much less happy results.

"It was probably inevitable that such a strong character would not bend to the whims of the Washington bureaucracy," says Creech. Morrison's downfall in government came when he wrote a curt letter of refusal to a congressman who was pressing for some azaleas for a constituent whose direct request Morrison had turned down earlier. As a consequence, Morrison was told that all his correspondence would have to be reviewed and initialled by his assistant, Creech relates.

"I guess it was too much for this proud man. He quietly stepped down as head of the division and concentrated his efforts on the master plan for the National Arboretum on which he had been working for several years."

The arboretum bears his imprint in several gardens that were developed early on, including the azalea garden, dogwood planting, fern valley, and the several Asian valleys. Morrison was a magnificent designer of gardens and his understanding of how to use massed plantings to create strength is still apparent in the arboretum today.

In 1951, he retired to Pass Christian,

Mississippi, and returned to Washington only once, for the dedication of the Morrison Azalea Garden at the National Arboretum. For the remainder of his life, he was content with editing The National Horticultural Magazine, breeding new azaleas, and playing the organ at a local Episcopal church.

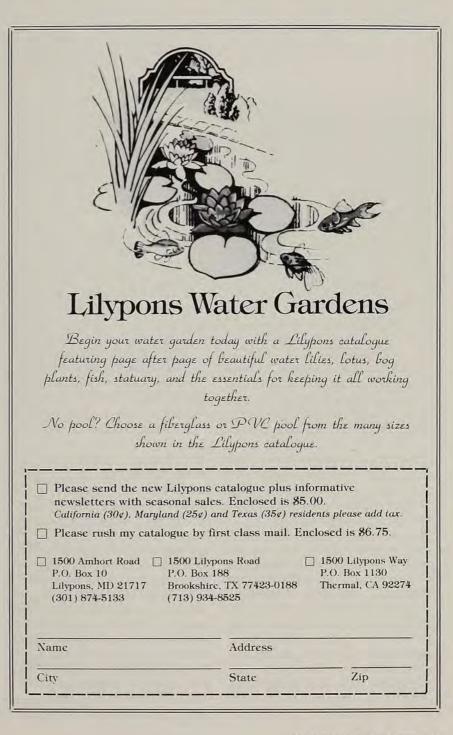
Kathleen Fisher is editor of American Horticulturist. We are grateful to former National Arboretum director John Creech for contributing his memories.





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# A MAGICAL, CLASSICAL CARDEN IN COLUMBUS



istory abounds with walled gardens: ancient Persian courtyards; the atriums the Pompeiians built in the center of their almost windowless homes; Roman baths where classical statuary adorned the walls. In medieval times, cloistered clergy meditated in walled gardens where they raised fish for protein and flowers for holy feast days. Medieval manor houses had their "hortus inclusius," inside which they espaliered fruit trees and planted food crops protected from roving marauders. And the imperial gardens of the Far East opened like scrolls to room after room of pure delight.

There were walls in America's garden history as well—walls to keep out wild animals in the country and to create privacy in the cities. Today's interest in preserving historic buildings and restoring vintage homes has turned attention toward rebuilding or designing appropriate gar-

Above, sculptor Gary Ross and one of four satyrs that greet visitors to his garden; right, the Palladian-style pool repeats the shape of the window in Ross's stairwell.

dens for them. Once-crumbled walls are going back up, and the formal parterres of the past are becoming patterns of the present. There is a timeless elegance about them.

In designing his own garden, sculptor and plantsman Gary Ross, a professor in the College of Fine Arts at Capital University in Columbus, Ohio, hoped to capture the intriguing mood and privacy of walled courtyards he visited on trips to England.

Stepping into Ross's garden is much like stepping into the magical world of Frances Hodgson Burnett's *The Secret Garden*, of which Colin said, "Everything is made of magic, leaves and trees, flowers and buds." One is transported into another world and might well wonder whether it is that of an ancient Roman courtyard, an English garden, or some other intimate paradise.

Four smiling satyrs stand guarding its corners. Their stoneware bodies arch and curve, hands grasping mammoth bundles of grapes, seeming to beckon enticingly inside. Six-foot-high brick walls curve outward as if bursting with bloom, and indeed, creeping over their top to spill color, flower, and fruit into the outside world are twining tendrils of wisteria (Wisteria floribunda), sometimes joined by silver lace vine (Polygonum aubertii) and grape vines (Vitis labrusca, both white and 'Concord').

Inside the walls is a veritable garden of the gods. A grand Priapus, god of fertility, looks on from the side as if blessing the fecundity. The face of Bacchus grins from another wall through the grapevines. The goddess Liriope is represented, too, by her namesake plant, liriope (*Liriope spicata*), which fringes classically symmetrical curves.



At one end of the garden, centered within the outward curving brick wall, is the reclining figure of The Athlete, a life-sized bronze sculpture that is framed by the arching branches of weeping cherry trees (*Prunus subhirtella*) and blooming perennials in season.

The entire concept of this garden, all its sculpture, and its implementation is the work of Ross, who, after purchasing a turn-of-the-century Georgian revival house in a restoration area of Columbus, bought the house next door and had it razed so he could build a garden to complement it.

Much of the material from the razed house was reused in the garden: high-fired brick was used for the garden wall, while low-fired brick was tamped into garden



paths. The stone basement wall was left intact to form part of the garden wall, where it adds the character of old stone.

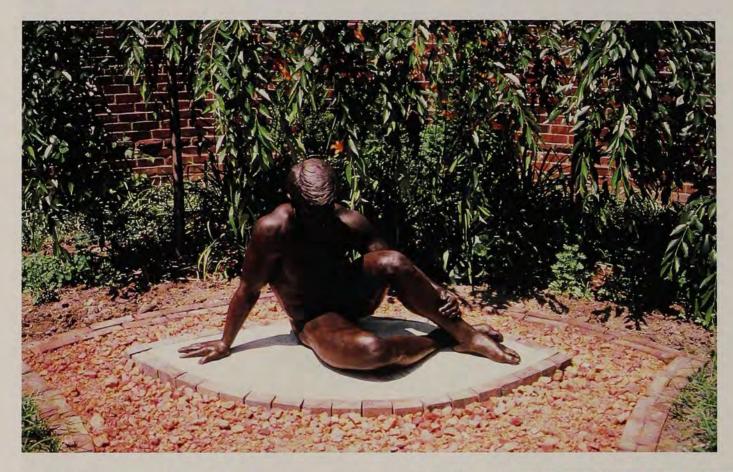
One of Ross's particular delights in his vintage home is a tall Palladian window that spills light from its round-headed concentric arches down burnished, bannistered stairs throughout his entry foyer. One of his many life-sized sculptures is backlit by this window, which is graciously framed by wisteria that has twined its way over from the garden.

Ross chose to repeat the lines of the Palladian window in both the exterior lines of his walled garden and again in the design of the pool that serves as the garden's centerpiece. The window, like most classical Renaissance architecture, is based on the designs of Andrea Palladio, the Italian Renaissance architect of the sixteenth century, explains Ross, as is, ultimately, all Georgian Revival architecture.

Ross feels that landscape design has followed closely the art and architecture trends of history. "Garden designs have been strongly influenced during this century by the abstract impressionists," he says. "The free form of the impressionists has led to free form in other design, such as that of landscape architecture." But he now sees a strong movement back to classicism-a renaissance of the Renaissance.

A Palladian arch of paving stones brought up from the basement of his home adds character to the garden entry. Conical, deep green arborvitae (Thuja occidentalis) frame the satyr-topped pillars, which are intertwined with clematis (Clematis paniculata). The soft matte red of the brick walkway contrasts pleasantly with the abundance of lush green hosta (Hosta undulata 'Medio-picta' and other cultivars such as 'Antioch' and 'Royal Standard') and liriope edging. "I felt that the pool needed the thick green hosta as a kind of foil to all that warm water," Ross explains.

The creation of the pool presented a major problem because it was an afterthought to construction of the walls. Contractors eventually had to heft thousand-pound buckets of cement up and over his fortyfive-foot high house. Now it blooms with lilies (Nymphaea 'White Sultan') and bubbles pleasantly with the sound of a foun-



tain formed from a nineteenth century urn with lions on each side.

All trees in this formal garden are either pyramidal or weeping. Hornbeam (Carpinus betulus 'Fastigiata') and upright English oak (Quercus robur 'Fastigiata') stand like sentinels along the sides while weeping cherry trees grace the corners. Ivies twist and turn on the walls, flowering and

fruiting in season. Boxwood and holly (*Ilex* × *meserveae* 'Blue Boy' and 'Blue Girl') add their evergreen, screening the basement windows.

And at all times from earliest spring until late autumn, perennials bloom in abundance. Sprigs of daylilies blend with daisies. The delicate rose of lamb's ear (Stachys byzantina) frames the resting figure of The Athlete, which is backed in spring by rows of red tulips among a spread of Pachysandra terminalis. Handcrafted urns top capitals from the historic Deshler Wallick Hotel, spilling dainty strands of sedum over the sides.

Those who equate formality with stiffness will find none of that here. The formal design only serves to lend order to the profusion of bloom that begins in early spring with the crocuses, violets, and myrtle, and continues with the weeping cherry blos-

Above: The Athlete, a life-sized contemporary statue, reclines in a curve of the wall where the view is filtered by the branches of a weeping cherry. Right: Bacchus grins out from among grape vines and clematis. Left: Ross's satyr sculptures seem to beckon passersby to enter his classical walled garden.



soms combined with bugleweed, lily-ofthe-valley, daffodils, and other Dutch bulbs.

These are followed by iris, peonies, columbine (Aquilegia caerulea 'Oxford Blue'), and poppies (Papaver orientale). Then comes the bloom of lamb's ear, daylilies, and daisies (Chrysanthemum × superbum 'Alaska'). Flowering in summer are orange coneflowers (Rudbeckia fulgida 'Goldsturm'), sweet woodruff, Wisteria floribunda, water lilies, and yarrow. Late summer and autumn bring the bloom of hosta, late-blooming clematis, silver lace vine, and Liatris spicata 'Kobold'.

These perennials are supplemented with bedding geraniums, which Ross winters

over by shaking the dirt from their roots and hanging them up in his basement; by spring, small green shoots show they are alive and ready to be replanted. Cosmos, marigolds, and petunias also help to lend all-summer color. Pachysandra, myrtle, ajuga, and English ivy carpet the grounds and texture the walls.

The formal garden itself measures 42 feet by 60 feet; the center pond is 5 by 12 feet. But this formal, classical garden is only part of the larger garden that covers his two city lots, which are each 40 feet by 140.

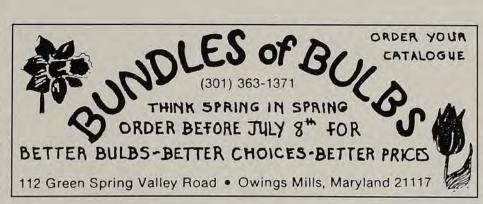
Thick fringes of the 'Medico-picta' hosta frame 'Annabelle' hydrangeas against the convex outer front wall of his garden and continue across the front of his collonaded house. They line his brick entry walk, offering a feel of continuity. A Japanese thread-leaf maple tree (Acer palmatum var. dissectum 'Crimson Queen') arches over a Ross sculpture like a feathered umbrella. Dogwood and purple-leaf weeping beech (Fagus sylvatica 'Purpurea') add their delicate touch to the front of the Ross property against junipers (Juniperus virginiana 'Skyrocket') under the symmetrical form of a little-leaf linden tree (Tilia cordata).

To the rear of his house, the garden continues in all directions. A recent installation of arching plate glass mirrors on his garage wall repeats and extends the view so that one seems to peek into garden after garden. They mirror ornamental grasses (Miscanthus sinensis 'Gracillimus'), purple-leaf plum trees (Prunus cerasifera 'Atropurpurea'), and a purple-leaf smoke tree (Cotinus coggygria 'Purpureus'). Against the evergreen yews (Taxus × media 'Hicksii' and 'Brownii') that screen the alley, Hibiscus syriacus blooms are punctuated by white-spiked Adam's needle (Yucca filamentosa).

From the walled garden, wisteria blends on into the house, feathering its windows and forming lace panels on the rear porch. Ross has even painted flowering wisteria vines between the crossed beams of the ceiling in his living room. His ceiling painting is not with watercolors in fresco as was Michelangelo's, but with oil on canvas; it is not of the moment of Creation, but of a moment in one of nature's creations.

Thus from outdoors to indoors, Gary Ross has used his plant palette to create one magical, classical secret garden.

Jeanne Conte is a free-lance photographer and writer who lives in Columbus, Ohio.



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# A Noah's Ark

## for Endangered Plants

#### By Marcia Bonta

The University of California Botanical Garden has it all-a sweeping view of San Francisco Bay, an equable climate for growing a wide variety of plants from years old, they are already large enough around the world, and an unsurpassed collection of California native plant life. Situated in lower Strawberry Canyon, less

than a mile from the Berkeley campus, the thirty-three acre site is replete with intriguing paths that snake mostly up and down its hilly, picturesque terrain.

Red-tailed hawks float high above rock-strewn Strawberry Creek as it tumbles past the Asian area, through the Japanese Pool, and between the palm and cycad garden and the Californian area. Several species of hummingbirds zoom like miniature buzz bombs

around the South American area, attracted by such exotics as the dangling red and gold flowers of the Abutilon megapotamicum and the deep purple flowers of the large, spreading shrub Tibouchina laxa from Peru. In the shrubby underbrush throughout the garden California quail, robins, and rufous-sided towhees forage. The dry New World Desert Garden and the inhospitable serpentine habitat in the Californian area skitter with lizards. The botanical garden is a perfect mix of the exotic and native, where one's naturalist interests war constantly with horticultural ones

This is particularly true in the Mather Redwood Grove, a five-acre plot across the road from the main garden. Begun in the 1930s as a memorial to Stephen Tyng Mather, the first director of the National Park Service and an alumnus of the University of California, the grove has been transformed over the last several years into a model coast community of redwoods (Sequoia sempervirens).

Although the redwoods are less than sixty to provide a cool, dark retreat where visitors can walk on peaceful paths and admire such blooming wildflowers as red-

Above: A hawk's-eye view of Strawberry Canyon with the botanical garden to the left and the Berkeley campus and San Francisco Bay in the background.

wood sorrel (Oxalis oregana), yerba buena (Satureja douglasii), and alumroot (Heuchera micrantha). The forest floor is carpeted with sugar scoops (Tiarella unifoliata), members of the saxifrage family, California huckleberry (Vaccinium ovatum), yerba-de-selva (Whipplea modesta), and several fern species including the handsome sword ferns (Polystichum munitum).

In the grove are plants that look similar to those in Eastern woodlands - lady ferns, false lily-of-the-valley, wake-robin. But while the common names are the same, the scientific names are different (Athyrium filix-femina, Maianthemum kamtschaticum, and Trillium ovatum) and although the lady ferns are also found in the interior mountains of California and as far east as Idaho, Colorado, and New Mexico, false lily-of-the-valley and wake-robin grow only along the moist, mild areas of North America's West Coast. Another intriguing flower found here is the inside-out flower (Vancouveria planipetala), so called be-

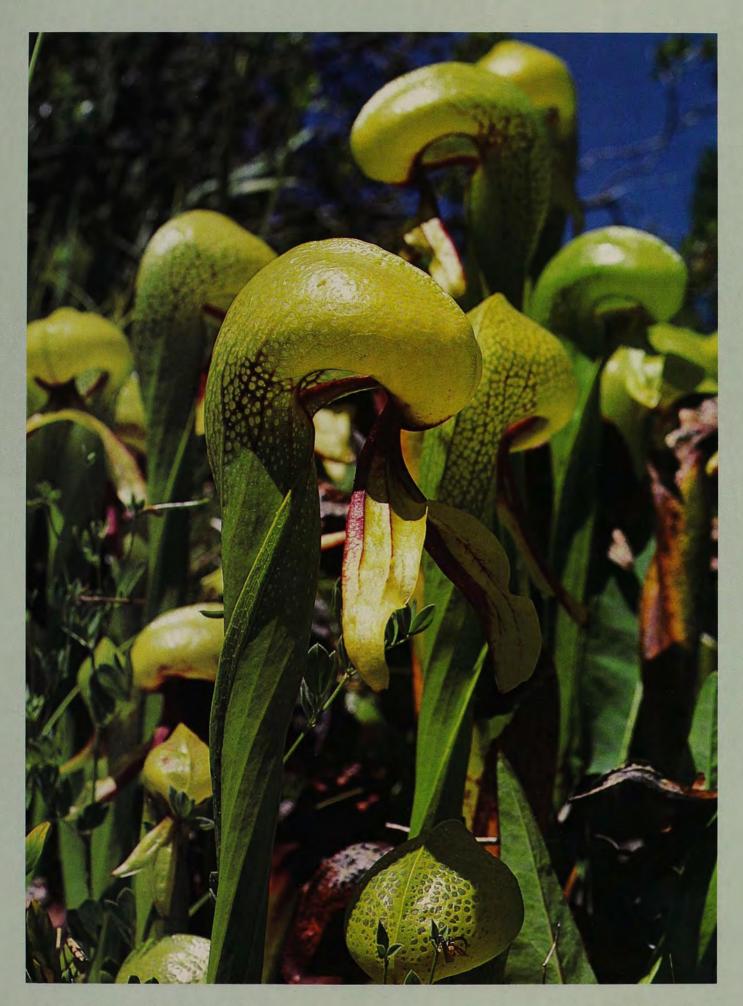
cause its unusual white or lavender-tinged blossoms have reflexed petals and sepals.

The coast redwood forest is only the largest and most complete example of the botanical garden's commitment to grow representatives of as many indigenous California plant communities as possible, a directive that dates back to the founding of the garden in December 1890 by E.L. Greene and Willis Linn Jepson. Both men were

indefatigable collectors and classifiers of California natives, as even a cursory look at the scientific names of many California plants will reveal. They called the garden a Garden of Native Plants and not only collected the seeds and plants for it but laboriously planted them as well. Within five years the garden encompassed seven acres on the Berkeley campus and contained nearly 1,500 species of plants.

The almost total concentration on native California plants continued until the garden was moved to its present location in the 1920s. The larger acreage allowed the garden to expand its holdings and several collecting expeditions, most notably into South America, were launched in the

Right: The giant pitcher plant (Darlingtonia californica) is one of California's most interesting and striking wildflowers.



1930s, '40s, and '50s. Today the garden contains more than 12,000 species and varieties of plants from all over the world.

But a third of the garden area remains devoted to California natives, with representatives from more than one-quarter of the state's 5,000 species, including 130 types of plants listed as rare or endangered by the California Native Plant Society. Those plants, along with most of the rest of the garden's specimens, have been grown from seeds and cuttings obtained from wild populations, and collectors for the garden, such as Roger Raiche and Kurt Zadnik, continue to go afield in search of more specimens.

In 1987, Raiche attained botanical immortality when a fairy lantern, Cedars' fairy lantern (Calochortus raichei) was named for him. Originally considered a local form of the Mount Diablo endemic, Calochortus pulchellus, it was first collected back in 1947 from its only known locale-the headwaters and upper drainage of Big Austin and East Austin Creeks in Sonoma County. When Raiche re-collected the plant from The Cedars at the headwaters of Big Austin Creek on June 7, 1986, he noticed that it looked strikingly different from the other four Calochortus species: taller, with fewer flowers and narrower leaves. It also has a marked preference for serpentine soils and blooms much later in the year than others in the genus.

Cedars' fairy lantern now grows in the garden's California native bulb bed, which was established in the 1960s and comprises one of the garden's most extensive and unusual collections. More than 300 pots of native lily and amaryllis bulbs and corms in two raised beds contain representatives collected from the meadows, chaparral, mountains, and roadsides of California. With two families (Liliaceae and Amaryllidaceae), thirteen genera, and 139 species, varieties, and naturally occurring hybrids, the garden's bulb collection is the largest of its kind in the state. About all it lacks are species from high, infertile areas, which cannot adapt to the moist, cool win-

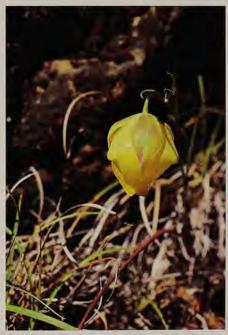


Above: A student takes notes on the flowering times of native plants in the garden. Top right: A field of Lasthenia burkei and Downingia near the Santa Rosa Airport. Right: Cedars' fairy lantern (Calochortus raichei) is the namesake of U.C. Botanical Garden collector Roger Raiche.

ters and warm, dry, foggy summers that characterize the Berkeley climate.

Other outstanding collections in the garden's Californian area—which is arranged primarily by plant communities—are of two of the six California genera with the highest number of endemic species—Arctostaphylos (manzanitas) and Ceanothus (wild lilacs). One manzanita—presidio manzanita (Arctostaphylos hookeri subsp. ravenii)—has been reduced to a single plant growing in the serpentine soil in the San Francisco Presidio. Such specimens have given the garden a reputation for being a





Noah's Ark of endangered native plant

While perhaps not as difficult as gathering animals two-by-two, this is no small undertaking. California has the richest heritage of plant life in the continental United States, due to its almost complete isolation on its northern, eastern, and southern borders by high mountains and/or deserts and on the west by the sea. These



barriers help to produce a wide range of isolated physical environments. Of the thirty percent of California native plants endemic to the state, the largest number are found in southern California, followed by the central coastal area. These plants range from evolutionarily "old" species on the natural road to extinction-such as the Cercocarpus betuloides var. traskiae found only on Santa Catalina Island-to several recently evolved Clarkia species, such as Clarkia springvillensis in Tulare County.

The garden's careful emphasis on documenting each plant's origin supports the efforts of conservationists, who struggle to protect fragile habitats from being destroyed by urbanization, farming, grazing, flooding by reservoirs, quarrying, and poor land management in general. When the conservationists lose, as they so often do, the garden's specimens may be the only hope of saving a plant from extinction.

Botanical gardens throughout the world, in fact, are increasingly seeing themselves as reservoirs for endangered plants. Nineteen in the United States, including the University of California Botanical Garden, have joined the Center for Plant Conservation, located at Harvard University's Arnold Arboretum, which is establishing permanent, cultivated populations of endangered U.S. plants. The gardens know that the preferable means of protecting these plants is in situ conservation in the wild. But they are also realistic enough to recognize that such protection often is not enough; hence their involvement in ex situ or off-site conservation as well.

The nineteen members of the Center for Plant Conservation network have divided the United States into fourteen zones based on weather patterns and plant species. Each year, each member institution submits proposals to the center regarding species they would like to protect. From those lists, the center's Scientific Advisory Council selects the plants it wishes the member to concentrate on.

The University of California Botanical Garden has agreed to grow and study the most threatened northern California plants by locating wild populations and then gathering seeds or cuttings for ex situ preservation. If they can, they collect material for propagation from at least fifty different plants to allow for genetic diversity. They keep some of the seed for study and ship the remainder to a U.S. Department of Agriculture facility for storage. In 1988 they added six species of California native plants to the Center for Plant Conservation's National Collection of Endangered Plants, including the endangered mint, Acanthomintha obovata subsp. duttonii, collected by Raiche, Zadnik, and Holly Forbes from Edgewood County Park in San Mateo

County. They distributed their biennial seed exchange catalog, which included 430 different California native plants in addition to the giant bromeliad Puya raimondii, a rare native from Peru, to hundreds of botanical institutions worldwide. In six months more than 10,000 seed packets were sent to 356 institutions, a monumental effort that promotes the display, propagation, and research of California native plants throughout the world. Members of the public also have the opportunity to obtain some rare California native plants-such as the Chinese camp brodiaea (Brodiaea pallida), as well as seeds of California native wildflowers, bulbs, shrubs, trees, and succulents-when the Friends of the Botanical Garden holds its annual spring, fall, and winter plant sales.

To help educate visitors about its recreated natural plant communities of California, an exhibit entitled "California Plant Life"-six outdoor table displays spaced throughout the native plant area-explains California plant communities in general and coast redwoods, the pygmy forest, chaparral, serpentine, and California islands in particular.

The pygmy forest area illustrates isolated areas along the Mendocino coast of northern California that have incredibly acid white soil, making it inimicable to most plant life. Plants that do grow there, such as the pygmy cypress (Cupressus pygmaea), are dwarfed by the conditions. Surprisingly, the same cypress, grown in normal soil, is the largest of the California cypresses. The garden's serpentine area features serpentine columbine (Aquilegia eximia), one of the unusual and, in many cases, endemic species produced by this high magnesium silicate soil.

Another interesting area is the vernal pool, a small depression that fills with rainwater during the rainy fall and winter. At that time the seeds germinate, mostly underwater, and grow for several weeks until the pool begins to dry up during the warmer, longer days of spring. This is when the vernal pool is at its loveliest, with sev-

#### Want to Visit or Learn More?

The University of California Botanical Garden is open to the public free of charge from 9 a.m. until 4:45 p.m. every day of the year except Christmas. Free, docent-led tours are offered year-round on Saturdays and Sundays at 1:30 p.m. For further information on special tours, weekend classes and workshops in botany, horticulture, and other topics write to the U.C. Botanical Garden, Centennial Drive, Berkeley, CA 94720 or call (415) 642-3343.

For those who wish to learn more about California native plants, *California Plant Life*, written by the garden's director Robert Ornduff, is highly recommended.

eral species of goldfields and meadowfoam. If conditions are just right in the drying pool bottom, it may be covered with the deep blue flowers of *Downingia*.

Not all the native California plants are found in the Californian area or the Mather Redwood Grove. The Fern and Insectivorous Plant House contains a fascinating collection of unusual insect-eating plants from around the world, including one of California's most interesting and striking wildflowers, the giant pitcher plant (Darlingtonia californica). The New World Desert area, one of the oldest and best known collections, contains a mix of cacti and other succulents from North, Central, and South America. While most of the specimens are from Latin America, a careful observer may also find a few California cactus species in the genera Echinocereus, Ferocactus, and Opuntia, and some agaves. In the North American section there is a fine specimen of Santa Lucia fir (Abies bracteata), an endemic tree from the Santa Lucia Mountains in Monterey County.



The garden also cultivates several native annuals in boxes in their research area, which is not open to the public. These include the large-flowered fiddleneck (Amsinckia grandiflora), known only from two populations on the site of Lawrence Livermore Laboratories in Contra Costa County and one of the species added to the Center for Plant Conservation's permanent collection last year: the endangered Presidio clarkia; and Burke's gold-fields (Lasthenia burkei).

The University of California Botanical Garden's meticulous attention to labeling all plants with complete names and geographical origin makes it easy for visitors to learn a tremendous amount on their own. But the garden employees will provide more information on request and there are two free docent-led tours each week-

Roger Raiche collecting seed of native plants.

end. There are also special classes and tours, and suggestions on subject matter are welcome.

Even if you come to the garden with little interest or knowledge of California natives, you will go away a convert, concerned about the conservation of all native plants. That is exactly the University of California Botanical Garden's goal. It is only by educating a wide spectrum of society about the importance of saving native plants that we will be able to reverse the disastrous policies of most countries toward their natural plant communities.

Marcia Bonta is a frequent contributor to American Horticulturist.

## A Sister Garden

On August 29, 1988, representatives of the University of California Botanical Garden and the Robert and Catherine Wilson Botanical Garden in southwestern Costa Rica met beneath a grove of live oaks at Berkeley to formally establish the world's first sister garden relationship.

For both sides, a major motivation was education, says the curator of the California garden, Dr. James Affolter, who conceived the sister garden idea in 1987. Staff and students from Berkelev who go to Costa Rica as consultants or interns "are able to make an immediate connection with the ecological crisis in the tropics," he says. The Costa Rican garden reaps the Americans' expertise in technology, conservation, and education.

Founded in 1962 by the Wilsons, formerly of Fantastic Gardens in Miami, Florida, the 330-acre facility consists of thirty acres of developed garden and 300 acres of undisturbed submontane rainforest. Originally known as Las Cruces, the formal garden is especially rich in Heliconias, including an endemic species, Heliconia wilsonii, named for Robert Wilson, and in palms, with representatives from eighty percent of tropical and subtropical palm genera, making it the second largest palm collection in the Western Hemisphere. But it is the natural garden of submontane rainforest that harbors the most important collection: 2,000 of the estimated 12,000 native plants of Costa Rica.

Affolter was familiar with the garden and the Wilsons through the Organization for Tropical Studies (OTS). Founded in 1973, OTS is a nonprofit consortium of more than forty North American and Costa Rican universities dedicated to education, research, and the wise use of natural resources in the tropics. Affolter knew that the Wilson garden, like the university garden, had a strong focus on research and education, served as a public museum and education center for its community, and was committed to promoting conservation and the preservation of the world's dwin-



The Wilson garden has a large collection of Heliconia, including this H. librata.

dling biological diversity.

With tropical rainforests disappearing at an unprecedented rate, the need to educate local people about tropical conservation is great. "My main goal here," says Dr. Luis Diego Gomez, formerly director general of Costa Rica's National Museum and director of the Wilson Botanical Garden since 1987, "is to educate the people about the role of plants in the history of humankind." When Affolter suggested a sister garden relationship, Gomez eagerly

In addition to exchanging plant mate-

rial, the gardens are also exchanging staff, information, and expertise; providing research support for students in biology, science education, and conservation; and developing training programs for students and interns.

As part of the exchange, the University of California Botanical Garden staff has been acting as consultants to the Wilson garden as it designs and implements a computerized system for plant records. This work gives them the opportunity to analyze the operation of a tropical botanical garden. They also propose solutions to horticultural and managerial problems, and, to encourage community use of the Wilson Garden as a museum and learning center, suggest interpretive strategies and educational materials.

Gomez already spends about half of his time helping the neighboring farming community practice sustainable agriculture, and the facility is heavily used as the OTS center for training students in agroecology. Courses that emphasize intercropping and non-traditional crops are offered in both English and Spanish.

But the Wilson Botanical Garden continues to remain a beautiful place to visit, and tourists from North America, Costa Rica, and nearby Panama enjoy exploring the ten kilometers of trails that wind through both the formal garden and the rainforest. A new brochure for visitors was written by Gomez and designed by the University of California garden staff.

Affolter and Gomez hope that the exchange idea catches on with other gardens. While tropical gardens have abundant collections of tropical plants and the ideal climate for growing them, they often lack the funds and technological expertise of temperate climate botanical gardens.

But although the partnership benefits both gardens and their adjoining communities, the primary benefit, as Affolter has written, is to "a world of tropical plants and animals whose time is running out."

-Marcia Bonta

# Proven Performers

his is planning time for gardeners: time to assess our space, our budgets, our ambitions and dreams. We'll buy some more of what was successful last year, of course, and we'll buy a couple of those "new and improved" cultivars the slick catalogs are touting. But somewhere in there, we'll try to include some plants in the "I've always wanted to try . . ." category.

How about some tropical water lilies perfuming a goldfish pond, or a couple of small, hardy lilies floating in the barrel you set up as a watering hole in

a couple of small, hardy lilies floating in the barrel you set up as a watering hole in the butterfly garden? Remember the camellia your neighbor snipped off of her bush last spring so that your little girl could wear it in her hair—the blossom that looked too beautiful to be real? Perhaps your mouth has always watered for a prize-size dahlia: one that would sport a bloom as big as your head and get so tall you could look it in the eye? Maybe you've had success with hostas in the landscape, but you're ready for a real show-stopping giant or a dainty and demure selection to complement your ferns.

In our February 1989 issue, we launched what we hoped would become a tradition: a group of articles written by representatives of some of the national plant societies, highlighting the varieties and cultivars their members considered both the most beautiful and the most reliable. We're pleased to continue that series this year with articles from the American Hosta Society, the International Water Lily Society, the American Camellia Society, and the American Dahlia Society.

The American Horticultural Society has had a long affiliation with such societies, of which there are now some 260. Many of the earliest were offshoots of AHS. By highlighting them in our pages, we hope to increase our own members' awareness of them and the resources they offer; educate them about the culture of these plants and the ever-expanding array being made available through these dedicated plantspeople; to convince some to try one of these plants for the first time, perhaps to become enchanted for a lifetime.



# Water Lilies

#### BY BILL HERITAGE

garden with a gleam of water is instantly intriguing. Attention focuses on the pool; footsteps automatically turn toward it. It creates atmosphere as no other garden feature can, transforming an ordinary garden into a tranquil, restful oasis. The pool offers mystery in the flickering shapes of fish, curious plants, or other oddities halfglimpsed below the surface. And it promises season-long beauty in lush waterside foliage and the floral pageant of water iris, pickerel rush, lizard's tail, arrowhead, golden club, and above all, water lilies.

Water lilies, whether hardy or tropical, can be grown almost everywhere: at Longwood Gardens in Pennsylvania as gorgeously as in the Missouri Botanical Gardens in St. Louis, in the Denver Botanic Gardens as strikingly as in Lotusland in Santa Barbara, California, they contribute to a wonderful display both summer and fall.

Water lilies produce glorious flowers over a long season. Their spreading leaves, as well as providing cover for fish, shade the

'Emily Grant Hutchings'

water and soak up the sunlight that would otherwise encourage the growth of unsightly algae. In partnership with nutrientabsorbing submerged plants, lilies are a vital factor in keeping the water clear. This combination of superb ornamental quality with high practical value makes lilies uniquely important to the water gardener.

The hardy Nymphaea will grow and flourish almost anywhere. In areas where there is a real danger that roots and soil might freeze solid they must be removed in their containers to a cellar and kept cool and moist till spring. Elsewhere they can winter in the pool; freezing of the water above the roots is not a hazard.

The blooms of most hardies float on the surface, although there are some varieties that lift their flowers several inches above it. Individual blooms last four or five days, opening and closing each day until they finally close and sink to decay below the surface. Buds are produced in a steady succession from early summer until the first frost, though the season may finish earlier in very hot areas.

Hardy hybrid lilies encompass a range of lively colors, from white through many pure shades of yellow, pink, and red to others that glow with varying sunset shades of pinkish yellow, apricot, coppery orange, and bronzy red. There are no blue hardy lilies.

They also vary considerably in vigor and flower and leaf size. At one end of the scale are miniatures that can be grown in a bowl on a sunny windowsill; at the other are robust varieties with ten-inch flowers and leaves much bigger than dinner plates. In between are enough variations in spread to suit any size pool.

The following list of our clear favorites can do no more than hint at the rich choice available.

■ Mature spread of five to seven feet, for water depths of ten to thirty inches ("water depth" refers to the depth over the roots; in container-grown plants, it would be the water over the soil in the container):

'Attraction'. Brilliant carmine blooms that deepen to rich garnet red toward the center. Very vigorous.

'Escarboucle'. Perfect shape, uniform vivid vermilion crimson color, freedom of bloom, and a spicy fragrance characterize this international favorite.

'Gladstoniana'. An extremely robust, deep-

water cultivar with very large, pure white blooms.

'Marliacea Chromatella' (also known as 'Golden Cup'). A remarkable cultivar with primrose yellow flowers and marbled foliage that will spread vigorously where space permits but will adapt, if need be, to the confines of a small pool or even a tub. 'Hollandia'. Large double pink blooms are

borne profusely by this extremely vigorous water lily. Using it as a cut flower allows its subtle fragrance to be appreciated.

Mature spread of four to five feet, for water depths of ten to twenty-four inches:

water depths of ten to twenty-four inches: 'Gloriosa'. Brilliant red, apple-scented flower of formal shape; a favorite for small to medium pools and adaptable to tub culture.

'Pink Sensation'. Large, fragrant blooms, shading from light to rich pink, are borne in great profusion. They close later in the day than most cultivars.

'Virginia'. Produces splendid large, almost double, yellow-centered white flowers over a long season.

'Rose Arey'. With eight-inch blooms of brilliant silvery pink, the long pointed petals slightly rolled and curved inward, this elegant beauty is one of the most cherished of all hardy lilies.

■ Mature spread of three to four feet, for a water depth of eight to sixteen inches: 'Gonnere'. Globular double flowers, packed

'Gonnere'. Globular double flowers, packed with curved snow white petals, are large in relation to the modest leaf spread.

'Comanche'. Four- to five-inch flowers are raised above the water surface. They deepen from pinkish apricot to a coppery orange. 'James Brydon' is a superb lily for pond or tub. The rich carmine pink globular blooms float among bronzy purple leaves. A splendid partner for 'Gonnere'.

'William Falconer'. Cup-shaped flowers are the richest, darkest red to be found among the hardy lilies.

Mature spread of one to two feet, for a water depth of four to nine inches:

N. pygmaea 'Helvola'. The perfect miniature for bowls, tubs, and small shallow pools, it has dainty two-inch, star-shaped, pale yellow blooms and tiny mottled leaves. 'Ellisiana'. Not quite a pygmy, but certainly a little gem for small ponds and tubs. Blooms are purplish red.

#### The Simple Water-Lily Basics

The pleasures of the water garden—the tranquil beauty of lily blooms sailing among reflected clouds, the colorful swirl of feeding fish, the chuckle of a cascade, the heady fragrance of water hawthorn—are pleasures much more easily attained than most gardeners realize.

The basic requirement is a body of water at least fifteen and preferably twenty-four inches deep. It should be as large as possible—at least fifty square feet; a rectangle nine feet by six feet or a circle eight feet in diameter will do it. The bigger the better; it's the small pools that have problems. A shelf about nine inches deep will accommodate bog plants such as water iris, pickerel, and cattails planted in containers. No other complications of depth are necessary.

To achieve good volume in relation to surface area—an important factor in avoiding algae problems—the pool sides should be steeply sloped; saucer-shaped pools are not recommended. The chosen site for the pool should be open to as much sun as possible and well away from trees.

Pool construction is nothing like the chore it once was, now that concrete

has been superceded by flexible plastic liners that will last for years. A sheet of fish-grade PVC, or the even longer-lasting butyl rubber, quickly becomes a finished pond ready for stocking when draped into a hole lined with sand or foamed plastic underlay and filled with a hose. Detailed information about pool liners and their use can be found in the catalogs of most nurseries that specialize in water plants.

Water lilies require full sun and still water. Any water that is circulated as the result of having a waterfall should be taken out of the pool as close as possible to where it pours in, so that no cross-pool currents are created. Lilies should also be kept away from fountain sprays so they won't become waterlogged.

Water lilies make a lot of root and need a lot of nourishment. A common error is planting them in containers that are too small. A soil depth of only six to eight inches is enough, but the roots must have room to spread horizontally. A pan about fourteen inches in diameter suits the small- and medium-sized hardy lilies; something eighteen to

twenty inches across is advised for the most vigorous hardies and for the majority of tropical water lilies.

The ideal soil for lilies is rich heavy garden or pasture loam that has not been treated with weedkiller or insecticides. Peat and garden compost should be avoided. Never use commercial potting mixes. Very firm planting is essential since the soil will tend to loosen when the container is placed in the pool. Care must be taken not to cover the growing point where leaves emerge from the crown. Topping the soil with an inch of pea gravel or pebbles helps to foil mud-stirring fish.

Position the lilies initially so that about six inches of water covers the crown, or deeper if the stems are long enough to allow at least two pads per plant to float. In a few weeks, after the stems have lengthened enough to let all the pads float, lower them so that they are covered by eight to sixteen inches of water. While it is safe to transplant hardy lilies six weeks or so before the last expected frost, wait until the water temperature is up to 70° F before introducing tropical water lilies to the pool.

'Graziella'. A perfect pygmy lily with apricot flowers, perfect for tub gardens.

Tropical water lilies have, generally speaking, larger and often very ornamental leaves with greater spread than the hardies, and more abundant flowers that are larger and more fragrant. Their color range includes shades of blue, violet, and purple that do not occur among the hardies. Some tropical lilies are viviparous-capable of producing young plants on the surface of mature leaves. A combination of dayblooming and night-blooming types offers the exciting possibility of almost twentyfour hours of fragrant and colorful blooms each day. Those that bloom at night open in the evening and remain open until the sun is high the next day-even longer if the day is cloudy-so that their dramatically beautiful flowers can be enjoyed even by those who are not night owls.

Young tropical lilies are at risk in temperatures below 65° F, but if not put outdoors until the water is well warmed up in spring, they will flourish in every state. They often are still blooming after several frosts, long after the hardies have given up, but they eventually become dormant when fall temperatures drop. Though tubers can, with care and experience, be preserved through the winter, the majority of water gardeners are content to treat tropical lilies as annuals.

#### ■ Day-blooming tropicals:

'Albert Greenberg'. Large blooms glow with a sunset blend of pink, gold, and apricot over a long flowering season.

'Aviator Pring'. Very large, deep yellow, cup-shaped flowers raised high above the water; an exceptionally free-blooming cultivar.

'Blue Beauty'. A long-standing favorite with rich blue, ten- to twelve-inch flowers; free-blooming and fragrant.

'Daubeniana'. A viviparous miniature with pale lavender blue flowers, very fragrant and abundant. Ideal for partially shaded pools and tubs, it needs less sun than most. 'Director George T. Moore'. A free bloomer that produces glowing purple flowers eight to ten inches across with purple stamens and a yellow center.

'Evelyn Randig'. Very large, magenta pink, fragrant flowers are set off by beautiful leaves that are spotted and striped with chestnut and purple.

'General Pershing'. Large, long-lasting blooms of vivid orchid pink, very double, and very fragrant. Tolerant of partial shade. 'Mrs. Martin E. Randig'. Viviparous plant



'Gonnere'

with a rich, heady fragrance and splendid blooms that deepen from mauve blue to deep blue-purple. Adapts to small ponds and tubs.

'Pamela'. Sky blue flowers up to twelve inches in diameter, produced very freely and held high above chestnut-marbled leaves.

'Panama Pacific'. Rich wine red blooms that deepen to plum purple with purple-tipped yellow stamens. Viviparous, adaptable to most situations, and hardier than most tropicals.

'Pink Platter'. Wide-opening blooms crowded with long, tapering, clear pink petals and pink-tipped yellow stamens. Occasionally viviparous.

'Yellow Dazzler'. Flat-opening double blooms of rich chrome yellow remain open until dusk.

#### ■ Night-blooming tropicals:

'Emily Grant Hutchings'. Rose pink blooms given remarkable definition by the slightly paler center of each long, curved petal. Leaves are undulating and mottled.

'Missouri'. Magnificent broad-petaled, creamy white flowers as big as fourteen inches across.

'Mrs. George C. Hitchcock'. A reliable grower and a very free bloomer. The rich orchid pink flowers have been known to

#### Sources for Water Lilies

Lilypons Water Gardens, 6800 Lilypons Road, Lilypons, MD 21717, catalog \$5.

Slocum Water Gardens, 1101 Cypress Gardens Boulevard, Winter Haven, FL 33880, catalog \$2.

William Tricker, Inc., 7125 Tanglewood Drive, Independence, OH 44131, catalog \$2.

Van Ness Water Gardens, 2460 North Euclid, Upland, CA 91786, catalog \$2.

Waterford Gardens, 74 East Allendale Road, Saddle River, NJ 07458, catalog \$4.

exceed fourteen inches in diameter. 'Red Flare' is spectacular, combining the deepest, dusky red flowers of any water lily with deep mahogany red, crimped-edged leaves.

Bill Heritage is a professional horticulturist, a member of the Water Lily Hall of Fame, and a member of the board of directors of the International Water Lily Society. He is the author of Ponds and Water Gardens. More information about the society can be obtained by writing to Charles Thomas, International Water Lily Society, P.O. Box 104, Buckeystown, MD 21717.

Photo by Bill Heritage AMERICAN HORTICULTURIST 29



# Camellias

#### BY BETTY HOTCHKISS

amellias may be native to the Orient, but they have become a favorite of American gardeners, particularly in the Southern states. With their glossy foliage and stunningly beautiful blooms, camellias serve as excellent landscape plants as well as sources for cut flowers.

In its natural habitat the camellia plant can grow into a small tree up to thirty feet tall. But in American landscapes, camellias are often pruned to midsized bushes; they may also be shaped as espaliers or hedges. They are long-lived plants that grow slowly, usually six to twelve inches per year.

Camellias are generally described by their floral characteristics, although some variation does exist in leaf size and shape and plant growth habit. Flowers range in size from approximately two to seven inches in diameter. They range in color from stark white to black-red with all shades of pink in between. Also popular are variegated flowers that have been developed through genetic manipulation or exposure to viruses.

Camellia classification recognizes six

'Pink Perfection'

flower shapes: single, with one row of petals and a mass of stamens; semidouble; anemone, with flat or undulating outer rows and a center mass of intermingled petaloids and stamens; peony or informal double, which is divided into loose peony and full peony forms; rose-form double, whose overlapped petals eventually open to display stamens; and the formal double blooms, with many rows of petals and no apparent stamens.

Few other plants bloom during the winter months when days are short and temperatures are cool. And unlike azaleas, for instance, camellias do not have a single, short flush of flowers, but open their blooms over a period of about four to six weeks. The peak of camellia season ranges from January in the southern range of the camellia belt to late March or April in its northern range. However, cultivars vary greatly in their blooming seasons, and by collecting many different ones, it is possible to have blooms from September through April.

Camellias are usually thought of as Southern plants, and it's true that most of them are best suited to a temperate climate where temperatures don't fall below 10° F. But they have been grown successfully

in northern coastal states where cooler temperatures are modified by warm ocean breezes: as far north on the East Coast as Long Island, and along the Pacific Coast as far north as Vancouver, British Columbia.

Hybridizers have long been seeking more cold-hardy varieties. Dr. William Ackerman, a longtime researcher with the Department of Agriculture and the National Arboretum, recently registered six fallblooming hybrid camellias that showed no damage following temperatures of minus 12° F. 'Snow Flurry', 'Winter's Hope', and 'Winter's Star' will be available from selected nurseries in the spring of 1990. 'Winter's Charm', 'Winter's Rose', and 'Polar Ice' will be available in the spring of 1991. Earlier, Ackerman registered 'Frost Prince' and 'Frost Princess', which he says are equally hardy but not as outstanding as the newer introductions.

There are more than 200 species of camellias, all native to Asia. The most widely grown camellia in the world is the Camellia sinensis, the common tea plant. The Camellia japonica is the most popular ornamental species; more than 2,000 cultivars have been registered with the American Camellia Society. Others of interest include Camellia sasanqua, a small-flowered, fall-blooming species, and Camellia reticulata, a large-flowered species extremely sensitive to cold temperatures.

There is great diversity among the Camellia japonica cultivars.

- Choice miniatures, which have flowers two and a half inches or less in diameter, include 'Man Size', which wins more camellia shows in the miniature division than any other. The bloom is a solid white, anemone form. 'Fircone' is an outstanding blood red miniature. It has a rose-form double flower with such great depth that it resembles a fir cone.
- Small flowers are those that are two and a half to three inches in diameter. One of the best is 'Pink Perfection', an old cultivar known in Europe as 'Frau Minna Siedel' and in Japan as 'Usu-Otome'. Its formal double bloom is shell pink. Many people picture it as typifying camellias because of its popularity in corsages years ago. 'Grace Albritton' has a miniature-to-small formal double bloom of light pink shading to deeper pink at the edge. This is a vigorous plant that has shown good cold tolerance.
- Medium flowers are those measuring three to four inches across. Among the

most outstanding of these is 'Debutante', another old cultivar that has remained popular through the years. The flowers are light pink and of a full peony form—a convex mass of irregular petals, petaloids, and stamens. Its blooming season is early; many flowers open before Christmas. 'Sawada's Dream' is another medium camellia with a formal double bloom. White petals in the center shade to delicate pink on the edge.

Few other plants bloom during the winter months when days are short and temperatures are cool. And unlike azaleas, for instance, camellias do not have a single, short flush of flowers, but open their blooms over a period of about four to six weeks.



'Yuletide'

■ Large flowers are those four to five inches in diameter, while those over five inches are considered very large. Among the popular cultivars in these categories, the American Camellia Society recommends 'Elegans', another old cultivar that remains well-loved today. Its flower is anemone-form, rose pink with center petaloids that are often white. There are many sports of this cultivar in varying shades of pink and white.

Another cultivar with a long list of sports is 'Betty Sheffield'; one notable for its unusual color markings is 'Betty Sheffield Supreme', whose flowers are semidouble to loose peony in form, and white with a deep pink to red edge on each petal.

'Carter's Sunburst' has semidouble to peony-form blooms that are pale pink with deeper pink stripes. 'R. L. Wheeler', a vigorous outdoor plant, has a very large, rose pink semidouble flower with a solid circle of stamens. 'Tomorrow' has red blooms that range in size from large to very large, and in shape from semidouble to full peony form. A second-generation sport, 'Tomorrow Park Hill', is soft pink with the same form. 'Guilio Nuccio' has a coral rose pink semidouble flower.

Another old cultivar, 'Ville de Nantes', has a dark red and white semidouble bloom whose upright fringed petals look like rabbit ears. 'Mathotiana', with an unusual purple cast to its crimson blooms, has also been known as 'Purple Dawn' or 'Rubra'; the flower form is rose to formal double. 'Show Time' is a popular show winner as the name suggests. Flowers are a clear light pink and semidouble in form.

Camellia sasanquas make beautiful additions to the landscape with delicate flowers that add color to the fall scene. Both the flowers and leaves of the sasanquas are generally smaller than those of japonicas; the blooms shatter easily and thus are not appropriate for cut flowers. Outstanding C. sasanquas include 'Bonanza', a deep red; 'Sparkling Burgundy', a ruby rose; 'Daydream', a white shading to pink; and 'Yuletide', an orange-red. Sasanquas are quite adaptable and can be pruned to form beautiful hedges and espaliers. They are more tolerant of full sunlight than the japonica cultivars.

In the last two decades a third species, Camellia reticulata, has gained great popularity. Hybrids of this species crossed with C. japonica have produced some outstanding new cultivars in shades of pink and Continued on page 35



# Hostas

#### BY JOHN MASON ALLGOOD

or the shade gardener, there are few plants that provide the versatility in size, form, and color of the hosta. And since hostas are grown primarily as foliage plants, they offer a spectacular sight all season, especially when planted so that the different colors and patterns complement and contrast with one another.

In size, hostas vary from the tiny border gems such as Hosta venusta, with its oneinch-long leaves and four-inch-high mounds, to the imposing background cultivars such as 'Sum and Substance', which has ten-inch-long leaves and mounds that reach two to four feet high: true Davids and Goliaths of the plant kingdom. Of course, there are many hostas in between, falling into small, medium, medium-large, and large categories. However, it must be remembered that the size of a given hosta will vary considerably according to where in the country it is grown, the immediate growing conditions, and the age of the plant. In the South, hostas do not grow as fast as in the North; they do not become as

'Frances Williams'

large at maturity, nor do they continue to increase in size and strength as they age.

■ The smallest hostas, which grow only eight inches high or less, are ideal for rock gardens or small shade gardens. They will blend well with other small perennials in raised, narrow beds; in accent points; and under small weeping trees. Japanese painted fern, Christmas fern, dwarf Japanese azaleas, native phlox, bedding begonias, and armeria mix well with the small and even medium-sized hostas for a charming display.

The most reliable performers among the small hostas include *H. venusta*, a stoloniferous species from Korea with heartshaped, soft green leaves that are one inch wide and one inch long. The flowers are violet. A mature clump of these tiny plants will rarely be larger than four inches high and eight inches wide.

The leaves of 'Little Aurora' (Aden) are cupped, puckered, rounded, and an intense chartreuse gold; its flowers are a light lavender. While the leaf size can reach two to three inches, the clumps remain relatively small at about five inches high and eight inches across. The smallest seedling of *H. tokudama*, 'Little Aurora', is a rather rapid propagator. It will take more sun

than many hostas, especially in the North, and is lovely planted with bronze-leafed bedding begonias and small ferns.

Our variegated entry in the small hosta class is 'Sea Sprite' (Seaver). This attractive stoloniferous hosta has a yellow-green base with wavy, dark green edges. It makes a neat, low, flat mound of lance-shaped leaves that beckon for attention. It is a rapid increaser with pale orchid flowers.

'Blue Moon', from the late Eric Smith of England, is a deep blue-green with rounded, crinkled, and puckered leaves. It makes a flat, dense clump close to the ground and produces white flowers in summer.

■ The medium or edging hostas are next in size. These plants grow to around twelve inches tall and up to eighteen inches wide at maturity. They can be used as an edging or border along a shaded path, providing low mounds of foliage during most of the season and bursts of taller lavender or white blooms during the summer. Most growers are not concerned with hosta blooms, but many varieties have blooms well worth displaying—and some are quite fragrant as a bonus.

'Ginko Craig' (Craig-Summers) is an excellent border or edging plant with lance-shaped leaves of deep frosty green bordered with a narrow band of bright white. It is versatile, a rapid increaser, and bears an abundance of lovely orchid flowers in midsummer.

Perhaps one of the most attractive of the edging varieties is 'Golden Tiara' (Savory), a charming spoon-leaved green hosta with a quarter-inch band of chartreuse that changes to light gold in the summer light. Blooms are a streaked, pale lavender. 'Golden Tiara' makes neat, rounded clumps.

A Japanese import, 'Kabitan', offers yet another variation on variegation with its yellow-centered leaves edged in dark green. Its foliage is arched, narrow, long, and lancelike. It is very showy, fills in quickly, and is ideal for the border. In early spring it is chartreuse.

'Blue Wedgwood', another English hybrid, can double as an edging hosta and a ground cover. It has rounded, cupped, crinkled leaves of a deep blue-green. Its blooms are lavender and appear in early summer. The clumps are neat, dense, and attractive.

A gold entry in the border class is 'Golden Prayers' (Aden). Depending on the amount of light, 'Golden Prayers' can be quite gold but can also be a gold chartreuse or even greenish gold. Its leaves are spade-shaped and puckered. Low, dense mounds are topped by short lavender bloom scapes, painting an attractive purple and yellow scene.

There are many schemes for using the border or edging hostas. A row of one cultivar, such as 'Golden Tiara', can be most effective in front of a larger hosta planting or in front of various shrubs. An alternating border of hosta and the gray form of the Japanese painted fern is another useful design. Or you can mix and match the edging hosta in an all-hosta setting.

Before planting, be sure to check the

'Francee'

normal growth size of the edging hostas in your area to avoid either overplanting or underplanting your space.

■ The ground-cover or medium-large hostas grow significantly larger than the edging hostas, ranging to eighteen inches high and two to three feet wide. These hostas are focal points as individual plants or as groups. They cover enough ground that they will help reduce the need for maintenance in the area where they are planted.

The aristocrat of the medium-large hostas is the powdery gray blue 'Krossa Regal' (Krossa). Distinctive for its upright vase shape, 'Krossa Regal' has long been a favorite. Its leaves are heavy and leathery. In the South, plants range from ten to fif-



In size, hostas vary from the tiny border gems such as Hosta venusta, with its one-inch long leaves and four-inch high mounds, to the imposing background cultivars such as 'Sum and Substance' which has ten-inchlong leaves and mounds that reach two to four feet high: true Davids and Goliaths of the plant kingdom.

Photo by Pamela Harper AMERICAN HORTICULTURIST 33

teen inches tall, but in the North, mature clumps stretch toward two feet in height. Light orchid blooms are born on scapes reaching six feet.

For a multicolor effect, 'Shade Fanfare' (Aden) is a clear choice. Its full leaves are two shades of green—light and dark—with a medium white margin and colorations of gold, white, and green. With more light, the golds intensify, giving a true tri-tone effect. Leaves are slightly puckered. Clumps are dense and increase rapidly, reaching a width of two feet or more. The mid-summer blooms are light lavender.

H. ventricosa 'Aureo-marginata' offers not only a blending of colors but also a magnificent shape. Basically, its heavy textured, heart-shaped leaves are light green edged in pale yellow. The yellow moderates to white as the season progresses. What makes 'Aureo-marginata' appealing are the streaks and splashes of yellow and white between the veins of the leaves from the edge to the center. The leaves have a gentle waviness and a notable twist at the tip; the violet flowers are a sharp contrast to the pale-edged leaves.

#### Sources for Hostas

Busse Gardens, Rt. 2, Box 238, Cokato, MN 55321, catalog \$2.

Crownsville Nursery, P.O. Box 797, Crownsville, MD 21032, catalog \$2.

Klehm Nursery, Rt. 5, Box 197, South Barrington, IL 60010, catalog \$4.

Shady Oaks Nursery, 700 19th Avenue, N.E., Waseca, MN 56093, catalog \$1.

Andre Viette Farm & Nursery, Rt. 1, Box 16, State Route 608, Fishersville, VA 22939, catalog \$2.

For blue enthusiasts, a good performer of medium-size is 'Halcyon', another of the Eric Smith English hybrids. 'Halcyon' is a vigorous grower and makes a good foil for gold- or silver-variegated hostas. It has low, rounded, chalky blue leaves of heavy substance and soft blue flowers.

One of the most satisfying of the variegated hostas is 'Francee' (Klopping) with its striking, deep forest green leaves neatly edged in bright white. The leaves are lanceshaped and firm; the late summer flowers

#### Growing Hostas North or South



'Golden Tiara'

Successfully growing hostas requires three important ingredients: a shady location, a soil rich in organic materials, and proper and sufficient watering.

While hostas are shade-loving plants, in the North the variegated and gold-leaved cultivars perform well in partial sun. In the South, where for many years hostas were an unknown plant, they need heavy shade, preferably under hardwood canopies, to offset the higher temperatures and brighter sun.

A good garden soil mixture of loam, sand, and humus (about one-third of each) suits hostas; however, even better performance will result from the addition of peat moss, leaf mold, compost, or well-rotted manure. Hostas need these organic amendments not only because they are heavy feeders, but also because they do better in well-drained soils that still retain some moisture.

Since hostas are foliage plants, they require careful watering. In periods of drought, water them slowly and deeply, long enough for the water to penetrate six inches into the soil. Avoid watering in the heat of the day or late afternoon.

Early morning is best so that the hosta leaves can dry before night when slugs, the hostas' most serious pest, are active.

Most hosta gardeners apply well-rotted or composted manure as a top dressing around their hostas in late spring. You can also use a slow-release fertilizer or a very weak (one-eighth to one-twelfth strength) solution of foliar fertilizer every two to three weeks during the growing season. Again, avoid fertilizing during the hottest part of the day. Do not apply any fertilizers until the hostas have emerged and begun growing in the spring.

For the most part, hostas do not need regular transplanting; they will only grow larger and more beautiful as they age. However, growers should be aware that there will be differences between the North and South in hostas' longevity and mature sizes. In the South, where hostas will not grow as fast or as large as they will in the North, moving them every four to five years may be necessary as they deplete the soil of nutrients. Nevertheless, the hosta is a magnificent shade plant, North or South.

are lavender. 'Francee' grows fast, making clumps eighteen inches high and up to two feet wide.

■ The background hostas are architectural plants that grow over two feet tall and make viewers gasp in wonder. In mature clumps, these plants not only make a

statement of their own but also can provide a near-hedge effect if planted in masses.

It is in this large class that we find some of today's most dependable and appealing hostas.

Long the most popular hosta, 'Frances Williams' (Williams) still commands im-

#### CAMELLIAS

Continued from page 31

red. Unfortunately, these plants are very cold-sensitive and most are grown in greenhouses, even in the deep South. However, they may be grown outdoors in Southern California and Florida, Popular C. reticulata hybrids include 'Valentine Day', which has a large to very large salmon pink flower and a formal double bloom with a rosebud center. 'Dr. Clifford Parks' has won numerous awards. Its flowers are very large, red, and semidouble to loose peony in form. 'Jean Pursel' is perhaps the largest of all camellia cultivars. It has a light purplish pink, peony-form flower. 'Harold L. Paige' has a bright red, very large flower of a double-rose to peony form.

#### Sources for Camellias

Camellia Forest Nursery, 125 Caroline Forest, Chapel Hill, NC 27514, catalog

Magnolia Nursery & Display Gardens, Rt. 1, Box 87, Chunchula, AL 36521, catalog \$2, price list free.

Nuccio's Nurseries, 3555 Chaney Trail, Altadena, CA 91001, catalog free.

There are also many camellia hybrids that combine two or more species, one usually being C. japonica. These hybrids many of them imports from England, Aus-

#### Camellia Care: Site, Planting

The keys to success with camellias are a good location and proper planting. Plant them in soil high in organic matter with a slightly acid pH. Provide protection from the wind and from full sun.

Prepare a wide hole and position the top of the root ball so that it is even with the surrounding soil. A two- to threeinch mulch on top of the soil will help maintain soil moisture and moderate soil temperatures.

Proper watering on a weekly basis is necessary when rainfall is scarce. The soil surrounding camellias should be kept moist, but not soggy. Pruning and fertilizing each spring with a wellbalanced fertilizer will help ensure vigorous new growth. Camellia roots grow near the surface of the soil, so the fertilizer should be spread evenly on top of the mulch to avoid root burn.

Those who wish to grow camellias in climates with harsh winters can successfully grow them in containers if they water them frequently and feed them with slowrelease fertilizer. A loose potting mixture will help prevent root rot. The containers can stay outside in the warmer months and should be brought into a cool, humid environment when the weather turns cold: camellias will not bloom well in a heated room with low humidity.

tralia, or New Zealand - have introduced the more orchid shades of pink to the camellia family with popular cultivars such as 'Angel Wings', 'Elsie Jury', and 'Charlean'.

Among the more than 200 camellia species, very few are cultivated in the United States. One species worth considering for the landscape is the common tea plant, C. sinensis, with its lush green foliage and small white blooms in the fall. While the other species have smaller flowers than the C. japonica or C. reticulata and their cultivars, they too would nevertheless be attractive landscape plants. Hybrids are being developed to introduce not only cold-hardiness, but also fragrance and a broader color range of flowers, including vellow. The future of camellias looks bright indeed!

Betty Hotchkiss is horticulturist for the American Camellia Society. Additional information about the society can be obtained by writing the American Camellia Society, P.O. Box 1217, Fort Valley, GA 31030

mediate attention. It is large, variegated, and round. Its sumptuous, cupped leaves are blue-green with wide, irregular gold vellow edges. It is eve-catching from a distance and makes a fine accent plant. The blooms are pale lavender.

For sheer size, 'Sum and Substance' (Aden) is a top contender. With individual leaves that can measure ten inches by nine inches, it can make a clump two and a half to three feet tall and two to three feet wide. I once moved a plant that filled the entire back seat of my car. Impressive! Its glossy, textured leaves are of very heavy substance and range from light green to chartreuse, becoming golder in some climates. The flowers are lavender. If you want a stately hosta, this is it.

People who remember hostas from years ago usually associate them with the fragrance of the old "August lily" (H. plantaginea). A proven hosta that offers that same sweet fragrance is 'Royal Standard' (Summers). Its leaves are plain light green, lightly ribbed, and glossy on the upper side. Its main attraction, though, is the large white blooms it bears in late August to early September, which cast a sweet fragrance over the garden. 'Royal Standard' is a robust grower and a fast increaser.

'Christmas Tree' (Seaver), a seedling from 'Frances Williams', offers a pleasing contrast of deep green leaves and narrow yellow edges. The leaves are large, textured, and rounded; its flowers are light lavender. A clump is stunning.

For mass planting, 'August Moon' (Summers) is very effective. The leaves are rounded, crinkled, and large; their soothing light yellow or chartreuse color holds throughout the season, and serves to highlight other hostas or nearby plants.

Another exciting golden hosta is 'Piedmont Gold' (Payne), whose large, curved leaves make a most showy clump. The white flowers appear in mid-summer.

These are only a few of the most popular and reliable hostas. Many of these cultivars are available at local garden centers or from mail-order sources, and most are relatively inexpensive. Thus, whatever your shade requirements, you can find hostas from the very small to the very large to enhance your planting. Think hosta! Plant hosta!

John Mason Allgood is a professional writer living in Walterboro, South Carolina. He is a member of the American Hosta Society Board of Directors and is its publications chairman. Information about the society can be obtained by writing to its secretary-treasurer, Dennis Paul Savory, 5300 Whiting Avenue, Edina, MN 55435.



# Dahlias

#### BY S. McQUITHY BOYER AND HARRY RISSETTO

ardeners who grow dahlias can be divided into two groups. The majority grow dwarf or bedding dahlias as small border plants. Dwarf dahlias will flower abundantly throughout summer and fall, brightening gardens with masses of small blooms. They are widely available at garden centers, but as popular as they are for landscaping, they have not as yet become a hobby plant.

The second group of gardeners are devoted to the tall-growing dahlia cultivars that serve as specimen plants or form a striking backdrop in a perennial bed. It was the growing, breeding, and showing of these plants that inspired the establishment of the American Dahlia Society in 1915 by a small group of dahlia fanciers; the society currently has a membership of more than 2,000.

The diversity of the tall-growing dahlia has attracted enthusiasts since it was first introduced to Europe from its native Mexico during the late eighteenth century. Dahlias are available in a variety of colors,

'Hamari Girl'

forms, and sizes to fit any garden or match the whims of flower arrangers. There are whites, yellows, pinks, reds, purples, lavenders, and bronzes. There are bicolored dahlias with two distinct and separate colors on the petal, variegated dahlias with petals of one color and flecks or stripes of a second color, and blends.

In size, dahlias range from the pompons, which are under two inches in diameter and often in the shape of a golf ball, to the giants that are twelve to fourteen inches across and sometimes larger.

By the end of the growing season, dahlias will range in height from three to six feet, depending on how much sunshine the plants receive, and they do require support to keep them upright. The smaller dahlias will often start blooming in mid-July and continue blooming until frost.

It is the form of the dahlias' petals that serves as the basis of their classification by the American Dahlia Society. At one end of the spectrum is the very refined formal decorative, which has a flat, wide petal that reflexes to the stem to form a sphere; on the other is the straight cactus dahlia, whose petals are rolled up along their full length and radiate in all directions from the flower's center. Informal decorative

dahlias have ray florets that are twisted, curled, or wavy; those called semi-cactus have ray florets curled up for half their length.

Dahlias can be grown from seed or tubers. The tubers will produce a flower true to type, whereas those started from seed will not be the same as the parent plant and will often have only a few rows of petals. Unlike most perennials and other tuberous plants, dahlias grown from seed will bloom the same year and usually produce roots from which more dahlias can be grown the following year.

Their extraordinary diversity makes the task of selecting a particular cultivar a daunting one. Some gardeners begin this process by focusing on color. Others seek blooms of a particular size, although it should be noted that for the most part, the size of the dahlia plant is determined by its site and growing conditions. Other dahlia collectors choose to concentrate on those of a single form.

In the short list that follows, we have identified a selection of dahlias that have been successful on the show table and grow reliably in the garden. They are generally available from local dahlia societies or from specialist commercial growers.

Each year, about seventy dahlia societies throughout the United States and Canada exhibit dahlias during late summer and early fall. From these shows we collect and tabulate the show information by regions, and publish an annual handbook listing dahlias that were exhibited and their awards.

The American Dahlia Society has established an annual award for the dahlia that has received the most awards during the preceding year. This award, the Stanley Johnson Medal, was named for a longtime commercial grower who did much to popularize American dahlias throughout the world. Of the many cultivars that Johnson himself originated and introduced, one of the best known is 'Pennsgift', a lavender giant that often wins the largest-bloom-inthe-show award.

## Cultivars that have received the Stanley Johnson Award are:

'April Dawn', a lavender and white blend seven to eight inches across.

'Magic Moment', a white with an occasional pale lavender blush and an unusual spur at the tip of each petal, seven to eight inches across.

'Walter Hardisty', a pure white with very good depth, ten to twelve inches across.

■ Smaller dahlias that are suitable for home gardens and arrangements include:

'Poppet', an orange pompon under two inches on very good stems. A pompon is a ball-like bloom with quilled ray florets that have rounded tips.

'Glenplace', a purple pompon.

'Yellow Baby', a yellow pompon.

'Crichton Honey', a bronze ball three to four inches across.

#### Sources for Dahlias

Connell's Dahlias, 10216 40th Avenue East, Tacoma, WA 98446, catalog \$1.

Hookland's Dahlias, 1096 Hom Lane, Eugene, OR 97404, catalog free.

Kordonowy's Dahlias, P.O. Box 568, Kalama, WA 98625, catalog free.

Swan Island, P.O. Box 800, Canby, OR 97013, catalog \$2.



'Miss A'

'Lavender Blue', a lavender ball three to four inches across.

'Hamilton Lillian', a nice orange, five to six inches in diameter.

'Stevie D', four to five inches across, a bright red with white tips.

'Doris Day', also four to five inches, a dark red with revolute petals and a three- to four-inch bloom. 'Brookside Snowball', a pure white with involute petals.

'Rebecca Lynn', a dark pink, three to four inches in diameter.

## ■ If you would like to try one of the larger dahlias, consider:

'Juanita', a seven-to-eight-inch dark red that has been a consistent winner since 1951

'Miss A', a very nice orange cactus of six to seven inches.

'Edna C', a yellow with petals that reach around to the stem to form a ball shape, seven to eight inches across.

'Kidd's Climax', a blend of lavender and white that is easy to grow and has been a consistent winner since 1940; about eight to ten inches.

'Hamari Girl', a pink giant particularly easy to grow.

'Sarah Jane', an orange blend eight to ten inches in diameter.

'Stellyvonne', eight to nine inches and pale yellow. The tips of the petals have two or three splits about a half inch long that create an unusual form we call "laciniated."

'Zorro', already a big winner at two years old, a dark red with a velvet sheen, ten to eleven inches across.

There are other dahlias classified as single, peony, orchid, and water lily that are gaining in popularity in arrangements and in shows. The singles are open-centered with one row of ray florets surrounding a disk. In the peony-flowered dahlias, the disk is surrounded by two or more rows of ray florets, and the florets next to the disk are irregular in form, curled, or twisted. In orchid-flowered dahlias, the ray florets curl inward for at least two-thirds of their lengths and some overlap. Water lily dahlias are characterized by large, broad, and generally sparse ray florets that are straight or slightly incurved so that the flower has a flat appearance.

The best way to select dahlias for your garden is to visit a local dahlia show and copy down the names of the cultivars that you find appealing. Bring along several sheets of paper, because your list will be a long one.

Continued on page 38

S. McQuithy Boyer is first vice president of the American Dahlia Society. Harry Rissetto is editor of the society's publication, the Bulletin. For more information on the society, write to its membership chairman, Michael L. Martinolich, 159 Pine Street, New Hyde Park, NY 11040, or call (516) 742-3890.

## Key Requirements for Dahlias

Sun, water, and support are the three keys to successful dahlia culture. Beginning with a tiny "eye" or shoot on the crown of a tuber, a typical dahlia will develop over the next four months to a bloom-filled plant five or more feet tall.

Dahlias need a sunny location; six hours of full sun is a minimum. While dahlias will tolerate a wide variety of soils, good drainage is a must. Ideally, it should also be friable and fertile. pH readings of 6.5 to 7 are preferred, but the experts will argue whether a moderate deviation affects performance. Dahlias should be planted three feet apart to provide adequate room for the mass of feeder roots that will develop during the growing season and to assure enough air circulation to avoid or minimize mildew.

Dahlias are planted, after the frost, four inches deep and approximately two inches away from a sturdy wooden or metal stake. The plant will need firm support when the summer storms push it about. Make sure the eye or shoot is facing up when you fill in the planting hole. Write the name of the dahlia on a plant tag and secure it to the stake during planting.

When the dahlia shoot has formed several pairs of leaves, pinch out the tip of the shoot. This encourages development of lateral shoots at the axis of each leaf and the stem. Cultivars that form large blooms usually are limited to four to six laterals; those with smaller blooms will support eight to twelve laterals.

Begin tying the plant to the stake when it is twenty-four inches high. Use hemp or a soft cord; tie it loosely about the plant and tightly about the stake. Remember, the stalk will increase in girth as the plant grows larger, unless it is strangled by a tie that was too snug against the young stalk. Add ties as the plant becomes taller, and release the lower ones.

Dahlias require an inch of water per week throughout the growing season, and more during blooming time. If the plant dries out, the stalk will become woody and growth will be stunted.

The plant will begin to form buds about eight weeks after topping. This

timing varies with the cultivar and the growing conditions. Usually, the buds will form in threes at the tip of each shoot. Sometimes two buds and a shoot will form. Pinch out the buds and any lateral shoots that begin to develop down the stalk. The object is to have a single bloom on the end of a long straight stalk. To have blooms of good quality throughout the season, permit a replacement lateral shoot to develop near the base of each original lateral. These shoots will form a second flush of flowers later in the season. With care, you can produce third and fourth flushes by repeating the same procedure.

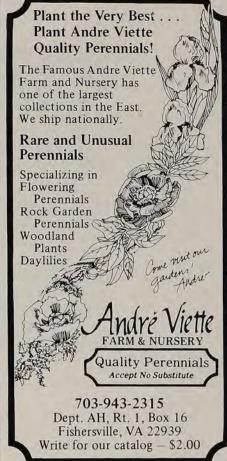
Most experienced growers fertilize with a low-nitrogen fertilizer during mid-July. A handful around the drip line of each plant is satisfactory. A mulch after fertilization will aid growth.

The dahlia plant will bloom until the first hard frost. In areas that are frost-free, plants should be permitted to become dormant toward the end of the year, then dug and divided in spring. Each division should include an eye or shoot.

Where the ground freezes, dahlias must be dug up and stored until spring. Cut the stalk about a foot above ground level and secure the plant's name tag. Using a spade, cut a circle with a twelveinch radius from the stalk. Gently lift what has become a clump of dahlia tubers and remove the excess soil. The tuber is connected to the crown and stalk by a fragile neck; try not to break the necks. Wash off the clump and let it dry in a protected area until the surface of the tuber is dry to the touch. Divide the clump in half by cutting down the stalk, tag each half, and store them in boxes filled with peat moss or vermiculite. Store the dahlias in a cool, frost-free area. Check them periodically during the winter and remove tubers that show signs of rot or disease.

The roots are taken out of storage in early spring and placed in flats filled with soil or vermiculite. Keep the flats moist and in a protected area. Plant those dahlias that show root development and vigorously growing shoots.

If you follow these directions, you will have the quality blooms that have made the dahlia a garden superstar.





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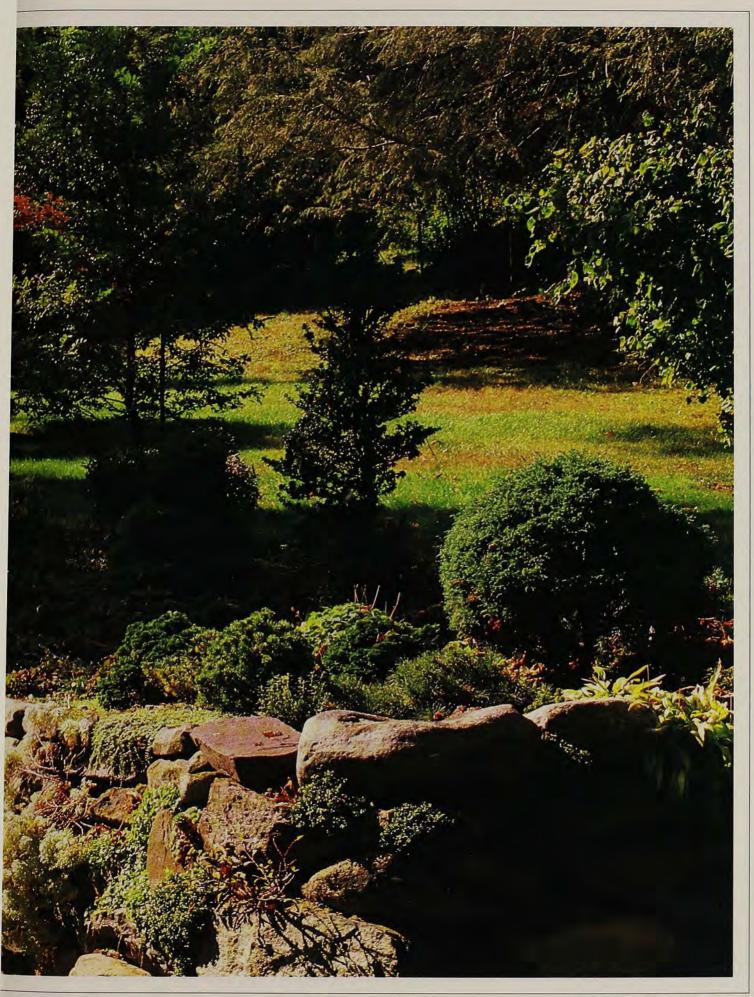


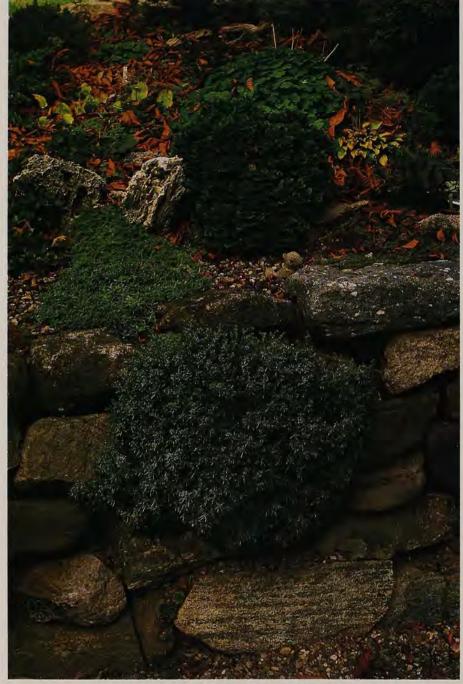
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Preceding page: The Smiths found that a raised rock bed offered the precise drainage needed by alpines and slow-growing conifers. Behind a collection of dwarf pines and false cypresses, a 'Watnong' Japanese maple glows with fall color. Above: Dianthus and dwarf forms of junipers and cypresses complement each other. Opposite: Thuja 'Watnong Gold'.

discriminating gardeners. By locating the most choice plants through exploration and importation, and propagating the very best, they created a legacy that encouraged other growers to continue in their footsteps. And they solved one of the most perplexing problems faced by keen gardeners toward the end of their lives: how best to preserve an outstanding plant collection.

Don Smith had served more than thirty years as a teacher, principal, and then superintendent of schools in Parsippany-Troy Hills when he and Hazel were asked to help maintain the property of two elderly women living on nearby Watnong Terrace. Located on the side of an Appalachian Mountain Ridge, the Watnong area had received its name from the Leni-Lenape Indian word for "place of the hill." Its sheltered microclimate created an ideal horticultural environment. But the Smiths were aghast at the tangle of overgrown shrubbery they found. The property would be attractive, they believed, if it could be

landscaped with conifers, broadleaf evergreens, and alpines of low and predictable growth rates—plants that require little pruning and never outgrow their alloted spaces.

Their research quickly revealed that many such plants existed, but hadn't been introduced to Eastern gardeners. They may have been inspired in their choice of plants by an outstanding conifer collection only fifteen miles east of them in South Orange, New Jersey, where William Gotelli had spent fifteen years accumulating curious dwarf specimens. Gotelli eventually presented his own collection to the U.S. National Arboretum. The curator of that collection, Susan F. Martin, says that although she can find no record of communication between Gotelli and the Smiths, "to my knowledge, early on, they exchanged some plant material." But Gotelli did not sell his plants; it would remain for the Smiths to search for sources worldwide and to make these ornamentals available to gardeners.

The Smiths ferreted out rare plants in the private gardens of alpine experts, in remote botanical gardens and arboreta. Together with their daughter, Jacqueline, they traveled throughout the United States and then abroad on collecting expeditions.

Eventually they purchased the homesite that inspired this pursuit—a modest house with an acre and a half of ground-where they established Watnong Nursery. By 1961, their first plants were for sale: forty varieties, the gleanings of their earliest collecting and propagating efforts, were displayed modestly on their front lawn. By 1964 and 1965, their offerings increased dramatically, to a catalog of 176 selections. They included unique forms of pines, spruces, Chamaecyparis, and Cryptomeria. The Smiths also sold Sciadopitys verticillata, the slow-growing Japanese umbrella pine noted for its formal pyramidal shape.

Also offered were low-growing azaleas and rhododendrons, as well as shade and flowering trees that until then had been little used in the Northeast. Some of these trees, such as *Ulmus monumentalis* 'Orea', a golden-leafed elm, apparently proved too difficult in northern New Jersey; they were eventually excluded. But there were more additions than subtractions. By 1977, when they sent their inventory to the National Arboretum, it numbered a remarkable 800.

The Smiths were scholarly in recording soil and light preferences as well as growth habits at both five and ten years. By carefully measuring their stock, they could refine their offerings and eliminate those that outgrew their expected size. The descriptions in even their earliest catalogs were valuable and reliable; I have saved and used their 1964 listing for twenty-six years.

Don Smith built a small greenhouse for most of his propagating needs, lathing structures for shade lovers, a variety of cold frames, and a Nearing frame - a tight wooden box with an aluminum and glass insert that is always turned to face the north. In it, the Smiths were able to propagate many difficult-to-root hemlocks.

The results quickly filled their relatively small garden. In one place, a pinetum of unusual dwarf pine, spruce, juniper, and other conifers was grown for display. Trailing types cascaded up and down the slightly sloping terrain. Steps were built to an elevated area; a small pool was dug at its base and planted with bog-dwellers. A raised rock bed offered the precise drainage required by alpines and the slowestgrowing conifers. Plants in containers or heeled in mulch crowded the entire lot.

Don Smith often admitted that neither he nor Hazel was interested in landscape design; that was the buyer's concern. But by appointment only, Don was more than willing to devote whatever time was needed to help gardeners make appropriate selections. As his tall frame bent over a diminutive subject, he pointed out every intimate detail of the plant's appearance while describing its expected growth rate and eventual size. His voice was soft, at times only a whisper. His style was pedantic, yet infinitely patient. Few who came to learn would go away disappointed.

About the time that the Smiths pur-

chased their home/nursery, the Donn family was enjoying their new home next door. Frank Donn had built their house, also on an acre and a half, with his own hands. But skillful as he was, gardening was not on the agenda; he and his wife were too busy with fulltime jobs and a young child.

The Smiths and Donns never socialized but were quite friendly, and no one could have completely ignored the frenetic activity of delivery trucks arriving at the nursery, buyers coming and going, rows of plants spilling over the property line. But the Donns smiled and took it all in stride. Occasionally, Hazel offered Helen and Frank Donn a fine tree for their own property so she could enjoy it at a distance. Eventually, these neighbors looked closer at Watnong's treasures. In exchange for Frank's help with nursery chores, the Smiths helped them landscape the front of their home. In time, Frank cleared the Donns' back lot to begin their own new garden.

The Smiths were not content merely to sell unusual plants. All through their sixties and seventies, they traveled to lecture interested groups, taking heavy plant specimens with them in their car. Color slides might have sufficed, but to the Smiths, there was nothing like the real thing!

They also combined their talents to write in horticultural journals, highlighting some of the plants they had propagated or rescued. Typical was an article in the 1971 Brooklyn Botanic Garden's Handbook of Rhododendrons and Their Relatives, in which they described two relatively unknown American plants. One, the box huckleberry (Gaylussacia brachycera) had once been thought nearly extinct. After its rediscovery, the Smiths spent years tracking it down. They collected material from thirty-five colonies in seven states to which it was native, and propagated a variety of its forms.

The second, the sand myrtle (Leiophyllum buxifolium) was also collected and reproduced by the Smiths. They especially enjoyed this dainty, white-flowered plant in its lowest forms, L. buxifolium 'Nanum' and the variety prostratum.

Ever alert to exciting varieties, Hazel and Don welcomed keen plant observers who occasionally presented them with their discoveries. Especially prized were unusual dwarf hemlocks. Tsuga canadensis 'Cloud Prune' was brought to them by a Mr. Wallbridge of Sussex County, New Jersey, and T. canadensis 'Watnong Star' by Robert Clark of New Hampshire. Don, who registered the latter in 1972, described it as "a soft mound with starlike growth." The crested tipped T. canadensis 'Bacon Cristate' was one of ten hemlocks discovered by Ralph Bacon of Newton, New Jersey. The originals were seedlings of a witch's broom, an abnormal growth that occurs on some woody plants. All were more than sixty years old and still less than three feet tall. Although five forms survived, Don registered only one.

Of all the Smiths' introductions, Daphne 'Carol Mackie' probably has received the widest distribution. It is a three- to fourfoot evergreen shrub (partly deciduous from Zone 5 north) with fragrant pink flowers. A plant with variegated green and white foliage is sometimes sold under that name, but in a 1972 listing, Don asserts that "the leaves are gold-banded."

Don Smith bred some new dwarf Pinus banksiana, also from a witch's broom, and Pinus strobus, which he called 'Hazeli Clumpy'. He experimented frequently with seeds and cuttings of dwarf Chamaecyparis obtusa, the Hinoki cypress. One of its sports he named C. obtusa 'Draht' after the German nurseryman who brought it to him. This distinctive conical plant has small gray-green leaves with golden highlights.

With characteristic humility, Don would permit none of these cultivars to carry his own name. But after his death, other growers concluded that a dwarf pine was so outstanding that it deserved to be called Pinus resinosa 'Don Smith'. This low, broad pine had been brought to Don Smith in 1960 by Leonard Bailey of Mendham, New Jersey.

The Smiths cherished their friendships



and enjoyed communication with some of the most notable horticulturists of the day. They also proffered a helping hand to many people just entering the nursery profession. "Their foremost contribution to horticulture was the strong and positive influence that they had on young people" who were starting out in the trade, says Jim Cross of Environmentals, a Cutchogue, Long Island, nursery. Bob and Diane Fincham of Mitch's Nursery recall how the Smiths sold them stock "at ridiculously low prices." After the Finchams moved their nursery to Oregon, they set up a display area they called "Watnong Arboretum" so that when asked about the name, they would have an excuse to describe the accomplishments of Don and Hazel Smith.

The Smiths had a passionate interest in native plants long before it was fashionable, observes Quenton Schlieder, secretary-director of the Morris County, New Jersey, Park Commission. "In their quiet way, Hazel and Don found beauty in everyone and everything around them," he says.

Betty Cummins of Marlboro, New Jersey, recalls her amazement when an elderly Hazel Smith visited the Cummins Nursery wearing a full body brace; it didn't stop her from bending down to sniff the fragrant flowers of a small *Daphne retusa*.

As the Smiths reached their eighties, friends assisted with the nursery chores. Roger Baker, a nearby conifer fancier, was often on the scene potting and transplanting. Their neighbors, the Donns, had by now been drawn into the activities.

At this point, the Smiths decided to proceed with their plans for disposition of their holdings, most of which they knew would outlive them. An assortment of rare dwarf hemlocks went to Cornell University. A fine group of Hinoki cypresses may be seen at Planting Fields on Long Island, and some twenty forms of this plant will soon be displayed in a new rock garden at Frelinghuysen Arboretum in Morristown, New Jersey. Yet another collection went to the Royal Horticultural Society at Wisley in England. The National Arboretum received a selected group of maturing dwarf pines in 1978. Of these, fifty-one out of sixty survived the difficult transplant and may now be seen on a hillside adjacent to the Gotelli collection. Other beneficiaries included the Arnold, Strybing, and University of Washington arboreta.

Only a few of the Smith originations are currently available in the trade. But now, thanks in part to their inspiration, there is an ever-expanding selection of conifers from which gardeners may choose.

The story has come almost full circle.

### Sources



Chamaecyparis obtusa 'Draht' Cummins Nursery 22 Robertsville Road Marlboro, NJ 07746

Daphne × burkwoodii 'Carol Mackie' Oliver Nursery 1159 Bronson Road Fairfield, CT 06430 (no mail order)

Rice Creek Gardens 1315 66th Avenue N.E. Minneapolis, MN 55432

Wayside Gardens 1 Garden Lane Hodges, SC 29695

Gaylussacia brachycera Oliver Nursery

Leiophyllum buxifolium Greer Gardens 1280 Goodpasture Island Road Eugene, OR 97401

Roslyn Nursery 211 Burrs Lane Dix Hills, NY 11746

Leiophyllum buxifolium var. prostratum Oliver Nursery

Thuja occidentalis 'Watnong Gold' Oliver Nursery

Thuja 'Watnong' Siskiyou Rare Plant Nursery 2825 Cummings Road Medford, OR 97501

Tsuga canadensis 'Bacon Cristate' Cummins Nursery

Kristick Nursery 155 Mockingbird Road Wellsville, PA 17365

Tsuga canadensis 'Watnong Star' Kristick Nursery Just as the Smiths had helped care for their home's previous owners, the Donns looked after them in their waning years. And what is left of Watnong Nursery today is the peaceful landscape of those one-time reluctant gardeners, Helen and Frank Donn. It has been rebuilt with loving care on the remains of the crowded nursery that preceded it. The Smiths suspected that this would happen-that their neighbors would become perfect caretakers. Before they died, they arranged things so that this couple of modest means would be able to buy their property at a modest price. The combined three acres is now one pleasant unit, and the Donns hope to locate and return to Watnong some of its lost treasures.

The design of the garden is simple. Grassy paths separate beds, now curved and expanded, running longitudinally to the house. Many of the beds are carefully defined with railroad-tie walls replacing the old concrete retainers. The bed for alpines and other choice dwarfs has been rebuilt with fine workmanship. New perennials, notably some unusual hostas and lovely shrubs, have filled in the gaps where the Smiths' donated collections were removed. Many original small trees remain: Cornus kousa, Laburnum × watereri, Franklinia alatamaha, and two different kinds of Davidia, the rare handkerchief tree. In mature dignity at the center of attention stands Acer palmatum 'Watnong', a red- and green-leafed Japanese maple. Thuja 'Watnong Gold' adds color in another area; a large Kalmia bears bright pink flowers in June; and a tall, intensely blue-needled Sequoiadendron 'Hazel' towers over the entire garden. There is also a new fish pool surrounded by dwarf conifers.

Abby Brody, a knowledgeable horticulturist, rents the former Smith house from the Donns and assists with the gardening. Brody knew that the Smiths loved and collected hollies, but could keep only a few that grow very tall. She recently wrote about Hazel's favorite, a twenty-foot Ilex 'San Jose', which she sees every day from her kitchen window: "One November morning, there was a snow shower. Even as the white flakes settled along the arched branches, the sun back-lighted the tree, creating a moment of exquisite beauty. Berries of the brightest red glowed like jewels set above the glossy green leaves nestled in the snow."

In many other gardens as well, plants that the Smiths had deemed special continue to add joy. It is a legacy from which untold numbers will continue to benefit.

Ruby Weinberg is a frequent contributor to American Horticulturist.

# **Pronunciations**



Nymphaea pygmaea 'Helvola'

Abies bracteata AY-beez bracht-ee-ATE-ah Abutilon megapotamicum ah-BEW-tih-lon meg-ah-po-TAME-i-kum Acanthomintha obovata subsp. duttonii ah-can-tho-MIN-tha oh-boe-VATE-ah subsp. do-TONE-ee-eye Acer palmatum var. dissectum AY-ser pal-MATE-um var. die-SECT-um Amsinckia grandiflora am-SINK-ee-uh grand-ih-FLOR-ah

Aquilegia caerulea ak-kwi-LEEJ-ee-uh see-REW-lee-ah

A. eximia A. ex-IM-ee-uh Arctostaphylos hookeri subsp. ravenii ark-toe-STAFF-il-ose HOOK-er-eye subsp. rah-VEN-ee-eye

Athyrium filix-femina a-THIRE-ee-um FILL-icks-FEM-in-ah

Brodiaea pallida bro-dee-EE-a PAL-ih-dah Calochortus pulchellus kal-oh-CORT-us pul-KEL-us

C. raichei C. RAKE-ee-eye Camellia japonica kah-MEAL-ee-uh jah-PON-ih-kah

C. reticulata C. reh-tick-yew-LATE-ah C. sasangua C. sah-SANK-quah

C. sinensis C. sin-EN-sis

Carpinus betulus car-PINE-us BET-yew-lus Ceanothus kee-ah-NO-thus

Cercocarpus betuloides var. traskiae ser-ko-KARP-us bet-yew-loh-IDE-ezs var. TRASK-ee-ee

Chamaecyparis obtusa kam-ee-SIP-er-us ob-TOOS-ah

Chrysanthemum × superbum

kruh-SANTH-uh-mum × sue-PER-bum Clarkia springvillensis CLARK-ee-uh spring-vil-EN-sis

Clematis paniculata klem-ATE-us pan-ick-yew-LATE-ah Cornus kousa KOR-nus KOO-sah Cotinus coggygria ko-TINE-us ko-IYG-ree-ah Cryptomeria kript-o-MEER-ee-uh

Cupressus pygmaea kew-PRES-us pig-ME-ah

Daphne retusa DAF-nee re-TOOS-ah Darlingtonia californica

dar-ling-TONE-ee-uh kal-i-FORN-i-kah

Davidia dah-VID-ee-uh

Downingia dow-NINJ-ee-uh Echinocereus eck-kin-o-SEAR-ee-us Fagus sylvatica FAY-gus sil-VAT-ih-kah

Ferocactus fe-ro-KAK-tus

Franklinia alatamaha frank-LIN-ee-uh ah-lah-tah-MAH-ha

Gaylussacia brachycera

gay-lew-SACK-ee-uh brack-ih-SER-ah Heliconia wilsonii hell-ih-CONE-ee-uh wil-SONE-ee-eve

Heuchera micrantha who-KARE-ah mv-KRAN-tha

Hibiscus syriacus high-BISK-us SEER-ee-ah-kus

Hosta plantaginea HOST-ah

plan-tadge-i-NEE-uh H. tokudama H. toe-ku-DAME-ah

H. ventricosa H. ven-tri-KOSE-ah H. venusta H. ve-NOOST-ah

Ilex × meserveae EYE-lex ×

me-SERV-ee-ee

Juniperus virginiana joo-NIP-per-us vir-GIN-ee-AIN-ah

Kalmia KALM-ee-uh

Laburnum × watereri la-BURN-um × wa-ter-ER-eve

Lasthenia burkei lass-THEEN-ee-uh BURK-ee-eye

Leiophyllum buxifolium var. prostratum lye-o-FIL-um buck-si-FOLE-ee-um var. praw-STRATE-um

Liatris spicata lye-ATE-trus spy-KATE-uh

Liriope spicata li-RYE-o-pe spy-KATE-uh Maianthemum kamtschaticum my-AN-themum kam-SHOT-ti-kum

Miscanthus sinensis mis-CAN-thus sin-EN-sis

Nymphaea pygmaea NIM-fee-ah pig-ME-ah

Opuntia oh-PUNT-ee-uh

Oxalis oregana ox-AL-iss or-ee-GANE-ah Pachysandra terminalis pak-ih-SAND-rah ter-mi-NALE-is

Papaver orientale PAH-pay-er or-ee-en-TAL-ee

Pinus banksiana PINE-us bank-see-AIN-ah

P. resinosa P. rez-i-NOZE-ah P. strobus P. STROBE-us

Polygonum aubertii poe-LIG-oh-num oh-BAIR-tee-eye

Polystichum munitum PO-liss-tee-kum mew-NEET-um

Presidio clarkia pre-SID-ee-o CLARK-ee-uh

Prunus cerasifera PRUNE-us ser-ah-SIF-er-ah

P. subhirtella P. sub-her-TELL-ah

Puya raimondii PEW-yah ray-MOND-ee-eye

Quercus robur QUER-kus ROW-ber Rudbeckia fulgida rude-BECK-ee-uh

FULL-jid-ah Satureja douglasii sat-yew-REE-yah

dug-LAH-see-eye Sciadopitys verticillata

sky-ah-DOP-ih-tiss ver-tis-see-LATE-a

Sequoia sempervirens see-QUOY-uh sem-per-VIRE-enz

Sequoiadendron see-quoy-ah-DEN-dron Stachys byzantina STACK-iss

bve-zan-TIN-ah

Taxus × media TACKS-us × MEAD-ee-uh

Thuja occidentalis THOOG-ah ok-si-den-TALE-is

Tiarella unifoliata tie-a-REL-uh

vew-ni-fol-ee-ATE-ah

Tibouchina laxa ti-boo-CHEEN-ah LACKS-ah

Tilia cordata TILL-ee-uh core-DATE-ah Trillium ovatum TRIL-ee-um o-VATE-um

Tsuga canadensis SOOG-ah can-a-DEN-sis Ulmus monumentalis ULL-mus mon-yew-men-TALE-is

Vaccinium ovatum vack-SIN-ee-um o-VATE-um

Vancouveria planipetala van-koo-VER-eeuh plan-i-PET-a-lah

Vitis labrusca VY-tus lah-BRUSS-ka

Whipplea modesta WHIP-lee-ah mo-DEST-ah Wisteria floribunda wis-TEER-ee-uh

Yucca filamentosa YUCK-ah fill-ah-men-TOE-sah

flor-i-BUND-ah

