

American Horticulturist

June 1995

A Publication of the American Horticultural Society

\$2.95

THE LEGENDARY LOTUS
CULTIVATING CONEFLOWERS
A PIEDMONT LEGACY
FINDING A DESIGNER



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ASHLEY STEPHENSON

Chief Horticulturist of England's Royal Palace Gardens, retired.



I realized the dream of every English gardener
when I was put in charge of the Royal Palace gardens.

My mission was to further enhance their beauty. That was when
I first used Miracle-Gro. The results it achieved were outstanding.

I'm still using Miracle-Gro, although today,
the only garden I'm enhancing is my own.

Ashley Stephenson



MIRACLE-GRO

American Horticulturist

Volume 74, Number 6

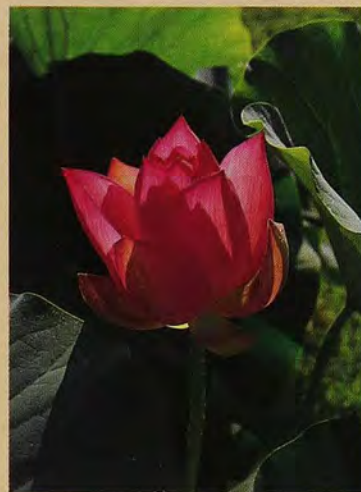
June 1995

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JUNE'S COVER

Photographed by Molly Dean

The rare *Nelumbo caspicum*, thought by some to be a separate species and by others to be a botanical variety of the Asian lotus, *N. nucifera*, grows along the Volga River and is legally protected in Russia. In a 1963 plant expedition for the U.S. Department of Agriculture, John Creech collected the lotus from the Nikitsi Botanic Garden in Yalta. Plants were propagated from roots sent to Longwood Gardens in Kennett Square, Pennsylvania, and distributed to other gardens and nurseries. Beginning on page 38, Creech and free-lance writer Molly Dean discuss the religious and cultural traditions associated with the lotus, its many forms and colors, and its easy care.

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COMMENTARY

My wife, Mary, and I planned a special activity for our family to enjoy—planting paperwhite narcissus in a mug. We used sea shells that our granddaughters had helped us pick up at the beach. Several of the adults had never had the experience of learning the simple requirements of flowering narcissus. Our two oldest granddaughters—Miss Pink and Miss Peach—quickly became their teachers. Two-year-old Miss Emerald was having the best time of all, asking questions a mile a minute, laughing, and trying to press shells into everyone's cup.

The delight continued over the next several days. All called to report how their bulbs were growing and when they flowered. Miss Emerald's calls were particularly special because her comments were delivered as big secrets between the two of us. She had a very sad day when the bulb had to be discarded.

Our gardening knowledge, skills, and experiences accumulate for a lifetime. While I am dedicated to ensuring that my four granddaughters continue to have such experiences, I think too about the adults who were planting paperwhites at our family party. There may be as many as 80 million of these inexperienced gardeners in our country, compared to only two million people dedicated enough to be members of a gardening organization.

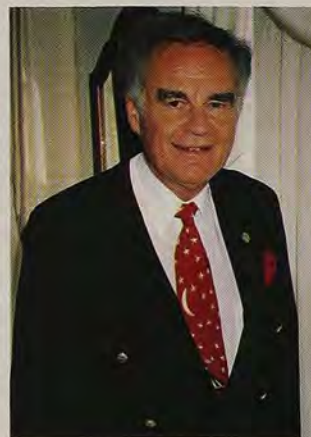
The American Horticultural Society hopes to bring "Gardening Again" to these G-rated gardeners. In cooperation with White Flower Farm of Litchfield, Connecticut, and Spring Hill Nursery of Peoria, Illinois, we will be planting seven of their "packaged" gardens—with set themes, designs, plant selections, and procedures—at our River Farm headquarters to encourage more people to "garden again." I view these gardens as akin to bicycles with training wheels. Everyone needs to start somewhere to be successful.

One of these gardening basics is landscape design—often a challenge for the most knowledgeable plantsperson. If you've ever been frustrated by this aspect of horticulture, you'll want to read the article in this issue on finding and working with a landscape professional.

Another basic is of course plant selection. John Bryan, the lively redhead from San Francisco, begins a series on little-used bulbs to try, and James Locklear of the Nebraska Statewide Arboretum writes about *Echinacea*—the native coneflower that belongs in every garden. Robert Geneve writes about the amazing *Dictamnus albus*—the gas plant—and we go aquatic with an article by Molly Dean and John Creech on lotuses.

We'll also preview the Mount Cuba Center for the Study of Piedmont Flora, outside Wilmington, Delaware, a destination of this year's Annual Meeting in Philadelphia. I grew up in the Piedmont area of North Carolina, and its plants are most familiar to me. Last year when I visited Mount Cuba, I almost expected to see my grandmother, Miss Nannie, coming out of the woods with a seedling in one hand, wrapped in her apron, and a mattock in the other. It was like "Gardening Again" for me, taking me back to where I began my own experiences with the help of a great gardener.

H. Marc Cathey, AHS President





MEMBERS' FORUM

Canadian Palm Lovers

Regarding the palm inquiry from V. E. in British Columbia, Canada, in the February "Gardeners' Information Service," I'm sure he or she would benefit from a subscription to the *Hardy Palm International*, published by the Pacific Northwest Palm and Exotic Plant Society, 10310 Hollybank Drive, Richmond, BC V7E 4S5, Canada, or call Frank Hunaus at (604) 271-9524.

The cost for Canadians is \$20 (\$15 U.S.). I have enjoyed it for several years, and it continues to improve. *Katherine Elliott Colton, Oregon*

Hose Pipes and Sill Cocks

In reply to the February letter about the phrase "hose pipe," I would like to add that my family (also New Englanders for more than 350 years) always used the simpler term "hose." The hose was attached to the sill cock—a term for an outdoor faucet that folks seem unfamiliar with where I have lived in Michigan and Connecticut. I grew up halfway between Boston and Providence in North Easton, Massachusetts. Is "sill cock" a term used only in southeastern Massachusetts?

*Judith D. King
Farmington, Connecticut*

Members, can you help?

'Elizabeth' with a "Z"

I greatly enjoyed Dorothy Callaway's article on magnolias in your February issue. She makes them all sound mouth watering. I was particularly pleased to read her praises for one of Brooklyn Botanic Garden's newest introductions, 'Marillyn'.

Your editorial staff should be aware, however, of the correct spelling with a "z" for the cultivar 'Elizabeth' mentioned in the article. It is named after Elizabeth Van Brunt, who was very supportive of the breeding work that resulted in our yellow hybrid magnolia. *Judith D. Zuk
Brooklyn, New York*

Judith Zuk is president of the Brooklyn Botanic Garden. We regret that we man-

aged to introduce an error into Dorothy Callaway's otherwise flawless article. It always makes plants more interesting to hear about the people behind their names. Thanks for filling us in!

Architecture Primers

I'm always inspired and learn a lot from your articles and want to thank you for such a quality publication. Kathleen Cullen's excellent article on suburban landscaping ("Unwelcome Vistas," February) described the importance of landscaping complementing the architecture of the house. It seems that this necessitates a basic understanding of architectural styles and their histories. I wondered whether you or Ms. Cullen could suggest a primer on architecture that would be interesting and readable for the lay gardener. *Wendy Grupnick
Felton, California*

Kathleen Cullen responds: Many houses that we see today are "builder's houses" that can be difficult to categorize. But most are updated versions of older styles that represent a post-modern, reactionary swing of the pendulum, so we have neo-this and neo-that. At first the study of architecture can seem overwhelming, but it becomes easier with time.

For beginner's guides, I would recommend: American House Styles—A Concise Guide by John Milnes Baker (W.W. Norton & Co., New York, 1994); Style Portfolio (from Home Planners, Inc., Tucson, Arizona, 1989); What Style is It? by Poppelier, Chambers, et al (National Trust for Historic Preservation, Washington, D.C.—a wonderful source of specific information on architecture); and Identifying American Architecture by John J. G. Blumenson (American Association for State and Local History, Nashville, Tennessee, 1983).

Landscaping needs to be congruent not only with the structure, but with the setting and surroundings, so it's also important to observe the neighborhood. The important thing is to establish a sense of place.



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OFFSHOOTS



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Fauna in My Flora

by Art Ode Jr.

If your tomatoes aren't getting ripe yet, take one of mine," my father-in-law said last year, I think around August 10. That's pretty early for tomatoes in Milwaukee, and I said with something between annoyance and admiration, "What's your secret, Sam?"

Sam, a retired Teamster, has always seemed to view my gardening with something akin to disdain, sort of a "real men don't eat quiche" attitude that extends itself by association to "real men don't grow posies." So his triumph in my domain was putting a strain on our relationship.

Sam gave me several reasons for his success: the tomato plant, a 'Jet Star' (the same as mine, and to make matters worse, I had given it to him), was planted where it got maximum sun (good reasoning); it was next to the birdbath and got plenty of water (plausible); and the birds on the edge of the bath were fertilizing the plant (pretty weak).

As I observed the situation more closely through the rest of August and past Labor Day, I saw that my tomatoes were just as large and numerous as his. They just never got ripe. And then it dawned on me: Some culprit was stealing each tomato before it ripened! Could Sam be stooping so low?

Fortunately for familial peace and tranquility, I caught the miscreant in the act. With eyes a gleam with avarice and a furtiveness blatantly announcing his guilt, one of our resident chipmunks scampered up the garden bench and into the high planter where the tomato bush resided, grabbed a large tomato with both fore-

paws, and tugged mightily. Both chipmunk and tomato rolled to the edge of the planter and plunged off, bouncing squishily onto the patio 30 inches below. The bandit, evidently charged with adrenaline from the heist, used his nose and paws to push and roll that tomato to the perennial border eight feet away, where he disappeared under a large hosta leaf.

I was, of course, relieved to solve the riddle, taking comfort in the certainty that if



it hadn't been for the garden thief, my tomatoes would have ripened sooner than Sam's and would have been bigger, better tasting, and more abundant.

The incident served to remind me of past zoological intrusions into my botanical domain, some equally mystifying, some even more frustrating, but most just entertaining and evidence of the interconnectedness of things. Many of these animals seemed amazingly human. Take "The Case of the Dutch-Bulb Buck."

A few years back I was caring for a garden in the Hudson River Valley that boasted a collection of antique Dutch bulbs, mostly tulips. Deer frequented the area but had done nothing worse than prune the berry bushes and munch a few vegetables.

Then one fall night, as leaves turned crimson and gold and pumpkins lay ripe in the fields, a number of somnolent tulip bulbs were ripped from their beds. Some were carried off, while the smashed remains of others were left lying on the gravel walk. Also left behind were cloven tracks. From my days as a deer hunter, I estimated their owner at upwards of 200 pounds. I was determined to stop this destroyer of bulbs of ancient lineage.

That night I lay hidden, and as the first light of the waxing harvest moon crept over the garden, a 12-point buck appeared as if by mystical means, standing rigid and silent at the garden's edge. Since there was no wind he didn't catch my scent as he warily approached the tulip bed, walking noiselessly, even on the gravel. He sniffed and poked, then suddenly pawed the earth with a hoof and deftly popped a tulip (*Tulipa clusiana*, I believe) out of the ground and into his mouth. Tossing his head back, he broke the heavy silence with a crisp "munch," as with evident relish he finished off the bulb.

Only a few yards away, I jumped from my hiding place with a loud "Gotcha!" He jumped back with clattering hoofs, almost losing his balance, then whirled about and pounded off down the path, snorting great clouds of steam from flared nostrils. I smiled in satisfaction at my apparent victory. In the morning, seven more bulbs were missing.

When I staked out an ambush the next night, I was armed—with very hard 'Esopus Spitzenburg' apples. I waited patiently, coldly, in the frosty full moonlight, but he never came. By midnight I deemed the battle won and went home. In the morning the depredation was greater than ever.

The next night I set the alarm for four o'clock, and armed with my Spitzenburg artillery, stealthily approached the garden

in the waning moonlight. Let me tell you, a 12-point buck in the fullness of the rut makes a magnificent sight when outlined on a ridge against the harvest moon. It is enough to kindle the hunter in any man and make him reach with trembling hand for his spear or bow or gun. Or Spitzenburg. Alas, he was out of missile range, and he knew it. He looked at me regally, as if to challenge my temerity at invading his night, his tulip bed. And then he laughed! It was not a snort, but a derisive comment on a human so stupid as to provide him with a never-ending supply of nightly desserts. Then he lowered his antlered head, grasped a tulip bulb daintily between his teeth, and majestically ambled off into the early morning mist. Tulips would no longer be a major feature of the garden.

If some animals seem to act like people, others remind us that they are not. Take, for instance, the perplexing actions of Tommy Turtle, Terror of the Lily Pond.

I added Tommy, a rather largish box turtle, to my little back-yard pond because I thought he would provide ecological balance by eating some of the imported tadpoles that had flourished beyond expectation. But Tommy never showed much interest in self-sufficiency. He mostly sat on a rock, sunning himself and waiting for me to hand-feed him worms. Still, he added a certain panache to the pond. Then he began to do a strange thing, which upon reflection was really the fault of my wife, Joan.

I don't know if Joan didn't think Tommy a sufficient turtle presence for our pond or thought that he needed company, but one day she came home with a rather realistic concrete turtle about Tommy's size. His neck was outstretched and his head held high, one front foot and one back foot thrust forward, as though in purposeful stride.

For some days the new turtle postured and Tommy dozed. Then one day we

looked out the window and there was Tommy, standing motionless and facing the intruder in mirror image. Tommy stood there all day. He stood there all night. He stood his ground, glaring with reptilian menace at his rival, for three days and three nights. He wouldn't look at a worm, or even hamburger.

On the fourth morning, Tommy was nowhere to be seen. He never appeared in the swimming pool. I never saw him on the road to the nearest creek. He was simply a gone turtle.

In my youth I faced down a few rivals of my own and won some and lost some. But I never lost to a statue, and therein lies some sort of insightful commentary on the relative intelligence and territorial behavior of human and turtle. I'm not sure exactly what.

There are a lot of other animal stories I could tell about our gardens, like the female cardinal who attacked her image in our reflecting ball, beating and pecking and scratching until she fell to the ground, an exhausted clump of russet feathers; the red squirrels that plucked the leaves from the spider plants I hung in the trees, eating each one demurely from the bottom up as though it were an Italian bread stick; or the woodchuck that mowed down a whole row of bean seedlings in the time it took my wife to get the broom from the closet. Sometimes I think my garden is in danger of becoming a zoo, but even though I don't embrace them with the same affection as my plants, I have learned to tolerate my fellow animals, and as you can see, derive a great deal of entertainment from them.

If I could only persuade that chipmunk to move to my father-in-law's garden . . .

Dr. Art Ode Jr. is president of Quercus Associates, Inc., fund-raising and planning consultants for environmental institutions and historic sites.



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GARDENERS' INFORMATION SERVICE

Q: I've germinated seeds that I received from the American Horticultural Society's Seed Exchange Program. Your catalog describes seed packet number 400, *Brachy-chilum horsfieldii*, as a native of Java that grows epiphytically on trees. How should I care for my plants when it comes time to transplant them from the seed medium?

—R.A., New York, New York

A: *Brachy-chilum horsfieldii* represents one of two species of a genus in the ginger family. Although it does grow on trees in its native habitat, in cultivation it will succeed in soil. This soil should be a rich, coarse, well-aerated medium with plenty of organic matter. The *New York Botanical Garden Encyclopedia of Horticulture* recommends that the plants' containers be watered liberally and that they stand with their bases in water. Once the containers are filled with healthy roots, you should feed the plants weekly or every other week with a dilute liquid fertilizer. If you summer your house plants outdoors, be especially careful with this one because it is highly susceptible to frost.

The blooms are not especially attractive. The most decorative feature is the plant's fleshy fruits, which split open to show brilliant orange interiors with three rows of crimson, berrylike seeds. The plant has also been sold as *Alpinia calcarata*.

Q: I've heard someone talk about a plant called devil's toenail, but I can't find out exactly what it is or any more about it. Can you help me?

—T.W., Alexandria, Virginia

A: The list of devilish plants is almost endless—devil's backbone, devil's hair, devil's shoestring, and devil's tongue, to name just a few. But we suspect that your friends may have been referring to devil's claw, *Physoplexis comosa*, a genus of just one species (although some



classify it as *Phyteuma comosum*). It can be found growing naturally in rock crevices in the Dolomites of the Italian Alps. The plant gets its name from its flowers. Contained in a compact head, each one is flask-shaped. Lilac-colored at their bases, these become dark blood red at the tips, which are long and whiplike. With some imagination, they can be seen to resemble long, skinny toenails or claws. These are considered to be collectors' plants. They are generally grown in well-tended rock gardens, but unlike most rock garden plants, they prefer shade.

Q: Is there any value to applying wood ashes to garden soil? What about eggshells and coffee grounds?

—A.C., Boston, Massachusetts

A: There is a range of opinions on the use of wood ash for the garden. Some suggest that its plant nutrient value is so low that it is not worth the bother. Others suggest that it is a good cultural practice.

Rodale's *All-New Encyclopedia of Organic Gardening* says wood ash is composed mainly of calcium carbonate (70 percent), some potash, a lesser amount of phosphorus, and trace elements, such as zinc. Since its particles are so small, it is rapidly absorbed into the soil and is readily available to plants.

Calcium is an essential minor element for plant survival; it also acts to make the soil alkaline. Potash is of course the essential "K" component of the N-P-K fertilizers, but you will have to give your plants nitrogen and phosphorus from other sources so they will have a balanced diet.

It takes a good deal of wood ash to have a marked effect on soil. Depending on existing soil fertility, you need from one to two pounds of wood ash for 100 square feet of soil. For a large flower bed, that's a lot of fireside chats. If you were to use that

rate, it should be applied to the same area only for two or three seasons, or the soil pH can become too high for healthy plants.

Adding your wood ash to the compost pile is an easy alternative.

Eggshells and coffee grounds have a similar problem as fertilizers—you'll have to decide if you want to consume enough cholesterol and caffeine to make a difference in your garden!

Eggshells supply some calcium and a tiny bit of nitrogen and phosphorus. Like wood ash, they will make the soil more alkaline. Enough eggshells incorporated into the soil will make it more porous, but for a real impact, you will need to add three to 10 pounds per 100 square feet. Some people swear by crushed eggshells, though, for keeping slugs away from prized plants.

Coffee grounds supply mostly nitrogen and maybe a trace of phosphorus and potash. The amount of coffee grounds needed would amount to a heavy mulch.

Q: One of my rose bushes appears to be infected with a virus. Many of the leaves have yellow streaks along the mid-vein and have a distorted shape. Can the plant be treated and saved?

—M.H., Cleveland, Ohio

A: From the symptoms you describe, your rose is infected with mosaic virus. In his book on *Diseases and Pests of Ornamental Plants*, Pascal P. Pirone describes two rose virus diseases, rose mosaic virus and rose streak virus. The symptoms of rose streak are brown rings and brown vein-banding in fully expanded leaves. In addition, the stems show brown or greenish rings. The viruses are transmitted primarily through grafting. Although commercial growers can treat their infected plants by holding them at 100 degrees for four weeks, the home gardener really has no choice except destroying the plants and replacing them.

—Neil Pelletier, Director
Gardeners' Information Service

PLANTING THE FUTURE

Our Secret Garden

by Jackie Becker

Mrs. Jablon and I were complaining about how hot it was. Tests were over for the day, and our students—kindergartners and third graders—were tired and unmotivated. Both of us wanted to make a difference in this inner-city school, so underfunded that some classes met in halls and bathrooms, but where the children remained as tenacious as wildflowers—surviving but not thriving on the bare essentials.

Somehow the conversation switched to plants. We discovered that we shared a passion for Sunday gardening. At that point I happened to glance out a window in my classroom that overlooked a sunny interior courtyard, little used except as a shortcut from the lunchroom. Its perimeter consisted of an eight-foot-wide strip of overgrown vegetation. A shared vision of removing the unsightly underbrush began to take shape, and the children, who took eagerly to the idea of some physical activity, started weeding a small plot that very afternoon.

They worked quickly, and soon a 20-foot-long patch was cleared. What had started as a casual idea had become a reality. We had made a commitment to establish a garden without bothering to figure out how we would actually accomplish it. Now we panicked!

On the way home, I found myself outside a garden center, taking a deep breath and crossing my fingers. Feeling somewhat helpless and childlike, I blushed as I explained how I had started a project that seemed to have captured our students' imagination. The center's owner offered a bag of mulch, noting that its plastic bag was so torn that it couldn't be sold anyway. I took courage at the notion that even at the height of gardening season, I might get enough donations if I would accept goods that were less than perfect. For the next three weeks I continued my solicitations after work and, once,



A Queens, New York, kindergartner proudly exhibits a donated impatiens he is getting ready to plant in a garden that brightened the interior courtyard of his school.

during lunch. At the second center I approached, the owner cheerfully handed over a flat of annuals. A local florist donated a flat of perennials that needed TLC. Another center donated a holly that was desperately in need of water, fertilizer, and prayer. Another gave an azalea that had long since finished blooming and was therefore out of season.

Learning that I worked for a public school, another responded wistfully, "Oh, I remember...I went to P.S. 51 in Sunnyside. You know where that is?"

"Yes," I assured her. "It's just one neighborhood away from where I'm teaching." Immediately, she asked what I needed the most, which at that point was topsoil, and on top of that "threw in" a magnificent array of marigolds to brighten up our garden. The story continued until a

dozen businesses had contributed to our fledgling garden.

My husband drove to work with me several days in a row. Wearing his suit and tie and neatly pressed shirt, he gingerly unloaded the carloads of garden supplies. By our third trip, children from all different grades and classes were running to greet us. They couldn't wait to become part of the project.

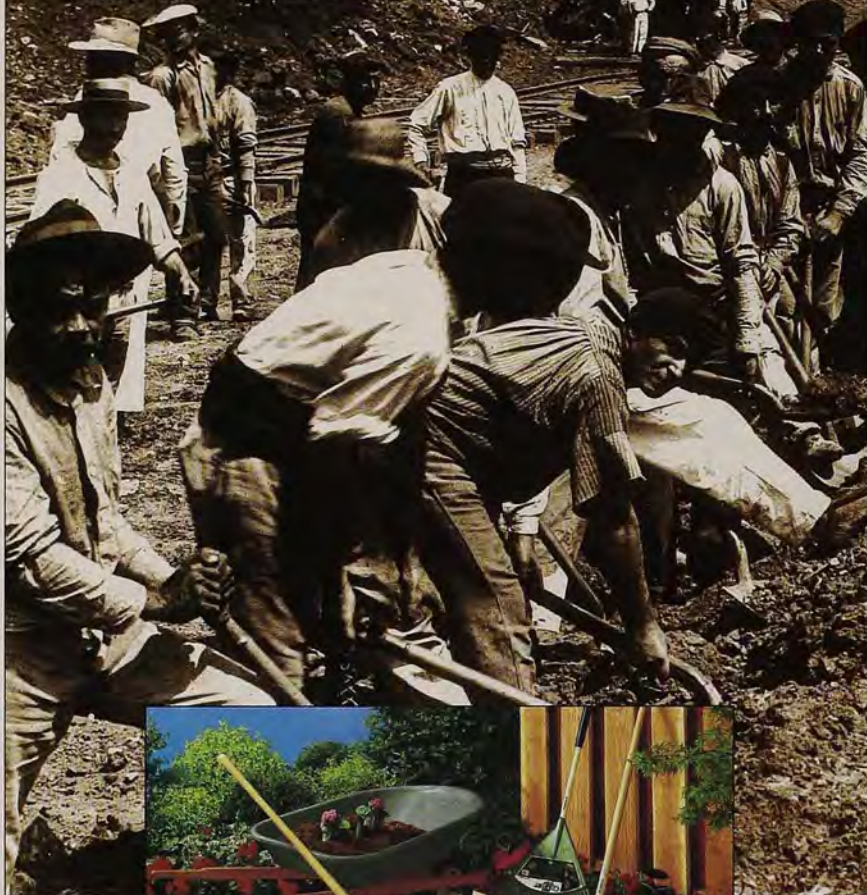
Our students eagerly turned the soil, added peat, and dug holes. When it came time to transplant our donations, the third graders mastered the basics then were teamed up with kindergartners to pass on what they'd learned. The children watered in their annuals and perennials and volunteered to collect garbage that was tossed or blown into the area.

To our grateful surprise, two custodians spent their entire lunch hour in the glaring noontime sun, digging two huge holes for our half-dead shrubs. The children watched from the hallway window and were so impressed that a creative writing assignment was a natural outcome. "It was hot out there," one third grader wrote. "You must have been sweating. Thank you for helping us." The next day, Mrs. Jablon and I prepared lunch for the custodians and sent it down with the children and their thank-you notes. The custodians continued to water our garden faithfully when the children were unable to do so.

One member of my class was a painfully shy third-grade girl named Stephanie who had spent the first three months of the school year corresponding privately with me through her journal writings. We had named her journal "Stephanie's Secret Book." After the garden was planted, she asked to speak to me alone, so I crouched down until my ear was at the level of her mouth. "I know," she whispered. "We could call it 'The Secret Garden.'" I asked her if perhaps we should call it "Our Secret Garden," since all of us had worked so hard on it. She nodded, and when the name was suggested to the other children, they approved. It was appropriate, given that the garden was so hidden from the outside



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world—not unlike Stephanie herself.

The garden provided a wealth of learning opportunities in a school where extras are often lacking. The children learned to work, and to respect that work and take pride in the results. They learned to cooperate, to negotiate to borrow tools or to claim a spot to plant. They initiated asking children in other classes not to litter the area or trample their plants.

They learned that they needed to say "thank you." The third-graders wrote letters to their 12 garden center benefactors while the kindergartners drew pictures of flowers and soil. Renaldo summed up his sentiments: "And I thank you from my heart."

When the children asked if they could put the name of their garden on a sign, our assistant principal provided the lumber and attached the stakes. Two artistic girls painted the words "Our Secret Garden" on three plaques to make it official, and other children labeled the plants with smaller signs.

Feeding the seedlings turned into an on-the-spot mini-reading lesson. As I held up the liquid plant food, the children jumped to their feet, vying for the privilege of reading the directions on the label. It didn't matter to me that they couldn't decipher all the words. What was important was that they *wanted* to read those words because they wanted to know how to feed their plants. Measuring and math skills became crucial as we teaspooned the correct proportion of food to water.

The garden fever seemed to spread. Two teachers talked of extending the area with their summer groups, while others made plans for a vegetable patch the next year. We two original planners schemed to plant bulbs in the fall, overwinter our coleus indoors, and distribute marigold seeds in early spring.

The two of us had come to view the children as our own secret garden—some, like Stephanie, needing some shade, others thriving in the sun; some needing a lot of attention, others naturally hardy. I could no more name a favorite child than I could choose a favorite flower. Careful attention to the very different needs of each plant I grow has made me a better gardener. Learning to view the individual needs of children in much the same way has, I hope, made me a better teacher.

Jackie Becker is a teacher of English as a second language for kindergarten through sixth grades, a free-lance writer, and an avid gardener. Since she left P.S. 143 in Queens, New York, "Our Secret Garden" has been abandoned.



THE URBAN GARDENER

Rooted in the City

by Jill M. Peplinski

When my husband and I gazed up at the seven trees towering above our dream house, it was awe at first sight. The top branches reached 50 to 60 feet, and branches lower than 20 feet had been removed. The effect was a stunning mixture of light and shade. Lush and green at the height of summer, the trees transformed a long, narrow urban back yard into a peaceful, wooded retreat.

These weren't rare specimens by any means. Three of them were silver maples (*Acer saccharinum*), considered undesirable by some because their fast growth makes them brittle as they grow older. Two were green ashes (*Fraxinus pennsylvanica*), another common street tree, and two others were red maples (*Acer rubrum*), a beautiful American native but again hardly a rarity. Yet their size and the effect they created made them invaluable to us.

Two years after we bought the property, however, all seven trees began to look withered. They had developed anthracnose, and their leaves, which had brown spots characteristic of the disease, were small, sparse, and pale. When several large branches fell randomly, and rather dangerously, into our yard, we realized that our trees were dying and began to search for a way to save them.

Consulting a local arborist, we learned that our trees had been damaged during the construction of our house and the grading of our lot five years earlier. The heavy machinery had severely compacted the soil around the roots. Later, when fill dirt was brought in to ensure that rainwater would drain away from the house, the trees' support roots had been covered with three feet of clay. The excess soil deprived the trees' main roots of adequate air and water and encouraged the growth of girdling roots that



Digging a tree well around this silver maple allowed air and water to reach its roots.

wrapped themselves around the support roots and even the trunks. Our urban forest was being strangled.

The arborist suggested that we dig down to their flares—the place where the trunk of a tree at a normal depth flares out as it enters the ground—to create wells two feet wide. This would eliminate the girdling roots and allow air and water to reach the support roots. Then to keep the wells from being hazards to our two small daughters, they could be filled with stones that sloped away from the trunks. The stones would allow air to continue reaching the roots.

The prospect of digging up our entire back yard to try to preserve our trees was overwhelming. Paying a professional an hourly rate to dig the wells was financially



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out of the question; we would have to do all of the labor ourselves. The end result would be a yard filled with stone—and a landscape that looked less like a small forest and more like a manicured urban back yard. We began to talk about what our yard would look like with a swimming pool instead of trees.

Then we became aware of the construction going on around us. Scattered wooded lots were being cleared to make room for factories, strip malls, and new houses. While we understood the economic need for development in our city, we also realized that we were losing natural beauty that could not easily be replaced.

We decided that our own urban forest was worth saving. Our trees were a unique source of peace and inspiration. They helped us relax and renew ourselves, especially during the summer months. Staggered across the south side of our home, they sheltered our yard and our house from the sun, giving us relief from the heat of the city. At night we fell asleep breathing in the fresh scent of their leaves, and in the morning we woke up to the sound of birds in their branches. Our lives were firmly rooted in the city, but our trees gave us an incredible connection to nature that too many town people live without.

When we started to dig we soon found a miniature landfill underneath the back-breaking layers of clay. Garbage buried when the lot was graded was wedged next to the trunks. We dug up bricks, boards, cinder blocks, rusty nails, and more large pieces of concrete than we could count. There were plastic bags, twisted hangers, and bent spoons, along with five-year-old paint cans that had just started to disintegrate and styrofoam cups of the same vintage, completely intact. We learned more about what was buried in our back yard than we cared to know.

We learned even more about our property when several neighbors, who were curious about the massive holes we were digging, told us that our trees were already part of the neighborhood lore. All of the trees originally on our lot, they explained, were supposed to be cut down before the construction of our house began. After they had all been tagged for cutting, however, a windstorm on the eve of the tree cutters' visit blew the tags off those seven trees. Under a deadline for beginning construction, the builder was left no choice but to build with the trees in place. He even constructed a deck with large holes for two of the maple trees to grow through—another decision probably not best for their health.

While chance helped save the trees once,

our work was essential to their continued survival. We dug three-foot-deep wells around all of them, including the two that grew up through our deck, and cut away girdling roots that had grown strong enough to cut deep grooves—almost mortal wounds—into the trees' support roots. Our efforts wouldn't restore the natural environment whose alteration had led to this unhealthy state, but we hoped to give the trees a structured environment that would allow them to thrive in a city landscape.

Our next challenge was to get rid of the more than eight cubic yards of clay dirt we had removed. Having no access route to drive even a small pickup truck into our yard, we used wheelbarrows to move the soil from our back yard to the skirt of our driveway. We put a sign that read "Free Fill Dirt" on top of the pile. To our surprise, friends, relatives, and neighbors hauled away wheelbarrows, pickup trucks, and even garbage cans full of soil. Most of them used it to regrade their own lots. One friend used it to make the bank of a river on his property higher in certain spots. All of us, we realized, continually reorder nature to accommodate our own needs.

Ten weeks after we started, we filled in the holes with six cubic yards of pea stone, placing a layer of decorative walnut-colored stone on top. We were exhausted but felt a sense of satisfaction as we looked at the neat rings of stone around our trees. We had worked to preserve something very specific and had connected with nature in a hands-on way. We had both lived in the city all our lives, and this was something rare for us.

The following spring all seven of the trees came to life again. We were elated—even shocked. Before the first of June, their leaves were larger, more abundant, and deeper in color than they had been in August of the previous year. The new season was not without its problems, however. One of the maples began to hold excess water in a pit created by its multiple trunks. To further complicate matters, an unseasonal heat wave in May caused all of the ash trees in our area, including ours, to develop anthracnose and lose their new leaves. These setbacks reminded us that our trees, like all urban plants, will always require extra care. We hope we can provide what they need. Every time we look up at them, we think about how much the human spirit needs to be inspired by nature—and that sometimes extraordinary means are necessary to preserve it.

Jill M. Peplinski is a free-lance writer living in Sterling Heights, Michigan.



NATURAL CONNECTIONS

The Cloak of the Oak

Live oaks (*Quercus virginiana*) are one of the most striking natural features in the landscape of the southeastern coastal plain. In most settings the majestic trees, often draped in a delicate mantle of silvery gray Spanish moss (*Tillandsia usneoides*), are cherished for their stolid strength and the graceful spread of their branches. But in swamps and river bottoms, live oaks can take on a primeval, even eerie, look, especially at dusk or when mist rises around the thick trunks and the bedewed moss dangles heavily from the boughs.

Live oaks are evergreen oaks that thrive in the sandy soil and salt air of the coastal plain from Virginia south to southern Florida and then west into Texas and northeastern Mexico. They are remarkable for having stubby, often buttressed trunks that quickly diverge into nearly horizontal branches, spreading up to 120 feet in diameter with a rounded crown to 50 feet tall. The smooth-edged, elliptical leaves are a dark glossy green above and pale green beneath. The tree produces yearly crops of small, elongate, dark brown acorns.

A member of Bromeliaceae, or the bromeliad family, Spanish moss is an essentially rootless epiphyte that takes its water and nutrients from the air. It is commonly seen clinging to trees, walls, and even power lines throughout its native range, which in North America parallels that of live oak but also extends south to Argentina and Chile.

Usually found in clusters, individual Spanish moss plants are thread-like strands that can reach 100 feet long. Each strand is punctuated at short intervals by nodes that bear a few narrow leaves and minuscule green to purple flowers with a subtle fragrance that can only be detected when they are blooming en masse. Spread of the tiny seeds is facilitated by inch-long silky threads with tiny barbs that help the seed cling to rough-barked trees. The plant is also spread through fragments carried by wind or by



Live oak alleé at Boone Hall Plantation in Pleasant Hill, South Carolina.

birds, which use the moss for their nests.

Although Spanish moss is seen on a variety of tree species, it seems to particularly thrive on live oaks. Naturalists disagree about the reasons for this association, however, and also about whether Spanish moss can be detrimental to its tree hosts. “Some people say this is an example of a nonparasitic pathogen—that if you get too much moss on a tree it can block photosynthesis,” says Don Gardner, director of Savannah, Georgia’s Park and Tree department. “Maybe there have been instances where that has occurred, but I don’t believe it’s the case the majority of the time.”

Gardner believes the idea that moss can be detrimental to trees stems from an inverse correlation. “I think Spanish moss can be an indicator of vigor, but not a determinant of vigor,” he says. “When a tree goes into decline, the leaves may get smaller and fewer. The result is that the tree moves less in the wind and there is less opportunity for the moss to be shaken out.”

Craig Martin, a professor of botany at the University of Kansas in Lawrence who

has been doing research on tillandsias for about 20 years, believes the primary reasons Spanish moss has an affinity for live oaks are that the oaks’ rough, gnarly bark allows the moss to take a firm hold on the tree, and that the moss may be taking up nutrients that leach out of the oaks’ leaves. “Epiphytes rely totally on aerial input for their nutrients, which they get from dust particles and whatever leaks out of what they are growing on,” he says. Martin says trees with needlelike foliage, such as pines, lose fewer nutrients than oaks. Martin’s research has also shown that Spanish moss grows best in light shade. The dense overhang of live oak branches may provide more shade than is available on more vertically structured trees.

Live oaks, often aided and abetted by their ornamenting moss, have a strong place in the history, literature, and lore of the South. Among the many famous oaks are the Jefferson Davis Oak in Gulfport, Mississippi, under which the former president of the Confederacy is said to have made a speech in 1886 urging southerners to forget the past and work toward a unified future. The Treaty Oak in Austin,

Texas, is the last of a group of live oaks under which Native Americans held councils, dances, and ceremonies, and under which city founder Stephen F. Austin was said to have made the first boundary line agreement between Native Americans and settlers. The Austin tree made national news in 1989 following a deliberate poisoning incident from which the tree has never fully recovered.

Live oaks are also connected with literary achievements. The Evangeline Oak in St. Martinsville, Louisiana, was named in honor of the Henry Wadsworth Longfellow poem, "Evangeline," which memorialized the plight of a group of French Canadians deported from Nova Scotia to Louisiana in 1755.

Both species at one time had commercial value. The heavy timber of live oaks was prized by ship builders until the middle of the 19th century, and Spanish moss was used as a stuffing for mattresses and upholstery into the early part of this century. Other materials have come along to fill those niches, but southern horticulturists say the charismatic combination of the live oak and Spanish moss is earning its keep by wowing first-time visitors to the Southeast.

—David J. Ellis
Assistant Editor

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BOOK REVIEWS

Gardening with Water

James van Sweden. Random House, New York, 1995. 205 pages. 8" x 10". Color photographs and black-and-white diagrams. Publisher's price: hardcover, \$40. AHS member price: \$36.

The Pond Doctor

Helen Nash. Sterling Publishing Company, Inc., New York, 1994. 160 pages. 8 1/2" x 10". Color photographs and black-and-white illustrations. Publisher's price: hardcover, \$24.95. AHS member price: \$22.45.

Water Gardens

Jacqueline Hériteau and Charles B. Thomas. Houghton Mifflin Company, New York, 1994. 230 pages. 9" x 10 3/4". Color photographs and black-and-white illustrations. Publisher's price: hardcover, \$35. AHS member price: \$31.50.

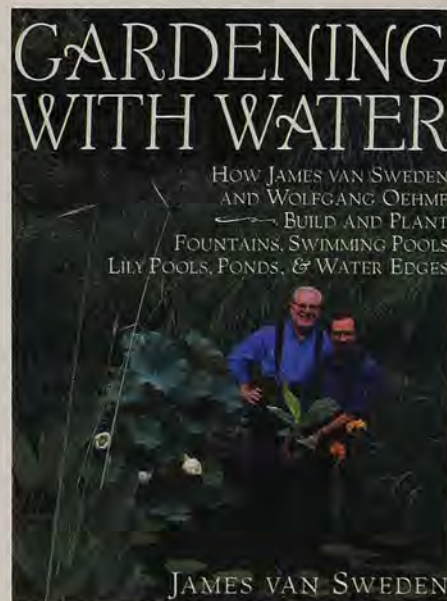
Waterscaping

Judy Glattstein. Storey Communications, Inc., Pownal, Vermont, 1994. 184 pages. 7 1/2" x 9 1/2". Color photographs and black-and-white illustrations. Publisher's price: hardcover, \$27.95. AHS member price: \$25.

The Stream Garden

Archie Skinner and David Arscott. Sterling Publishing Company, Inc., New York, 1994. 128 pages. 7 1/2" x 9 1/2". Color photographs and black-and-white illustrations. Publisher's price: hardcover, \$24.95. AHS member price: \$22.45.

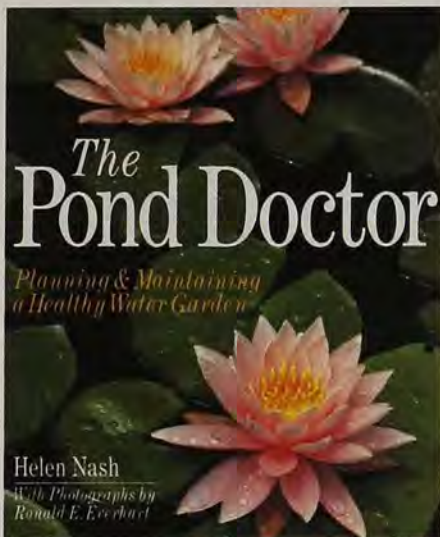
Great philosophers have said that the further a culture advances the more sophisticated its gardens become. Perhaps the burgeoning interest in water gardens is cause for hope that American culture is progressing. As our knowledge of and interest in water gardens grow, we begin to see water features as an integral part of a complete garden. Recent publication of a number of books on water gardening is a reflection of this exciting trend.



If upscale is what you're looking for, then *Gardening With Water*, by James van Sweden, is your book. Everything from the waterfall and pool in Pershing Park in Washington, D.C., to Frank Lloyd Wright's Fallingwater in Pennsylvania is featured. Most of these gardens are beyond a hobbyist's realm, meant for inspiration rather than duplication, but some smaller private gardens are included in the pictorial tour. Even here, however, a distinction is evident. The smallest of bubbling container gardens in a hidden pocket of a back yard bears the emblem of splendid design. These gardens—all of those in the second part are designs of the author and partner Wolfgang Oehme—are pleasing because they just feel right, and that is the secret of good design: to communicate for a brief moment the feeling that all's right with the world. Don't be put off by the hunch that this book deals with things beyond your means—there's much to be learned about the essence of design from these two renowned plantsmen.

Both experienced water gardeners and novices will find help and inspiration in





Helen Nash's *The Pond Doctor*. The book is chock-full of information on "what to do if. . ." Nash has scoured the globe for the best solutions to concerns ranging from structural problems with the pond itself to mechanical problems with pumps and filters to parasites on fish. The scientific information is presented in a clear and fascinating manner that is accessible to the layperson. Not only does this help in troubleshooting, but it enhances appreciation for the water garden. Step-by-step illustrations cover procedures such as how to repot water plants, while well-captioned photos show symptoms to look for when encountering a problem. A useful appendix includes various ways of calculating the volume of a pond, the size of the pump needed, and the diameter of tubing that should be used, along with conversion tables. *The Pond Doctor* is an extremely useful and highly recommended resource.

Water Gardens, by Jacqueline Hériteau and Charles B. Thomas, is divided into two sections. The first part of the book presents clear how-to information on the setup and stocking of a water garden. Helpful suggestions are given on locating and building a pond using either a liner or a preformed fiberglass unit. Only the liner installation is illustrated, however, and the illustrations are identical to those in the Lilypons Water Gardens catalog (the water-garden supply company owned by Thomas). Maintenance advice is also included here, but the best piece of information is "The Magic Formula," which refers to the proper ratio of plants and animals in a pond. Keeping this proportion correct is the key to a well-maintained pond. Other books tell us this balance is essential, but Hériteau and Thomas give actual numbers per square foot of pond surface,

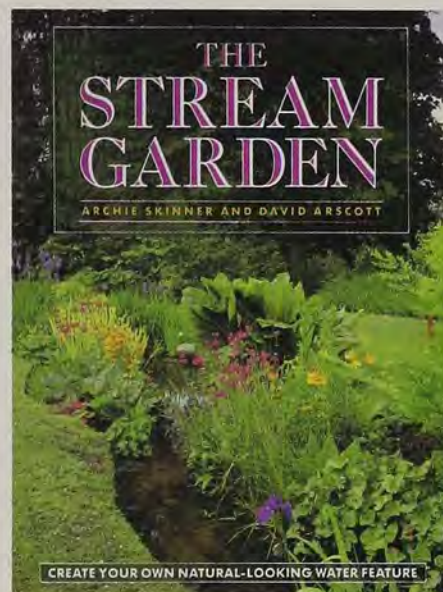
thus making it easy to calculate this ratio for our own ponds.

The larger, second section of the book presents a gallery of water plants arranged according to size and color. This includes descriptions of about 80 hardy and tropical water lilies, which may be overly detailed for anyone seeking information as basic as that contained in the first section of the book. Information on fish, snails, and frogs is included in the final chapter.

In *Waterscaping*, author Judy Glattstein focuses on creating a natural setting for your pond or stream, cleverly combining the current interest in both natural landscaping and water gardens. Concentration, of course, is on native plants, arranged by regions and types of environment. For example, "Native Perennials for Northern Swamps" is one listing, and "Shrubs and Vines for Southeastern Swamps" is another. Although the sequence of chapters is a bit baffling, the anecdotal writing style is very enjoyable. Much of Glattstein's information was gathered by visiting water gardens of every sort. Her research on the many plants described in the book was extensive, and she includes a list of mail-order sources, advice for further reading, and a glossary. The most enjoyable part of *Waterscaping* is the fascinating facts and tidbits scattered in little boxes throughout the book. For instance, Glattstein tells how to calculate a pond's capacity or volume—information needed to make many decisions about a pond, such as how large a pump or filter will be needed or how many plants and fish will work best. The author's enthusiasm for native plants could convert many people who are not already convinced that natural is the way to go.

Archie Skinner and David Arscott's book, *The Stream Garden*, presents the concept of streams rather than just single ponds as the way to join the move toward naturalism. Unlike Glattstein, however, they don't restrict themselves to native plants. This book focuses more on the mechanics of building a stream, although the last chapter is a directory of plants for both in and around water. A helpful appendix tells what needs to be done at various times of the year in order to keep the stream at its best. The authors also wisely suggest, providing illustrations, that a stream garden be built in stages. Installing one pond can be quite an undertaking in itself, so putting in a series of connected ponds is probably best done over several years.

Two case histories of stream gardens are



given: one in a suburban back yard and another in a public park where Skinner has been head gardener for 22 years. As might be expected, the former example provides more information and interest for the homeowner. Many Americans avoid British books for one reason or another, but this is one not to be missed if you are planning a water garden. The design elements are superior to most how-to books on the topic.

—Kathleen Cullen

Kathleen Cullen is a landscape designer who lives in Stony Brook, New York.

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IT WAS A SORT OF BOTANICAL HAZING.

I was walking a prairie south of Red Cloud, Nebraska, with two seasoned grasslanders—one a biologist, the other a retired range scientist. Pete, the retired guy, suggested to Curt that maybe I was ready for the test. Something about the way they were smiling made me slightly uncomfortable.

Pete bent down and pulled up a plant from the prairie sod. Cutting off a section of the root with his pocket-knife, he scraped it clean of soil and handed it to me, instructing me to put it in my mouth and bite down.

Trusting soul that I am, I obliged. What followed was a sharp, tingling sensation that sent a jolt down my spine and

The western coneflower is known on the Plains as black sampson.



Echinacea



*This medicinal prairie
plant may be just the cure
for what ails your garden.*

BY JAMES H. LOCKLEAR

left my mouth numb. Satisfied with my startled reaction, my two companions walked on, while I concluded that I had been inducted into some kind of prairie fraternity.

About seven miles to the east of where we were walking that day is the former site of a Pawnee Indian village. Archeologists excavating the village site in the 1930s found a wealth of artifacts there, including Spanish medallions. Among the more mundane materials recovered were five small pieces of dried root found in a storage pit—the same root that was used for my initiation.

The root pieces came from the most esteemed of the Pawnee medicinal herbs, a plant they called *saparidu habts*. It was particularly valued as a remedy for rattlesnake bites, and the Pawnee probably kept the roots handy in the same way we might keep a bottle of aspirin at the ready in a medicine cabinet. Actually, this plant was used extensively by all of the Plains Indian tribes and is still harvested by the Lakota (Sioux) on the Rosebud Reservation in South Dakota. To them it is *ica'hpe hu*; to modern-day botanists it is *Echinacea angustifolia*, the purple coneflower.

Purple coneflower is a name that is loosely applied to nine species of similar-looking plants in the genus *Echinacea*. This strictly American genus is a member of the sunflower family and features unique composite flowers with cone-shaped centers and drooping ray florets. The genus name is derived from the Greek word “echinos,” a reference to the hedgehoglike appearance of the spiny seed head.

No doubt the Pawnee appreciated the fact that such powerful medicine came in such a distinctive package—it would be hard to confuse purple coneflowers with anything else. This singular appearance has made another member of the genus, *E. purpurea*, one of the most popular of all garden perennials. Native to open woods and prairies from Missouri, Iowa, and Arkansas eastward, *E. purpurea* has been in cultivation for more than 200 years.

As with so many other native American plants, the Europeans set about to “improve” *E. purpurea* almost as soon as they got their hands on it. Today there are quite a number of cultivars available, mostly developed by the British and Germans. Among the refurbishments wrought are darker and brighter colors, white-flowered forms, and forms with less droopy, or reflexed, ray florets. Many gardeners are content to grow the species in its natural form, although Roderick Cumming and



Echinacea purpurea, left, has a number of cultivars including white forms such as ‘Alba’, above. The yellow coneflower, seen at right in the Atlanta Botanical Garden, is rare in the trade.

Robert E. Lee, in their 1960 book *Contemporary Perennials*, characterize it as “dingy, coarse, and wholly out of place in self-respecting gardens.”

The next most widely cultivated member of the genus, running a distant second to *E. purpurea*, is *E. pallida*, the pale purple coneflower. This is a species of the tallgrass prairie in portions of Texas, Oklahoma, Kansas, Missouri, Iowa, Illinois, and Wisconsin. It is also an important component of rocky glades in the Ozarks of Missouri and Arkansas.

Pale purple coneflower differs from *E. purpurea* most noticeably in its longer, narrower, more strongly reflexed ray florets. These give the flower heads of *E. pallida* a spidery look quite different from that of *E. purpurea*. The ray florets also tend toward paler hues of purple and rose, although dark-colored forms can be found. Both species exhibit about the same range of heights, from two to four feet.

Perhaps it is an acquired taste, but I find *E. pallida* more interesting and attractive in

the garden than *E. purpurea*, particularly if a natural effect is desired. To my eye, pale purple coneflower brings an airiness and animation to a flower bed or border that the more refined forms of *E. purpurea* lack. But while *E. purpurea* is offered by almost any establishment selling perennials, gardeners may have a more difficult time finding a source for *E. pallida*. Fortunately, it is carried by a number of mail-order nurseries that specialize in prairie wildflowers.

While *E. purpurea* is often touted as a plant for dry landscapes, its drought tolerance doesn’t hold a candle to that of its western cousin, *E. angustifolia*. This species, commonly known among Plains residents as black sampson, is found throughout the Great Plains from Texas into Canada, occurring in places where the annual precipitation can be less than 16 inches and where desiccating winds are a fact of life. As if these conditions aren’t challenging enough, *E. angustifolia* often grows in shallow, rocky soils where drought stress is even more pronounced.



Echinacea angustifolia is the shortest of the coneflowers, reaching 12 to 18 inches. Its flowers are small, too, about half the size of *E. pallida* with ray florets an inch and a half long at most. It blooms from late May well into June. Unlike *E. purpurea*, which often branches toward the top of the plant, *E. angustifolia* tends to have simpler stems and is less prone to flopping over in the garden. With its smaller stature it offers the most refined appearance of any of the purple coneflowers and is well-suited for smaller gardens. It is used quite effectively at the Dyck Arboretum of the Plains in Hesston, Kansas.

Like the pale purple coneflower, *E. angustifolia* is not very widely available, but it is beginning to be carried by a number of wildflower nurseries. It is a species that deserves much greater use, particularly as a plant for xeriscape gardens in the western United States.

One coneflower that I have only seen in pictures, but which appears to have exciting horticultural potential, is *E. paradoxa*.

The species name refers to the fact that this is a purple coneflower with ray florets that are yellow instead of purple—a paradox indeed! This unique species is endemic to glades, rocky prairies, and open woodlands in the Ozarks of Missouri and Arkansas.

Echinacea paradoxa is a relatively uncommon plant, but the rarest members of the genus are *E. tennesseensis*, the Tennessee coneflower, and *E. laevigata*, the smooth coneflower. The former is known from only a handful of localities in central Tennessee and was one of the first plants listed as an endangered species by the U.S. Fish and Wildlife Service. It differs from all other coneflowers in having upturned rather than drooping ray florets. Although it is protected by law, a small number of nurseries have been licensed to sell the Tennessee coneflower. *E. laevigata* occurs in scattered colonies along the Piedmont and lower reaches of the Appalachians from Virginia south to northern Georgia. It has flowers similar to *E. pallida* and *E. angustifolia*, but is taller like *E. purpurea*.

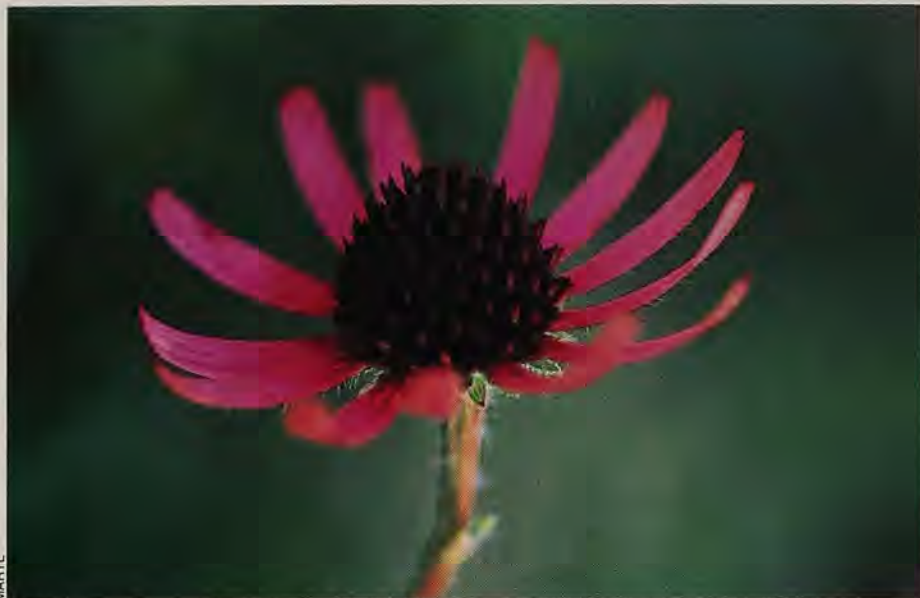
It gets its common name from the fact that, unlike other species, it has almost no hair on its leaves. The smooth coneflower has been listed as an endangered species since 1992, but one South Carolina nursery sells the plant in state.

While the various species of coneflowers are relatively distinct from one another, they hybridize freely in nature and intermediate forms are known. Ronald McGregor, who is now retired from his position as a botanist at the University of Kansas, published an extensive taxonomic study of the entire genus in 1968. In it, he noted that crosses he made between *E. purpurea* and *E. angustifolia* resulted in compact, rounded plants that were hardy and drought tolerant in Kansas. He suggested that hybrids between these two species had the best potential for new cultivars, but no such hybrids are currently available, and to the best of my knowledge, no one is working on any.

All of the purple coneflowers are relatively easy to propagate from seed if provided with a period of cold-moist stratification. This can be achieved by sowing the seed directly in the garden in the fall, or it can be done artificially by mixing the seed with moistened (not soggy) soil mix or sand in a plastic bag and placing the bag in the refrigerator for two to three months. If this is done in January or February you can have small transplants ready for the garden in May or June. Since *E. pallida* and *E. angustifolia* can develop very deep tap roots, smaller plants transplant better than older, larger ones.

Although Cumming and Lee's criticism of *E. purpurea* seems a bit harsh, it's true that members of the genus can seem rather stiff-looking and coarse-textured in the garden. They recommend "toning down" this effect by planting purple coneflower in association with airy-looking plants like baby's-breath (*Gypsophila paniculata*) or sea lavender (*Limonium latifolium*).

Other perennials that could help in this regard are boltonia (*Boltonia asteroides*), threadleaf coreopsis (*Coreopsis verticillata*), and Russian sage (*Perovskia atriplicifolia*). In gardens where prairie natives are emphasized, lead plant (*Amorpha canescens*), flowering spurge (*Euphorbia corollata*), and purple prairie clover (*Dalea purpurea*) would provide a complementary fine texture. The same could be accomplished with ornamental grasses, particularly some of the native species that occur with purple coneflowers in the wild, such as prairie dropseed (*Sporobolus hetero-*



MARYL

Echinacea tennesseensis was one of the first plants listed as endangered by the U.S. Fish and Wildlife Service.

lepis), sideoats grama (*Bouteloua curtipendula*), and little bluestem (*Schizachyrium scoparium*).

In addition to being beautiful and hardy, the coneflowers share two other attributes: They make excellent, long-lasting cut flowers and they are veritable butterfly magnets.

One of my most memorable grassland experiences involved coneflowers and butterflies on a patch of tallgrass prairie near Garnett, Kansas. It was a sunny June morning and I was searching for Mead's milkweed (*Asclepias meadii*), a rare plant making its last stand in scattered remnants of tallgrass prairie in eastern Kansas and western Missouri. I had never seen it, so I was visiting a place where a small population had been discovered a few years earlier by botanists with the University of Kansas.

After quite a bit of searching I found the milkweed, but the excitement of the discovery was overshadowed by a spectacle occurring all around me.

This particular prairie had a diversity of wildflowers that I had never seen before, and it seemed that most were in full bloom. Prominent among them were great numbers of pale purple coneflowers, weaving and bucking in the wind. There was so much movement and color that it was almost dizzying. Adding to the exuberance were the many butterflies coursing along in their midst. One particular species was very noticeable by its large size, similar to that of a monarch, and its bright orange and black velvety wings spangled with white.

While I knew a few of the more common butterflies, this was a species I had never seen before. I later scanned a butterfly book

and discovered that I had seen regal fritillaries, a species that, like Mead's milkweed, has declined precipitously due to the destruction and alteration of its preferred grassy habitats. What I had witnessed that day, as evidenced by the presence of both the milkweed and the fritillary, was a tall-grass prairie as near to pristine as any left on the continent. What a morning!

Regal fritillaries utilize a number of wildflowers as nectar sources, but pale purple coneflower is one of their favorites. In fact, coneflowers are important nectar sources for several other rare prairie butterflies, including the Dakota skipper and the Ottoe skipper.

Gardeners are more likely to plant coneflowers as butterfly attractants than as potential sources of medicine, but the mysterious healing abilities attributed by the Pawnee and other tribes to the purple coneflower were not imaginary. Members of the genus do in fact possess active medicinal constituents in the roots and other parts of the plant, something that modern-day pharmaceutical firms and the marketers of herbal products have exploited to the detriment of both coneflowers and butterflies.

The evolution of *Echinacea* from Native American herbal remedy to patent medicine to potential cancer treatment is a fascinating story and is told in engaging detail in *Echinacea: Nature's Immune Enhancer* by Steven Foster. Foster's book, published in 1991, provides so much information on this genus that perhaps it should be called the *Encyclopedia of Echinacea*.

Foster reports that the Germans have been investigating the medicinal properties of *Echinacea* for the better part of this cen-

tury and that more than 280 products containing *Echinacea* are currently available in that country.

Because there is almost no commercial production of *Echinacea*, the unfortunate consequence for coneflowers—and butterflies—is that the needs of pharmaceutical companies and herbalists are supplied from roots dug from the wild. The result has been a substantial decrease in certain wild populations, particularly of *E. pallida* in Missouri and Kansas. The problem became so bad in Missouri that a state law was passed in 1994 that makes it illegal to harvest *E. pallida*, *E. paradoxa*, and *E. purpurea* on state park land, highways, state forest land, and wildlife areas. Those caught selling roots dug from such places can face a \$1,000 fine and a year in jail.

Foster, a passionate advocate for both the conservation of purple coneflowers and the further investigation of their medicinal properties, sees propagation and cultivation as the solution to the conservation problem. However, he observes that there are considerable economic challenges to the development of *Echinacea* as a crop plant. Wouldn't it be wonderful, though, to be driving along a road and, instead of corn or soybeans, come across a field of purple coneflowers in full bloom?

While it's unlikely that many of us will ever get into the coneflower business, we can all enjoy the dramatic beauty of these hardy plants in our gardens. We won't make any money growing them, but our landscapes will be richer because of the presence of these handsome, uniquely American plants.

James H. Locklear is director of the Nebraska Statewide Arboretum.

SOURCES

- Niche Gardens, 1111 Dawson Road, Chapel Hill, NC 27516, (919) 967-0078. Catalog \$3.
- Prairie Moon Nursery, Route 3, Box 163, Winona, MN 55987, (507) 452-1362. Catalog \$2.
- Prairie Nursery, P.O. Box 306, Westfield, WI 53964, (608) 296-3679. Catalog \$3.
- Sunlight Gardens, 174 Golden Lane, Andersonville, TN 37705, (615) 494-8237. Catalog \$3.
- Woodlanders, Inc., 1128 Colleton Avenue, Aiken, SC 29801, (803) 648-7522. Catalog \$2.

Ignite the Night

Here's an incandescent addition to the perennial border.



ROBERT L. GENEVE

Volatile oils exuded by gas plant can be ignited for spectacular effect.

BY ROBERT L. GENEVE

Too few gardeners are lighting up their nights with gas plant (*Dictamnus albus*). An enigmatic herbaceous perennial native from southern and central Europe east to Korea and northern China, gas plant is both a curiosity and a valued addition to the perennial border.

The plant has a rich but confused garden history. Written accounts of the medicinal properties of gas plant appeared as early as the first century A.D. in Greek physician Dioscorides' *De Materia Medica* and were continued in the European herbals of the 16th and 17th centuries. John Gerard, perhaps the most renowned of those herbalists, documents gas plant growing in his garden in 1597.

Gas plant's unusual characteristic, as J. B. Keller in his *Cyclopedia of American Horticulture* of 1900 so eloquently put it, is to "emit an ethereal inflammable oil which will sometimes give a flash of light on sultry summer evenings when a lighted match is held near the flowers."

Gerard wrote that its foliage is "... like leaves of the ash tree ... among which grow the flowers consisting of five whitish leaves [petals] striped with red, whereof one which groweth undermost hangest down low, but the four that grow uppermost grow more stiff and upright: out of the midst of the flower cometh forth a tassel [anthers], which is like a beard, hanging also downward, and somewhat turning up at the lower end; which being faded, there come in place four huskes joined together, much like huskes or coddles [pods] of Columbine." The rich green foliage does

bear a striking resemblance to ash leaves and is attractive even after the flowers, which appear in an upright raceme, have faded by early to midsummer.

The cultural requirements for growing gas plant are what might be called “hand-me-downs,” each succeeding author seeming to have drawn heavily on earlier references. Modern growing recommendations are remarkably similar to the advice of Phillip Miller in his *Gardener’s Dictionary* of 1760. “The roots of this plant continue for many years; but the stalks decay in the autumn, and new ones are produced every spring. The older the roots are, the greater number of stalks will be sent forth from each, provided they are not disturbed; ... to have this plant in perfection, plant the roots when young, in the places where they are designed to remain; for they do not bear transplanting well.”

Once established, plants will flourish for decades, eventually creating a fantastic show of flowering spikes up to two feet tall. Although the coarse, fleshy root system rebels against being moved, it does allow gas plant to tolerate dry conditions in the garden. Because gas plant is native to higher elevations, however, it does better where summer evenings are cool. It is hardy in USDA Zones 3 to 9, but in some southern states gas plants may not “increase in vigor” each year.

The origin of the genus name *Dictamnus* and one of the plant’s common names, dittany, recognizes a plant that commonly grew on Mount Dikte on the Greek island of Crete. At one time the name was more commonly used for an origanum that is now called *Origanum dictamnus*. There is little resemblance between the two plants, the common bond apparently being the site where both were native, and possibly their use as medicinal herbs. Nevertheless, Gerard recounts that confusion or misidentification sometimes led apothecaries in Germany to mistakenly administer the roots of the gas plant rather than the leaves of the origanum to their patients. One eye-opening claim for both gas plant and the origanum was that eating either would cause arrows to fall out of both humans and animals. In latter-day herbals this story was modified to prescribe these herbs as a topical treatment to draw out splinters.

A search further back into the literature shows that the first name ascribed to gas plant was *Tragium*. This is a variation on “tragos,” the Greek word for goat, used because the plant’s seed pods supposedly

smell like a goat. Why this name was abandoned for *Dictam* and, finally, *Dictamnus* is not clear. In an attempt to avoid confusion with the origanum, 17th-century herbalists usually used the name “fraxinella,” which means small ash. Although this name was very descriptive of the gas plant, Carl Linnaeus elected to list it as *Dictamnus albus* in his 1753 *Species Plantarum*. This is the accepted name today, but many references still list *Fraxinella* or *Dictamnus fraxinella* as synonymous because they were commonly used into the early 1900s.

Dictamnus was considered by Linnaeus to have only one species. Many modern references still accept that judgment, acknowledging variability within the species but concluding that differences in flower color, leaf shape, and plant stature are not significant enough to warrant additional species. A few references list up to eight species for *Dictamnus*, however. These are usually regional species such as *D. hispanicus*, found in Spain, and *D. caucasicus*, native to the Caucasus Mountains of Georgia and Azerbaijan. The latter is more commonly listed as *D. albus* var. *caucasicus*. The botanical variety is said to be larger and more robust than the species, but I have not seen it offered by nurseries in the United States.

The available horticultural selections of gas plant continue the plant’s heritage of confusion in names. No two references list the same cultivars. It is accepted that the species is white-flowering, although all shades of pink to purple are possible from seed. The two most commonly cited pink or purple forms are ‘Purpureus’ and ‘Rubra’, sometimes listed as ‘Ruber’. I am dubious about the integrity of these cultivars, particularly ‘Rubra’. Those I have purchased and planted side by side differ in plant height, flower, and leaf size. Since flower color comes relatively true from seed, these cultivars may have been maintained as variable seed populations or propagated as root cuttings of selected seedlings. ‘Rubra’ should probably be considered a botanical variety rather than a uniform cultivar.

These discrepancies in nomenclature re-emphasize the inherent variability in this species. There is a need to select superior plants for clonal propagation and maintenance of true-to-type cultivars. Some selection has occurred, but important traits, such as tolerance to summer heat, have yet to be selected.

Seed propagation is difficult because of



ROBERT E. LYONS: PHOTONATS

a complex seed dormancy. The best way to handle seed is to sow it in a prepared garden bed as soon as it ripens in fall, thus allowing it to go through natural cycles of cold and heat. If conditions are right, seedlings will appear the following spring and summer. Root cuttings have provided a means for some nursery growers to vegetatively propagate cultivars of gas plant. This method is slow, however, and may damage stock plants. At the University of Kentucky, we have been successful with tissue culture, a process I hope will offer an alternative for clonal propagation of superior gas plant selections.

The virtues of gas plant as a hardy perennial cannot be overstated. It is equally compelling, however, to grow gas plant as a pyrotechnic wonder. Why not grow one and throw a gas plant party next May or June to amaze and delight your friends? My plants have put on a show three years running, although I find the flowers provide less of a fiery display than do the developing seed capsules. I have been able to ignite the bottom cluster and, in a chain reaction, produce a two-foot “torch” as each flaming seed capsule ignites the one above



ROBERT L. GENEVE

ANN REILLY, PHOTONATS

Gas plant flowers range from the white of the species, right, to the dark pink of the cultivar 'Purpureus', top. The seed pods of a pink variety, 'Rubra', above, exhibit the tiny hairs that exude the plant's volatile oils.

it. The flame lasts for only a few seconds, but it never fails to entertain.

Chemical analyses indicate that the flammable compounds produced by gas plant are most likely monoterpenes, which have a relatively low flash point. These volatile substances are secreted in tiny hairs called trichomes, found on the leaves and seed pods of gas plant. Monoterpenes are found in other plants, but gas plant seems to have higher concentrations. These, when combined with ideal atmospheric conditions, give the plant its singular ability to ignite.

This characteristic probably did not evolve out of a suicidal impulse toward spontaneous combustion, but more likely as a way to deter insect pests, as occurs in plants containing similar compounds, such as common rue (*Ruta graveolens*). This helps explain why gas plant is relatively pest free. Even Japanese beetles choose to leave gas plant alone as they infest adjacent plants in my garden.

Not everything about the species recommends it to the garden. In addition to the monoterpenes, gas plants contain toxic alkaloids in the stem and leaf tissue that are responsible for a serious contact dermatitis in susceptible individuals. Other members of Rutaceae, the citrus or rue family, can also produce this reaction. Affected areas blister severely, and the unwary gardener will only make this mistake once. Before you panic and rip out your 10-year-old gas plant, however, common sense can help you avoid this skin reaction. Wearing gloves while working around this plant or when cutting flowers is advisable. This type of contact dermatitis is called phytophotodermatitis, which means that the chemicals will produce the skin irritation when exposed to ultraviolet radiation. If you suspect you may have made contact with your gas plant—you may detect a lemony odor—avoid exposing the area to direct sunlight and immediately wash your skin thoroughly.

It must be emphasized that gas plant is not to be taken lightly—it contains powerful compounds that should not be used as part of any home remedies. Garden performance and the flaming theatrics of gas plant, however, more than compensate for any precautions needed in growing it. It is a perennial plant that truly deserves more attention by American gardeners.

Robert L. Geneve is an associate professor of horticulture at the University of Kentucky in Lexington.

Every gardener who ever complained of too much shade should visit Mount Cuba. Here, only a few minutes outside Wilmington, Delaware, a visitor can get lost in silence. Wide pine-bark paths lead through a cathedral of 80-foot tulip poplars. The understory is a profusion of American woodland trees and shrubs—several dogwood species, rhododendrons, mountain laurel, fothergilla—and hundreds of perennials and ground covers.

It is May when the garden is most color-spangled—with the blue of phlox and creeping bluets, the yellow of lady's-slipper

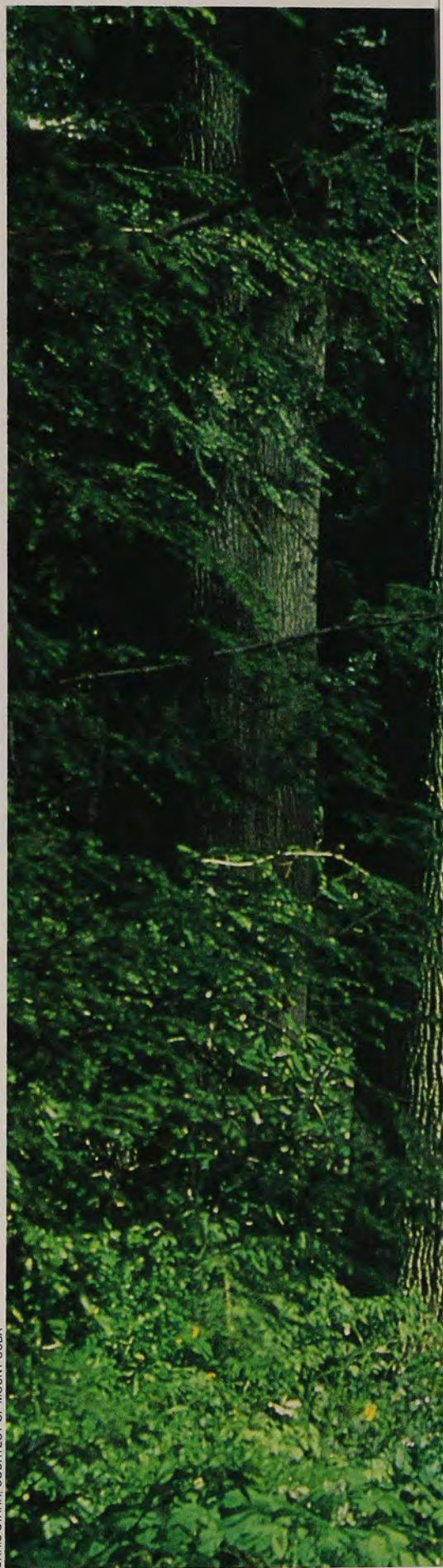
orchids, the lavender of rhododendrons, the white of trillium. Fall comes on with a bang, too, as maple and dogwood leaves turn color, blue and red berries appear, and the meadow garden in the midst of the woods is dotted with asters and golden-rods. But the garden may be most impressive in midsummer when there is deep soothing shade but very little color at all, yet the careful juxtaposition of textures allows each plant to display its individuality.

Mount Cuba's collection of woodland flora is nestled under a canopy of 80-foot tulip poplars.

Mount Cuba A Botanical Legacy

This Delaware garden is a sanctuary for the diverse flora of the Piedmont.

B Y K A T H L E E N F I S H E R





Clearly, these plants were arranged by someone who knew each one intimately.

This 230-acre estate is another jewel in the crown of the du Pont family. With a dozen relatives, E. I. du Pont came to the United States from France in 1880 after intensive study of botany. Finding land prices too inflated to allow pursuit of his agrarian dreams, he instead turned to manufacturing gunpowder. But his love of plants lives on in such famous public gardens as Longwood, Winterthur, Nemours, and Eleutherian Mills—all of them within a few miles of Mount Cuba and all the former estates of du Pont descendants.

Mount Cuba is less well known because it is not yet open full-time to the public. It is open to all visitors only once a year (the first Saturday in May) and for a few weeks in spring and fall to horticultural groups of 15 or more. The staff is already taking reservations for the spring of 1996.

But Mount Cuba is grand in a way that transcends the spectacular fountains of Longwood or the naturalistic grace of Winterthur, because of the focused mission of its owner, Pamela Cunningham Copeland.

As with many passionate gardeners, Copeland was encouraged to love plants as a child—in this case by her mother, who gave her prizes for wildflower collections labeled with common and botanical names. In *The American Woman's Garden*, edited by Rosemary Verey, Copeland wrote that “for a few years my interest in men overcame my interest in plants,” but soon after she married, she established her own first garden for cut flowers, lettuce, and parsley.

Her husband, Lamont du Pont Copeland, great-great-grandson of E. I. du Pont, brought her to the Brandywine Valley in 1935, and they built on Mount Cuba where they could overlook rolling hills and farms of the then rural Delaware Piedmont.

In the 1700s the property was the site of Cuba Rock, the homestead of Cornelius Hollohan. In adopting the name, a nearby settlement changed it to Mount Cuba.

An aerial photograph from 1939 shows a magnificent house screened only by a few trees from what were formerly corn fields. The Copelands' first garden was a rock garden designed to soften bedrock exposed when the driveway was regraded, but World War II postponed plans to complete their formal landscaping. In the late 1940s they engaged Marian Coffin, who had worked with Henry Francis du Pont in designing formal areas at Winterthur. Pamela Copeland calls the resulting garden “round, and



SAXON HOLT



MARYL



SAXON HOLT

A Mount Cuba goal is to propagate lady's-slipper orchids such as Cypripedium pubescens, top, as they have done with fragrant ladies'-tresses orchid, center. Rills, above, add their music to a glade.



MARYL

rather like a plate.” In the center is a pool surrounded by unclipped boxwood hedges punctuated with American hollies. Coffin also called for the planting of large sweeps of plants, primarily azaleas, that bloom in the same color.

About the same time, the Copelands were able to buy an adjacent meadow and wood, and Pamela Copeland's love of wildflowers was rekindled. “I had seen many native wildlings in areas quite distant from the house,” she wrote, “but here was an opportunity to develop a naturalistic garden that was more accessible.”

Although Copeland took some cues from Coffin, such as her swaths of one plant type, this design was her own. She and her husband began to clear glades and



to dig ponds for bog-loving wildflowers. She defined pathways and created a background with hollies, dogwoods, and tall perennials such as bugbanes (*Cimicifuga racemosa* and *C. americana*) and blue cohosh (*Caulophyllum thalictroides*).

For ground cover she experimented with partridgeberry (*Mitchella repens*), foamflower (*Tiarella cordifolia*), liverleaf (*Hepatica americana*), and yellowroot (*Xanthorhiza simplicissima*).

As she sought out more plants to fill this space—which would eventually encompass 20 acres—she discovered something disturbing: Most of the native American plants being sold through nurseries had been collected from their natural habitats, like abducted children, often to be replant-



In the spring, Trillium grandiflorum, left, and other woodland bloomers take center stage. In autumn, it's the meadow flowers such as black-eyed Susan, above.

SAXON HOLT



PHOTOS BY MARYL

Fall foliage, above, adds its colors to those of meadow plants such as asters, left.

ed in gardens where they had no chance of survival. She wanted to find some way to help conserve the wildflowers she had grown up with “before they all became endangered species. . . . Now, I wanted to become a serious, informed conservationist.”

She consulted Richard Lighty, who at that time was administrator of the Longwood Graduate Program at the University of Delaware, and was urged to focus her interests on the rich flora of the eastern Piedmont. Lighty pointed out that although Mount Cuba is situated almost at the northernmost tip of the Piedmont, which runs a thousand miles along the eastern slope of the Appalachians from the Hudson River through northern Georgia and into central Alabama, plants growing



MARYL



SAXON HOLT



MARYL

in one part of the Piedmont will grow in any other part. Thus the orange-red flowers of the plum-leaved azalea (*Rhododendron prunifolium*), native to Georgia and Alabama, have come to brighten Mount Cuba's woods in late summer.

"I think of the Piedmont as a meeting place," says Lighty, a plant geneticist who has gardened just over the state line in Pennsylvania for 35 years. "It's in the middle of two radically different provinces—the coastal plain, where most plants had their origins in the South, with flora coming up from the Gulf Coast to Nantucket and Cape Cod, and the Appalachian plateau, where a flora common to New England extends into the mountains of the South." The Piedmont is home both to

Richard Lighty, top, admires a ladies'-tresses orchid. Spring-blooming bluets, center, are among Pamela Copeland's favorite flowers. 'Golden Fleece' goldenrod, above, is one of Mount Cuba's plant introductions.

plants with Appalachian origins that adapted easily to its milder climate, and to naturally hardy plants from the coastal plain or those genetically predisposed to adapting to the Piedmont's more rigorous climate.

Lighty says there are several discontinuities along the Piedmont where the nature of the flora changes rather suddenly, most notably in the Carolinas and again in Maryland and Delaware. For example, the fringe tree (*Chionanthus virginicus*) stops occurring naturally around Newark, Delaware, as does the redbud. "There is a natural population of sweet gum [*Liquidambar styraciflua*] about 10 miles away—it grows along the coastal plain from Costa Rica to Rhode Island—but it doesn't come inland at all in this area. These things will grow here, they just don't occur naturally. Some speculate that it's related to the speed with which species recolonized after the glaciers retreated."

The more Copeland learned about the region and the variety of plants that thrived there, the more concerned she became about their future. She wanted more people to see how beautiful the Piedmont's plants are, not so they would want them for their gardens, but so they would want to help protect them in their natural habitats.

The Copelands knew that Lighty was familiar with public gardens and solicited his thoughts on how to guide the educational, research, and display programs of Mount Cuba into the future. "We talked about my philosophy, and how important I think it is for the director of an endowed garden to perpetuate it according to the wishes of its founder, and not his or her own," he says.

From this meeting of the minds came an offer of employment, and in 1983 Lighty became director of the Mount Cuba Center for the Study of Piedmont Flora.

Since then Mount Cuba has become not just an amazing island of floral diversity, but also a laboratory. Lighty believes that gardeners will be less likely to collect native plants from the wild, or to purchase species from nurseries that buy collected plants, if an outstanding selection of the species is named and released as a cultivar. "If a named plant is established as the best, people will want that plant," he reasons. Mount Cuba releases also have to be tough, stress-tolerant, and easy to propagate, Lighty adds.

The first official release, in 1988, was a variegated dogwood, *Cornus sericea* 'Silver and Gold', which originated as a sport of a



Plants with berries that add fall color to the woods include white baneberry, *Actaea pachypoda*, left. The Copelands' rock garden, below, was created after bedrock was blasted to grade the driveway.



yellow-twigged cultivar at Mount Cuba. Lighty compares it to another variegated dogwood, *Cornus alba* 'Elegantissima', but says 'Silver and Gold' is better at tolerating the heat and humidity of the mid-Atlantic region and South.

The next year saw three releases. *Heuchera americana* 'Garnet' is a boon for the shade gardener with its jewel-tone red leaves and a pleasing mound shape that lasts nearly year-round. A goldenrod, *Solidago sphacelata* 'Golden Fleece', was chosen for its diminutive size and *Aster novae-angliae* 'Purple Dome' for its compact form. Gardeners say it's also more willing to stay in bounds than many aster species. In 1994, the latter two received the top award of the International Stauden Union, a worldwide association of perennial growers that runs trials on all newly named cultivars. The two plants make a stunning combination when they bloom together in fall.

The Asian *Pachysandra terminalis* is almost a cliché as a ground cover, but the native *Pachysandra procumbens* is rarely seen. In 1992 Mount Cuba released a cul-

tivar, 'Forest Green', chosen for its smooth, undulating surface and large leaf whorls.

Named but not yet widely available are *Leucothoe axillaris* 'Greensprite', a solid green, shiny-leaved version of the arching evergreen shrub, and another aster, *Aster laevis* 'Bluebird', discovered as a volunteer in a private garden in Guilford, Connecticut. Four to five feet tall and mildew-resistant, it produces yellow-centered flowers that are a bright lavender-blue.

Most exciting for gardeners who long to grow natives but worry about their survival in the wild is Mount Cuba's work on genera not currently attainable in nurseries, such as *Trillium* (wake-robin) and terrestrial orchids.

In 1958 a landowner in northeastern Pennsylvania gave Lighty permission to collect a *Trillium grandiflorum* from his property. Lighty discovered that secondary buds that remain dormant on most trilliums could be offset to produce new plants, and that single plant now has thousands of offspring. Named 'Quicksilver', it should soon be available for home gardeners.

Already available on a limited basis is the

fragrant ladies'-tresses orchid, *Spiranthes odorata* 'Chadds Ford'. Our native terrestrial orchids have a reputation for being difficult to grow, but in late summer at Mount Cuba this one has a dual role. It makes a show with the pitcher plants along one of four ponds in the naturalistic gardens, and it is grown alongside potted mums in containers indoors, where Copeland can enjoy the orchids' vanilla scent.

Still in early experimental stages is work on lady's-slipper orchids (*Cypripedium* spp.). A laboratory in Oregon sends Lighty and Mount Cuba Assistant Director Jeanne Frett small plastic bags of seedlings produced from tissue culture, which they chill in a refrigerator for three months before setting them out in spring under varying conditions. The plants don't seem as particular about media—they have survived a year in sand, peat, or gravel without fertilizer—as they do about exposure. "Conditions seem too harsh in open beds," says Frett. "They do better in a Nearing frame, which is open only on the north so that they don't get direct light."

These propagation efforts take time, of course, and some wild plants may not have much time left. Most important to Copeland and Lighty is to foster respect for the botanical heritage of the Piedmont. "Mrs. Copeland wants everyone to appreciate these plants as much as she does," says Lighty, "because she believes that you will take care of those things you love."

Kathleen Fisher is the editor of American Horticulturist. Members of the American Horticultural Society will visit the Mount Cuba Center for the Study of Piedmont Flora during our 50th Annual Meeting June 22-24.

SOURCES

Forestfarm, 990 Tetherow Road, Williams, OR 97544-9599, (503) 846-7269. Catalog \$3. 'Silver and Gold' dogwood.

Niche Gardens, 1111 Dawson Road, Chapel Hill, NC 27516, (919) 967-0078. Catalog \$3. 'Silver and Gold' dogwood, 'Purple Dome' aster, 'Golden Fleece' goldenrod.

Roslyn Nursery, 211 Burrs Lane, Dix Hills, NY 11746, (516) 643-9347. Catalog \$3. 'Garnet' heuchera, 'Silver and Gold' dogwood, 'Chadds Ford' ladies-tresses orchid (the latter unavailable until fall).

Should You Go To A Pro?

Choosing the right designer is crucial to revitalizing your landscape.

BY KERRY HART

You've been an avid gardener for more than a decade now, and you think you know quite a bit about plants. You're surrounded by your favorite colors and smells, and nearly everything you stick in the ground thrives, or at least survives.


But something is wrong. Now that you own many longed-for cultivars and rare species, you don't enjoy being in your garden. The 1984 rose bed is edged with liri-ope while the 1994 wildflower bed is edged with landscape timbers; they don't look like they belong in the same country, let alone the same quarter-acre. The woodland garden refuses to fill in, but your 'New Dawn' rose is pulling down its trellis. Your garden should make you feel soothed, like a glass of fine wine. Instead, it hits you like a tenth cup of coffee.

Or perhaps you've finally realized your dream of five acres in the country. All that space! A blank slate to write upon with plants! And every time you contemplate breaking ground, your feeling is one of . . . stark terror.

Admit it. You need professional help.

There's no need to feel ashamed. When it comes to the placement of their plants, avid collectors tend to have a disease. Kibbe Turner, president of the Association of Professional Landscape Designers, calls it "plopitis." We buy a plant, and we plop it in the ground wherever we have a space. "Designers tend to have plopitis, too," Turner laughs, "because we're always testing new plants."





But finding a good landscape professional is not unlike finding a good mental health professional. Just as there are psychiatrists and psychologists and counselors, there are landscape architects, landscape designers, and landscape contractors—or simply “landscapers.” Which pro do you need? And once you decide that, how do you find one who’s simpatico?

If solving your problems will entail some heavy-duty construction such as a retaining wall, the decision may be made for you. According to Betsy Cuthbertson, director of government relations for the American Association of Landscape Architects (ASLA), about half of our states have laws regulating who can build any structure that might have an impact on public safety.

Forty-five states—all except Alaska, Colorado, New Hampshire, North Dakota, Vermont, and the District of Columbia—have laws regarding who can use the title landscape architect. “The title laws regulate truth in advertising,” Cuthbertson says. Those who use the title must have taken a four- or five-year program at an accredited university and passed a national examination.

But if you’re the average homeowner with a quarter-acre lot and a small budget, trying to decide what to interplant with your tulips, an ASLA member may not be the way to go. Although Cuthbertson says that some of them do specialize in planting design, a survey found that only 12 percent of them focus on residential work. The rest concentrate primarily on large commercial properties or public landscaping. “Most of the projects we do,” says Turner of landscape designers, “a landscape architect wouldn’t want.”

Although there are certainly many exceptions, landscape designers—or garden designers—are apt to concentrate more on horticulture and less on hydraulics.

But anyone can use the title “designer,” so how do you begin to find a good one?

Some designers have established enough of a reputation that they get all their business by word of mouth. If you really admire a neighbor’s garden and suspect that they had some help putting it together, ask them to refer you.

Try checking out the landscaping ex-

Good designers will look at your outdoor spaces with an artist's eye.

hibits at a regional flower show. If there is a public garden or arboretum nearby, you might ask them for names. And just as hardware stores frequently have names of contractors, local garden centers can often recommend garden designers. Some centers have designers on staff who will plan a landscape for free or very inexpensively. Be aware, though, that these designers are there to sell their center's plants. If you want to shop around for your own favorites, this might not be the happiest of relationships.

Letting your fingers walk through the Yellow Pages is a pretty hit-or-miss proposition, but you might pick up a few clues. If you like a naturalistic look and don't use garden chemicals, a business called "Environmental Designs" might be just the ticket—or just trendy. Turner's business is called "Wildlife Habitats," and indeed he does specialize in informal ponds and other naturoscapes.

Good designers will look at your outdoor spaces with an artist's eye, positioning plants as masses that will help you feel embraced, removing those that make you feel trapped. They will guide you in framing a view with trees, or shaping a perennial bed or patio to create an illusion of more space. Someone who advertises as a landscape contractor may have an instinct for design, but is more likely to be merely an installer of plants and decks—the person you call *after* you have a design.

Your initial phone call to a designer or architect is important. Find out as much as you can in a short time. Explain how big your property is and where it is, and the key changes you think you want to make. You'll learn pretty quickly if your project is too small or too far away from where the designer likes to work.

Richard Dubé, a designer based in Maine, is writing a book that will include questions that homeowners should ask, and information they should give, a designer. He notes that design style is something that should be brought up sooner rather than later. "If they admire Italian design, I'm not going to be comfortable," he says, "since Japanese and naturalistic gardens are my specialties."

Tell the designer whether you just want a plan drawn or want to have every brick installed and every annual planted. Dubé says that each designer has different ways of making a profit, and while most charge by the hour for creating a design, others may count on a mark-up on plants or on

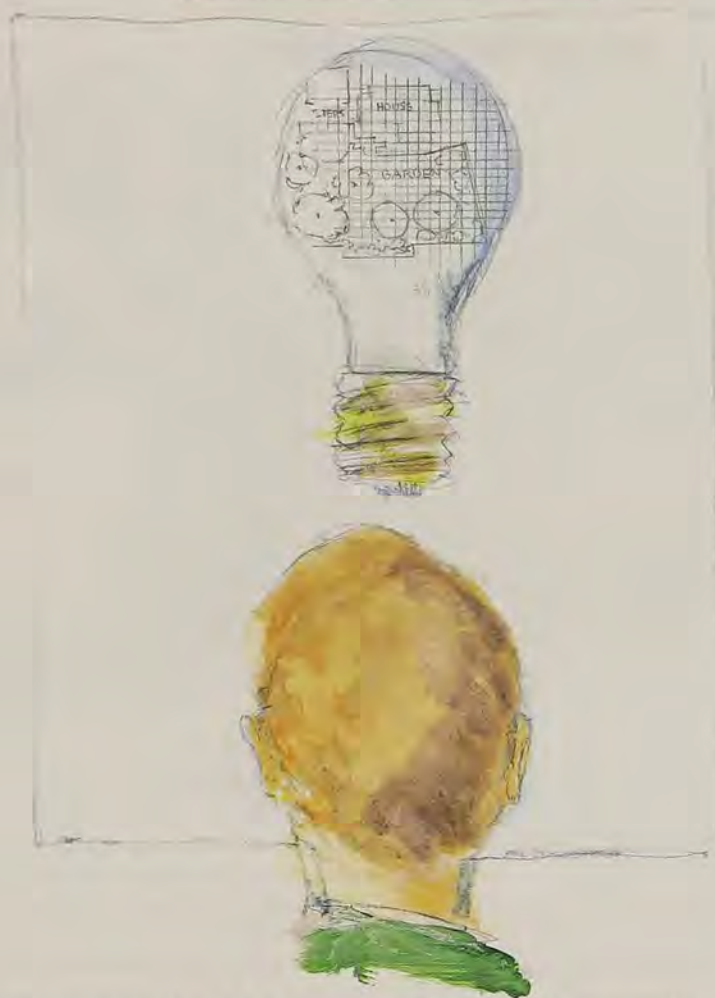
acting as a contractor for the labor.

So of course, you must talk about . . . money. The designer will ask you, or you should offer, what you are willing to spend over how long a period. If the budget is tight or if you are doing the labor yourself, the designer may be happy to talk about a plan that can be carried out in stages over several seasons.

An established designer is likely to charge \$75 to \$100 an hour for the planning process. One designer, who charges \$85 an hour, estimates that most plans take about 10 hours to complete—a two-hour initial visit, drawing a rough plan or plans, another visit, then back to the drawing board to firm up hardscapes and tree

and shrub placement. The cost will go higher if the property is large or if the client wants more details, such as placement of perennials.

Dubé says he usually draws three rough designs, and the final may incorporate features of all three. His average charge is about \$750 for a planting and layout plan with a separate plant list. "This would be pure groupings," he says, such as perennials, shrubs, and ground covers, with no square footage and no topographical lines. He has an arrangement with suppliers who will offer clients a 10-percent rebate on plants and other materials. Clients can collect rebates until they have recouped the design fee, and Dubé receives a commission



Finding a good landscape professional is not unlike finding a good mental health professional.



from the supplier, plus the satisfaction of seeing his plan completed. "It's frustrating to put together a beautiful plan that will never be executed," he says.

Also ask the designer about credentials—training, years of experience, certification, any professional memberships. See if you can get names and phone numbers of former clients or places where you can see previous work.

Test the designer's plant knowledge, Dubé suggests. Go ahead and ask trick questions. Say you'll just die if you don't have an ailanthus (invasive) and you'd like a bull bay magnolia next to your vegetable garden (too big, too shady) or a camellia in North Dakota (not hardy). Read an in-depth article on new holly cultivars, then ask the designer to name his or her favorites.

Once you've found someone who seems compatible over the telephone, you're ready for your first visit. Expect the mileage meter to be turned on at this point. Although designers probably won't be as strict as mental health professionals with

their time, dismissing you briskly at the end of 50 minutes, you are taking them away from their drafting table. "I charge because I can't resist drawing up a rough plan," says Washington, D.C., designer Sarah Broley, "and I know I might see it in their yard a year later." Especially if you haven't seen any of their work, ask to see some photographs of gardens they've designed, preferably before and after shots.

Most designers have a set of questions they ask new clients. This may be informal as you walk around the property, or a written list to be filled out after you agree to work together. Dubé asks 37 questions, ranging from drainage problems, favorite color and least favorite color ("Nine out of 10 times," he says, "it's orange.") to setback requirements and even how you go about getting rid of your snow—an important issue in his Maine clients' gardens.

Heather and Henry Burkert of Wilmington, North Carolina, give new clients a three-page "program outline" asking about potential garden features and even

whether the Burkerts can choose the locations of the mailbox, house numbers, and trash cans. Rather than asking for names of favorite plants, they ask clients to rate plant features—fall color, variegated foliage, spring bulbs, textures from wispy to tropical—from one to 10. "Most people don't know specific names of plants," says Heather, "but they know what 'look' they do and don't like."

The outline has been refined in their 14 years of practice to bring up details the client may forget to mention or may consider unimportant. "Once, we designed and had built some cinder-block privacy walls for a client," says Heather. "Even though the design was fashioned around a structural engineer's specifications, one wall cracked and separated. After some research, we discovered that the owner, some years earlier, had trucked in fill dirt for that particular area. Its settling was cracking the wall."

The designer may ask for a copy of the real estate plat that you received when you bought your home. Not only can its di-

A LITTLE HOMEWORK

mensions be assumed to be correct, but it is likely to have an indication of true north—a crucial element in siting plants. Broley carries a compass on her key chain for the same reason. “It always seems to be cloudy the first time I visit a home, and I have to know where the sun is,” she says.

Hide the dirty dishes in the washer; the designer should come inside. The view from windows and glass doors is extremely important. The designer may also pick up additional clues here about your favorite colors or lifestyle—casual or neat as a pin, sports-loving, antique collector versus ultra-modern. “It’s hard getting inside another person’s head on one visit,” notes Broley.

Broley will usually bring along some magazine photographs to tease out likes and dislikes, and is often pleased to see that clients have collected their own, sometimes for years. Even if the pictured features can’t be duplicated in your garden because of climate or lack of space, they can, like a Rorschach test, suggest what’s important to you. Turner also encourages picture-clipping, which he says can save both parties a lot of time. “If I see photos of patios and containers, I’m going to suggest something very different than if I see a jungle.”

Both he and Broley ask clients where they grew up. Of course, if the homeowners came to Florida from the Pacific Northwest, or if they moved to Maine from Arizona, they can’t duplicate their home environment. Nevertheless, says Broley, “it tells me something about the plants they’re familiar with.”

We all know the cliché about interior designers who sashay into your family room exclaiming, “Who on earth chose this dreadful wallpaper?” But even if your aucuba is half dead and your azalea blossoms clash, garden designers will try hard to be gentle, perhaps inquiring, “Do you like that spirea there?” or “You do know that this will get very big?” If you’re touchy about Aunt Bertha’s lilac bush, you might send the designer a “before” drawing of your landscape, indicating things you dislike and those that are holy relics.

A good designer will ask about pets and the wants and needs of other family members. Don’t let other residents of your abode claim that they’re not interested in this project. Even if they really never venture out for so much as a cook-out or a badminton game (and they may start once you have an inviting landscape), they may become interested in what you’re doing with all that time and money. Broley recalls one husband

A thoughtful evaluation of your current landscape will help you in working with a professional designer or architect—both in choosing one and in not wasting time once the hourly rates begin. Try to draw your landscape on paper. Even if it isn’t to scale, it will help you focus on likes and dislikes and the way various garden features and plants do or don’t relate. A designer will ask you many of the following questions:

How do you use your outdoor space?

- Entertaining Sports Family dining Pet run Relaxing

When do you use it most?

- All day Evenings Nights Weekends

Which, if any, of the following features would you like to include:

- Water feature Wildlife area Cutting garden Swimming pool
 Deck Patio Sculpture Garden seating
 Food garden (fruit, vegetables, herbs)

How important are the following plant features to you? Rate each from 1 to 10.

- | | |
|----------------------|--------------------------|
| ___ Low maintenance | ___ Provision of shade |
| ___ Fall color | ___ Variegated leaves |
| ___ Spring color | ___ Red or purple leaves |
| ___ Year-round color | ___ Fragrance |

What are your favorite colors? _____

What are your least favorite colors? _____

What views are most important from inside the house? _____

How much lawn do you like? _____

What do you like most about your current landscape? _____

What do you like least? _____

Do you have any of the following special problems?

- Drainage Poor traffic flow Too much wind
 Too much noise Too much exposure Unsightly views
 Too much shade Too much sun
 Overgrown, damaged, or diseased trees

What kind of soil do you have? _____

For each of the following, rate its importance in your landscape from 1 to 10, and if you can, name a favorite:

- | | |
|-----------------------|------------------------|
| ___ Evergreen tree(s) | ___ Perennials |
| ___ Deciduous tree(s) | ___ Annuals |
| ___ Shrubs | ___ Ground covers |
| ___ Vines | ___ Ornamental grasses |

What kind of material is used in your driveway, paths, and walks? Your fence? _____

Where is your water source for irrigation? _____

Do you need a children’s play area? Will it include swings, a sandbox, or trampoline? _____

Do you need storage space for autos, boat, recreational vehicle, bikes, firewood, or gardening equipment? _____

and wife who called her individually to champion conflicting ideas—but never seemed to talk to each other. More recently, a husband who claimed disinterest jumped into the picture after Broley had drawn two separate rough designs, naturally choosing the one his wife rejected.

Even if you plan to purchase your own material and do all the labor, ask the designer for tips. He or she may be able to

find you bigger trees and shrubs and more affordable help than you could find on your own.

And even if the designer won't be acting as a contractor, see if she or he will come back after you've broken some ground and are ready to put in your first big order of plants. Many will want to. "My design always changes from the one I've drawn on paper, after I've seen the plants," says

Sarah Boasberg, another Washington, D.C., designer. "I need to walk around on the site and look at the plants from different angles. A designer knows how the plants will change with growth and how to turn a tree the right way. Installers won't see it."

A good landscape designer is likely to give you more ideas in a couple of hours than you can produce in months of thumb-

Solving a Member's Dilemma

Responses to the survey we published in September showed that many of our readers would like more help with landscaping. In reporting the survey results in November and January, we invited members to send in specific questions with photographs.

No one sent in as much detail as Naomi Shapiro of Lynchburg, Virginia, who sent us nine photographs and a drawing of her yard, and then in response to our request for more information, even more photographs showing her house in relation to her street and neighbors.

The Shapiros' most pressing problem is a lack of privacy. They have a large deck and sun room, but everywhere they turn, they see neighbors—knowing that the neighbors also see them! There are three adjacent homes: one to the northwest, separated from the Shapiro deck only by lawn; one directly behind them to the southwest ("View from bedroom window," Naomi labeled one photo. "Not what I want to see first thing in the a.m."); and another to the south. The builders of the 13-year-old house left some trees between the Shapiros and the latter two neighbors, but these are deciduous, and most of them are on the neighbors' properties, she says, "so we cannot plant beyond midway. We want to block the view of the neighbors' houses and yard while not blocking sunlight from our own yard."

Sited in the middle of a slope, the Shapiro property also has some drainage problems, as well as deer that are bold enough to munch lilies while the Shapiro family is sitting only 10 feet away. The couple like an informal, naturalistic style.

In regard to screening on the wooded sides, Sarah Boasberg, a professional landscape designer based in Washington, D.C., and the Chairman of the American Horticultural Society's Board of Directors, advises: "Their only real choice is to use hollies, and it will not be either an inexpensive or a quick fix." Hollies generally grow only about a foot and a half a year for the first couple of years, Boasberg notes.

"Plant two to three groups in informal drifts. It's worth looking for *Ilex × koehneana*, which has larger, glossier leaves that will give you a brighter, more decorative effect when the sun shines on them in the winter. *Ilex latifolia* also has glossy leaves. 'Nellie Stevens' is too formal, and the Foster hybrids have a fine leaf that will not give a good screen. The blue hollies and 'San



PHOTOS COURTESY OF NAOMI SHAPIRO

The Shapiros want to create more privacy on their deck, top, and in their back yard. The view above looks out toward the southwest.

Jose' grow too slowly and need more sun than you appear to have. There are other new *Ilex opacas* on the market that you may want to check out. If you can find the space, you might want to try a magnolia. *Magnolia virginiana* var. *australis* is evergreen and can tolerate your poor drainage.

"The hollies will get tall enough to give you some privacy in your two-story house. Then you can begin to add contrast with needled evergreens, or some big cheap rhododendrons. You might choose some old-fashioned Glenn Dale hybrid azaleas—

ing through magazines. This is, after all, your landscape, with its unique setting, unique strengths and weaknesses, and unique caretaker. If you succeed in finding a designer who can successfully “get inside your head,” your gardening may literally take on whole new dimensions.

Kerry Hart is a free-lance writer based in Reedville, Virginia.

RESOURCES

The American Horticultural Society’s on-line listing of horticulture professionals will be available on the World Wide Web beginning this summer.

American Society of Landscape Architects, 4401 Connecticut Avenue NW, Washington, DC 20008, (202) 686-2752. Will

send a list of landscape architects in your area. ASLA does not categorize members by specialty.

Association of Professional Landscape Designers, 11 South LaSalle Street, Chicago, IL 60603, (312) 201-0101. Will send a list of landscape designers in your area. Certified members have passed an examination and must obtain continuing education credits.

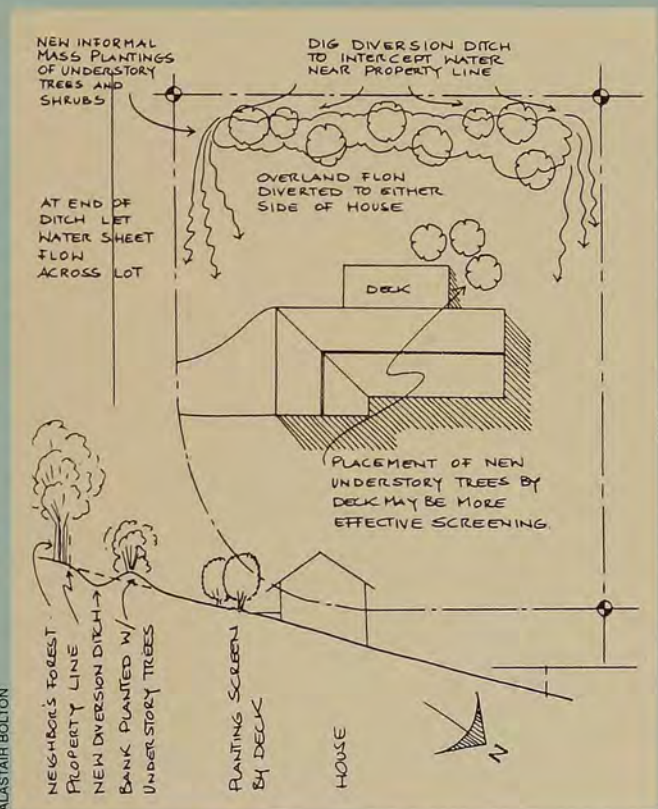
‘Treasure’ or ‘Palestrina’—which will take up more space, and white flowers, to lighten your dark space. *Viburnum plicatum* forma *tomentosum* ‘Shasta’ will become huge and provide white flowers. *Stewartia* is expensive, but will give white flowers and some fall color, as will oakleaf hydrangeas and *Enkianthus*.

“For ground cover that will give spots of color, use lots of *Phlox stolonifera*—‘Sherwood Purple’ and ‘Blue Ridge’ are good choices—along with Virginia bluebells. *Itea virginica* is an excellent native shrub for wooded areas that offers autumn color and will help hold soil where you are worried about erosion, as will sweet box—*Sarcococca*, which is wonderfully fragrant in February. Other good ground covers might be *Helleborus orientalis*, the native *Pachysandra procumbens*, or hostas such as ‘Francee’ or some of the large, dramatic blue cultivars. It’s possible that so many trees may be taking up all of your moisture. If that doesn’t seem to be the case, *Tiarella*—there are several new ones, including ‘Slickrock’—is also good at holding soil. Epimediums will look good around the base of your trees. Other good plants for wooded areas are pulmonarias, astilbes, and thalictrum.”

Dennis McGlade, a landscape architect with Hanna/Olin Ltd. in Philadelphia, echoes the choice of hollies and, like Boasberg, thinks the inclusion of flowering understory trees like dogwoods, *Amelanchier*, or redbud—there are now white-flowering forms—would lighten the area.

In our February article, “Unwelcome Vistas,” Long Island designer Kathleen Cullen wrote about a technique that she called screening by distraction—planting something attractive between the viewer and the object to be blocked out. Maine landscape designer Richard Dubé feels that this trick could be useful here. “They should try some vertical planes that will stop the eye for an enclosed feeling,” he says. The climbing hydrangea, *Hydrangea petiolaris*, could be grown up a tree, or a lattice with vines could provide a midground element, he proposes. Dubé likes the idea of creating frames around a “borrowed landscape.” By planting to block out part, but not all, of the neighbors’ properties, the Shapiros may be able to make those houses appear tantalizing rather than imposing.

To screen the Shapiro deck on the northwest, where there are few trees, McGlade suggests a screen of understory trees close to the deck. This will provide more effective screening than a row of tall evergreens marching along the property line. (A flowering tree would be especially rewarding, although, of course, most are deciduous and would therefore provide less



ALASTAIR BOLTON

Landscape architect Dennis McGlade recommended a ditch to cure the drainage problem in the Shapiros’ yard.

of a screen during the winter months.)


A drainage problem is hard to address without an on-site visit, but McGlade suggests the Shapiros consider a diversion ditch along the back of the new informal mass plantings to intercept water as it comes down the hill to the property. If the ditch is curved around on either side of the house, water should spread out to be absorbed gradually as it flows downhill in sheets.

As to the deer, no one we know of has found a good permanent solution short of an electrified fence. But we might note that rhododendrons are reputed to be a deer delicacy, while deer don’t seem to like hollies, so we suggest planting more of the latter than the former.

—Kathleen Fisher
Editor



*It's easy to see why the Asian lotus
has been the object of veneration
on its native continent.*



the legendary lotus

*Once established,
this fascinating
flower is also tough.*

BY MOLLY DEAN
AND JOHN CREECH

THE LOTUS FLOWER has been admired in the Orient for more than 3,000 years and is cultivated today throughout Asia, where it seems to be linked to everything elegant, charming, and beautiful. A focus of religion, philosophy, and art in the East, it is rarely seen in the West except in botanic gardens and similar public displays. Even in water



ANITA SABARESE

'Mrs. Perry D. Slocum' rises out of the morning mist at Perry's Water Gardens in North Carolina, below. The American lotus, *Nelumbo lutea*, bottom, is found along the Mississippi River basin.

HAL HORWITZ (BELOW), MOLLY DEAN (RIGHT)



water lilies, these flowers last three days, becoming slightly more open as they age. Their rich colors range from pure white to golden cream and lemon yellow, to pink, peach, and a deep, shining rose or red. There are also bicolored varieties and some with unexpected features such as flecks of green. After three days the petals fall, leaving the somewhat prehistoric-looking seed pods. These ultimately become hard and brown, destined to make an appearance in a dried arrangement.

Even the leaves are of marked interest. They resemble stiff, ruffled, blue-green parasols. Some of them float or dip gracefully in the water, while others stand upright with almost military bearing. A waxy coating causes diamond-bright puddles of

ters of the River Nun. In this case, however, the flower called a lotus was actually a species of water lily, *Nymphaea lotus*.

The flower of the true lotus, *Nelumbo nucifera*, plays a similar role in Hinduism, in which Brahma, the Creator of the Universe, first alighted from the lotus. For this reason, the lotus is often used to symbolize the world itself. In India, the lotus has been honored with 18 different names, each said to represent a separate, beautiful aspect of Brahma. Some of the many associations that have evolved in connection with the lotus over the centuries are silence, eloquence, and the sun and moon.

The lotus has also been central to Buddhism. When King Pandu, who scorned Buddhist holy relics, set fire to one of Bud-



garden catalogs, the lotus usually takes a back seat to the more familiar water lily.

Lotuses are not at all hard to grow, and gardeners with the slightest sense of adventure should want to include a tub of the smaller ones in their gardens. They are arresting in every stage of their development.

As flowering begins, smooth, tapering buds appear on strong, swordlike stems that average five feet tall but can be anywhere from a foot and a half to nine feet high. These buds open to form enormous blossoms reminiscent of peonies and often described as "hauntingly aromatic." The blossoms have stiff, golden stamens encircling cone-shaped centers, flat on top with curious bumps that make them look like the nozzles of watering cans. Like those of

rainwater or dew to accumulate or to slide off like quicksilver.

The last shred of resistance to growing lotuses will be broken down by a visit to Perry's Water Gardens in midsummer. Situated in a valley in northwestern North Carolina, the gardens are often shrouded by fog in early morning. Hanging over the many clear shallow ponds where the lotuses glow against the gray sky, the mist adds a sense of mystery to their tropical beauty. It is easy to understand why they have been so pivotal in Asian legends and beliefs.

In Egyptian mythology the lotus is symbolic of both rebirth and the sun. The god Ra, said to have created all things divine and human, was believed to have sprung from the sacred lotus floating on the wa-

dha's teeth, a beautiful lotus emerged from the flames and the tooth was found resting among the petals.

In China the lotus is a symbol of perfection that for centuries has been grown in almost every garden lake. Chu tun-ji, who lived in the 11th and 12th centuries, wrote of the lotus: "It emerges from muddy dirt but it is not contaminated; it reposes nobly above the clear water. . . . Resting there with its radiant purity, the lotus is something to be appreciated from a distance and not to be profaned by intimate approach."

But Asians not only approach the lotus, they eat it. Both the roots and seeds are wholesome, often served cooked or pickled at banquets. The Japanese eat the stems and, as a special treat, pour rice wine

through a hole in the center of the leaf blade and drink the lotus-enhanced concoction as it reemerges from the cut end of the stem. Try this at your next garden party!

The Chinese use every part of the lotus as medicine, drinking the juice of the rhizome to treat acne and eczema and making a porridge to treat nausea. They believe that the root and seeds slow the aging process and eat the latter as a heart tonic. Several parts are used as an astringent, with the leaves being applied to cool victims of sunstroke and fever.

It would appear that the lotus was first mentioned in western literature by the widely traveled Greek historian Herodotus, but it seems that once again, this was really *Nymphaea* rather than *Nelumbo*.

white 'Angel Wings', a recent introduction by famed hybridizer and founder of Perry's Water Gardens, Perry D. Slocum. Its petals are slender and tapering, giving its blossom an elegant, starry effect.

If your taste runs to more lush flowers, you might select the huge and very double white 'Shiroman'. Also huge and white is 'Alba Grandiflora', but while free-flowering and notably fragrant, it has single flowers. Among smaller white varieties, excellent for tub gardens, are 'Baby Doll', another recent Slocum introduction, with four- to five-inch tulip-shaped flowers; and from Japan, the dwarf 'Shirokunshi', sometimes called 'Tulip Lotus', and 'Chawan Basu', which is edged in pink.

There are many beautiful rose-colored lo-

smallest of all lotuses.

The most famous of yellow lotuses is of course the American native species, *N. lutea*, but there are others in this color range including the aptly named 'Perry's Giant Cream' and 'The Queen', which is a soft, creamy yellow and fragrant. 'Mrs. Perry D. Slocum' starts out rose-colored, gradually changing to a fairly bright yellow, and then fading to a pale yellow. Even more fascinating is that, like snowflakes, no two blossoms of this bicolor are exactly alike.

In spite of their otherworldly appearance, lotuses are relatively tough. In fact, a lotus should be considered less a purchase than a lifetime commitment! All are hardy to USDA Zone 4 and some to Zone 3, as long as their roots are below the freezing



Although there are only two species of lotus—*N. nucifera*, the Asian native, and *N. lutea* (also called *N. pentapetala*), found along our Mississippi River basin and down to South America—Japanese horticulturists have crossed them to produce a wide range of flower colors and sizes. The Asian lotus has flowers that range from white to red, while those of the American lotus, sometimes called the water chinquapin, are a rich lemony yellow. There is a famous lotus bed, Grass Lake, 50 miles northwest of Chicago, where 600 acres of these lovely flowers can be seen in bloom each August.

It's difficult to surpass the pristine beauty of a white lotus. Among the most beautiful of all lotuses is probably the pure

tuses. 'Maggie Belle Slocum' is a rich lavender-pink, like the inside of a conch shell, with a rolled look to the inner petals. 'Roseum Plenum', the double rose lotus, looks like a huge water-borne rose or peony. The graceful flowers of 'Carolina Queen' are a clear, translucent pink with yellow near the center, held high above the foliage. A natural variety, *N. nucifera* 'Speciosum' or the Hindu lotus, has light pink single flowers and a classical elegance and simplicity.

Probably the most spectacular coloration is found in 'Red Lotus', a deep rose pink, and another natural variety that is native to Russia, *N. nucifera* var. *caspicum*, which is a truer red. 'Momo Botan', which translates to "like a double peony," has double flowers of deep pink and is the



DAVID CAVAGNARO (TOP), MOLLY DEAN (RIGHT)

A waxy coating makes rain or dew droplets cling to the lotus's leaves, top. The double rose lotus, above, looks like a water-borne peony.



MOLLY DEAN



DICK KEEN

Buds of 'Angel Wings', top, will unfurl slender petals that create a starry effect. Nelumbo nucifera var. caspicum, above, was first brought to the United States by co-author John Creech.

line of your pond or pool. They will flower best in full sun and in water that is 60 to 70 degrees.

The annual growth of a lotus is initiated from fat, bananalike rhizomes that have unusual air pipes connecting with similar ones in the stems and the stomata of the leaves. Gases are carried through the plant by these pipes, allowing the lotus to live in heavy compacted soil under water.

Lotuses tend to be invasive, but if you have a very large pond you could try planting them directly in the pond's soil. A new planting does best in shallow water—as little as two inches—although depth may be impossible to control in a natural pond. This may be true of the plants as well. Lotuses planted in a tub will eventually “jump out” or reseed in an earth-bottom pond.

For most gardeners, the choice will be between a large wooden planting tub to sink into a small garden pool (tubs three feet square and a foot deep are available from garden centers) or a separate water tub, such as a whiskey barrel.

When your mail-order lotus arrives in the spring, it probably will consist of three small, attached rhizomes. There may be a fragile bud protruding from one or more of the joints; be careful not to break these off. Fill the container to two or three inches from the top with good garden soil that has been enriched with peat or other organic matter—no manure, which will cloud the water. Place the rhizome on the soil horizontally, cover it with an additional two inches of soil, and tamp gently. Top it off with sand or pea gravel, which will help hold your soil in place when you sink the planter in your pool or add water to the barrel. In a pool, there should be three to four inches of water above the level of the gravel. As the plants get larger, they will do best in water six to 12 inches deep.

Lotus plants are fairly heavy feeders, so you may want to add fertilizer when you fill the container with soil. Use one-half to one pound of commercial aquatic plant fertilizer per bushel. For optimum care, feed your lotus every month during the growing season, using a 10-14-8 fertilizer pellet pushed into the gravel.

As the season advances, the rhizome system will form subterranean stems and the first floating leaves will appear, followed by a sequence of the handsome standing leaves that may reach three or more feet tall. In midsummer the flower stalks appear, and if the plant is well-grown, a flower bud will develop at every joint of the

rhizomes. About three weeks after a bud appears above the water, it will begin to loosen in the predawn hours, closing again around 8 a.m. On the second day, it begins to open earlier, unfurling fully by 9 a.m. and closing again at noon. The flower expands similarly on the third day. The petals of the Asian lotus fall in the afternoon of the fourth day, while those of the American native lotus are gone by that morning.

All that remains is the cone-shaped receptacle now pocked with a series of depressions, each containing a marblelike fruit—a single seed. Seeds can be gathered as soon as they are brown and hard and, if plantlets are to be wintered over in a greenhouse, sown immediately in a glass of water. Otherwise, the seeds can be stored and sown in the same manner in March. To encourage germination, you will need to make a hole in the hard seed coat. The seeds germinate in 10 to 20 days.

When the third leaf appears, transplant the seedlings to pots of soil covered with water. Gradually increase the size of the pot to accommodate the seedlings until they can be handled as mature plants.

If you are in Zone 4 or farther south and your mother plant is below the freezing line, it should winter over with no problem. If you are growing your lotus in a tub, you may want to dig the tub into the ground for protection or bring it indoors.

The thrill of having a lotus in your own garden—in addition to the comments of the neighbors over this rare and beautiful flower—is being able to enjoy close at hand a plant of such myth and legend. Once you have grown this mystical plant, you won't want to be without it.

Molly Dean is a free-lance writer living in Clayton, Georgia. John Creech is a former director of the U.S. National Arboretum.

SOURCES

- Lilypons Water Gardens, 6800 Lilypons Road, Buckeystown, MD 21717, (800) 999-5459. Catalog \$5.
- Perry's Water Gardens, 191 Leatherman Gap Road, Franklin, NC 28734, (704) 369-2056. Catalog free.
- Slocum Water Gardens, 1101 Cypress Gardens Boulevard, Winter Haven, FL 33884, (813) 293-7151. Catalog \$3.
- William Tricker, Inc., 7125 Tanglewood Drive, Independence, OH 44131, (800) 524-3492. Catalog \$2.

Discovering Dieramas

Give in to the lure of angels' fishing rods.



JOHN E. BRYAN

BY JOHN E. BRYAN

In the Cape Province of South Africa is a corridor called “the Garden Route.” The scenery is beautiful and wild. There is no need to stray from the main road to enjoy streams and waterfalls, valleys and deep gorges. Never far away is the rugged coastline of the Indian Ocean, and just a few miles inland are the Outeniqua Mountains. Behind them is an arid region of only a few inches of rainfall a year.

But between them and the ocean is a band of such beauty that even the name “Garden Route” does not do it justice. Humus has accumulated over centuries, producing a favorable substratum for many wonderful plants. The area is so rich-

ly endowed by nature that at almost every turn of the road one enjoys arums, watsonias, and pelargoniums (commonly known as geraniums). Here it really takes a remarkable plant to stand out as the first among equals.

Turning onto this road near the Tsitsikama forest, just south of Port Elizabeth, to visit the mouth of the Storms River, I first saw dieramas growing in their native habitat. Ferns and grasses covered the ground, and through this tablecloth of verdure grew the “angels’ fishing rods.” There was no vulgar display of nature’s bounty, no screaming or overwhelming parade of color. Each thin flowering stalk carried its graceful flowers without fanfare. It was their simple, understated elegance that made the scene dramatic.

My mind flashed back many years to a

conversation with a fellow student at the Royal Botanic Garden in Edinburgh, Scotland, who had worked at the Slieve Donard Nursery at Newcastle in County Down, Ireland, where most hybrids of these plants were developed. How do hybridizers, we wondered then, determine which plants have the potential to produce great garden offspring? And why did they breed dieramas? It had taken the nursery many years to build up sufficient stocks of dieramas to justify their being listed in catalogs.

Had I known how grand the species were in the wild, I would have been better able to comprehend the choices made during the course of their breeding program. What a pity that my friend had not been privy to what must have been the breeders’ spark of inspiration!

Just how many species there are is a matter of debate. Certain authorities say there are as many as 44; others, far fewer. The most commonly available are *Dierama grandiflorum*, *D. pendulum*, and *D. pulcherrimum*. Others considered distinct species are *D. igneum*, *D. medium*, and *D. pumilum*. As O. M. Hilliard and B. L. Burtt observe in their superb 1991 book on the genus, *Dierama, the Hairbells of Africa*, “Throughout its range the floral differences in *Dierama* are of a very minor nature.”

In the wild, the species are generally pinkish purple. A white-flowering version is sometimes offered for sale as a form of *D. pendulum*, but these are most likely hybrids or the horticultural white form of *D. pulcherrimum* or *D. pumilum*. The named cultivars are hybrids of those two. ‘Kingfisher’

Dierama means “like a bell,” which aptly describes the flower’s shape.



In the garden the dierama's stems are almost invisible, making the flowers seem to float.

is a pale pinkish purple, 'Heron' a wine red, and 'Skylark' a purple violet. Their names pay tribute to the appropriate location for these plants in a garden—near water, so that the reflection of their flowers can double their growers' enjoyment.

Dieramas are members of the iris family, Iridaceae. While no species of the *Iris* genus are found in the Southern Hemisphere, the family is well represented, and members of other genera, such as *Dietes* and *Moraea*, can easily be mistaken for *Iris* on first glance. Most dieramas are found along the southeast coast of South Africa, with concentrations inland to the Drakensberg Mountains. Isolated groupings occur in moist grasslands as far north as Ethiopia.

"Dierama" is a Greek word meaning "like a bell" or "funnel," either of which is an apt description of the flowers of these cormous plants. Their common names of angels' fishing rods and wandflower are also very appropriate. The funnel-shaped flowers are held in panicles from the thin and grasslike stems, which in *D. pulcherrimum* can be more than six feet tall. The other species are about half that tall. The stems are constantly moving, even in the slightest of breezes. The leaves are more than 20 inches long in most species—narrow, rigid, and very grasslike.

Early authorities placed the plants in the genus *Sparaxis*, members of which, while much different in size, are similar in many ways. Hilliard and Burt say that the successful introduction of *Sparaxis pendulum* was made in 1825. In 1855 Karl Koch, a

professor of botany in Berlin, established the name *Dierama*, based on a plant that flowered in the botanic garden there.

Dieramas remain in flower for a considerable period of time, starting to bloom in mid- to late spring and continuing well into summer. This is especially true of well-established plants, which will each produce many flowering spikes. Dieramas are never completely dormant. In mild climates they will retain their green foliage year-round.

Just how hardy these plants are is difficult to say. They grow well outdoors in many parts of the British Isles and are very popular plants in our Pacific Northwest, especially in the Seattle area, which is on the border of USDA Zones 7 and 8. Even when the foliage is killed by severe winters, it will usually resprout from the corm. In a protected border with mulch, they might even do well in colder areas. They should be planted in groups of five to seven, which will display their graceful stems to advantage.

In the wild you will often find them near streams, enjoying well-drained soil but still able to get their roots into moisture. They cannot be regarded as "fussy" plants, because they accommodate a variety of soils and locations, except for deep shade or water-logged conditions. Given adequate moisture they enjoy full sun, but where summers are dry, they should have some shade in the afternoon.

The corms grow quickly and become large in a very short time, but ideally these plants should be left undisturbed. Plant them three to five inches deep and 18 inch-

es apart. In three to four years, you will find that the clumps have increased in size, almost touching one another, and can be counted on to give a lovely display year after year.

An established colony in a friend's garden, which is a delight every year, produces great quantities of seed. These germinate readily and without any attention, and it is easy to lift the grasslike seedlings and grow them on. I hate to disturb the main planting, but if I did lift the corms I would be able to separate the offsets from the parents. This would reduce the time I would have to wait to enjoy the flowers, as the young corms would flower in a year or two. The seedlings take three to four years to reach flowering size.

They also do well in containers, although given their height, I would recommend containers that allow them to be planted at least five inches deep. Spacing in containers should be about four to six inches apart, much closer than when growing them in the open border. A large container with several inches of soil between the corms and the side of the container might give these grand plants sufficient protection to survive into Zone 7.

Pest- and disease-free, dieramas merit a place in all gardens. Because the flowers can be seen from a distance but the thin stems cannot, the flowers seem to float, adding a delightful change of texture and form to any border.

Although dieramas are listed in a few catalogs, these charming and unusual plants deserve to be more popular. Try growing some angels' fishing rods, and you may find yourself hooked.

John E. Bryan is the author of seven books, including the two-volume Bulbs. This article is the first in a series.

SOURCES

- Gossler Farms Nursery, 1200 Weaver Road, Springfield, OR 97478, (503) 746-3922. Catalog \$2.
- Greer Gardens, 1280 Goodpasture Island Road, Eugene, OR 97401-1794, (503) 686-8266. Catalog \$3.
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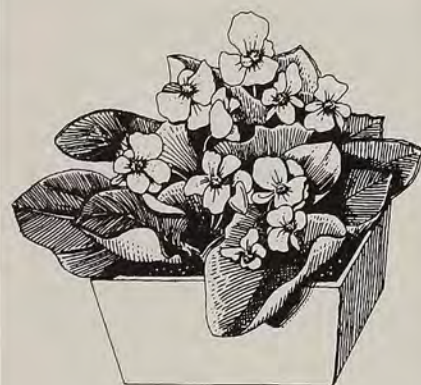
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Perhaps nowhere in Canada is the environment more benevolent for gardening than in the temperate areas of Vancouver and Vancouver Island, British Columbia. Each day of this tour will bring different gardens in different settings, including a full-day excursion to Vancouver Island. And what a unique collection of gardens they are—ranging from the garden of Jack Todd in Victoria, featured in Nicole Eaton and Hilary Weston's latest book, *In A Canadian Garden*, to Thomas Hobbs' garden on English Bay, featured in *Horticulture* magazine in February. There will be many surprises, including the traditional English-style garden of Donald and Joan Paterson, which was featured in *Western Living* magazine, and the magnificent Japanese garden of Glen Paterson. Leading this program for AHS will be President Dr. H. Marc Cathey and his wife, Mary. Joining the Catheys will be AHS Board member Robert D. Volk and his wife, Carolyn, from San Marino, California.

SEPTEMBER 25-OCTOBER 8, 1995 GARDENS OF PORTUGAL AND MADEIRA

This program begins on the garden island of Madeira, located some 600 miles off the Portuguese coast, and concludes in Lisbon. Visits along the route include Porto, Aveiro, Buçaco, Coimbra, Batalha, Nazaré, Óbidos, Sintra, and Estoril. The itinerary encompasses a marvelous collection of private gardens, many featured in Patrick Bove's latest book, *Gardens of Portugal*. Notable collections of rare and endangered plants can be found in a number of these private gardens, including Quinta do Palheiro Ferreiro, a garden created by the Count of Carvalhal and now owned by Adam and Christina Blandy. South of Lisbon, a visit will be made to Quinta da Bacalhoa, owned by Mrs. Herbert Scoville of Connecticut, of which Russell Page wrote, "For sheer boldness and simplicity of plan, the garden is one of the most striking in all of European garden art." A selection of superb hotels is complemented by visits to historical sites. Leading this program will be past AHS Board member André Viette and his wife, Claire, of Fishersville, Virginia.

Leonard Haertler Travel Company, 7922 Bonhomme Avenue, St. Louis, MO 63105
(800) 942-6666, (314) 721-6200 (in Missouri)

Participants in our fall trip to Portugal and Madeira will visit the gardens of the Palácio de Queluz, which are among the most elegant in Portugal.

PHOTO BY NUNO CALVET

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