American Horticulturist

February 1994 A Publication of the American Horticultural Society $2.95

THE BEST HEATHERS, DWARF CONIFERS, AND GESNERIADS
GARDENING FOR SOLACE

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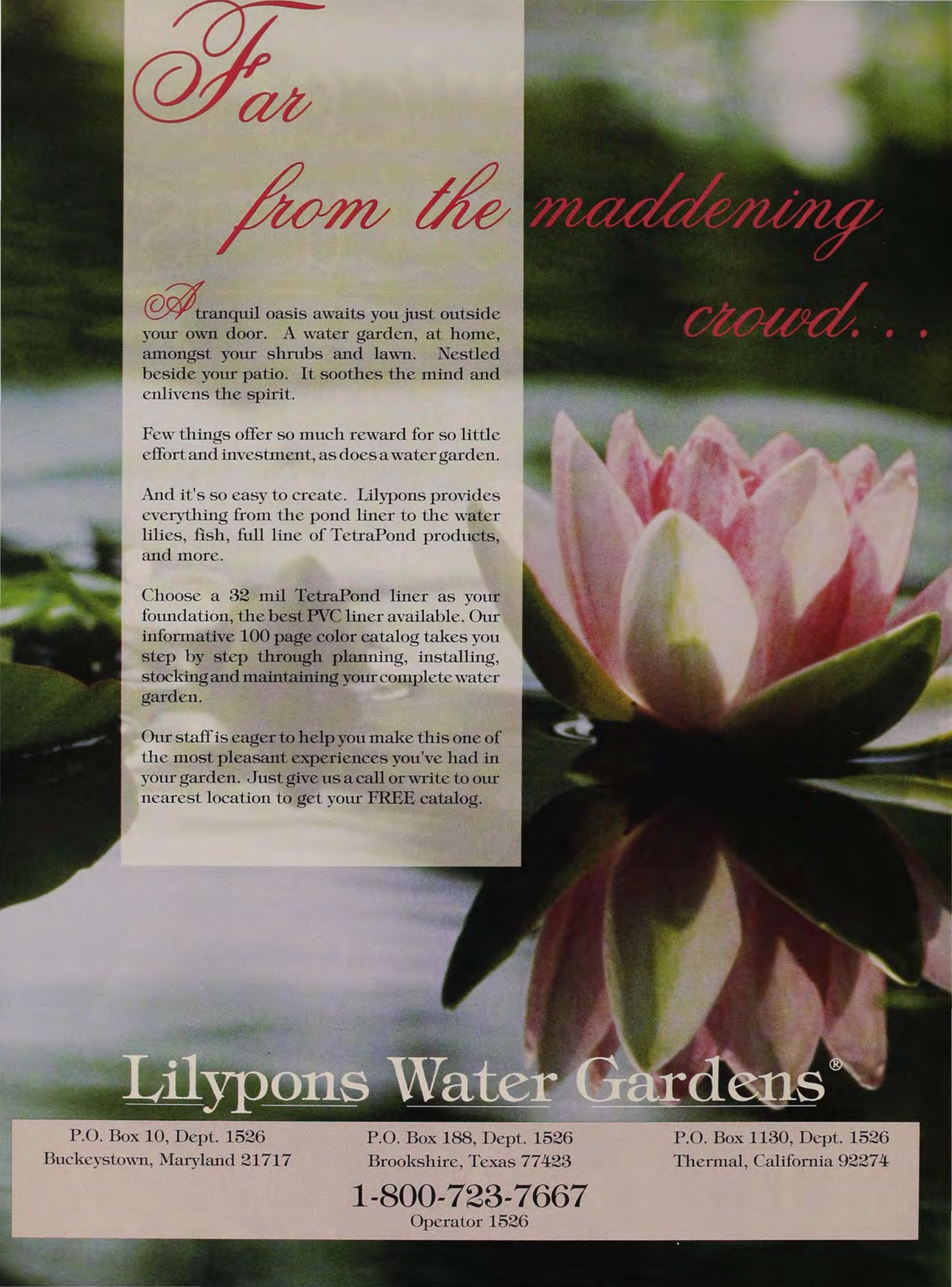

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American Horticulturist

Volume 73, Number 2 February 1994

ARTICLES

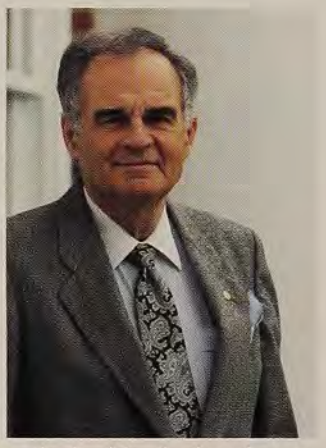
DEPARTMENTS

FEBRUARY'S COVER

Photographed by Michael S. Thompson

The right combination of heaths can produce blooms 12 months a year, and the easiest to grow are the *Erica carnea* varieties. Their low growth makes them ideal for rock gardens or as companion plants for acid-loving shrubs. The species is distinguished by its protruding anthers. Alice Knight says the very best variety is 'Springwood White', which blooms from December through May. Knight, who has been growing heaths and heathers for 33 years, names more of her favorites beginning on page 15.

COMMENTARY



My whole career has involved contacting others for answers and solutions, combining that new information with a detailed memory of the past, and attempting to discern what it all means. We have been undergoing this same process with our publications—asking how members would like them to change. As a result, this month we are starting several new departments:

"The Urban Gardener" is for those with quarter-acre suburban lots, postage-stamp city lots, highrise patios, and house plants. It will look at concerns relating to our desire to have plants in our crowded and frantic world: pollution, community gardens, the health of urban forests, the value of landscaping, and laws that affect our landscapes.

"Planting the Future" will expand the theme of this summer's highly successful national symposium on "Children, Plants, and Gardens": that people need to be introduced to plants and nature as children, and that fulfilling this need is important to the future of our society.

"Natural Connections" will describe landscape plants in their native environments: soil, weather, companion plants, pollinators, and other animals that use the plant. This column is based on our belief that growing any plant successfully begins with knowing its origins.

"Natives at Risk" will describe endangered native plants and their habitats, often suggesting similar nonendangered plants for the garden.

"Gardeners' Q&A," which members always enjoy in our news edition, now appears in both publications as "Gardeners' Information Service," emphasizing the toll-free information line available to members. New logos for each department were designed by artist Kristin Bernhart.

We are also proud of this issue's feature articles.

Our gardens thrive only when we learn from others. Each year, we give our readers the opportunity to learn from some of the best—the leaders of our nation's plant societies. This year, they recommend the best dwarf conifers, gesneriads, and heathers.

Gardens and gardening can help us deal with many feelings, including grief. Ethel Evans Lindauer, a teacher in Oroville, Washington, created a Japanese garden to help her through this process, showing that people-plant relationships are not abstract concepts, but function in everyday life.

In another article, designers of a prize-winning landscape at Boston's Northeastern University offer ideas that other city gardeners can use to soften their surroundings.

We also profile William Flemer III of Princeton Nurseries. If you have purchased a new tree in the last 30 years, there's a good chance that Bill put the tree on the market.

A new outreach opportunity for AHS begins Saturday, February 26, when my radio call-in show will be expanded to 430 stations across the United States. Look for the "Growise Garden Show," from 8 to 10 a.m. I will be updating you on what is new in gardening, answering your questions, and sharing the "Spirit of the Society."

H. Marc Cathey, President

OFFSHOOTS


BILL FIRESTONE

Plant Sales

By Lucy Fuchs

The phrase "over the back fence" probably belongs to times past. To me it has always resonated with the notion of casual but comfortable friendship and shared enthusiasms. I had a gardening neighbor just once, and all my gardening pleasures doubled. We shared the surprise of new woodland plants in the spring. She convinced me to grow lilies. We shared high humor, like the phenomenal squash vine that took over her entire vegetable patch, and the darker jokes that nature sometimes plays, like our day-old autumn crocuses battered by a late September storm.

Since I left that house, I haven't had a fence or a gardening neighbor. I have woods and shrubs instead. I appreciate the serenity, but I needed to repair the loss. My remedy was to construct a metaphorical back yard fence: I joined two local plant societies.

The groups, both democratic mixes of old hands and neophytes, professional nurserymen and landscapers, and plain dirt gardeners, sponsor lectures and publish chatty newsletters. But it's their spring and fall plant sales that recreate for me the ambience of my back yard fence.

The newsletters announce them a month or two ahead of time to give members enough time to pot up excess plants and label them properly. During this period I'm visually assessing my garden's quantity, rather than its quality. What do I have too much of? What don't I like that someone else might? What needs dividing? But more important, I'm looking at my plants not in my usual self-congratulatory, tranquil isolation, but with the potential delight of others in mind. There's a feeling of community in my garden.

For me, the day of the plant sale is like vacation trips, weddings, and other long-anticipated occasions. No matter how much I've organized and planned, higher brain functions seem to shut down. This year, I'm glad to say, I was ready with botanical names checked and cross-checked and pots immaculately

American Horticulturist

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(703) 892-0733

Color Separations
Heartland Separations, Inc.
Printer
William Byrd Press, Inc.

Replacement issues of AMERICAN HORTICULTURIST are available at a cost of $2.95 per copy. The opinions expressed in the articles that appear in AMERICAN HORTICULTURIST are those of the authors and are not necessarily those of the Society. Botanical nomenclature in AMERICAN HORTICULTURIST is based on HORTUS THIRD. Manuscripts, art work, and photographs sent for possible publication will be returned if they are accompanied by a self-addressed, stamped envelope. We cannot guarantee the safe return of unsolicited material.

AMERICAN HORTICULTURIST, ISSN 0096-4417, is the official publication of the American Horticultural Society, 7931 East Boulevard Drive, Alexandria, VA 22308-1300, (703) 768-5700, and is issued 12 times a year. The American Horticultural Society is a nonprofit organization dedicated to excellence in horticulture. Membership in the Society includes a subscription to AMERICAN HORTICULTURIST. National membership dues are $45; two years are $80. Foreign dues are $60. $15 of dues are designated for AMERICAN HORTICULTURIST.

Second-class postage paid at Alexandria, Virginia, and at additional mailing offices. **Postmaster:** Please send Form 3579 to AMERICAN HORTICULTURIST, 7931 East Boulevard Drive, Alexandria, VA 22308-1300.

Produced in U.S.A.

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labeled, instead of frantically thumbing through *Hortus Third* while my husband was loading the car.

Members put their names on the labels, too, in case the new owner needs advice later. That is usually helpful, although one year when I called the seller of an eastern *Spiranthes* orchid I had bought, instead of receiving reassurance I had to give it. Like an adoptive parent, I sought to assure her that I was caring and competent and that the orchid—which she said grew naturally on her property—would have a snug bed and a balanced diet.

The sale has the giddy flavor of a fair, as people unpack tantalizing boxes and greet old friends. Then for one delicious hour we survey each other's offerings, with old standbys like pachysandra and exotics like my orchid side by side on long tables. The selection exceeds that of my local nurseries and the hubbub stirs the adrenalin more than colored pictures in any mail-order catalog. True, the plants are small and not always in bloom. But there is always someone standing next to you admiring the plant you are contemplating and who can fill you in on the particulars: sun or shade, rampant or demure, trouble-free or a fussbudget. Either he or she has grown it, or knows someone who has. Sometimes it's the very gardener who donated it. I have a spiraea in my garden now that while a pleasure in itself is also a pleasant reminder of the garden sale at which it was thrust into my hand with the urging to "Buy it! It's lovely—the bloom has three colors!" Who could resist such sincere enthusiasm?

The plants sell for 50 cents or a dollar, so I can feel expansive. And because I know that each plant is locally grown and at least one nearby gardener has been successful with it, I give free rein to spontaneity and buy some solely because I'm entranced by the shape of the leaf or even an exotic name.

That's how I came by my alstroemeria. For a half dollar, I had a grand adventure, and an education, too. This handsome plant looks like no other I have seen and is thriving brazenly among more subtle neighbors. I would never have ordered it from a catalog, since I'm not usually fond of garish combinations. I have since checked out the genus in reference books and found many others seemingly more to my taste. But like a schoolgirl smitten with the football captain and scorning the pre-med student, my heart now belongs to *Alstroemeria psittacina* with its red and green pizzazz. I'm assured that it hails from Brazil's colder climes and just needs a bit of mulch to winter over in Pennsylvania. Spring will tell, but I am indebted to its donor and plan to tell him so at the next sale.

Just like neighbors, the plant sales have their down side. I don't always get the plants I first admire, because first choice goes to those who bring the most plants. Some club members bring 100 or more. On only one occasion have I made it to 20. Ten seems to be my norm. No matter; I always find a half dozen I want.

And there is some anxiety about the plants I donate. Will they be chosen and appreciated? If, when the sale ends, they remain like waifs on the wooden table, does that reflect on my gardening—or me?

This year I brought some reblooming iris. I knew that the dry brown rhizomes would seem like ugly brown lumps next to fresh green foliage of other offerings, so I tucked them into small paper bags and crossed my fingers that people would notice "reblooming" on the label. I needn't have worried. "Imagine, a reblooming iris!" one browser exclaimed. "Have you ever heard of that!" Every one of my orphans was given a new home.

When the sale is over, I know a few new people, have a few plants I've always wanted, and have a few unfamiliar ones to get acquainted with. I'll have to look hard for a place to plant them, and my husband will make his usual stale joke about buying more land. Finally I'll decide to plant them where some established plants need dividing. The divisions of course will be in the next plant sale. Before then, there will be visits with garden club friends old and new, lots of good garden talk, and perhaps some more plant exchanges. My garden is still a private retreat, but there is no lack of good neighbors at this fence I've built.

Lucy Fuchs is a free-lance writer living in Ambler, Pennsylvania.

RESOURCES

The plant groups that have given Lucy Fuchs so much pleasure are the Delaware Valley Chapter of the American Rock Garden Society—with members from New York, New Jersey, Pennsylvania, Delaware, Virginia, and West Virginia—and the Mid-Atlantic Group of the Hardy Plant Society. For more information on memberships and how to contact a chapter near you, write:

American Rock Garden Society, 15 Fairmead Road, Darien, CT 06820.

Hardy Plant Society, Mid-Atlantic Group, 512 West Wayne Avenue, Wayne, PA 19087.

Hardy Plant Society of Oregon, 33530 S.E. Bluff Road, Boring, OR 97009.

GARDENERS' INFORMATION SERVICE

Q: ***Could you give me some information on* Rhododendron canadense*? I have heard it is one of the most cold-hardy rhododendrons. —A. W., Pittsfield, Massachusetts***

A: *R. canadense* is valued for both its cold hardiness (Zone 2) and its bright rosy to purple, one-and-a-half-inch bell-shaped flowers in early spring. It is a twiggy, upright, deciduous shrub that grows between three and four feet tall. The narrowly oval leaves are a unique gray green color and appear after flowering is finished.

This shrub is relatively trouble-free and needs very little special care. In the wild, it is found in swampy areas, so it should be planted where there is a good deal of moisture. Like most rhododendrons, it needs acidic soil. It is excellent for naturalized plantings in part shade. There is a white-flowered cultivar, 'Alba'.

Sources include: Cummings Gardens, 22 Robertsville Road, Marlboro, NJ 07746, catalog $2; Girard Nurseries, P.O. Box 428, Geneva, OH 44041, catalog free; Greer Gardens, 1280 Goodpasture Island Road, Eugene, OR 97401, catalog free; and Eastern Plant Specialties, Box 226, Georgetown, ME 04548, catalog free.

Q: ***What is the best method for propagating cuttings of the Norfolk Island pine? —E. W. ,Washington, D.C.***

A: Cuttings of the Norfolk Island pine (*Araucaria heterophylla*) must be taken from the top of the parent plant. Cuttings taken from any side shoots will not form a central leading branch and will develop an unbalanced shape.

A number of references suggest simply rooting this cutting in a soilless mixture under mist in a propagation enclosure, to ensure high humidity and protection from direct sunlight. But because *A. heterophylla* is so resinous, your success rate with this method may be low.

AHS Board Member and house plant expert Elvin McDonald says you may have better luck with air-layering. Wound the stem near the top of the plant with a sharp knife, apply a small amount of hormone rooting powder to the wound, pack the area with sphagnum moss, and wrap it with self-clinging kitchen wrap. When you see roots through the plastic wrap, you can cut off the top of the Norfolk Island pine and pot it.

Q: ***Over the winter I traveled through Mexico and fell in love with the bougainvillea vines that seem to grow on every home. What could I plant outdoors that would come closest to this stunning tropical plant? —A. J., Columbus, Ohio***

A: Short of moving to a Zone 10 climate, you're unlikely find a vine as lush and colorful as the bougainvillea.

Trumpet vine (*Campsis radicans*) has spectacular orange to red flowers. It is a tough, hardy native and can be aggressive. You might want to look for one of its less invasive cultivars.

Another beautiful hardy native is the trumpet honeysuckle (*Lonicera sempervirens*). Both yellow- and red-flowering cultivars are available.

Various clematis species, like *Clematis montana*, or hybrids like 'Jackmanni Superba' or 'Lasurstern,' have large, velvety, exotic-looking purple and blue flowers. The clematis hybrid 'Ville de Lyon' has bright crimson flowers with showy yellow centers, and *C. viticella* 'Mme. Julia Correvon' has gorgeous dark fuchsia-colored flowers with yellow-white centers.

You may want to look into the numerous hardy and vigorous climbing roses. 'Danse du Feu' and 'Paul's Scarlet Climber' have bright red flowers. 'Tropicana' is bright orange and 'Joseph's Coat' is aptly named for its multicolored orange, yellow, and pink flowers.

Finally, *Hydrangea anomala* subsp. *petiolaris* is a hardy, climbing hydrangea with large, fragrant, showy white flowers and attractive exfoliating bark. The late plantsman Donald Wyman said of this plant: "There is no better clinging vine."

Q: ***Does* Sparaxis tricolor *require a cold treatment to bloom again the next growing season? —G.E., Fort Lauderdale, Florida***

A: *S. tricolor*, commonly known as harlequin flower, is an early spring-flowering plant with very bright, multicolored flowers and swordlike foliage 12 to 18 inches high. A native of South Africa, it is hardy only in USDA Zones 9 to 11.

Since you live in such a mild climate, you can leave the corms in the ground, lifting them about every three years to divide them.

Gardeners in more northern zones will need to plant the corms in containers and protect them from prolonged cold temperatures. Using a porous, fertile soil mixture, plant the corms an inch or two below the soil surface. Water them thoroughly and wait until sprouting begins, then give them adequate moisture until the foliage begins to yellow. When foliage has completely died back, the corms need to be allowed to dry out so that they can go into their summer dormancy stage.

Whether grown in containers or in the ground, the corms should be started in the fall. They can be started from seed in spring, and will flower in the second and sometimes the first year. *—Maureen Heffernan*
AHS Education Coordinator

USE YOUR GIS

Using the Gardeners' Information Service is just one of the many benefits of membership in the American Horticultural Society. GIS can help find an elusive plant, suggest plants for special needs, diagnose a problem and find a cure, and track down other information sources.

AHS members can call GIS toll free, (800) 777-7931. Hours are 11 a.m. to 3 p.m. Eastern Time, Monday through Friday, except holidays.

NATURAL CONNECTIONS

Virginia Creeper

If you live anywhere east of the Mississippi, there's a good chance that you live in the grasp of the Virginia creeper (*Parthenocissus quinquefolia*). A rambling, deciduous vine with distinctive, five-lobed leaves, Virginia creeper is often planted to clamber up fences, walls, and other structures that would benefit from a quick-growing, low-maintenance cover.

Virginia creeper will grow to 50 feet or more, and it owes its climbing prowess to an adaptation no other native eastern vine can claim. The creeper doesn't twine or cling: it cements. If you look at its wiry little tendrils, you'll see that they subdivide into five to eight branchlets. Where the tendrils touch nothing solid, the branchlets kink and curl around themselves like ruined springs. But a branchlet that touches a support will form a tiny adhesive disk at its tip. The resulting bond is extremely strong: it's estimated that a single tendril with all its branchlets attached will hold up to 10 pounds.

The creeper's other major asset is nearly as inconspicuous as its tendrils. By late summer, it produces a crop of bluish black berries covered in faint white bloom. These berries are of little ornamental value and they often go unnoticed. But in the fall and winter, they're a staple for at least 39 bird species. The creeper attracts so many birds partly because it grows in so many different situations. In grassland, where it spreads along the ground, it supports meadow species like the bobwhite. In the woods, where it's a tree-climbing vine, it feeds forest birds like the scarlet tanager. Along the coast, where it will grow in nearly pure sand, it supplements the diet of shore birds.

A patch of berry-laden creeper is an excellent spot for bird watching. In winter, the eastern bluebird is heavily dependent on berry-producing plants like the creeper. The purple finch is another of the vine's winter patrons. The red-eyed vireo overwinters in the Amazonian basin but it sometimes eats creeper berries before its departure. This is an interesting variation from its usual diet, which consists almost entirely of insects on its summer grounds and fruit on its winter grounds. The northern flicker, partial to ants in other seasons, is also a creeper connoisseur. In return for the creeper's largesse, the birds sow its seeds about liberally in their droppings.

The creeper is also the main larval food plant for three sphinx moth species: the myron, pandorus, and white-lined. You may have seen these large, nocturnal moths on summer evenings, hovering before a honeysuckle or rhododendron flower, sipping nectar. In early summer, the moths seek out the creeper to lay their eggs. If you poke among its leaves in July or August, you may find the caterpillars, distinguished by their posterior "horn" and by their habit of assuming a "sphinxlike" posture when they are disturbed. They will feed on creeper leaves all summer, then drop off the vine to overwinter as pupae in the soil or leaf litter below. (Incidentally, don't try to imitate the birds and moths—all parts of the creeper are poisonous to humans.)

The creeper has a complicated relationship with its fellow plants. It may live amicably among its neighbors, as just another solid citizen of the plant kingdom. But its growth rate can exceed 10 feet a year and it sometimes smothers entire acres in its embrace. This is the sort of vegetable rampage that we associate with invasive exotics like kudzu (*Pueraria lobata*), the Japanese vine that once blanketed so much of the Southeast. We usually think of native plants as better behaved but actually, kudzu goes on the rampage from time to time in Japan.

But if you've ever seen a creeper-covered woodlot in fall, you'll find it hard to blame the vine for its excesses. A stand of trees cloaked in its glowing scarlet foliage is a breath-taking sight. At such moments, it's easy to see why the writer Allen Lacy calls the creeper "one of the glories of the American landscape." —*Chris Bright*
Assistant Editor

NATIVES AT RISK

MARYL

Northern Wild Monkshood

Mossy stream banks, ice-cold talus slopes, and tiny cliff ledges shelter the brilliant violet-blue flowers of one of the first plants to be protected by the federal Endangered Species Act, *Aconitum novaboracense*. In 1978, when the U.S. Fish and Wildlife Service listed the northern wild monkshood as threatened, researchers knew of only 14 widely scattered colonies of the elusive wildflower.

In New York the northern wild monkshood grows in rocky stream sites near the top of the Catskill Mountains; in Ohio plants inhabit cliffs at the edges of the glacial drift (the glacier's southernmost limit); in Iowa and Wisconsin the *Aconitum* thrives on cliffs and algific slopes—a network of caves that build up ice all winter and provide year-round refrigeration. Each of these microhabitats is characterized by cold soil; native plant populations between them were probably destroyed by climatic changes thousands of years ago. Federal listing sparked efforts to find other populations of the northern wild monkshood, but fewer than 100 colonies have been discovered.

The recovery plan for the northern wild monkshood relies on conserving its natural habitats. One result is the Driftless Area National Wildlife Refuge in southwestern Wisconsin and northeastern Iowa. Here the cliff habitats and algific slopes, refuges from the ice age, are sanctuaries for other rare plants like the lapland rosebay and the Iowa golden saxifrage, *Chrysosplenium iowense*, a tundra plant that was discovered in Iowa and later in the arctic.

Tim Kessenich, a hydrogeologist at the Wisconsin Department of Natural Resources, has been growing the plants from seeds since the early 1980s. With state and federal approval, he has grown the plants in his own garden and introduced them into suitable habitats without natural populations of monkshood. "Finding the right planting site can be tricky," he says. "Some of our plantings failed because the site was either too dry, too shady, or smothered by leaf litter." But three plantings at a Wisconsin state park have survived to flower and produce seed. Another seedling that Kessenich planted in his garden yielded 10,000 seeds. That may sound like a lot, but the plant produces weak seedlings—in the wild it keeps its juvenile leaves all season.

Palmlike, dark green leaves, typical of others in the Ranunculaceae or buttercup family, appear at the beginning of the second year. By the third season the plant begins producing flowers, which range from deep blue violet to lavender blue and bloom from late June until October. In strong light the blossoms often reveal an iridescent rose glow, indicating the reflection of ultra-violet light.

Trekking around cliffs to discover the northern wild monkshood in its native habitat can be a bit harrowing, and could threaten sensitive populations—one colony in New York was partially destroyed by campers. But would-be explorers can see the rare native growing in early or mid-July at the Holden Arboretum in Mentor, Ohio, a participating garden with the Center for Plant Conservation.

—Mary Beth Wiesner
Managing Editor

THE URBAN GARDENER

Through a Glass Darkly

I used to live on the ninth floor of a highrise apartment building, facing south. In that direction there were no other tall buildings for blocks. I had an immense window, so I had plenty of light—so much light that in winter, when the sun was low, the glare rendered half of my apartment uninhabitable.

Near the window, I had great house plants. They weren't particularly unusual ones, but they were huge. I had a papyrus that would have dressed up the Nile. I had a jade plant you could have camped under. I had an ivy that I had trained up as a tree, and I used to gaze with satisfaction on its woody heft. I attributed my success with these plants to all that light.

Then I moved—not once, but once a year for three years. And the succession of interiors through which I passed made me feel as if I were making my way into a tunnel. Each seemed darker than the last. The windows were never big enough and the best ones always faced north or east. Most of my plants eventually died. The death of my jade plant was especially pathetic. Its firm, plump leaves softened and wrinkled, then dropped wetly to the floor. Its stems sagged and shed their limbs.

I have since emerged into the bright light of suburbia. Today I have an entire house and I can think of it as facing in whatever direction I want. But whenever I consider the amenities I can now offer house plants, my expansiveness is tempered with regret for the plants I used to have. It's not just their death that bothers me—it's the fact that, as I now know, they need not have died. They could have survived those apartments, if I had thought about my windows more carefully. So for the benefit of other plant-loving apartment dwellers, I'll review the mistakes that I made:

I rarely considered how big a difference simply cleaning my windows would make. It's embarrassing to admit it, but the idea of washing windows entered my head about as frequently—and with roughly the same effect—as the idea of going to the dentist. Consequently, my windows were usually sandwiched between layers of filth. If you live in a highrise, you might not have access to that outer crust, but as I discovered on rare occasions, just removing the inner layer can make a startling improvement in your light supply.

It didn't occur to me to move my plants away from my windows. My first response to poor lighting was usually to jam my plants up against the windows, so that they would intercept as much light as possible. But windows clogged with vegetation can make a dim room even gloomier. Putting plants around, rather than directly in front of, a window may open up the view, but often a room's darkest areas actually cluster near the windows, where the incoming light is cut off abruptly by the windows' edges. These were the netherworlds where most of my plants ended their lives. Better lighting is often available a little farther into the room, where the light floods onto the floor or an adjacent wall. It's difficult to arrange a room in a way that will allow plants to profit from this fact, but it might be worth a try.

I didn't realize that shifting plants up or down might make better use of my light. A big plant won't necessarily do best on the floor. If it's bushy like an abutilon or droopy like a philodendron, you might be able to raise it on to some sort of pedestal and free up floor space for other plants. Conversely, smaller plants don't have to sit on a windowsill: you might consider taking them down and away from the window. A cluster of plants I once had on a windowsill probably should have been arranged on a low table or even on the floor. They would have looked less like they were trying to escape, and my room would have felt less like a cage.

I didn't think about reflected light. You don't have to like orange shag carpet to consider the *restrained* use of mirror tiles or wall mirrors. If you can stand the unexpected sight of yourself, or if you can arrange things so that your double rarely intrudes, a mirror or two may help you "recycle" your light supply. Some indoor growers use Mylar sheeting for this purpose.

It didn't occur to me that house plants don't have to be stationary. Like people, many plants will tolerate less than ideal conditions for substantial periods of time, if their schedule allows them to replenish their needs on a regular basis. You can take advantage of this quality by working out a sort of time-sharing scheme for the best lighting available. Your begonia might spend a week on your desk, then return to the window table, to displace your fuchsia to a bookshelf.

I didn't know that plants well cared for in other respects are better able to tolerate poor light. A plant that is properly potted, watered, fertilized, and cleaned will put up with low lighting better than one that is neglected. I'm sure neglect played a role in my jade plant's demise.

I never got around to buying any artificial lights. Fluorescent lights are energy-efficient and many house plants like them well enough to flower under them. They come in wavelengths that mimic natural light, so they won't make you feel like you're living in a subway. You can use them on their own or position them where they supplement your sunlight. A timer switch is probably a worthwhile investment.

I didn't think about giving away my most demanding plants and replacing them with plants more forgiving of low light. It's true that the lower the light level, the fewer your choices, especially if you're interested in flowering plants. But there are many interesting plants that will tolerate some degree of obscurity. Apart from the obvious ferns and philodendrons, your choices include many gesneriads (see page 20), begonias, spathiphyllums, dieffenbachias, and sansevierias. For other possibilities, look through a well-stocked greenhouse, or through the growing literature on house plants.

So even if you're still living in your own Dark Ages, you don't have to live without plants. —*C. B.*

Get down to basics.

Linda Askey edits the garden pages of Southern Accents and Southern Living magazines and gives us four presentations on different styles of garden making.

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PLANTING THE FUTURE

CANDACE MILLER

Storytelling

By Candace Miller

In fourth grade our class went to the county museum. There I was awed by a life-sized, marble statue of a man lying on his side and looking down in frozen perfection at a mirror. It haunted me all the way home and I told my parents about it. That's when I heard my first flower story, about Narcissus, the young man who, because of his vanity and cruel disregard for the nymph Echo, was made to fall in love with his own reflection and then turned into the flower that bears his name. Even today, his story continues to fascinate me.

It was as a volunteer naturalist that I rediscovered the power of storytelling. As a teacher I had used stories in classrooms to focus attention and solidify concepts. But on the trail I was faced with children who did not share my love for nature and, most distressingly, had not been taught a respect for nature. On one walk that I took with a morning kindergarten class, we found a trillium and a story popped into my mind. I explained that once a young Native American woman fell in love with a handsome brave. Unfortunately, he ignored her. She remembered that the root of this plant contained a powerful love potion. She was taking it to the brave when she tripped and the potion fell into the bowl of an ugly old man who pestered her for weeks. The children laughed heartily and asked for more stories. My surprise came in the afternoon session. I stopped at the trillium, about to retell the story, when one of the boys, who had also attended the morning session, asked if he could tell the story. After that, storytelling was an important part of my walks with children. The power of stories to make connections and gently teach respect for nature must not be underestimated.

As a professional storyteller, I wanted to take this concept one step further by instructing school children to invent their own *pourquoi* stories. The term comes from the French word for "why." These are teaching stories that explain how some characteristic of a plant, animal, or person came to be. Many are classic transformation stories considered part of our literary heritage, like the Greek myth of Narcissus. I have instructed both adults and children in this story-telling method, which has proved easy enough for even a grown-up to learn:

❦ *Element One—Subject.* Reading and listening to *pourquoi* stories creates a mindset for their construction. Many plant names strongly suggest a story: Jack-in the-pulpit, lady's-slipper, pussy-toes, bird-of-paradise. Each has the potential to provide a rich subject for a *pourquoi* story.

❦ *Element Two—Character.* Define characters only for elements important to the story. One strength of storytelling is that listeners mentally construct their own versions of the character, for instance, reliving Narcissus' experience vicariously. It is important only that he be described as handsome and cruelly vain.

❦ *Element Three—Setting.* Settings that are ambiguous in time and place contribute to the universality of a story. Only a body of water is necessary for Narcissus to see his reflection.

❦ *Element Four—Conflict and Resolution.* There must be some problem to solve. Although Narcissus is unaware that there is a problem the listener benefits from the resolution. In the Greek story of Baucis and Philemon, conflict is provided by an immortal disguised as a poor person testing mortals. We agonize as many fail the test of hospitality until at last one humble couple opens their home to the beggar and treats him as a honored guest. We rejoice as the beggar throws off his rags to reveal his true identity and offers to grant a wish as a reward.

❦ *Element Five—Transformation Motif.* Transformation patterns recur in stories from many cultures. On Christmas Eve a poor child wants to place a gift on the altar in honor of the Christ Child's birth, but has nothing to give. That night she dreams an angel tells her to gather the branches that grow along the road. At the church she is ridiculed for her homely offering. She cries, doubting her love, and her tears touch the branches. They burst into glorious blossoms, a miraculous and selfless gift fit for the King of Kings. This story is told in Mexico about the poinsettia, in the Amazon jungle about the Christmas cactus, and in Europe about the Christmas rose.

Many of these stories contain strong morals. Narcissus was transformed into a flower whose botanical name reminds us of his vanity. Baucis and Philemon, however, asked only that they never be parted. They are transformed into trees, often an oak and a linden, entwined for eternity. Other tales have the slain bodies of mourned relatives and broken-hearted lovers transformed into flowers. Beautiful Rhodanthe sought refuge in the temple of Diana and was turned into the first rose and her suitors, into thorns around her.

I am pleasantly surprised that children respond by telling their own stories with strong moral messages.

There was Bostwic Vanderbucks, a man "so greedy the mayor kicked" him out of town. He built a great mansion with a "state-of-the-art, digital-control, air-tight vault." The sheriff noticed that Bostwic hadn't been into town for a while, so he rang Bostwic's doorbell.

"DOLLAR BILLS, DOLLAR BILLS." When no one answered, the sheriff broke in and the door to the vault opened, revealing that Bostwic and his treasure had been "turned into money plants." That is the collaborative effort of five fifth-grade boys who had been shown a sprig of luminaria.

In one beautiful tale, a third grader wrote, "A long time ago God was trying to get peace on earth by making it rain. Every time a drop fell more happiness would grow. The devil hated love so he changed it so that every time a drop of rain fell a person would die. Soon there was only one person left. God fought back with his mightiest power. He sent a message to the devil that said, 'I love you.' When the devil read this his fiery red body hissed and dissolved into tiny little seeds and everywhere the seeds fell a fire lily grew."

Another story tells of two Native American girls during a famine. Usually they would "tell stories to keep their minds off their hunger but this time it didn't work" so they took a walk along the river. There they saw the most beautiful flower they had ever seen. They picked it and it came alive! "It began to paint things—flowers, rocks, trees, and best of all, food. That night they went to sleep, hungry but happy. In the morning they shouted for joy because the food had become real, all painted by the first Indian-paintbrush." That moving story was created by a second grader!

Children tell me that they like *pourquoi* stories because goodness is rewarded, evil punished, and the little guy often wins. It's nice to know that children still like stories that express hopes for a better tomorrow. Through storytelling we can pass on our love of flowers and the message that we must become lovers of all nature.

Candace Miller has taught kindergarten through college and is now a full-time professional storyteller at schools and botanic gardens. She lives with her family in Lima, Ohio.

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FROM THREE NATIONAL PLANT SOCIETIES, SUGGESTIONS FOR LOW-FUSS, HIGH-REWARD PLANTS FOR THE LANDSCAPE AND THE LIVING ROOM.

Heathers

In Zone 6 and south, the right selections will give you bloom all year.

BY ALICE KNIGHT

Heathers can be harder to define than they are to grow. Plant societies use the word to include varieties of *Andromeda* and *Bruckenthalia*. But when North American gardeners talk about heather, they are usually referring to the hardy heathers—small evergreen plants in the genera *Calluna, Erica,* and to a lesser extent, *Daboecia*. Still, not all species of "hardy heathers" can be grown in all parts of North America and not all plants dubbed "heather" are actually heathers.

Plants commonly sold as "Scotch heather" in supermarkets and other retail outlets are often tender South African species of *Erica*. The western United States is home to *Cassiope mertensiana*, commonly called white heather or mountain heather, and species of *Phyllodoce,* also called mountain heather or mountain heath. But these natives from above the tree line like growing conditions very different from the garden heathers, which hail from treeless wastelands and moors of Europe and Asia.

All of these plants are at least related to heathers, since they're members of the heath family, Ericaceae, which encompasses 70 genera and nearly 2,000 species, including rhododendrons, mountain laurels, and blueberries.

Other "heathers" aren't even kissing cousins. Eastern North America is home to three species of *Hudsonia,* a genus in the rock rose family, commonly called "beach heather." New Zealand tea, *Leptospermum scoparium,* a member of the myrtle family, is sometimes called New Zealand heather by gardeners on our West Coast, where it's a common garden shrub.

The word "heather"—spelled over the centuries as hathir, hadyr, haddir, hadder, hather, and hether—first appeared in the 18th century and may have been a compromise between the Scottish "hadder" and the English "heath." Heather was the Scots' common name for plants that grew wild on their highlands. Linnaeus called them *Erica vulgaris,* but in the early 19th century that was changed to *Calluna vulgaris.*

C. vulgaris cultivars are the "true heathers," and the hardiest of all the hardy heathers. Carefully selected varieties can be successfully grown as far north as USDA Zone 3. The genus name is derived from the Greek word "kalluno," meaning to sweep clean or beautify. Cultivated for many centuries, *Calluna* has been used not only for brooms and brushes, but also for packing material, thatched roofs, baskets, fences, road beds, pegs and nails, ropes, mattresses, forage for cattle, and food for honey bees. Heather also has medicinal properties as an astringent, is an additive for brewing beer, and provides wood for making briar pipes.

Calluna species are native to western

OPPOSITE: PAMELA HARPER; RIGHT: ARTHUR DOME

Opposite: The flowers of* Erica vagans *'St. Kaverne' can last from July through November. Above: The white corollas of* E. vagans *'Lyonesse' contrast with its brown anthers.

JERRY PAVIA

The double flowers of Calluna vulgaris *'Kinlochruel' appear on shrubs only a foot tall.*

ARTHUR DOME

Europe and the Mediterranean, but seed easily and have become naturalized in Nova Scotia and the northwestern coast of Vancouver Island in British Columbia, presumably when settlers from Scotland and England dropped seeds from heather mattresses or packing material.

There are several hundred named varieties of *C. vulgaris* on the market in Europe and now more than 450 are available in North America. Plants range from small mounds or carpets one or two inches high to shrubs three feet tall. Some are prostrate and low spreading while others are bushy and upright. Flowers vary from white through pink and purple to crimson, in both single- and double-flowered forms. Most of them bloom in summer, but a few still have flowers through December or into January. The foliage is usually smooth-leaved in many shades of green, silver, gold, or bronze, some with pink or white tips of new growth. Some change foliage colors with the seasons, often becoming a striking red in winter.

Some all-time choice and highly recommended cultivars are:

'County Wicklow'. Large double, shell pink flowers from July through October on a low, compact bush 12 inches high and 18 inches wide, with midgreen foliage.

'Kinlochruel'. A double white-flowered sport of 'County Wicklow'.

'Tib'. Heliotrope-colored, double blooms July to October on an open bush 12 inches tall, spreading to 16 inches, with dark green foliage.

'Silver Knight'. Lavender flowers August to September on an upright bush 18 inches tall and 24 inches wide with downy silver gray foliage.

'Martha Herman'. White flowers July to September on a compact bush 10 inches tall and 15 inches wide with bright green foliage.

'Gold Haze'. A golden-foliaged plant with white flowers August to October, growing upright to 12 inches tall and 16 inches wide.

'Allegro'. Ruby flowers from July to October on an upright bush 18 inches tall and 24 inches wide with dark foliage.

'Blazeaway'. Lavender flowers August to September on an upright bush 12 to 15 inches tall and 24 inches wide. Golden summer foliage turns orange in fall and then fiery red in winter.

While *C. vulgaris* has scalelike leaves, *Erica* species, or heaths, have needlelike leaves. Species vary considerably in their hardiness, but in Zones 6 and warmer, it's possible to plant a collection that will bloom reliably in every month of the year—a claim that few, if any, other plant genera can make.

The hardiest and easiest to care for are the *E. carnea* varieties, whose natural habitat is coniferous woods and stony slopes. Their prostrate habit and fast growth make them excellent plants for a rock garden or companions for other acid lovers. Established plants require very little attention, and when properly planted, form a close carpet that smothers weeds.

The fine, narrow leaves range in color from golden and pale green to deep or grayish green, some with streaks of gold or cream or pink tips on new spring growth. The flowers, usually on upright stems, differ from other *Erica* species in having protruding anthers. Flower buds form in summer, but many take up to nine months to finish flowering. Flowers tend to open earlier than average where winters are mild or as much as two months later where winters are harsh.

The following cultivars are dependable in Zone 3 (with protection) and south and all are about six inches tall:

'Springwood White'. Masses of white flowers December through May. The

ARTHUR DOME

Left: The foliage of Calluna vulgaris *'Gold Haze' contrasts sharply with other heathers. Above:* Erica cinerea *'Eden Valley' produces its bicolor flowers from June through September.*

bright green, trailing shrub grows 16 to 24 inches wide.

'Porter's Red'. Magenta flowers January through May with dark foliage; spreads to 18 inches.

'Pink Spangles'. Shell pink flowers January through May deepen with age for a bicolor effect. Midgreen foliage, spreads to 18 inches.

'King George'. Pink flowers December through March, dark foliage. Compact, rarely spreading more than 10 inches.

'Foxhollow Fairy'. Another bicolor, with a pale, shell pink corolla and pink calyx. Midgreen foliage, spreading to 14 inches.

The winter-flowering heaths with perhaps the longest bloom times are the *E.* × *darleyensis* varieties, which are usually hardy in Zone 5 (with protection) and warmer. They tend to be a bit taller than *E. carnea*, most to about 18 inches. Many begin flowering in late September and continue blooming until late May. Some form buds as early as June and are blooming again in late September.

Some very worthwhile choices among this group are:

'Darley Dale'. Shell pink flowers begin appearing in late September and darken as the season progresses. The bushy, dark green plant spreads 24 to 30 inches.

'Darleyensis Alba' ('Silberschmelze'). White flowers September through May. About the same size as 'Darley Dale', it has medium green foliage with creamy tips in spring.

'Furzey'. Deep lilac pink flowers October through May, deepening to almost heliotrope. The dark green foliage has pink tips in spring.

'Jack H. Brummage'. Heliotrope flowers January through May with yellow-orange foliage. Only 12 inches tall and spreading to about two feet.

'Ghost Hills'. Pink flowers deepen to heliotrope between November and May. The bushy plant spreads to 30 inches, and the medium green foliage has cream-colored tips in spring.

E. tetralix cultivars are small, compact heathers eight to 12 inches tall, often with pleasing gray foliage and waxy-textured flowers. Varieties of this species, also called the cross-leaved heath or bog heath, can take wet soils as well as dry conditions, and are hardy through Zone 4. Recommended varieties include:

'Con Underwood'. Deep magenta flowers July through October on bushy, silvery gray plants 20 inches wide.

'Alba Mollis'. White flowers bloom June

HEATHER CULTURE

Heathers are easy-care evergreen plants that can be used almost anywhere except indoors or on a shady porch. Although they do best in full sun, they can tolerate partial shade; too much shade will reduce bloom and make them become leggy. Filtered shade is often best for golden-foliaged *Calluna* species, which can sunburn during long hot summers.

Most varieties like neutral to slightly acid soil. Heathers don't like wet feet, so good soil aeration is even more important than with most plants. You may want to improve the soil by adding peat moss.

The planting hole should be about twice the size of the heather root ball. Heathers have shallow roots and must not be planted any deeper than they are growing in the pot. Scoring or lightly scratching the root ball in two or three places often helps plants become established more quickly and can prevent plant loss. Plants should be spaced 12 to 30 inches apart, depending on variety and the landscape effect you want.

Once plants are in the ground, you should never let them dry out. This is by far the most common reason for losses, especially with new plants. Water new plantings deeply at least once a week during hot weather. Because heathers are shallow rooted, remove weeds carefully and do not cultivate too deeply. Keep mulch away from the stem and crown of the plant.

If you are on the northern edge of the hardiness zone recommended for your heather species, winter protection may be necessary. Evergreen boughs, straw, or other material will help protect them from cold and drying winds, and from heavy snow that might break branches, especially on the tree heathers.

Regular pruning is not always necessary, especially with low-growing, winter-blooming varieties, but it will keep plants bushy and well-shaped and improve flowering. Upright, summer-blooming heathers need regular pruning to keep from becoming leggy and out of control. Prune after flowering, or very early in spring before new growth starts. Avoid pruning late in the year when frost could cause stems to split. Cut the plant back to just below the previous season's blossoms.

As plants become established, it may be helpful to apply rhododendron-type fertilizer lightly in early spring. Keep fertilizer at least two inches from the stem of the plant and off of the foliage. Granular fertilizers are best. Mature plants will thrive with little or no fertilizer, but if the foliage turns pale, an application of iron may be helpful.

—Alice Knight

ARTHUR DOME

Erica terminalis, *a tree heath, grows to six feet.*

through October on a gray green to silvery gray, compact and upright plant 12 inches wide.

To extend heather bloom further into the summer, consider *E. cinerea* cultivars, which have fine leaves and bloom in colors ranging from white to almost black. Most are low-growing, neatly shaped bushes a foot or less in height. Some are spreaders, a few are upright. They will be hardy in Zone 5 (with good protection) and south.

Attractive and recommended cultivars include:

'Eden Valley'. Bicolor lavender and white flowers bloom June through September on light green plants that are 20 to 24 inches wide.

'C.D. Eason'. Bright magenta flowers June through September on bushy, dark green plants 15 inches wide.

'Cevennes'. Mauve flowers bloom June through September on a medium green upright plant spreading to 15 inches.

'Joyce Burfitt'. Dusky, deep rose pink to almost black flowers from July through September. The foliage is dark gray green and the habit somewhat loose, spreading to 20 inches.

E. vagans (Cornish heath) is the most lime-tolerant of all heather species and can be grown in heavy soil with added peat. These bushy, symmetrical plants, 12 to 18 inches tall, are ideal for a low hedge or border. They should do well in Zone 5 (with protection) through 8.

Some of the best, blooming July through October, are:

'Lyonesse'. Pure white corollas contrast with brown anthers and dark, glossy green foliage; 24 inches wide.

'St. Kaverne'. Pink flowers may last through November. Dark foliage, spreads 20 inches wide.

'Mrs. D.F. Maxwell'. Deep rose pink flowers, dark foliage, 20-inch spread.

Tree heaths tower above all the others—up to 20 feet in some climates. The species included in this group are *E. arborea, E. australis, E. lusitanica, E. terminalis, E.* × *veitchii,* and most varieties of *E. erigena.* Once established, these plants are quite hardy and can be grown in Zone 5 and farther south.

Recommended varieties include:

E. arborea. 'Alpina'. One of the few fragrant heathers, this cultivar is anise-scented and has an upright habit, averaging six to eight feet tall with a three-foot spread. White flowers March through May and light green foliage.

ARTHUR DOME

PAMELA HARPER

Left: The flowers of **Erica carnea** *'Pink Spangles' deepen in color with age. Above:* **Daboecia cantabrica** *'Alba' is an upright cultivar of the Irish heath.*

E. terminalis. This species forms an upright, open bush four to six feet tall, spreading to three feet. Lilac pink flowers bloom July through October against a medium green foliage.

Horticulturists have disagreed about whether *Daboecia* species belong among the true heathers. Their leaves are flatter and broader with white undersides, and their lantern-shaped flowers are more conspicuous. But heather society members usually include this genus because it works well with other heathers. It does well in moist soil but is also quite drought-tolerant, and is hardy with protection through Zone 5.

Recommended varieties include:

D. cantabrica 'Alba'. An upright cultivar of the Irish heath with white flowers June through October and light green foliage, growing 20 inches tall and 24 inches wide.

D. × *scotica* 'William Buchanan'. These hybrids are the product of the Irish heath and *D. azorica*, from the Azores. This cultivar has crimson flowers from June through October and dark green foliage. It is 10 inches tall and spreads to 20 inches.

Choose one of these plants or a dozen. Use them as hedges, in a rock garden, in a border planting, as companion plants with rhododendrons and azaleas, in planter boxes, in a berm, or treat yourself to a whole heather garden!

Alice Knight is a founding member of the North American Heather Society and has grown heaths and heathers commercially for 33 years as co-owner of Heather Acres/ Heaths & Heathers in Elma, Washington.

SOURCES AND RESOURCES

The North American Heather Society is an international nonprofit organization dedicated to the advancement and knowledge of the botanical genera of *Andromeda, Bruckenthalia, Calluna, Daboecia,* and *Erica,* commonly called heaths or heathers. The society was founded in 1977 as the Pacific Northwest Heather Society. There are now four regional chapters—the Northwest, Northeast, Cascade, and California North Coast chapters—plus the Cowichan Study Group in northern Vancouver Island. Annual national membership dues of $10 include a subscription to the quarterly *Heather News*. The society recently published North America's first book on heather, *Hardy Heather Species* by D Matheny. The 186-page work has black-and-white line drawings and sells for $39.95 in hardcover and $24.95 in softcover, plus $2.50 postage and handling. Contact the North American Heather Society at P.O. Box 850, Elma, WA 98541, or call (206) 482-3258.

Sources of heathers include:

The Heather Garden, 6 Roland Kimball Road, Freeport, ME 04032, (207) 865-3618. Catalog free.

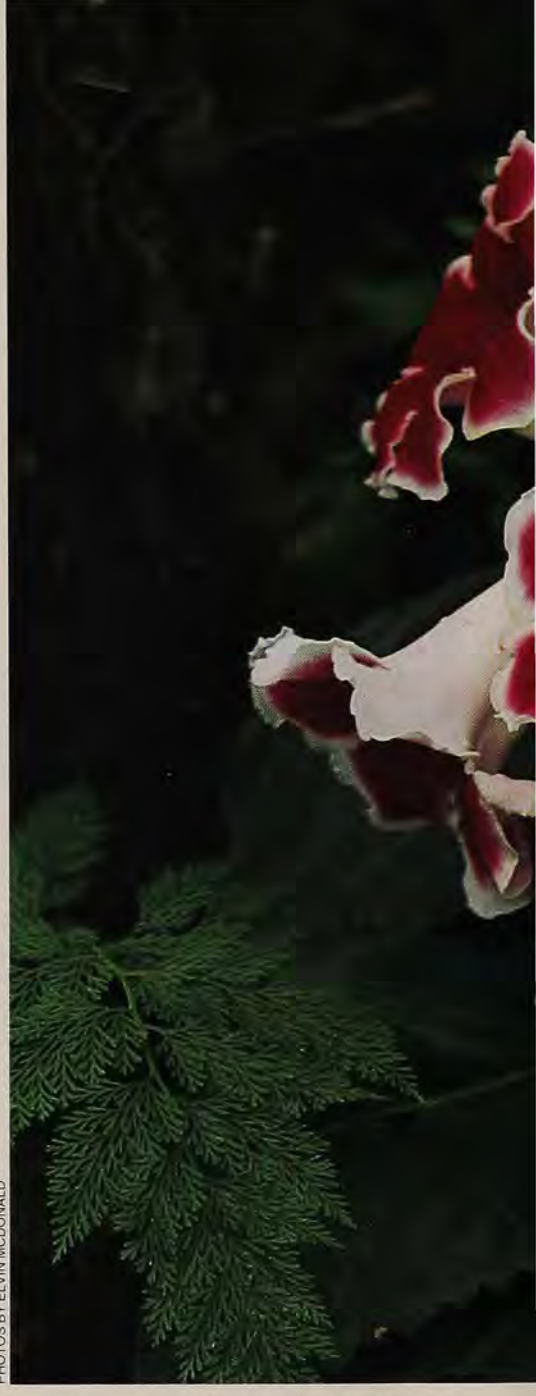
Heaths & Heathers, P. O. Box 850, Elma, WA 98541, (206) 482-3258. Send SASE for descriptive list.

Rock Spray Nursery, Box 693, Truro, MA 02666, (508) 349-6769. Catalog $1.

Waquoit Heather Nursery, P.O. Box 3214 Waquoit, MA 02536-0110, (508) 548-6979. Catalog $1.50.

Gesneriads

Choose a flamboyant bloomer for the patio or a mini that will grow in a thimble.



PHOTOS BY ELVIN MCDONALD

BY DARRELL TROUT

The gesneriad family contains some of the most beautiful and easily grown house plants available to gardeners. There are more than 26 genera, 2,900 species, and even more hybrids; tuberous and rhizomatous storage systems; stature that ranges from tree-sized to micro-miniature; and habitats from alpine to tropical. Such diversity makes it a challenge for curious neophyte growers to limit their choices to plants that will really perform well in their homes. Nevertheless, the results of an informal poll taken at the 1993 American Gloxinia and Gesneriad Society (AGGS) convention in the New Orleans area should offer some guidance. These selections have been grouped according to whether they are tuberous, rhizomatous, or fibrous-rooted because plants within these broad categories have similar cultural requirements.

Tuberous Gesneriads

The best known gesneriad is the "florist gloxinia," *Sinningia speciosa*. There are many hybrid forms of this lovely ornamental, all with large upward facing or nodding, bell-shaped flowers in white, pink, red, or purple; some are patterned with dots or color blocks. All form a low-growing rosette of leaves, some veined with white, ranging from about six inches to several feet in diameter. *S. speciosa* hybrids will produce 60 or more large flowers a year.

S. eumorpha is somewhat smaller than *S. speciosa*, with heart-shaped, shiny, dark green, four-inch-long leaves with reddish undersides, and it has a longer blooming season. It produces many one-and-a-half to two-inch, white, nodding flowers that are held well above the foliage.

Another undemanding and proven plant—in cultivation since 1850—is *S. cardinalis*, with very showy, red, two-inch-long tubular flowers, with two upper lobes projecting out an additional half inch. The flowers are hairy, as are the leaves, which are soft velvety green and whorled; the resulting overlap gives the impression of a less airy, more compact plant than *S. speciosa*.

True to its botanical name, *S. hirsuta* has so much hair on its four- to six-inch-long leaves that the calyxes almost disappear in all the fuzz. The plant can produce a phenomenal number of very perky flowers with white lobes and white dots on a purple throat. *S. hirsuta* is a bit finicky as a young plant but seems to be easier to grow by the time it is two to three years old. The result is an appealing, furry oddball of a plant.

On the other end of the size spectrum is *S. pusilla,* full-grown at only two inches high by two inches across with three-quarter-inch long lilac flowers. In a terrarium, these true miniatures are very easily grown, will not go dormant, and will continue to bloom over long periods of time. A white-flowered sport, *S. pusilla* 'White Sprite', its offspring *S.* 'Snowflake', and the equally tiny *S. concinna* are also quite easy to grow and they will come true from seed. It may take as little as five months to produce a flowering plant.

In recent years many hybrids have been created between these little plants and their offspring. Hybridizers Al Wojcik, the late Marty Mines, and others have created a bewildering array of miniature plants, with rosettes from three to six inches in diameter. Here are just a few of the current favorites:

S. 'Cherry Chips'. Cherry pink flowers, white throats distinctively spotted red, with small dark leaves.

S. 'Cindy'. Large nodding flowers, shaded purple on top, white below, throats finely striped and spotted with deep purple.

S. 'Mercury'. Large nodding flowers of deep burgundy and small bronzy green foliage make for a distinctive contrast.

S. 'Miriam G.'. Light purple with deep purple feathering through each petal lobe. Every flower is different.

S. 'Apricot Bouquet'. Perfectly named, this plant holds two-and-a-half-inch-long apricot-colored flowers on many stems, forming what looks like a bouquet. My plant, container-grown on a deck in full sun, peaks each summer with a top flower count of more than 200 open blooms. All of the reddish, tubular-flowered gesneriads offer gardeners a bonus of attracting hummingbirds.

Chrysothemis pulchella (bronze form)

Above: The popular "florist gloxinia," Sinningia speciosa, *has been hybridized into a kaleidoscopic range of colors and patterns. Left: Torrid licks of red on the leaves of* Episcia *'Cleopatra' show how the genus earned its common name of "flame violet."*

DARRELL TROUT

ELVIN MCDONALD

Top: The trailing habit and explosive flowering peaks of Columnea *hybrids, like this brilliant 'Firebird', make them arresting hanging plants. Above: The white, nodding, tubular corollas of* Sinningia eumorpha *will outlast those of* S. speciosa.

has four-inch-long, shiny bronze leaves, which form a contrasting background for the soft yellow flowers, and more important, for the orange calyxes that persist for weeks. If you continue to remove old stems the plant will not go dormant.

Growers of *Nautilocalyx* species tend to choose them for their beautiful foliage. They do well in low-light conditions, but require warmth and perform best in a terrarium, growing in long-fibered sphagnum moss.

The leaves of *N. pemphidius* are shiny and dark green with a bronze tinge. The flowers are pure white. The narrow, sharp-pointed leaves form a rosette that resembles a starfish. It can be effectively grown as a single crown with a two-foot spread or as a many-crowned plant, with each crown only a few inches across.

Fibrous-Rooted Gesneriads

Streptocarpus (cape primrose) is a genus of over 135 species from continental Africa and Madagascar encompassing some amazing botanical and horticultural curiosities. These include the single-leaved, stemless plants known as unifoliates, which grow to over three feet, take two years or more to flower, then set seed and die. Although they wouldn't make very rewarding house plants, the unifoliates have been crucial building blocks for hybridizers who used these plants and others to create ever-blooming and more heat-tolerant plants.

The first of that group of plants was *S.* 'Constant Nymph', with clustered strap-shaped leaves about one-foot long. The flower stems, or peduncles, arise directly from each leaf, as there is no central stem. *S.* 'Constant Nymph' produces up to seven spikes per leaf, with each spike having up to six flowers. The flowers are deep violet-blue with a yellow throat; the lower lobes are veined in dark blue.

S. 'Maasen's White', a sport derived from the compact, free flowering streps referred to as nymphs, has 10-inch-long leaves and glistening white, two-inch flowers with yellow patches in their throats. It is still one of the best white-flowered hybrids, and looks wonderful planted with *Hosta undulata* cultivars.

At the 1993 AGGS convention flower show, a well-grown specimen of Jonathan Ford's hybrid *Streptocarpus* 'Black Panther' was judged "Best in Show". This favorite has good foliage, about 10 inches long, and plush, velvety, purple-black

flowers with two bright gold "eyes" in the lower throat.

Another Ford hybrid, *S.* 'Scottish Mist', has medium lavender pink, purple-netted, almost double, three-inch flowers, with a foliage spread of more than three feet. Like most of the plants in this genus, 'Scottish Mist' makes an ideal house plant, but it also performs admirably when planted in containers and grown on a deck or patio. (As with any strep, it should be kept in the shade or in dappled sun.)

Mikkelsens, Inc. has created the Olympus series of hybrids, which tolerate outdoor temperatures. All of Mikkelsens' plants, which are often available at local greenhouses and garden centers, are named after characters in Greek mythology. *S.* 'Venus' has nice ruffled pink lavender flowers with dark magenta streaks in the throat and is a solid performer with long lasting flowers. *S.* 'Ulysses' produces five velvety purple-black flowers on each four-inch peduncle.

The *Nematanthus* genus provides some promising candidates for either indoor or outdoor hanging baskets. Two favorite long-blooming, floriferous plants are *N. wettsteinii* and *N.* 'Cheerio'. They are often called the "candy corn plants" because of their pouched, one-inch-long, orange-red flowers touched with yellow, which are produced in great numbers. The flowers really complement the gorgeous foliage: shiny, three-quarter-inch, succulent-looking leaves.

Columnea hybrids, because of their trailing habit, also make handsome basket plants. *C.* 'Early Bird' and *C.* 'Chanticleer' are incredibly easy-to-grow plants that always seem to be flowering, while others, like *C.* 'Firebird', achieve tremendous flowering peaks.

Episcia is commonly called "flame violet" because of its exotically patterned foliage. The most desirable hybrids are ones with white, pink, and green leaves, the best being *E.* 'Cleopatra'. All of them require high humidity and warmth; they will be damaged by temperatures under 60 degrees. Most are grown in terrariums placed in moderately lit locations—never full sun—and growers content themselves with not having flowers, which are a clashing shade of red anyway.

Chirita varieties are just beginning to be widely grown. The easiest one, *Chirita sinensis* 'Hisako', has been available only for a couple of years and is grown primarily as a foliage plant. The succulent leaves

HOW TO GROW GESNERIADS

Grow your gesneriads in any light soilless mix that does not compact, is well aerated, but stays slightly moist. These needs are supplied by most packaged mixes sold for African violets. You can prepare your own mix with equal parts of sphagnum peat moss, coarse perlite, and coarse vermiculite, plus a pinch of lime. Light in an east or west window is perfect for most gesneriads, but a southern exposure may be needed in winter. To produce healthy plants and abundant blooms, most gesneriads require 12 to 14 hours of bright daylight, with little direct sun. In a greenhouse, shading will probably be necessary during the long, bright days of summer. Most plants placed under two four-foot 40-watt fluorescent tubes (one cool white, one warm white) will produce continuous bloom. The lights should be placed three to 12 inches from the tops of the plants and left on for 14 to 16 hours per day.

All gesneriads benefit from higher humidity than exists in average home conditions. Grouping plants on trays of gravel, misting them, or using a home humidifier improves the situation.

Gesneriads like their soil to be kept moist but not soggy. Touching the soil with your finger is the best method of determining when the mix is starting to dry and when it is time to water—always with warm water.

Normal household temperatures are fine for most gesneriads. In the outdoors, they are happy with day temperatures of 70 degrees or higher, with a 10 to 15 degree drop at night being ideal.

Plants should only be fertilized when they are in active growth. Use any house plant fertilizer at one-quarter strength of manufacturer's directions every time you water. Most growers use a general house plant formula (15-30-15) or one labeled for African violets or gesneriads.

Tubers are planted (barely covered) when they show signs of new growth. Water well initially, then sparingly until growth is established. Place the container in bright light or within a few inches of the fluorescent tubes. When the plant appears to have finished its growth cycle, stop watering and allow it to go dormant. Store the tuber in its pot in a cool place, somewhere between 50 and 65 degrees. When new growth resumes, repot and start the cycle over. Rhizomes are treated much the same way, only the plants are "teased" into dormancy by gradually withholding water. This assures a good crop of rhizomes. *—Darrell Trout*

DARRELL TROUT

The thimble-sized* Sinningia *'Snowflake' will come true from seed and flower in as little as five months.

LEFT, TOP: ELVIN MCDONALD; LEFT, BOTTOM: ANITA SABARESE; RIGHT: PAMELA HARPER

Top: In cultivation since 1850, Sinningia cardinalis *bears shocking red blooms against a background of soft, velvety foliage. Above: The leaves of* S. hirsuta *are almost hairy enough to comb. Top right: In the absence of a central stalk, the petioles of* Streptocarpus *'Constant Nymph' spring directly out of the foot-long leaves.*

are about five inches long by two inches wide, rather pointed, with a serrate edge, and boldly marked in green and silver with a deep veining pattern that adds texture.

Rhizomatous Gesneriads

Achimenes are summer-flowering plants that are best used in hanging baskets in windows or on patios (and particularly on porches in the South, where they are well known). I've also used them for fillers in the late summer border. The flowers have a very narrow tube but flare dramatically to produce a wide face. Choose hybrids from the widest color palette imaginable: red, pink, white, blue, purple, and yellow, plus two-tones and some with spectacular veining—they are all easy to grow. A few favorites are the fiery red *A.* 'Inferno', *A.*'Compact Fuchsia', *A.* 'Valse Blue', and *A.* 'Ambroise Verschaffelt', which is white with purple netting.

Koellikeria erinoides is quite a mouthful for a delicate-looking plant that can be kept quite happy in a small terrarium. It grows in a compact four-inch rosette with nice silver-spotted green leaves and performs best at 75 degrees with plenty of light (easily supplied by a few fluorescent tubes).

This barely scratches the surface of the amazingly diverse world of gesneriads, but the proven performers listed here should start you well on your way to growing and selecting your own favorites.

Darrell Trout is the past president of the Greater New York Chapter of the AGGS, the co-editor of CrossWords, *the newsletter of the Gesneriad Hybridizers Association, and a board member and Finance Chairman of AGGS.*

SOURCES & RESOURCES

The American Gloxinia and Gesneriad Society was formed more than 40 years ago to encourage the introduction and culture of gesneriads. It sponsors local chapters throughout the United States and Canada, funds research, stages flower shows, and trains judges. U.S. dues are $20 per year and include a subscription to *The Gloxinian*, published six times a year, and an extensive seed fund that gives members access to rare and unusual gesneriads. For more information, including an expanded source list, and to find out about a scripted slide program that will be available in April for horticultural groups to rent for a modest fee, write to: AGGS, c/o Jimmy Dates, Horticultural Society of New York, Dept. AH, 128 West 58th Street, New York, NY 10019.

Sources of gesneriads include:

Belisle's Violet House, P.O. Box 111, Radisson, WI 54867-0111. Catalog $1.

Coda Gardens, P.O. Box 8417, Fredericksburg, VA 22404. Catalog $2.

Kartuz Greenhouses, 1408 Sunset Drive, Vista, CA 92083-6531, (619) 941-3613. Catalog $2.

Lauray of Salisbury, 432 Undermountain Road, Salisbury, CT 06068, (203) 435-2263. Catalog $2.

Les Violettes Natalia, P.O. Box 206, Beecher Falls, VT 05902-0206, or 124 Chemin Grapes, Sawyerville, QC J0B 3A0 Canada, (819) 889-3235. International catalog $2.50.

Logee's Greenhouses, 141 North Street, Danielson, CT 06239, (203) 774-8038. Catalog $3.

Dwarf Conifers

These dwarfs are delightful even when there's no snow white.

BY PETER LOEWER

Before I had space for a garden of my own, I imagined all conifers as inhabitants of black brooding forests, the kind of woods that English artists and writers visited when walking the Carpathian Mountains on the prescribed continental tour. It took me some time to discover that all conifers are not giant dark umbrellas, dripping with dread and keeping the forest floor from producing even a fern or two.

Dwarf conifers are something else again. These small evergreen plants are usually under 12 feet at maturity, although a few specimens may reach 16 feet. True dwarfs can stop growing at three feet or less. There are several reasons why a plant may qualify as a dwarf:

- The species is genetically dwarf or small.
- The species is very slow-growing. A western red cedar (*Thuja plicata*) might be quite comfortable in a small back yard for half a century, even though after two centuries it could be 200 feet high.
- A plant might be viewed as a dwarf because of the nature of its growth: branches might droop or creep along the ground.
- An individual plant and its clones might be the result of a chance mutation that makes it a shorter copy of its parent species.
- It may be a clone of a "sport," or bud mutation, in which only one branch of a normal-sized conifer species shows evi-

MARYL

It's easy to see where 'Blue Star' juniper gets its name.

CONIFER CULTURE

Most conifers are not fussy. If given a compatible climate, the appropriate amount of light or shade, and reasonably good garden soil with some organic content and adequate aeration, they will succeed. A carefully chosen planting site, and some continued attention once the conifer is in the ground, are the keys to success.

Winter cold combined with winter sun can cause troublesome heaving of unprotected or unmulched roots. The ground alternately freezes and thaws, thus exposing those roots to drying wind and sun. This is a major problem for many types of plants, especially where winters are cold with little snowfall. Exposed roots must be promptly pushed down into the soil. Your heel, gently but firmly applied, is an excellent tool.

Winter mulching is always a good idea. It doesn't protect the roots directly, but it does keep the ground firmly frozen until the warmth of spring arrives.

In summer, mulch will inhibit weed growth and conserve moisture. Use well-composted manure, shells, wood chips, pine needles, pine branches, shredded leaves, or even crushed gravel—to inhibit future weed growth and conserve moisture. Do not use sawdust, grass clippings, or peat moss: they pack down too tightly and, in the case of peat moss, will actually repel water when dry.

Before you mulch, remove all weeds and lawn grass within one foot of the conifer's dripline—the circumference of its overhanging branches. Grass and weeds steal nourishment—and depending on how often you mow, sunlight—from small trees.

Any trees that have been unattended for a year or two should be top-dressed by spreading one or two inches of a mix of soil and/or crushed leaves mixed with compost or well-rotted manure, and working it into the earth under the tree and slightly beyond the dripline.

Evergreens are especially susceptible to drought during the first winter after being planted out. Their leaves can lose moisture through the combined actions of cold and winter winds and are unable to replace it when the roots are sealed in frozen earth. To lessen the rigors of winter drought, you can improvise screens for wind protection. Even an old Christmas tree can be propped up in front of small evergreens to deflect wind. And during a dry autumn, remember to water each and every tree liberally before the ground does freeze solid.

Remove dead branches with a sharp pruning saw or shears. And in initially deciding where to plant your conifers, consider traffic patterns. Remember that lawn mowers (especially when connected to disgruntled teenagers), pets, and people can easily break branches and even scrape the bark off a trunk.

Finally, anticipate the ravages of deer, dogs, rabbits, and mice. Wildlife can be discouraged by use of fencing or the threat of the family dog and cat (dog for the deer and cat for the mice and rabbits) and sometimes unscheduled garden walks by the gardener, which upsets some animals' daily routine. *—Peter Loewer*

dence of change. The witches-broom is a well-known variation on the bud mutation. This condition occurs when a tightly fisted branch of dwarf or congested needles flares up on the tip of a normal tree, most commonly on species of larch, spruce, or pine. These growth variations are easily mistaken for bird's nests or, as folklore would see it, a witch's conveyance.

❦ Although not a genetic dwarf, a species may respond particularly well to pruning and, like bonsai, stay small for generations.

My conifer experiences began 15 years ago in upstate New York in our Catskill garden, a decade before I became editor of the *American Conifer Society Bulletin*. Temperatures there often fell to 15 degrees below zero, and snow cover consisted of one or two inches of ineffectual shaved ice that began falling at the end of November and often remained until mid-April.

Yet after forest leaves fled at the end of October, the killing frosts had achieved their goal, and the winter sky had turned a uniform Payne's gray, there was still color in our garden, provided by carefully scattering dwarf conifers hardy in that bleak USDA Zone 4 setting.

On a gentle slope to the rear of our rock garden, a dwarf bird's-nest spruce (*Picea abies* 'Nidiformis') made an 18-inch circle with a nest-depression in the center, so that it closely resembled an avian home. If left alone, 'Nidiformis' will reach a diameter of three feet in 10 years.

Next to a spot where late winter sunshine would call a tiny pennycress (*Thlaspi* sp.) from Colorado into bloom, sat a Norway spruce (*Picea abies* 'Humilis'), a six-inch dark green globe that in spring would be dotted with the bright green tufts of new needles.

High above the rock garden, where the slope merged into a field, I planted a weeping white pine (*Pinus strobus* 'Pendula') and aimed its drooping branches down the incline. This marvelous conifer shoots up 10 feet in eight to 10 years, only to arch at the top and spend subsequent years growing back toward the ground, bearing new candles that twist and turn in all directions.

Settled between the spikes of a zebra grass clump (*Miscanthus sinensis* 'Zebrinus') and the beginnings of what would someday be the back lawn was a two-foot circle of a juniper cultivar from Holland, *Juniperus squamata* 'Blue Star'. True to the plant's name, each branch ended in steel blue stars, the color of which were often magnified by drops of winter rain that first froze, then melted before falling to the ground below.

When winter was at its worst, the stone edge of my scree bed went unadorned. But when the cruel season began to mellow and nighttime temperatures bottomed out at a mere 10 or 15 degrees, the clay pot that held my dwarf sequoia tree (*Sequoia sempervirens* 'Adpressa') would come out of the cold greenhouse. The ends of its bending branches would soon spread into beautiful new fans of fresh green, lightening to white at the tips. Now that I garden in Asheville, North Carolina, this tree spends the entire year reaching over the edge of an old stone wall. In summer, its lovely blend of green and white contrasts starkly with the velvety chartreuse leaves of a Kamurozasa bamboo (*Arundinaria viridistriata*).

In this current Zone 7 garden I'm indulging my fondness for conifers with a tapestry hedge, still an infant at only three years old, containing hemlocks, pines, a spruce, and nonconifers like a weeping Siberian pea and a Japanese maple. The hedge has a few years to go before its colors meld together in a salute to the conifers' variations on green (not to mention silvers, browns, and various yellows). Arborvitaes bring a filigreed texture and often marvel-

ous colors to borders, and the hedge includes two specimens of *Thuja occidentalis* 'Rheingold', awash with a pinkish gold glow in summer but turning bronze during the colder months. Their ultimate height will be three feet and they are hardy to Zone 4.

In both my gardens the wonderful creeping juniper from Asia, *Juniperus procumbens* 'Nana', has spread its gray green foliage over the ground, up to the edge of various rocks, then crept over their tops at the rate of four to eight inches a year, like a miniature version of the ultimate wave on a Hawaiian shore.

I haven't had time or space to plant every conifer I've admired in other gardens. For example, there's the dwarf form of our native balsam fir, *Abies balsamea* 'Nana', a densely branched bush smothered in soft, dark green needles. It forms a globe that rarely gets larger than 18 inches high or 14 inches wide.

The false cypress genus is responsible for many diminutive gems. Nobody should overlook *Chamaecyparis lawsoniana* 'Green Globe', a gray green form that closely resembles a green bowling ball, especially fine for the rock garden. 'Konyn's Silver' is a semi-dwarf from Holland, green with white variegations and somewhat pyramidal in shape. At the end of 10 years, it should be no taller than five feet.

C. pisifera contributes two great cultivars. 'Boulevard', which offers great blue color on soft, mossy textured leaves, slows its growth in hot, dry areas, but when conditions are more favorable can reach 15 feet in 20 years. And what could be more fun than a living dust mop in the garden? Only instead of being dingy white, 'Golden Mop' is an intense yellow, growing low to the ground until it ambles over the edge of an importunate rock or the edge of a wall. All four of these false cypresses are comfortable in Zone 5.

There's even a ground-hugging conifer for Zone 3. Originally discovered in 1921 on a mountainside in eastern Siberia, *Microbiota decussata* makes a spreading mat, eventually about five feet wide, and does well even in shady locations. The foliage is medium green in summer but turns bronzy brown in the winter.

For a vertical accent in the formal garden you could wait for any number of shrubs to reach the point of pruning, or you could plant *Juniperus virginiana* 'Skyrocket', a fast-growing form that appears determined to pierce clouds, but stops at 10 to 12 feet. If space is limited, you can choose the slower *J. communis* 'Pencil Point', which should be only three feet high in 10 years. Both are hardy to Zone 4.

The Alberta spruce has produced many cultivated forms, but for eye-pleasing

Below left: 'Nana' balsam fir rarely gets taller than 18 inches. Below: 'Golden Mop' false cypress will grow low to the ground or amble over a wall. Bottom: 'Pendula' hemlock should be staked to get the perfect weeping form.

MARYL

GALEN GATES

PAMELA HARPER

PHOTOS BY PAMELA HARPER

Top: The Chinese creeping juniper spreads over the ground like an ocean wave. Above: A plant can't get much more vertical than the 'Skyrocket' juniper.

shape, try *Picea glauca* 'Conica', the dwarf Alberta spruce, possibly the most popular of dwarf conifers. It forms a very dense, conical bush that will reach four feet in 10 years. Those seeking an alternative to green might look for the cultivar 'Sander's Blue', which has the same shape and growth rate as the parent with a distinct blue cast to its needles.

Finally there are the dwarf hemlocks. *Tsuga canadensis,* native to the United States and Canada, has produced a surprising number of cultivars over the years. They are all extremely hardy but do prefer a cool root run so mulching is beneficial. My favorites include *T. canadensis* 'Cappy's Choice', a compact, low-growing form with light green needles tinged with gold and reaching a mere 18 inches in 10 years; 'Jervis', which forms an irregular pyramid of 18 inches in a decade; the beautiful 'Pendula', a weeping form that should be staked and tied to get the perfect rounded and pendulous habit; and the incomparable 'Cole's Prostrate', which follows the undulating contour of every rock it touches, reaching the edge only to spill over and start to travel again. This cultivar, particularly, does not like hot sun or dry locations.

Name your shape: dwarf conifers can be pyramidal, rounded like a bun, weeping, spreading, prostrate, or like living pencils, either rounded or pointed at the tips. Pick your color: dark green, light green, blue, bronze, yellow, or spattered with white. And not only are they marvels of texture and subtle colorations, but they will take their sweet time getting to the point of crying out for more *lebensraum* than you have to give.

Among the many books Peter Loewer has written is Evergreens for Landscape, Lawn and Garden. *Recent books include* The Wild Gardener *and* The Evening Garden.

SOURCES AND RESOURCES

The American Conifer Society is an international organization that encourages the development, conservation, and propagation of conifers, with emphasis on plants that are dwarf and unusual. Membership includes the quarterly *American Conifer Society Bulletin,* which features articles written by hobbyists, collectors, nursery owners, and professional horticulturists. There are annual two-day national meetings held around the country and regional one-day conferences in the Eastern Region, Central Region, and Western Region, and an annual seed exchange. Annual membership begins at $25. Write to the American Conifer Society, P. O. Box 314, Perry Hall, MD 21128, or call (410) 882-5595.

Commercial sources of conifers include:

Appalachian Gardens, Box 82, Waynesboro, PA 17268, (717) 762-4312. Catalog free.

Camellia Forest Nursery, 125 Carolina Forest, Chapel Hill, NC 27516. Catalog $1.

Dilworth Nursery, C-1200 Election Road, Oxford, PA 19363, (215) 932-0347. Price list $1.

Forestfarm, 990 Tetherow Road, Williams OR 97544. Catalog $2.

Girard Nurseries, P.O. Box 428, Geneva, OH 44041. Catalog free.

Porterhowse, Bin C, 41370 S.E. Thomas Road, Sandy OR 97055, (503) 668-5834. Catalog $4, refundable.

Rarafolia, RD #2, Box 404, Beverly Drive, Kintnersville, PA 18930. Price list $3, refundable.

R & L Nursery, 2900 Michigan Street, Bellingham, WA 98226, (206) 676-0910. Retail list free.

Washington Evergreen Nursery, P.O. Box 388, Leicester, NC 28748. Catalog $2, refundable.

Patently Superior

William Flemer III crosses botany and business acumen to give Americans a broader choice of trees.

BY PATRICIA A. TAYLOR

Have you ever looked for a vase-shaped tree to replace a dead elm? Have you ever wished your maples were even redder in the fall? Have you longed for a flowering crabapple that wouldn't be disfigured by scab and mildew?

Then William Flemer III has worked with your dreams in mind. In the past 47 years, the New Jersey nurseryman has patented 32 trees and shrubs. Thirteen are recommended in *The National Arboretum Book of Outstanding Garden Plants*. Two—*Zelkova serrata* 'Green Vase' and the 'Snow Queen' hydrangea—have received the Gold Medal Award of the Pennsylvania Horticultural Society. In 1992, Flemer won one of the American Horticultural Society's top awards: the Catherine H. Sweeney Award for extraordinary and dedicated efforts in the field of horticulture.

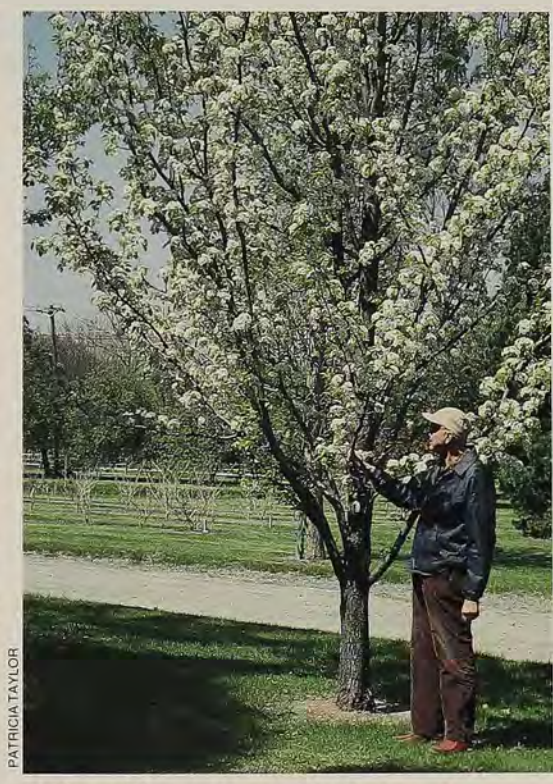
Others in the field say he's tops at two essentials for a breeder: he's a sharp-eyed botanist who chooses his introductions carefully, and he's a canny entrepreneur who knows how to promote them.

"He won't introduce a plant unless it's outstanding," says Delaware landscape designer William Frederick. "His Japanese pagoda tree (*Sophora japonica* 'Regent') is a tree I wouldn't be without. It's very showy in late June and early July, when few other trees are blooming. In the species, the quality of blossoms varies all over the place, as does the form and foliage quality."

"He's keenly observant of what grows well," says Nina Bassuk, program leader of Cornell's Urban Horticulture Institute, "and he's increased the breadth of what's available to include a lot of uncommonly used trees," such as *Maackia amurensis* (Amur maackia) and *Eucommia ulmoides* (hardy rubber tree).

David Sydnor, professor of horticulture at the Ohio State University, says some Flemer introductions—like the pagoda tree—don't fare well that far west. "But 'Greenspire' is *the* little-leaf linden and his 'Green Mountain' sugar maple is very appropriate for Ohio." Data indicate Flemer has introduced more trees that have sold 100,000 and up than anyone in the country. "To do that, a tree has to work in a large segment of the U.S.," Sydnor observes.

Flemer—as the Roman numerals after his name might hint—represents the third generation in a successful nursery business, and he might have been quite content to rest on the laurels of his forebears. Instead, he is not only breeding and introducing improved woody landscape plants, but he is a leader in trade organizations, lectures



PATRICIA TAYLOR

William Flemer III says his 'Redspire' pear is more wind-resistant than the popular 'Bradford'.

PATRICIA TAYLOR

'Strawberry Parfait' flowering crabapple is both beautiful and disease resistant.

extensively, and has written several books.

Flemer's 1971 book, *Nature's Guide to Successful Gardening and Landscaping*, seems years ahead of its time. Its introduction offers some insight into Flemer's philosophy. "Man the exploiter," he writes, "must become equally man the replenisher. The forester, the wise farmer, the gardener are the real heroes of our complex culture, for they alone replace what others consume." Left unsaid, but reflected throughout his life, is the fact that the nurseryman not only replenishes but also creates.

Tree breeding is not only an art and science of course, but also a business, and the story of Princeton Nurseries—today the largest wholesale nursery on the East Coast—is a quintessentially American one.

In the 1850s, Flemer's great-grandfather, a builder of water mills, left Germany and came to the Washington, D.C., area to make his fortune in construction. He had five sons, and as is bound to happen in large families, one rebelled. William simply did not want to join his fathers and brothers in the building trade. He wanted to become a farmer.

The father, again not uncommonly, despaired over this son. One day as he was riding the train between Washington and New York, he confided his worries to a fellow passenger. This man listened sympathetically and then suggested a compromise: tell the son to go into the nursery business, where profits were more assured than in farming.

And so in 1878, the German immigrant apprenticed his son to a nursery business in West Chester, Pennsylvania. William Flemer's only qualification for the job was a love of plants. But it took him only four years to gain enough confidence and practical knowledge to open his own nursery in Roselle, New Jersey. In 15 years he outgrew the property and moved his business north to Springfield, New Jersey. The timing and location were perfect.

In the quarter century preceding World War I, there was a tremendous expansion of suburbs within the New York metropolitan area. Flemer's business was so successful in providing woody ornamentals for the newly developed properties that soon it was necessary once again to increase the acreage devoted to production.

But rather than moving again, he set up another branch. In 1913, he bought three adjacent farms in the Princeton area. The site was chosen for its excellent soil—a sassafras loam that was part of an outwash plain—and its proximity to both the Delaware-Raritan Canal and a branch of the Pennsylvania Railroad.

His plant-loving genes proved dominant; both of his sons followed him into the nursery business. His namesake, William Jr., eventually assumed ownership of the Princeton property and changed the name to Princeton Nurseries so that it would not be confused with the nursery his brother owned in Springfield. After serving as an ambulance volunteer in World War I, he returned home to the prosperity of the Roaring 20s, marriage, and a family. William III was born January 18, 1922.

The "nursery" young William grew up in was much vaster than a room with a crib. Among the many acres of beautiful trees and shrubs that he wandered as a toddler, Flemer saw many specimens chosen by his elders. Several of these—a row of ginkgos that his grandfather planted to screen a road, and a magnificent umbrella pine planted by his father across the driveway from the main office—still stand today.

Such surroundings instill pride in most nursery offspring, Flemer explains. And being able to work side-by-side with their parents every day gives them a sense of competence and belonging. "There's always work that children can do in a nursery," he notes. "That's why so many of them stay in the business." His daughters, Louise Gross and Hariette Hesselein, and son William Flemer IV, are part of Princeton's current management team.

Although neither of the first two William Flemers had felt it necessary to go to college, the changing nature of American society dictated that William III should pursue a higher education. As a bona fide "nursery brat," he had enrolled in nursery management at Cornell University. "Then a friend took me aside—it was in an elevator at a summer meeting—and said, 'That's the dumbest thing you can do. Your father knows more about the nursery business than any professor. You need to learn about plant growth and organic chemistry, genetics—the theoretical knowledge your father can't teach you.'"

So Flemer enrolled in botany at Yale, returning to New Jersey with a master's degree in 1947, and immediately set to work on his first breeding project. Since the 1930s, American elms had been falling to

Dutch elm disease, and everyone was scrambling to find another equally beautiful and useful shade tree.

Flemer chose what to others might have seemed an unlikely candidate, the honey locust (*Gleditsia triacanthos*). It was tough and adaptable, but had two significant drawbacks: large thorns and ugly seed pods. Through patience and innumerable crosses between naturally thornless trees and naturally fruitless trees, Flemer managed to breed out both, and 'Shademaster' honey locust was awarded a patent—his first—in 1956. It's still a top seller today.

Flemer ranks high among fellow nurserymen, not only for the quality of his plants but for his personal charm and forthrightness. They've elected him president of the American Association of Nurserymen, the Wholesale Nursery Growers of America, and the International Plant Propagators Society. But he breaks rank with some of them over the issue of plant patents. They would argue that no one should "own" genetic material. Flemer feels patents encourage creativity by assuring that hard work will bring some financial reward.

In 1930, the United States became the first—and was for several decades the only—country to let woody plant breeders patent their creations and collect royalties, for 17 years. Flemer thinks this law helped the United States become the world's leading developer of new woody cultivars, despite the fact that the American public lacks the horticultural sophistication of many other countries. Now that Germany, England, and Canada have plant patent laws, and with the Netherlands due to follow suit, he believes the United States is in for some stiff competition.

Shade trees, especially maples, predominate among Flemer's plant patents. "My dad didn't like perennials," he says. "He felt there was no money in them." His all-time favorite introduction is his red maple selection, *Acer rubrum* 'October Glory'. "It always turns a brilliant crimson red in the fall, and it retains its leaves long after all other red maples have defoliated." He's also proud of his 'Redspire' ornamental pear, introduced in 1975, which is far more resistant to wind damage than the ubiquitous 'Bradford' released by the U.S. Department of Agriculture in 1963.

There may be less money in perennials, but it takes a lot less time to produce new cultivars. "You have to wait five to seven years after you've planted a maple seed to see if you have a plant that is worth working with," Flemer notes.

COURTESY OF PRINCETON NURSERIES

Serendipity had a role in Flemer's discovery of 'Snow Queen' hydrangea.

One of his plant patents, however, was the result of pure serendipity. Flemer has long been fond of the native oakleaf hydrangea (*Hydrangea quercifolia*). In the early 1970s, to step up Princeton's production, he ordered new stock to be grown from seed rather than grafts. Walking down a row of seedlings one day, his skilled plantsman's eye noticed one with far more of the sterile florets that make hydrangeas showy. "But the heads didn't hang down in a rainstorm, the way some of the old tree peonies do." He took personal charge of the seedling and eventually patented it as 'Snow Queen' hydrangea, honored by the Pennsylvania Horticultural Society in 1989.

The previous year, the society had honored Flemer's *Zelkova serrata* 'Green Vase'. Flemer had planted a batch of seeds from the Institute of Forest Genetics in South Korea, and noted one seedling growing twice as fast as those nearby. It proved tolerant of pollution and drought, and is often recommended as a street tree to replace elms, because of its vaselike shape.

Among his favorite recent introductions are two flowering crabapples: *Malus* 'Strawberry Parfait' and *M.* 'Cardinal'. The first blooms heavily with large fragrant pink flowers with red margins, produces small red-cheeked fruits that attract birds, and has leathery dark green foliage that resists apple scab and mildew. 'Cardinal' is the first truly red flowering crabapple resistant to apple scab and mildew. It's a heavy bloomer with small, dark red fruits and purple leaves.

Flemer has also introduced three cultivars of our native shadblow (*Amelanchier* spp.)—*A. hybrida* 'Cumulus', *A. canadensis* 'White Pillar', and *A. laevis* 'Snowcloud'. The latter is a particular favorite—exceptionally vigorous with leathery dark green leaves free of leaf spot and turning crimson and purple in fall. All of them are beautiful in early spring, when they're covered with single white flowers, but Flemer thinks they would be even more stunning if their flowers were double. Given his extraordinary record, it will not be surprising to read in the near future that he has succeeded at this as well.

Patricia A. Taylor is the author of Easy Care Shade Flowers.

The Quiet Garden

Bereaved of her father and son, she discovered the regenerative power of a garden.

BY ETHEL EVANS LINDAUER

When I was 12 years old, my father was stationed at Barber's Point Naval Air Station on Oahu, Hawaii, and our family lived in Waianae, about 15 miles away. Our neighbors to the north were the Shimabukuro family. They were hard-working and kind, and extremely interesting to a youngster from the mainland. They were the first people of Japanese ancestry, as well as the first Buddhists, that anyone in my family had ever met. Occasionally I visited their home as a guest of Betty Shimabukuro, a friend about my own age, and was surprised to find there a shrine. It contained a statue of Buddha and the ashes of various deceased relatives, including Betty's paternal grandfather. I was enthralled to see such deep spirituality in people who were not Christians.

The shrine was not the only thing that I found interesting. Their gardening was different too. They had a vegetable garden, which would not in itself have been extraordinary, except that it was absolutely weedless, thanks to many hours of painstaking handiwork by the two young daughters. But it was a garden that I thought of as "the quiet garden" that I liked best. I was raised in a family that thought of gardening for pleasure as raising flowering plants, bushes, and trees. The more color and contrast, the better. One day I asked Betty's grandmother why they did not have a flower garden instead of such a plain garden. Grandmother Shimabukuro, who never spoke English although she seemed to understand it perfectly, replied through Betty's translation that she did not want a "noisy garden"; she wanted a "quiet" one.

As the years passed, I almost forgot the conversation, but I never lost the love I came to have for the idea of a quiet garden. I always wished that I could have one of my own, but never thought I would.

Thirty years, much traveling, and seven children later, my life began to change radically. A series of deaths in the family left me feeling like a worn-out shock-absorber. For several years the physical and emotional drain seemed continuous. The cruelest blow came in 1981, when my 16-year-old son Herman died from complications following an auto

BILL FIRESTONE

If I could not control the world around me, I thought, perhaps I could create one that I could control. One of the lessons the garden soon taught me was that one controls nothing—not death and not gardens.

BILL FIRESTONE

As any small child or confirmed gardener knows, there is something very therapeutic about digging in the dirt.

accident. Four years later the death of my father, a close friend and mentor, left me totally depleted. As the eldest child, I oversaw the funeral and other necessary arrangements, and when I returned home I felt I had nothing left to give anyone. The next day I went out to the back yard—a lovely vegetable garden for about 20 years, succeeded by a weed patch—and began to create my own quiet garden.

Usually my husband and I, as well as the children, made important decisions together, but at that time I discussed my actions with no one. In fact, for about two weeks I barely spoke at all. The emotional trauma I was suffering was just too close to the surface and speaking was painful. (A most unusual situation for a person who had always loved to talk, and not an easy one for my family to understand.)

I began clearing the ground of weeds and, using a stick, drew a sort of kidney shape for a pond. My family left me alone for several days and then, timidly, asked what I was doing. I told them I was making a Japanese garden. The children thought it was a great idea and began to help me by pulling weeds, raking, and excavating the planned pond.

Generally speaking, Japanese gardening is organized gardening. When I began creating the garden, my life was anything but organized. Death does not respect organization and it does not wait for a convenient time or for proper preparation. If I could not control the world around me, I thought, perhaps I could create one that I could control. One of the lessons the garden soon taught me was that one controls nothing—not death and not gardens. Most of the plants I have placed in the garden have survived, but many did not. Some, like the umbrella pine (*Sciadopitys verticillata*, not a true pine), are not adaptable to our winters, which often plunge to lows of 28 degrees below zero. But others came unbidden and added much beauty to the garden. Lichens and mosses were among these volunteers, and when I saw how beautiful they were, I decided to let nature and happenstance decide what should grow in the broad pathway that winds through the garden. Soon white-flowering speedwell (*Veronica* sp.) also seeded itself into the pathway, and this has not only increased the beauty of the garden but gives it the look of an old garden rather than one that will be only eight years old this July.

One of the most difficult tasks for any new gardener is pruning. The small Japanese maple in my garden is 22 years old (it was 15 when I first brought it home) and it was very painful for me to prune it the first time. But after much reading about Japanese maples and how they were improved if well pruned, I bravely removed about one-third of the branches. This not only improved the shape of the little tree, which I needed to keep out of the pathway, but resulted in the tree becoming more vigorous and attractive.

Here too, seemed to be a lesson for life. Just as pruning allows or even forces vigorous growth of the portions of the tree that are left, perhaps loss allows us the space to grow in some new way, or forces us to grow stronger and more vigorous through the sheer necessity of continuing. Perhaps what we forge out of our suffering even has the capacity to make us more beautiful.

As any small child or confirmed gardener knows, there is something very therapeutic about digging in the dirt. Delving into the earth gives us time to think over problems and make decisions. It can also keep the body busy while the mind takes a rest, providing an opportunity for meditation. Such was the case for me. I focused on the garden, chose a job to complete, such as weeding a certain section or digging up the area for the pond, and once I began the methodical work, my mind simply emptied itself and rested.

Sometimes the whistle from the nearby lumber mill would remind me that several hours had passed. I might not recall anything that had happened during that time, but I would find that much work had been completed, and each time I returned to the world of home, family, and students, I seemed to be growing a bit stronger.

After my husband built the pond, with a recirculating waterfall and stream to feed it, we had a great many bird visitors. I had never been terribly fond of birds, but could not help but be impressed by their obvious pleasure as they bathed in the artificial stream, then stood on the bridge to shake dry, leaving tiny spatters of water on the rock. It is their garden too, I realized.

When I saw hummingbirds visiting the honeysuckle bush that I had planted, I bought a hummingbird feeder and was amazed when one of the little rascals pulled my hair when I was gardening to remind me that the feeder had run out of nectar. It was her garden and it should, after all, be run properly.

When I began the garden I had a statue

of the "BVM"—Catholic school-student slang for the Blessed Virgin Mary—near the waterfall. As time went by I decided that I had little in common with the pure, virginal, otherworldly woman the statue represented and gave her to a friend. Instead I found a statue of *Kwan Yin*, an aspect of the Buddha identified with mercy and compassion, personified as female. My *Kwan Yin* was a divinity I could easily identify with. Her statue depicts a sensuous woman who has truly experienced life. As she extended her hand to me, offering succor, she seemed to understand my worldly problems.

My husband says that we hauled over two tons of rock for the garden and he may be right; I have never been good at estimating such things. I do know that selecting the right rocks took much time and that it was both physically exhausting and physically satisfying. Most of the rock used in the garden came from the Similkameen River, near where we live in Washington State, just a few miles from the Canadian border. At the time I was teaching courses in adult education and English as a second language at a local college, and my students brought me more rocks from Canada, Mexico, and a number of states. The large flat rock that serves as a bridge over the stream came from the River of No Return in Idaho.

Rocks, too, taught me lessons. They are hard and strong and will survive long after I am gone, but even the strongest succumbs to the river, which is made up of minuscule drops of water that together can wear the roughest rock into a smooth stone.

In my garden, hundreds of smooth, flat, oval river rocks were placed in a *suhama*, a swirling pattern intended to create a feeling of moving water, which seems in this case to feed into the pond. I arranged the rocks three times, spending several hours each session, before I was satisfied with the pattern. (Even now I see the rocks that are out of place whenever I look at it!) The arranging of these rocks taught me many lessons, including patience, but the greatest lesson of all came when I viewed the *suhama* from the deck that overlooks it. The stylized patterns and organization of the whole garden, and the *suhama* in particular, seemed to approach perfection. If there is a lesson for life in this it must be that life should be viewed from afar, in its fullest context, and not analyzed in such minute detail that the whole experience is spoiled.

The greatest lesson that making a Japanese—or any other kind of garden—has to offer is that we each have the power to re-create some small portion of our world. We can create a place to relax and retreat, reflect on our experience and re-order our thoughts, and then, refreshed, emerge once again to take up the cares of the world.

Even when I am unable to work in the garden, I enjoy the particular beauty of the moment, the time of day, the season. At night the garden takes on a mystical quality, the rocks glistening and glowing in the moonlight. A rainy fall afternoon spent in the teahouse, a refuge built just for such respites, soothes and lulls the gardener with its gentle music. Sound-absorbing snow makes a trip to the garden in winter even more quieting and restful, and the purity of the snow seems to cleanse the soul in a way that little else can.

My whole family was pleased when they heard that I was writing about my garden. They all believe it is quite an impressive creation for a gardener in a tiny town out in the sticks. For me, it is highly symbolic of the changes in my life in recent years. All of my life I have longed for order, symmetry, peace, beauty, joy, and many other things for which I do not yet (and perhaps never will) have a name. I believe that my Japanese garden is part of my own striving to satisfy these longings for inner peace. The Zen gardeners, as well as those who meditate in Zen gardens, must have realized this long ago as they set out to create an atmosphere, a sense, a feeling of that wonderful awe and love that comes with enlightenment, transcendence, or, as psychologist Abraham Maslow put it, the "peak experience."

Suzanne and Pierre Rambach, in their book *Gardens of Longevity in China and Japan*, tell us that the oriental garden expresses the Taoist philosophy: "To enable man through meditation, to advance along the way of spiritual search leading to Awakening." I cannot go out into my garden for even a few minutes without feeling uplifted. It instills in me feelings of love, peace, and belonging, feelings I, in turn, wish to give to others. If there were no other reason for my garden, this would be enough.

Since creating her garden in 1985, Ethel Evans Lindauer has earned a doctorate in alternative education and has taught courses at Wenatchee Valley College. She lives in Oroville, Washington.

I cannot go out into my garden for even a few minutes without feeling uplifted. It instills in me feelings of love, peace, and belonging.

BILL FIRESTONE

The Groves of Academe

City gardeners have common problems. An urban campus just has more.

BY NORMA JANE LANGFORD

The Green Line train to Northeastern University in Boston's Back Bay grinds to a metallic halt. Cars rush past on both sides of the tracks, slowed only momentarily by a crosswalk light and a warning tweeter that sounds like a wounded bird. A vendor sells sandwiches and soft drinks from the back of his canteen, making change only inches from rumbling trucks. The wind whips cigarette butts and candy wrappers across the concrete and against iron railings, stirring smells of gasoline, exhaust, stale coffee, and newsprint.

Sixty paces into the campus, you step into another world. Suddenly you hear real birds. Sun filtering through fine-foliaged trees casts lacy shadows onto an understory of hemlocks, azaleas, rhododendrons, an apple tree, benches, grass, and a winding red brick path.

Northeastern didn't always feel so welcoming. Photographs from the late 1970s show this same area, Bulfinch Mall, as a no-nonsense, straight-forward continuation of the street. But about 10 years ago, the university began jackhammering asphalt and concrete to make space for plantings, and in 1992 Northeastern was honored by the American Association of Nurserymen for its landscape transformation.

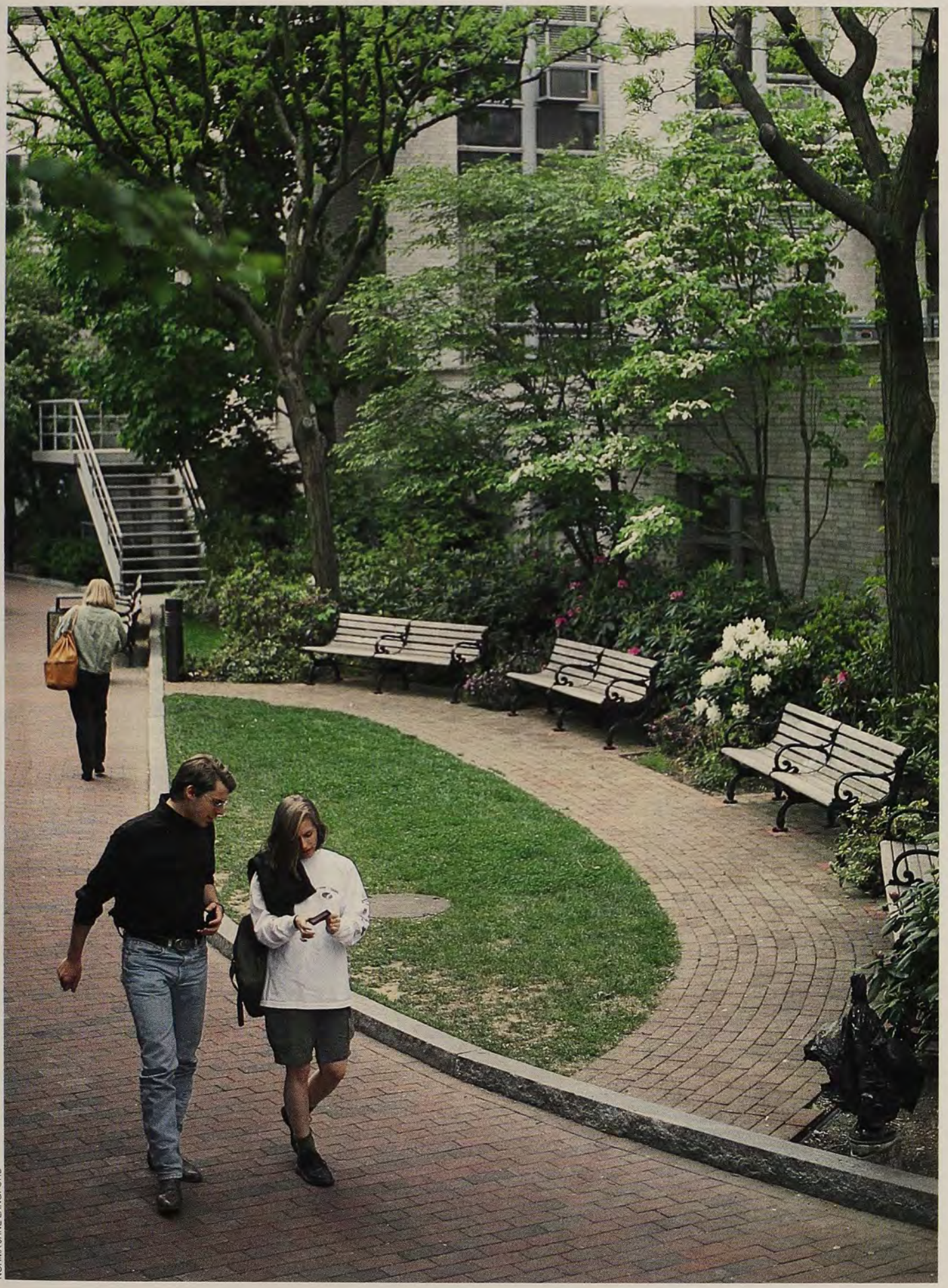
"Our goal was to remove all vehicular traffic from the inner parts of the campus, and create gateways so that when a student approached by subway or car or walking, he would know he's at Northeastern," says Jack Malone, director of physical plant services. Construction of a new library gave the campus a new center, so the landscape theme became "all roads lead to the library." Greening all the inner gateways and avenues to the library took seven years. "But we wanted to do it right," says Malone.

Why would a budget-conscious institution in hard-pressed Massachusetts lavish such attention on shrubbery? "Because it's the first thing a student or parent looks at when they come here," says Mark Boulter, head of Northeastern's landscape department. He cites a national survey of 1,000 high school seniors and recent graduates indicating that the most important factor in their choice of a university was a personal visit—and the most important influence during the visit was the appearance of the campus.

"We get some flak when we're working on the landscape," says Jim McCarthy, supervisor of grounds. "Kids say, 'Well, there's where my tuition money is going.' Or staff says, 'There's my raise this year.' But students wouldn't come here if it wasn't attractive. It's important to everybody that it looks good, and that the kids feel safe and comfortable."

COURTESY OF WILLIAM F. KING

Above: In 1979, reforestation was just beginning on Bulfinch Mall, which had been a parking lot. Opposite: Today the mall is a quiet retreat just steps from the rumble of city traffic.



NORMA JANE LANGFORD

Like many city gardeners, Northeastern University landscapers had to work within narrow spaces. Cabot Court, above in 1979 and at right today, is only 35 feet wide.

LEFT: COURTESY OF WILLIAM F. KING; RIGHT: NORMA JANE LANGFORD

Northeastern's landscaping goal was far different from that of most home owners, but the challenges posed in both planning and maintenance parallel those of many city gardeners. No sprawling greenswards awaited this crew. Small lots, hard surfaces, little sun, and heavy traffic are the rule.

Although Northeastern's urban campus encompasses 51 acres, most of this is covered by buildings, parking lots, and a parking garage. Only about five acres are actually "under cultivation," and these odd-shaped bits are scattered about the campus. Some are narrow corridors between four- and five-story buildings. Bulfinch Mall, for example, is only 55 feet wide and 200 feet long. Cabot Court, beside the gym, measures only 35 feet by 430 feet. The new library quad is an expansive 220 by 140 feet, but Greenleaf Park, near the campus police station, wouldn't even accommodate a basketball court, and the newest pocket of greenery on Tavern Road measures only 40 by 80.

For William Pressley, the landscape architect largely responsible for Northeastern's transformation, the first priority was reducing urban glare—the reflection of sun off hard surfaces that forces you to squint, especially on sunny winter days.

"Our approach is to use materials that absorb that harsh light, so your eye relaxes when you look at them," he says. "At Northeastern we combined red paving brick, which is very good at aborting glare, and green grass."

The next priority was to soften the hard edges where buildings meet ground. At this juncture of horizontal and vertical, says Pressley, "one paved surface meets, basically, *another* paved surface. In urban spaces, you have these planes going up on either side, so it's an unbroken hard enclosure."

The solution: use plants of different heights to create a gentle "hypotenuse" that will lead your eye upward and hide the hard right angles. The lawn disappears under shrubs that are backed by trees, so you see a slope, rather than the building, says Chris Dacus, Pressley's project manager for the Northeastern project.

Curving walkways also soften hard angles, says Dacus. "Curves are powerful illusions. They make the space seem smaller because they keep alternating. They make it seem as though something different is happening at every turn. From every angle, it's different." Dacus boasts that Northeastern has more brick in its walkways than Harvard has on its whole campus. "In Harvard Yard they have brick at every entrance, but as soon as you get in, everything is bituminous. Northeastern has been much bolder."

Colors take the edge off too. "Lighter colors define the space," says Dacus, so the light green of turf gives way to darker colored shrubs and even darker trees. Throughout the landscape, Dacus used green, terra cotta, and the light gray of granite. "Your eye can look at them forever," he says. "People always have an affection for natural warm colors—the sea, grass."

Dacus thinks it's a mistake to use too many accent colors in a landscape. It's like having one spectacular fish in your fish tank, he suggests. If you get a second but different rare fish, the first one no longer stands out. "Control your desire to have all the prettiest trees in the world," he says. Pick just a few varieties, "and have a whole bunch of them. If you keep your house—the front, back, and everything around it—in the same materials, the continuity will pull the whole thing together. The less variety you use, the more special it will be."

The palette of materials Pressley chose for Northeastern includes granite curbs, brick pavers, wrought iron fences, several kinds of lights, and Victorian cast iron and wood benches. Shrubs include several shade-tolerant natives—mountain laurel (*Kalmia latifolia*), *Leucothoe fontanesiana*, and *Viburnum opulus* 'Nanum', plus five rhododendron and azalea cultivars.

In choosing trees, says Dacus, "we're usually trying to provide as much sun as we can because the buildings are so tight.

If you put a Norway maple in there, you would have no light. So we chose trees that had lacy, small leaves." These include honey locust, an early-flowering cultivar of ornamental pear, native flowering dogwood, cherries, saucer magnolia, and red pines. They've allowed an occasional specimen of that urban "weed" tree, *Ailanthus altissima*, to remain if it happens to be growing in the right place.

In picking out individual trees, Dacus didn't always go with the most perfectly shaped specimens. "For Cabot Court I chose trees that were light on one side because I knew we were going to have to press them against the building. Then we had them dug in such a way that even the root balls were one-sided." Dacus also tagged the trees to indicate which direction they had been facing in the nursery. Trees develop thicker bark on the side exposed to the sun, the landscapers explain, and by replanting them with the same orientation, the trunks won't have to be wrapped to protect them against sunscald.

Starting with only 40 trees 10 years ago, Northeastern now basks in the shade of more than 300. Good trees are not inexpensive even when small, and Boulter values some of the mature specimens at thousands of dollars. All of the trees are carefully pruned to remove dead wood, keep the canopies open, and remove rubbing limbs. Because of the heavy foot traffic, limbs lower than seven feet are removed, and certain trees—the birches and ornamental pears—are pruned so they won't snap under heavy snow.

Unfortunately, in a landscape so heavily traveled, all the damage isn't a result of natural forces. Can't keep the neighborhood preschoolers out of your azaleas? Imagine trying to deter 11,000 college students—and another 19,000 part-timers—from walking through your shrubs. Boulter says that kind of damage can be reduced by phasing in plantings until you see what the real traffic pattern is going to be. "The main quad's a perfect example. We put in grass and some shrubs, then sat back and said, 'Let's see what kinds of cow paths the students are going to create.' We leave things a little unfinished sometimes. It saves us in the long run."

Designers tried to cut down on grass damage from hackysack—a game in which five or six players stand around in a circle trying to kick a beanbag to each other—by surrounding large turf areas with wrought iron fences. But the fences turned out to be magnets for bicycles. "At MIT (Massachusetts Institute of Technology) they go so far as to boot bicycles," says Boulter wistfully. "You have to get a sticker and park your bike in designated areas. But there's such an influx of traffic here, it's a losing battle. We're not even done with the fencing and someone's strapping a bike to it." But Pressley observes that there are less desirable possibilities, like having bikes strapped to trees or to railings for students with disabilities. And when the bikes are gone, there is no ugly bike rack to mar the scenery.

Then there's trash. The average urban gardener may worry about a few stray hamburger wrappers getting caught in the rose bushes. Northeastern's maintenance crew removes seven million pounds of trash each year from more than 100 containers that are emptied once or twice each day. "We tried to put containers everywhere," says Boulter, "but they take a lot of abuse, get thrown around, beat up, set on fire, hit by cars." A bottle deposit bill, intended to increase recycling, encouraged people to grub through the containers for bottles and cans, but didn't encourage them to replace the trash can lid. A flip-top trash container solved that problem and is easier for the university staff to empty as well.

Chewing gum is not exactly a headache for the home gardener, and when the

Below: Students, who used to stay on campus just long enough for classes, now find it pleasurable to "hang out" on its many benches. Bottom: Ornamental pears and rhododendrons signal the end of a Boston winter. Bollard lights increase security with low-key indirect illumination.

PHOTOS BY NORMA JANE LANGFORD

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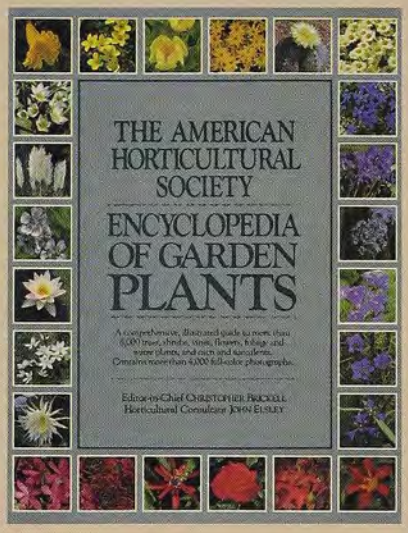

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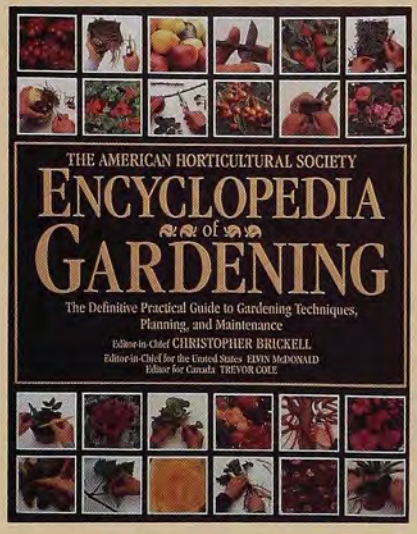

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Northeastern campus was primarily asphalt, it didn't matter, says Boulter. "The gum just got ground into the tar and made more asphalt." To remove it from the brick walks, maintenance crews use a spray product that freezes the gum so it can be scraped off with a putty knife.

Beautification has not eliminated that urban art form known as graffiti, which sometimes has to be sandblasted or waterblasted off of vehicles, buildings, and trash receptacles. The university has established a graffiti hotline to help speed the cleanup. If it can't be cleaned up, says Boulter, they paint over it. After a while, the artists seemed to get tired of trying to keep up. "But if you let it sit there, it breeds more graffiti."

Security is a concern on any campus today, but especially one in an urban setting. "We have to keep everything open," says Dacus. "Every kind of dense planting has to be against a wall, not out in the open. Then we're fairly aggressive on lighting." These aren't harsh spotlights, but indirect lights. Bollards light walkways through their louvered tops. Uplighting reflects off trees, enhancing their vertical aspect and even making them look like they're flowering when they're not.

These islands of greenery may not harbor criminals, but they do harbor wildlife: seven or eight families of ducks have managed to make nests and raise youngsters in the university's shrubbery. When the ducklings are old enough, campus police escort them firmly down Forsythe Street and across Huntington Avenue to the Fenway, a riverside park.

How has the campus changed in 10 years?

Both Boulter and Dacus attended Northeastern before the transformation. "The campus used to be a hard place," says Boulter. "There was no place to go outside, no reason to take a walk. There were no outside sitting places."

"One thing I noticed," said Dacus, "is that no one hung out at NU. It was more like high school. You ran in and ran out. Now you see a lot of people sitting around, and a lot of people studying on the grass. And the windows had shades 10 years ago. Now when you walk down Cabot Court, all the windows are open, shades up. People rearrange their desks so they can see out of them."

Norma Jane Langford is an adjunct professor of communication at Northeastern University.

BOOK REVIEWS

Tales of a Shaman's Apprentice

Mark J. Plotkin. Viking Penguin, New York, 1993. 318 pages. 6¼" × 9¼". Black-and-white photographs. Publisher's price: hardcover, $22. AHS member price: $19.80.

It was during a 1974 night school lecture at Harvard University that Mark Plotkin discovered his passion for Amazonia—for its plants and for the people who live among them and know their secrets. The lecturer, Richard Evans Schultes, was the world's preeminent ethnobotanist, and Plotkin resolved to follow in Schultes' footsteps. Plotkin decided that he too would learn about the region's medicinal and economic plants from the experts themselves: the shamans of Amazonia.

Plotkin's *Tales of a Shaman's Apprentice* is a book for everyone interested in plants and their relationship to people. The author chronicles over a decade of plant collecting trips he made among the tribal peoples of northeastern Amazonia, in French Guiana, Surinam, Guyana, and Venezuela. In the process he offers us a fascinating view of the world of the shamans: we learn something of their life, the plants they use—and glimpse the rituals that extend their beliefs beyond the realm of the natural world.

To set the stage for the author's journey into the shamans' world, the first chapter explains the value of traditional medicines and ethnobotanical research. The focus is on efforts to develop new drugs from plants native to tropical rain forests, but Plotkin mentions research into plants from elsewhere as well. We learn, for example, that the leaves of the oldest living tree species, the ginkgo, act as a vasodilator. Ginkgo leaf extract may have value in treating a variety of conditions resulting from diminished blood flow to the brain. In Europe, where the extract is widely available, annual sales exceed $700 million. We also hear of new developments in the use of plants against cancer and the AIDS virus.

Once the stage is set, the reader joins Plotkin on his first trip to the region. The destination is French Guiana, where Plotkin assists a zoologist searching for the black caiman, a highly endangered crocodilian. Next we follow Plotkin on his first ethnobotanical expedition. He ventures into the forests of Surinam, among the Maroons, where he develops a yearning to go deeper into the forest—to learn from the Indians of the Amazon's most remote regions. A year later, he travels to the village of Kwamalasamoetoe, where he meets Koita, a member of the Surinam Tirió tribe. Koita becomes friend, advisor, translator, and teacher. He introduces Plotkin to the region's ethnobotanical riches—and to the Jaguar Shaman, a master healer. This shaman becomes one of Plotkin's mentors, and a central figure in the author's effort to learn from the Indians themselves, in the same way Schultes did. Like Schultes, Plotkin wants to be more than an observer: he wants to collect scientific data, but as a participant in the shamans' activities. His struggle to do so makes for fascinating reading.

Plotkin's story is intriguing, engaging, exciting, and disturbing—a rare accomplishment in a botanical work.

The book focuses on the author's own adventures but it serves another important purpose too. At appropriate turns of the text, the reader is transported from the heat, bugs, and reptilian encounters of the rain forest to digressions on the history of the region's economic plants. Armchair botanical enthusiasts especially will find these digressions a welcome break. Here we get a fresh view of products normally taken for granted. We learn, for instance, how chewing gum came to be a commodity, how cinchona evolved as the source of quinine, and how avocados were introduced to the American palate. The book is as much a history as it is a piece of reporting on the current state of Amazonian ethnobotany.

The crux of Plotkin's story, however, is the problem of survival: of these ecosystems and of the peoples who inhabit them. And as Plotkin sees it, we can't have one without the other. "Ethnobotany," he writes, "takes a holistic approach to conservation and proves the vital importance of the role indigenous people can play in the ongoing struggle to protect, use and sustain the rain forest. . . . The beauty of ethnobotany is that it brings people into the forest picture, showing that tribal peoples can help provide us with answers on the best ways to use and protect the forest."

Many of those answers begin to emerge from this book. In their richness and diversity, these pages recall Amazonia itself. The only disappointment that awaits the more exacting reader is the lack of an index to Plotkin's treasure-trove. —*Steven Foster*

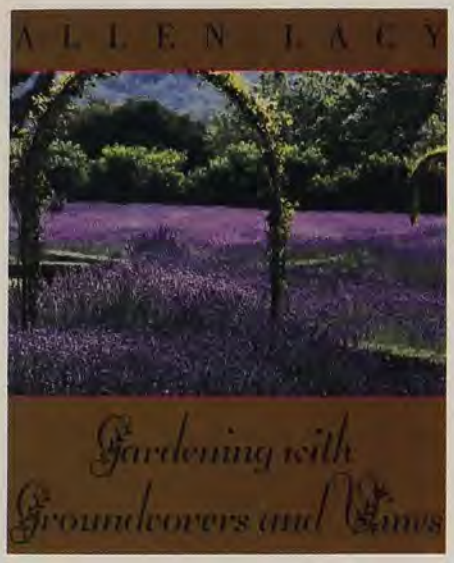
Steven Foster is a writer and editor specializing in botanical and herbal subjects.

Gardening With Groundcovers and Vines

Allen Lacy. HarperCollins, New York, 1993. 233 pages. 7½" × 9⅜". Color photographs. Publisher's price: hardcover, $35. AHS member price: $31.50.

Allen Lacy's *Gardening With Groundcovers and Vines* is a delightful trip through the garden on hands and knees. As usual, Lacy's writing is descriptive, informative, and colorful. And as usual, he will make most gardeners want to run right out, tear up their existing gardens, and start again from scratch.

Lacy is at his best when philosophizing about the wonders of the plant world—both in and out of the garden. When, for instance, he reflects on the plants he sees through the windows of a speeding New



Jersey train, he refreshes the reader's appreciation of natural surroundings. Lacy wants us to take a fresh look at the garden as well: he argues that American gardeners should develop their own style instead of trying to recreate the English garden. That plea made me want to jump for joy, since I've grown weary of fielding the "how do I make a *real* English garden" question at every garden club talk I give.

The treatment of herbaceous groundcovers is informative, complete, and with just the right number of opinionated directives. That latter ingredient is essential in my judgement: no plant person worth listening to would ever pass up an opportunity to "corrupt" readers. I particularly enjoyed the account of Lacy's fruitless attempts to untangle the identity of his vast *Sedum* collection after all the labels were lost. To my delight, he refuses to tear out the unknowns, as some "purists" might suggest. Instead, he decides to leave them be, just because they work so well. That's a welcome approach, at a time when so many avid gardeners seem more impressed with plant lists than gardens.

There are, however, two areas where the book failed to live up to my expectations. The section on woody plants is skimpy at best. To his credit, Lacy admits his ignorance on the subject and his candor does him no harm: as most dedicated gardeners probably know, horticultural literature has acquired its share of pretentious pseudo-experts. Still, the avid woody plant gardener would do best to look elsewhere.

The book's other failing has to do with the photos. Most are of excellent quality—effectively capturing a garden's mood or the fragility of a maidenhair fern. But several are mislabeled and a few seem to suffer from production problems. For example, *Crocosmia* 'Lucifer' in my garden is a splen-

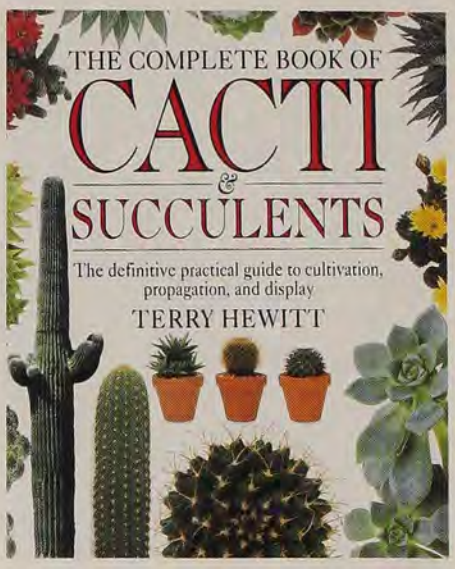
did and impressive scarlet red. But the book shows it as a weak reddish orange that would interest few prospective growers.

Apart from these reservations, however, I would rate Allen Lacy's *Gardening With Groundcovers and Vines* as delightful and informative reading. —*Paul E. Cappiello*

Paul E. Cappiello is an assistant professor of landscape horticulture at the University of Maine.

The Complete Book of Cacti and Succulents

Terry Hewitt. Dorling Kindersley, New York, 1993. 176 pages. 9¼" × 11¼". Color photographs. Publisher's price: hardcover, $29.95. AHS member price: $26.95.



Given the modest length of Terry Hewitt's book, his title might sound like an overstatement. But for the beginning or intermediate hobbyist, the author lives up to his promise. The book both shows and tells, integrating concise text with over 600 color illustrations. Readers come away with a solid introduction to the fascinating world of desert plants.

Hewitt begins by explaining the structure of succulent plants. He describes their habitats, then offers sketches from the history of cactus and succulent exploration. As readers get their bearings in the field, dozens of photos introduce them to the endless variation of form and flower color found in these unusual plants.

Hewitt also covers special methods of display. Readers learn how to put together dish gardens, hanging baskets, and window boxes. Step-by-step illustrations show what materials are necessary and guide readers through each project.

The largest part of the book is a "plant catalog" that offers a sampling of the cacti and succulents available to the hobbyist. The coverage is generous, but I have one reservation about the way it is presented. Hewitt may be a little ahead of the cactus-growing world when it comes to nomenclature. His use of binomials conforms to the latest revision, in which many species names were changed to fit a more condensed taxonomy. Beginning hobbyists should be aware that the use of the new names alone could make ordering difficult, since many commercial growers have not yet absorbed these changes.

Next comes a section on "care and cultivation." In addition to cultural advice, there is a general discussion of basic needs, like lighting and nutrition, and suggestions on what to look for when buying plants. Hewitt's section on propagation covers growing from seed as well as from cuttings and divisions. And for the more adventurous, a section on grafting is included.

Appended to the text is a set of plant lists, in which species are grouped according to ease of cultivation, preferred climate, and method of propagation. A brief glossary follows, then an address list of plant societies and plant sources.

This may not be a complete book, but it will be all the new cactophile will need for quite a while! —*Gerald S. Barad*

Gerald S. Barad is president of the Cactus and Succulent Society of America.

Book Order Form

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STUDY TOURS

TRAVEL/STUDY TRIPS FOR THE AHS GARDENER

FEBRUARY 13-20, 1994
GARDENS OF THE WINDWARD ISLANDS OF THE CARIBBEAN

Join us for an exploration voyage on board the *M/V Yorktown Clipper* from Antigua to Grenada. Ports of call include Guadaloupe, Martinique, St. Lucia, St. Vincent, and the Grenadines, where we'll have a barbecue lunch on a quiet beach. This program has many unique highlights, including the private riverside gardens of Madame Christiane Berthelot on Guadaloupe and the oceanside gardens of Jonathan and Marne Palmer at Ratho Mill on St. Vincent. In St. Vincent we'll also visit the oldest botanical garden in the western hemisphere and see a breadfruit tree grown from the original plant carried to the island by Captain Bligh in 1793. Leading the program for AHS is new AHS President H. Marc Cathey, his wife, Mary, long-time AHS Board Member André Viette, and his wife, Claire.

MARCH 2-19, 1994
GARDENS OF MOROCCO

With an itinerary that includes the magical cities of Casablanca, Fez, Marrakech, Essaouira, and Taroudant, this trip might be best described as a passage back through time into the land of Berber and Sudanese cultures. The program includes visits to the magnificent gardens and palaces created by Moulay Ishmael. We'll stay at the exotic Palais Jamai in Fez and the world famous La Mamounia in Marrakech, where we'll also visit the Great Bazaar. March is an ideal time to visit Morocco since *Iris tingitana* and *Crotalaria saharae* promise to be in full bloom. Leading this program is AHS Board Member Katy Moss Warner, director of horticulture for Walt Disney World and a recognized expert on tropical horticulture.

MAY 12-24, 1994
GARDENS OF SCOTLAND AND ENGLAND

Glorious gardens are featured in this itinerary as we travel from Oban in Scotland to London, England, via the Lake District, Chester, and Bath. From the distinguished garden of Arduaine on Loch Melfort to the splendid Bodnant Gardens in Wales, each garden promises a spectacular array of color and charm. In the Cotswolds, Barnsley House, home of author Rosemary Verey, is outstanding both in garden design and plantings. Guests wishing to extend their stay in London are invited to the first Members Day at the Royal Chelsea Flower Show and an evening of London Theatre. Noted horticulturist David Wilson, associated with previous AHS Travel/Study programs, will lead this tour.

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

AHS tour participants will visit the Topiary Garden at Levens Hall in Cumbria, England, during a trip to Scotland and England in May.

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