

SAVING NATIVES: *An Arizonan's Gift to a Hawaiian Garden*

THE AMERICAN GARDENER

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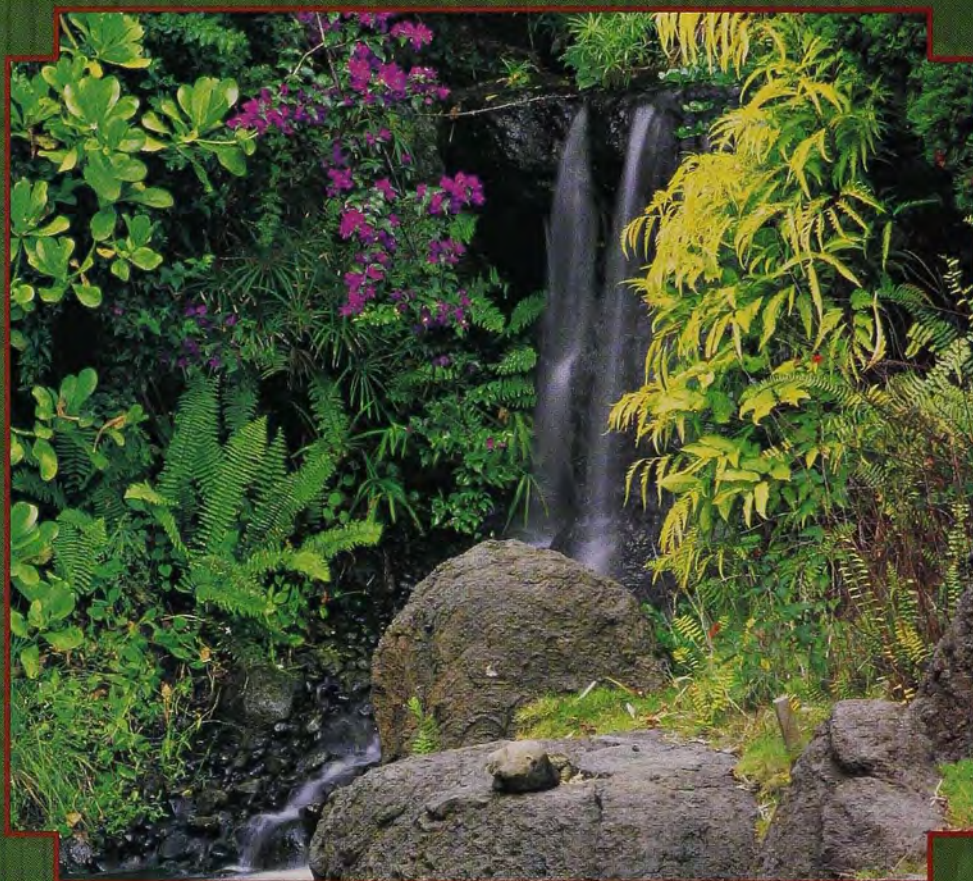


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Hawaii



COURTESY OF JOYCE DOTY

COME ENJOY THE SPLENDOR OF AMERICA'S TROPICAL PARADISE. Participants will visit the islands of Maui, Hawaii, Kauai, and Oahu. Garden destinations include the English-style gardens of Masaru and Shirley Yokouchi on Maui and the splendid gardens of AHS members Ed and Joyce Doty on Kauai. A relaxed sightseeing program will allow for every opportunity to enjoy the marvelous settings. This is your chance to see Hawaii as you have always imagined it—with quiet picnics, special home invitations for lunches and dinners, and sunset receptions. Leading this program will be AHS Board member William Pusey and his wife, Patti, of Arlington, Virginia. Former AHS Board member Roy Thomas will be guest horticulturist.

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July/August 1997



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On the cover: The oldest surviving gladiolus hybrids available in the United States date to the 1930s and '40s, although the first hybrids were created in 1837. Gladiolus 'Atom', from 1946, is one still available. Scott Kunst talks about his love for historic gardens and bulbs beginning on page 41. Photo courtesy of Scott Kunst.

American Horticultural Society

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commentary

Although plants would seem to be the most important element in the workings of the American Horticultural Society, it is people—long-time members and new—who make the difference. They support our programs and propose new ones, and share our gardening ideas and philosophies with others.

Frances McAllister, a member for more than 20 years, is a wonderful example of how people can make a difference. Many of us have visited with her personally at AHS-sponsored events, and in this issue we give our readers a chance to visit with her at the Arboretum at Flagstaff (Arizona), which exists through her generosity.

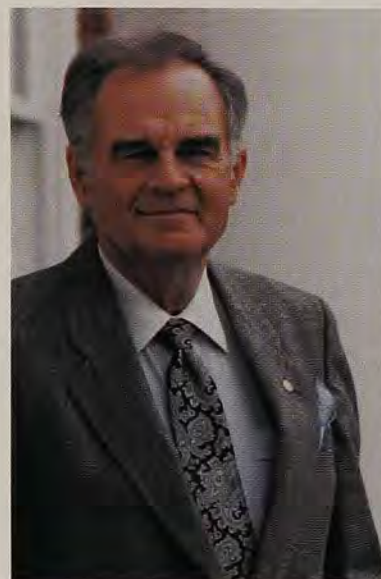
Shortly after Frances first came to Flagstaff she was convinced that the plants that grew naturally in its mountains were the appropriate ones for her personal garden. She wrote to me last year, saying that she was “deeply concerned with some of the changes in gardening practices which do not appear to have beneficial results to the plants or the ecology in which they must find their nurture.”

Did I know, she asked, of any cultural institutions with missions, special exhibits, or educational programs expressing her own sense of the fragility of plant life? As we communicated further, the idea emerged: During our 75th anniversary year, we would give an AHS Natural Botanical Garden Award to an organization whose research, educational programs, and overall design demonstrate the most sound practices for conserving water, soil, and rare native plants.

The winner is the Limahuli Garden in Kauai, part of the National Tropical Botanical Garden. On this site, which combines a public garden with a nature preserve, the staff conserves and propagates endangered species, educates the public about sustainable use of the land (there are many archeological treasures on the property), and shares data gathered from one of the state's few unpolluted streams. Those who attended the Annual Meeting in San Francisco in April had the opportunity to meet the garden's energetic and eloquent young director, Chipper Wichman, and his charming wife, Hauoli. Geoffrey Rausch of Environmental Planning and Design in Pittsburgh shaped the garden plan, which links lessons in ethnobotany and Hawaiian legend to the vast acres of natural preserve.

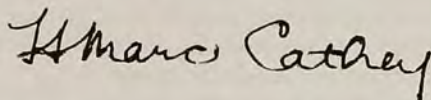
Hawaii's history is fascinating, but in another article, landscape historian Scott Kunst tells writer Nancy McDonald that we and our gardens are a part of history no matter where we live. McDonald relates Kunst's passion for restoring old gardens and rescuing heirloom bulbs—another kind of endangered plant. Garden writer Ruby Weinberg tells us how to plan a botanizing trip—in her case to the Canadian Rockies—and Jim Locklear and Larry Vickerman, directors of arboreta in Nebraska and Kansas, help us get to know the genus *Dalea*, a mostly southwestern legume that has been neglected in our gardens.

Next month, we'll celebrate the old and the new—looking back at 75 Great American Garden Books published in the past 75 years and looking ahead to more successful gardening with the unveiling of the AHS Plant Heat-Zone Map. The map is



the Society's gift to American gardeners in celebration of our anniversary. In a way, I have been involved in this project since 1983, when I began working on the updated USDA Plant Hardiness Zone Map, published in 1990. We have used the same framework and data sources in creating the AHS Plant Heat-Zone Map.

The article below announces a transition for the American Horticultural Society, but I will continue to be involved, in the launch of the map as well as other special projects and events. Please continue to keep me informed of your ideas and concerns!



H. Marc Cathey, *AHS President Emeritus*

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AHS Welcomes New President

Linda D. Hallman assumed the position of president and chief executive officer of the American Horticultural Society on May 19. Her most recent position was chief operations officer at the American College of Health Care Administrators in Alexandria, Virginia.

H. Marc Cathey, who has served as AHS president and CEO for the past three and a half years, will continue to serve the Society as president emeritus. He will work closely with Hallman as a consultant on horticultural affairs and continue to represent the Society at national horticultural events and on its tours.

Hallman comes to AHS with an extensive background in nonprofit association management. Her emphasis has been on leadership development, membership services and programs, fund raising, and general administration. She holds a master of arts degree in organizational management from George Washington University and a bachelor of music education degree from Indiana University.

Hallman says her greatest strength is in forging alliances among individuals, corporations, and other nonprofits. "I'm eager to develop a deeper connection and stronger relationship between AHS and each individual member and contributor. Membership and fund raising go hand-in-hand—success is based on individuals understanding AHS's mission, purpose, and importance, and then developing a genuine concern for it. I am committed to leading AHS not only to continue the successes of the past, but to create new and innovative programs and services."

Our new president is particularly pleased to be joining the Society during its 75th anniversary year. "We have an opportunity to reflect on the contributions and importance of the Society in the past, our reasons for being members today, and a vision for the future."

As part of that future, she envisions AHS solidly ranked at the top of public and industry perception, with an expanded membership serving a wider range of interests, and more partnerships between professional and amateur gardening groups. "Group efforts achieve far greater results than individuals working alone," Hallman observes.



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members' forum

We enjoyed so much hearing from members about their favorite plants for the May/June issue—and seeing photographs of them—that we decided to continue the feature.

All of those who write and send a photograph of themselves will have their choice among three books receiving the first AHS Annual Book Award. Those books will be announced in the September/October issue. Write to us about your favorite plant!

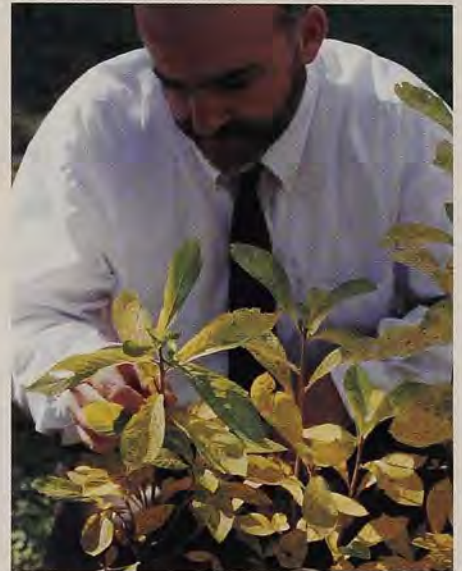
CLETHRA ALNIFOLIA 'FERN VALLEY PINK'

The autumn landscape of piedmont North Carolina is dominated by red, orange, rust, maroon, and burgundy, as represented by maples, sourwood, sassafras, sugar maple, persimmon, dogwood, and sweetgum. Yet I find myself captivated by the somehow more vibrant yellows. The majestic pignut and shagbark hickories have long been my favorites, illuminating the landscape with reflected light just prior to sunset, or casting a subtle glow against overcast November morning skies.

Closer to eye level, the most beautiful yellow fall foliage in my garden belongs to *Clethra alnifolia* 'Fern Valley Pink', a little-known, pink-flowering cultivar of the native sweet pepperbush. Its autumn leaf color is a clear lemon suffused with brilliant grass green. It is this random green mottling on a yellow background, especially along the leaf veins, that delights the eye. The color slowly develops from the base of the shrub to the terminal bud and is retained for nearly a month, remaining long after the leaves of hickories have carpeted the woodland floor.

Clethra alnifolia 'Fern Valley Pink' was discovered by Tom C. Clark, owner of Fern Valley Farms in Yadkinville, North Carolina, in a cluster of white-flowering clethra in a pine-reforested area of Bladen County.

It is not just another pink-flowered form of this species, of which there are several. The summer leaves are a lustrous deep green and larger than those of the species. The racemes—as many as six per termi-



nal—are borne in July, August, and September, when little else is in flower. Eight to 12 inches long, they are unlike the species in having a horizontal habit, so that they spiral or curve downward like cascading water. I've been able to detect their sweet vanilla perfume from as far as 15 to 20 feet. Closer up, the smell is curiously spicy, drawing me like a magnet to press nose to flower. This sometimes becomes a challenge as I compete with big lumbering bumblebees, butterflies, and tiny mild-mannered native bees.

Slowly spreading by underground stolons to form noninvasive multi-stemmed clumps, this *Clethra* is not adversely affected by full sun or shade, sticky Carolina clay or seaside sand, wet or dry feet, insect pests or disease. 'Fern Valley Pink' sweet pepperbush should be a first choice for a native woodland garden, for massing in the mixed border, or as a doorway shrub for a cottage garden.

*Kevin McCorkle
Charlotte, North Carolina*

For a Fern Valley Farms plant list, send a self-addressed envelope with 55 cents in stamps to 1624 Fern Valley Road, Yadkinville, NC 27055.



offshoots

SUMMER ON A DIME

by Lucille Bellucci

Our back yard is nearly an acre, but all the sunshine we get can be focused on a dime, between 3:00 and 3:02 on the afternoon of the summer solstice. That is, last summer's solstice. This year even that will be gone. The neighbors tell me that the first owners of this old house loved to plant things. The second owners and third owners planted some more things. When we came along, I took in our magnificent new yard ("Woodsy, pan Bay vw, MUST see") and put in a dozen camellias, all kinds, squeezed between and under the pines, spruces, and cedars.

That was 22 years ago, and now I can't see by daylight to peel potatoes. We enjoy our "pan Bay vw" only in memory, or when my husband and I drop by our neighbors'. They were disciplined about their back yard.

We decided to do something drastic. We needed balance and harmony, a bit of landscaping, and some color throughout the seasons. An expert would know what to cut down and what to keep.

At \$65 an hour, the arborist was far from helpful. He walked around on our deck, craning his neck until I thought it would snap, then proceeded to destroy my estate. He went straight to the big conifer that shaded picnics on our deck.

"This spruce has gone crazy. You can do without it," he said.

"It's full of birds," I protested. "Look, you can see a couple of nests at the top." It was, besides, the healthiest spruce in the yard. Its foliage was blue like some I'd seen in upstate New York on a drive to Boston. We westerners have trees, oh yes we do, acres and acres, but blue spruces are romantic.

As I feared, the next tree he marked for the ax was a cedar, spindly and without hope. "That's why we called you in," I said. "When you thin out the crowd around it, the cedar will pick up."

"It isn't even an aromatic cedar. You'd want to nourish an aromatic. This should be kindling." Kill my cedar just because it wasn't the aromatic variety? I sought to distract the arborist.

"The brush could go," I said. "That's surely choking off sun and air at the roots. But not this bush here; some of the loveliest pink blossoms pop out in the spring. The bees go crazy! That's a snowball bush over there, though it badly needs pruning. Couldn't you just thin out between them?"

"I'd be too expensive for that kind of work. There are lots of kids looking for summer jobs who could clear brush. Give the university employment office a call."

We pushed on, weaving through branches and creepers. We ducked under the roses, whose canes soared toward the sky and rested their chins in the crooks of Monterey pines, looking for sun. Well, aren't we all?

He asked tentatively, "What about this holly?" No! I weave Christmas garlands from this tree. The arborist glanced at me and sighed. "I suppose you'd want to keep the cotoneaster. It's a bit . . . unruly."

Why was he leaving it up to me? The cotoneaster was big and untidy, but a wonderful food source for wildlife. I had resuscitated generations of drunken robins. Red Lightning, my husband called the berries. "Just prune a branch or two so the sun can get through," I said. "And that crabapple can go. Be sure to treat the stump so it doesn't grow back." I could be ruthless, in case he ever doubted it.

"No, really?" he said. He sounded faintly sarcastic.

"Of course. It's all over my roses. That's why they look like giraffes."

"What about this plum tree? The little fellow over there is an oak, he'll be around long after the others are gone. . . ."

An oak! I had a real oak!

"Get rid of the ivy," I said firmly. "Look at how all the trees are covered with it. The blackberries have to come out, too."

"I told you," he said patiently. "You'd be throwing your money away at my rates. Anybody can clear ground stuff. So, what about this plum that's too big? And I counted at least a dozen camellias. Who in his right mind would plant that many camellias? A few less would open up the yard a bit and give the maple some room. You may even get some of your view back."

"We've lived here 22 years," I said. This seemed to puzzle him. I meant there had been lots of space when I planted my dozen camellias. "When can you start?"

He looked up at the sky, as if the words he needed might be written there. Finally he said, "My son has a school break coming up. I'll call you." He left.

He was gone before I could tell him one more thing. I didn't want his son to go trampling my lily-of-the-valley. They thrive in the shade.



Lucille Bellucci gardens in Oakland, California.

BILL FIRESTONE



planting the future

AN ISLAND SANCTUARY

by Sara Epp

Felix Neck Wildlife Sanctuary on Martha's Vineyard, an island off the coast of Massachusetts, is 350 acres where children can still see red-tailed hawks or rest by a pond after a stressful day. Here, troubled high school students learn the workings of the outdoors. Kindergartners hug sassafras trees, third-graders head to the pond with nets, and fifth-grade students learn what happens to plants in winter. "It's a sanctuary, and I think it encompasses everything that word means," says Anne Lenanager, a high school teacher who has been a volunteer at Felix Neck for 25 years.

"My great pleasure is to try to make things better for young people," says Gus Ben David, director of the sanctuary, which is owned and operated by the Massachusetts Audubon Society. "I live by a couple of sayings: 'The greatest thing you can do in life is to make people feel good about themselves.' The other is from Celeste Holm, the actress: 'We live by encouragement, and die without it, slowly, sadly, and angrily.'"

Ben David incorporates these beliefs into his education of children. "You encourage children and they become productive. You try to teach them kindness, to enjoy the beauty of nature. These are all things that help them become good human beings."

Last year, Ben David won the Garden Club of America's Elizabeth Abernathy Hull Award. The award goes to an individual who "through working with children under 16 years of age in horticulture and the environment has inspired their appreciation of the beauty and fragility of our planet." Those who nominated him speak of his dedication, his charisma and enthusiasm, and his lasting impact on the island.

Unlike many children today, Ben David grew up with nature. "My real, intense yearning to learn about all forms of wildlife was innate," he recalls. "I can't remember when I wasn't interested. I've been around animals both domestic and wild literally all my life."

Today Ben David has a home collection called "The World of Reptiles," to which he charges admission, and he trains hawks, eagles, and owls. But he also uses the animals as an educational tool for the next generation. His reputation as someone in tune with nature led to his appointment as director at Felix

Neck in 1969. Since then, he says, the sanctuary has become busier and more populated, "but it's still peaceful and beautiful."

Ben David describes Felix Neck as a "peninsula out into a tidal pond... a very unique and diverse landscape, a beautiful piece of land, rich with wildlife." Over the years he has helped create a number of wetlands and ponds to add to the tidal marshes that were already there. He and his staff maintain habitat for two pairs of nesting ospreys, deer, songbirds, and many other animals.

Felix Neck offers visitors natural history programs, led by full-time staff naturalist Alice Mohrman. They can also take wildflower and insect walks, hike an interpretive trail, go star-gazing, or simply enjoy the area. For elementary-age children, Ben David and Mohrman provide more hands-on experience, often bringing animals into the classrooms. These include Ben David's great horned owl, Hoot, barn owls, golden eagles, and countless reptiles. Mohrman also brings in turtles and, from dead birds, beaks and feet that show different natural adaptations. In the summer, Felix Neck hosts a natural history day camp for youngsters in kindergarten through eighth grade.

The two believe that for children to fully appreciate the interrelationships of land and wildlife, it's crucial to combine classroom lessons with the sensory experience of visiting Felix Neck. Says Mohrman, "My first goal is to have them enjoy the outdoor experience. That way they'll want to keep exploring other places and, you would hope, be more aware of the reasons for protecting nature."

Students living on Martha's Vineyard are challenged to weigh environmental issues, such as the question of preserving habitat for the endangered piping plover. Second-graders discuss the need for plovers to find undisturbed places for their nests, and then are asked, "Where will people put their beach blankets?" Afterwards, they better understand the conflicts involved in resolving environmental questions.

Ben David's teachings also help adults see the big picture. When asked what she had learned from him, volunteer Lenanager answered: "To do things with a passion, and to appreciate that the chickadee coming to the bird feeder is equal to the harlequin duck—to appreciate the beauty in the everyday miracles."



Gus Ben David introduces a feathered friend to Devin Colier.

Sara Epp is editorial assistant for *The American Gardener*.

ALISON SHAW



gardeners' information service

Are cashews true nuts? Although they're commonly referred to that way, from a botanical point of view I don't think they are.

—S.M., via e-mail

You're correct. In *The Book of Edible Nuts*, author Frederic Rosengarten Jr. points out that "few botanical terms are used more loosely than the word 'nut.'" According to the strict botanical definition, the cashew is a seed contained within a drupe—a stone fruit whose seed is protected by a hard casing within a fleshy layer.

By comparison, the botanical definition of a nut is: "A type of fruit that consists of one, often edible, hard seed covered with a dry, woody shell that does not split open at maturity." True nuts include chestnuts, filberts, and acorns.

The cashew fruit consists of two parts. The cylindrical upper section, which is from two to four inches long, is a fleshy, swollen portion of stem known as the cashew apple. The juice from this "fruit" is used to make candies, syrups, jams, vinegars, and even wines. The kidney-shaped "nut" is contained within a semi-hard, grayish brown shell, usually less than half as long as the apple, attached beneath the cashew apple. The one-eighth-inch-thick nutshell contains a toxic, resinous sap that is processed for use in a variety of commercial applications. The sap must be removed, traditionally by roasting, before the nuts can be harvested.

Much fascinating information about the cashew and many other edible nuts can be found in Rosengarten's book, published in 1984.

Could you explain when collected seed is true to the parent plant? I collected seed from Aquilegia 'Chrysantha' last summer and am wondering if I am wasting my time by starting the seeds this spring. Will they be true to the parent plant?

—K.P., via e-mail

Plants will generally come true to seed if they are not growing near other varieties of the same species, but this depends on the plant. Some, such as *Aquilegia* (columbine), have a greater tendency to cross-pollinate than others. So if your *Aquilegia* 'Chrysantha' is planted near an *Aquilegia* 'Crimson Star', then the seeds you have saved will likely be a cross between the two varieties. Flowers grown from seed will have characteristics from both parents, just like human offspring.

Before planting any seeds you have saved, check to see if the parent plant is listed as an F₁ hybrid. F₁ hybrids are plants developed by seed companies by crossing inbred plants to get a carefully selected combination of genes that yield certain desirable characteristics. But when you try to save the seed from these plants, you end up with a sort of wild card—you don't know which of the parent genes will be passed on to the next generation. You may

have the next prize-winning plant, or you may have a plant that flops over and is susceptible to all sorts of insect pests.

Some plants, including many roses and fruit trees, for example, are grafted onto understock, which tends to be a less showy but hardier or more compact plant. Seeds from grafted plants will exhibit the characteristics of the part of the plant that produced the flower, most commonly the overstock.

I would like my brother to bring back some French tarragon for me when he goes to France. What are the rules for importing plants into the United States?

—F.H., Germantown, Maryland



Importing plants into the United States from another country is governed by the Animal and Plant Health Inspection Service (APHIS) of the U.S. Department of Agriculture. According to Carolyn Fitzgerald of APHIS's plant protection and quarantine import permit unit, live plants of most common culinary herbs, including French tarragon (*Artemisia dracunculoides*), can be imported into the United States as long as they

are packed in a sterile, soilless mix.

To prevent soil organisms from arriving along with your plant, all plants brought into the United States must be free of sand, soil, earth, leaf mold, and any other decayed vegetable matter. To pack the plant for transport, you may use ground peat, sphagnum, coco dust, osmunda fiber, wood shavings, sawdust, ground cork, buckwheat hulls, polymer-stabilized cellulose, or exfoliated vermiculite.

In addition, plants for import need to be clearly labeled with their scientific name and cultivar name. You will also need an invoice for the plant and may need certification by plant quarantine officials in the plant's country of origin. Whether you will need certification by plant quarantine officials depends on which country the plant came from and on whether the plant is known for carrying specific diseases or pests. The nursery that sells you the plants may be able to give you information on this, but to be safe you may want to contact that country's agriculture department. The best way to find out information on certification is to check with APHIS officials before leaving the United States.

For more information from APHIS on importing plants, including how to get import permits, call (301) 734-8645, or visit their Web site at <http://www.aphis.usda.gov/ppq/bats>.

—Sara Epp, Editorial Assistant

For answers to your gardening questions, call Gardeners' Information Service at (800) 777-7931 ext. 31 between 11 a.m. and 3 p.m. Eastern Time, or e-mail us anytime at gardenAHS@aol.com.



conservationist's notebook

GOING COCONUTS

by Lon J. Rombough

When concerns about the potential ecological damage caused by mining of peat bogs surfaced several years ago [see “Is Peat P.C.?” in the December 1993 issue of *American Horticulturist*], it left gardeners in a bit of a quandary. It was all very well for conservationists to suggest reducing the use of sphagnum peat moss, but what were we to use instead?

Among the possibilities suggested were a fiberglass material produced as blast furnace slag, rice hulls, and even wool. None of these, however, gave home gardeners a satisfactory substitute for the peat moss they rely on in potting soil and as a garden soil amendment. Compost can be used in the same way, but is richer than peat and decomposes rapidly.

In the last few years a more promising alternative has emerged—coconut fiber dust, usually called coir dust or coco dust. Some producers were calling it coco peat, but legal challenges from the Canadian Sphagnum Peat Moss Association put a stop to that practice in North America.

A mixture of powder and short fibers, coir dust is a by-product of the coconut fiber industry. In India, Sri Lanka, the Philippines, Indonesia, and parts of Central America, coconut husks are ground up and the long fibers separated out for making items such as rope and floor mats. In these areas, coir dust often accumulates in vast mounds near fiber-processing factories.

When the British colonized Ceylon—now Sri Lanka—in the 19th century, the ropes for their sailing ships were made of coir. The dusty residue from the rope-making process was shipped back to England and used in horticulture. As sailing ships increasingly were replaced by steamships in the early part of the 20th century, use of coir dust waned accordingly. In the 1980s interest in coir dust revived in Europe, where undrained peat bogs are increasingly scarce. Since then both British and Dutch growers have been using coir dust, ground-up fibers, and even shredded pieces of husk as a replacement for peat in various horticultural applications.

If you think about the way the coconut is designed, the value of the husk material is not surprising. Consider that coconuts are actually large seeds dispersed by ocean currents, often floating for months. The nut sometimes germinates while the coconut is still adrift, with the root and incipient shoot fill-

ing the hard interior shell by the time it washes ashore. At that point the root rapidly emerges to anchor the nut before it is carried back out to sea. The husk resists saturation and helps protect the germinating seed from excess salt. In short, coconut husks stay uniformly moist, retain pockets of air, and decay slowly. Sounds good already. And tests have revealed other useful traits.

First, coir dust is highly compressible—experiments have shown it can hold up to 11 times its weight in water. By comparison, peat moss absorbs four to eight times its weight in water. This quality allows coir dust to be shipped in compressed “bricks” that expand dramatically when wetted.

Coir dust and peat are quite similar chemically, except coir dust usually contains higher levels of potassium, sodium, and chlorine. Researchers are unsure whether elevated levels of potassium and sodium salts in coir dust are a result of coconut trees growing near seawater; the soaking of coconut husks in seawater before grinding; fertilizing of coconut trees with potassium- and sodium-based fertilizers; or some combination of these factors. One other difference is that the pH of coconut fiber is about 6—closer to neutral than peat and ideal for many seedlings.

COIR PRACTICE

To gain more insight into coir dust, I tested some myself. A block the size of a masonry brick expanded to fill a large dishpan—about nine quarts—with the fluffy material. A one-cubic-foot block yielded about 15 gallons.

The first thing I noticed was the lack of dust. Breaking up sphagnum always means lots of sour-smelling dust that takes hours to get out of my nose. Coir dust bricks were too hard to break up while dry, but once wetted it took only about 10 to 15 minutes for them to swell and loosen enough to crumble. Once they are thoroughly mixed with water you get a fluffy mass with a color and odor similar to peat, but with a more “grainy” texture, and no dust!



Buoyed by their husks, coconuts can travel long distances by sea and germinate before they reach land.

Sources

CRYSTAL COMPANY, 572 Leffingwell, St. Louis, MO 63122, (314) 966-5999.

FARM WHOLESALE, INC., 2396 Perkins Street, N.E., Salem, OR 97303, (800) 825-1925.

GALUKU PTY, LTD., P.O. Box 253, Grosvenor Place, Sydney, NSW 2000 Australia, phone: 61-2-9337-2198, e-mail: wholerth@mpx.com.au.

PEACEFUL VALLEY FARM SUPPLY, P.O. Box 2209, Grass Valley, CA 95945, (916) 272-4769.

DAVID CAVAGNARO

Another thing I noticed is that coir dust doesn't shrink the way peat does. Peat-based soil mixes tend to shrink away from the edges of pots when they dry, so water runs down the inside of the pot instead of re-wetting the soil. Soil mix made with coir dust stayed moist longer, didn't shrink, and immediately took up water again when wetted.

An article in the trade magazine *GrowerTalks* says rose growers are using coir dust to root roses with better results than with peat. I tried some in place of peat in a mix I use to root grape cuttings. There were too many variables to be conclusive, but results were at least equal to what I get with a soil mix containing peat.

Another trait I wasn't aware of until I saw it mentioned in advertisements for coir dust is that it seems to inhibit fungus gnats. Sure enough, I experienced no problems with fungus gnats in the pots that contained the coir soil mix. Where fungus gnats are a serious problem, the slightly higher cost of coir dust might be offset by reduced labor and spray costs.

Not all my results were positive. Squash and melon seedlings in coir dust mixes became chlorotic and sickly. My son planted nettles—ordinarily a tenacious weed—in coir dust mix for a butterfly-raising project, and they grew poorly. Perhaps there was enough remaining salt and the seedlings were sensitive to it.

If you add fertilizer to plants in a coir-dust soil mix, choose one with low potassium because this is already present in coir. Minerals such as iron and boron can be fixed in coir dust, so watch for signs of deficiencies of these micronutrients and add them if necessary. Flushing coir dust with water before planting and watering to runoff will help prevent buildup of excess salts.

Because it is processed overseas and must be shipped to North America, coir dust still costs a bit more than peat, most of which

Other Uses for Coir Media

Coir dust is also proving to be an excellent base for turf—especially in golf greens. An Australian company called Galuku produces a baled coir product called "Turf Organics" specifically for that market. Galuku is considering offering its coir products in North America.

The long fibers from coconut husks are showing promise as a hydroponic growing medium. With its resistance to degradation and ability to allow good water circulation, coir provides a substitute for rock wool in many uses. Unlike rock wool, which is usually discarded after use, coir fiber can be composted or burned.

Chunks of coconut husk are being added to bark mixes used to grow plants for cut flowers, such as orchids and anthuriums. —L.R.

is produced in Canada. As commercial use of coir dust increases and production methods improve, the cost of coir dust should come down. And for the home grower, coir dust seems to have enough advantages to offset the slightly higher cost.

It seems unlikely that coir dust will completely replace peat moss in all uses, but as more gardeners learn to appreciate its virtues, it will go a long way to reduce mining of peat moss from fragile wetlands. And for the moment at least, we can take it for granted that coconut fiber dust is a truly renewable resource.

Lon J. Rombough is a free-lance writer and garden consultant in Aurora, Oregon.

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natural connections

SERPENTINE BARRENS

by David J. Ellis

As they fanned out across North America, early settlers periodically came across largely treeless grassland areas having thin, poor soils and outcroppings of soft greenish rock. They quickly learned that trying to farm these areas was an exercise in futility.

It is believed that settlers coined the phrase “barrens” to describe these grasslands, which naturalists later identified as being underlaid by rocks containing the mineral serpentine. “The farmers knew exactly where the serpentine boundaries were,” says Robert Smith, a geologist with the Pennsylvania Department of Conservation and Natural Resources in Harrisburg. “In Lancaster [County, Pennsylvania] the boundaries of fields often come within a few feet of the edge of serpentine outcrops.”

Although farmers avoided these areas, naturalists found them to be havens for rare plants. In *The Natural Geography of Plants*, Henry A. Gleason and Arthur Cronquist wrote, “One of the best places in the United States to look for previously unknown species of flowering plants . . . is on serpentine. Every individual outcrop that has not already been carefully studied holds the potentiality of bearing a ‘new’ species.”

Serpentine barrens are fascinating subjects for study because they are low in the major nutrients plants need—nitrogen, phosphorus, potassium—and high in heavy metals that are toxic to most plants. Thus plants that survive in serpentine soils have made incredible adaptations to this inhospitable habitat.

“Plants that can thrive with the unusual chemistry of soils weathered from serpentinite are stress tolerators,” says Roger Latham, a biology professor at Swarthmore College in Swarthmore, Pennsylvania. “Stress tolerance has metabolic costs. One of the manifestations of these costs is inherently slow growth and productivity rates.”

Gary Kauffman, a botanist studying Buck Creek serpentine barrens in the Nahantahala National Forest of North Carolina, says that on serpentine it is common to see dwarf forms of common species, as well as plants that are at the extreme edges of their normal range. “You see a lot of disjuncts here, a lot of prairie species and grasses,” he adds.

GEOLOGY

Serpentine is actually a group of related minerals formed by the alteration of magnesium-rich rocks. Pure serpentine is hydrated magnesium silicate, but other elements are typically included in serpentine rock, known as serpentinite. Serpentinite is usually olive green, but can range from black to yellow or red, and is often speckled or mottled with lighter colors.

Geologists believe serpentine outcrops are evidence of zones



where, millions of years ago, tectonic plates met and pushed up the earth’s crust. According to Smith, “The present eastern zone of serpentine is essentially the slippery surface upon which oceanic floor rocks were thrust up on top of the original continent.” North America’s serpentine barrens lie almost exclusively in disjointed belts linked to mountain chains along the East and West coasts. On the East Coast, serpentine barrens lie along the Piedmont from Georgia to New York and along the Appalachians from New England to Newfoundland. In the West, barrens are found from the coastal ranges of northern California into the Siskiyou and Klamath mountains of southern Oregon.

A HOSTILE ENVIRONMENT

There are many theories for why serpentine barrens have such a distinct ecology. According to Latham, the consensus is that

TOP & BOTTOM: RII JOHNSON; RIGHT: COURTESY OF PENNSYLVANIA CHAPTER OF THE NATURE CONSERVANCY

most plants won't grow on serpentine soil because high levels of magnesium block plants' ability to take in nutrients, especially calcium. "Calcium and magnesium ions have the same electron structure, so the calcium uptake sites in plants may get filled with magnesium," he says.

Other explanations for serpentine soil toxicity are high concentrations of heavy metals such as nickel, chromium, and cobalt, or extremely low concentrations of molybdenum, traces of which are needed by many plants for nitrogen fixation. It has also been postulated that high concentrations of heavy metals in serpentine soils kill off many common fungus species, including beneficial mycorrhizae that certain plants need to survive.



Moss phlox, opposite top, and fameflower, opposite bottom, are commonly found on eastern serpentine barrens. Prescribed burns, left, are used to help maintain serpentine sites.

Eastern serpentine barrens are rich in prairie grasses, including little bluestem (*Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*), and purple three-awn (*Aristida purpurea*), and wildflowers such as blazing stars, asters, and goldenrods. One of the most familiar plants of northeastern barrens is moss phlox (*Phlox subulata*), the pink flowers of which can be seen carpeting large areas of serpentine barrens in the spring. The association is so distinctive that some serpentine outcrops are locally named "Pink Hill."

A more unusual plant, often seen in association with moss phlox, is serpentine chickweed (*Cerastium arvense* var. *villosum*, also known as *C. velutinum*). This serpentine endemic has gray-green foliage covered with a thick layer of fine hairs. The velvety coat is an adaptation that helps the plant reflect sunlight and preserve moisture.

Serpentine aster (*Aster depauperatus*), a candidate for federal listing as an endangered or threatened species, is believed to have evolved on serpentine and is restricted to serpentine throughout its range.

One plant that commonly displays dwarfism at serpentine sites is fameflower (*Talinum teretifolium*), which Latham de-

scribes as similar to "a miniature aloe without serrations on its leaves. It forms a little rosette on serpentine and grows three to four inches tall with beautiful bright pink flowers that open in the afternoon."

A VANISHING ECOSYSTEM

Serpentine barrens once covered much larger areas than they do today. "Fire appears to be pretty much indispensable to the flora on the serpentine barrens," says Latham. "Without periodic fires, organic matter builds up and insulates plants from the mineral conditions of the bedrock." Since European settlement, a combination of fire control, quarrying, and development has taken its toll, however, and in many areas the growth of woody plants such as junipers, pines, and deciduous hardwoods threatens to shade out serpentine plants.

In northern Maryland and adjacent Pennsylvania, vast areas of grassland that once included the largest area of serpentine barrens in temperate eastern North America are now reduced to less than 3,000 acres of core habitat. An archipelago of eight sites—known collectively as the State Line Serpentine Barrens—is owned and managed by a medley of state and local government, community, and private organizations in both states, including the Nature Conservancy.

The single largest barrens in the East is at Soldiers' Delight Natural Environmental Area northwest of Baltimore, where barrens vegetation covers nearly 1,500 acres. Only a fraction of the site is pristine serpentine grassland; it is estimated that this is only five percent of the area covered by grassland before European settlement.

Prescribed burns have proven useful in maintaining existing serpentine barrens, but so far have not been effective in restoring degraded serpentine grasslands.

"You just can't expect to conduct a controlled burn in a forest that has taken over a serpentine grassland," Latham points out. "At this point it appears it would take a very intense fire like you would see after a severe drought." Instead, he says, barrens' managers are exploring combinations of tactics such as clear-cutting, light burns, and even grazing by goats.

There is still much work to be done, but these methods have already yielded glimpses of how these eastern prairies might have looked before European settlement. One experiment produced a satisfying bloom of native warm-season annual grasses where a monotonous tangle of greenbriers had stood a year earlier. "For the first time, we were able to see and record the sequence of serpentine grassland succession," says Latham.

David J. Ellis is assistant editor of The American Gardener.

Resources

The following references will be helpful to those interested in more in-depth reading about serpentine outcrops and the vegetation they support.

SERPENTINE AND ITS VEGETATION by Robert R. Brooks, Dioscorides Press, Portland, Oregon, 1987.

TRACES ON THE APPALACHIANS: A NATURAL HISTORY OF SERPENTINE IN NORTHEASTERN AMERICA.

Kevin T. Dann, Rutgers University Press, Rutgers, New Jersey, 1988.

For further information about serpentine barrens in Maryland and Pennsylvania, contact either the **MARYLAND HERITAGE AND BIODIVERSITY CONSERVATION PROGRAM**, Tawes State Office Building, E-1, Annapolis, MD 21401, or the **PENNSYLVANIA CHAPTER OF THE NATURE CONSERVANCY**, Lee Park, 1100 East Hector Street, Suite 470, Conshohocken, PA 19428.



mail-order explorer

SISKIYOU: RARITIES FOR THE ROCK GARDEN

It's always a good sign when a mail-order nursery manages to meet the needs of both novice and experienced gardeners. This is particularly true when the nursery specializes in alpine and rock garden plants, some of which can be a little, well...demanding, even for veteran gardeners.

Now in its 34th year of business, Siskiyou Rare Plant Nursery in Medford, Oregon, caters to gardeners with not only a wide range of experience, but also a wide variety of growing conditions. Satisfied customers range from Norman Singer and Geoffrey Charlesworth in Sandisfield, Massachusetts, well known for their long involvement with the North American Rock Gardening Society, to Richard Harris of Reno, Nevada, who has been rock gardening for less than three years.

"I think they certainly must have the most extensive offerings of alpines and rock garden plants in North America," says Singer, who was ordering from Siskiyou even before current owner Baldassare Mineo bought the nursery in 1978. "There's much more available now—they have really expanded the stock."

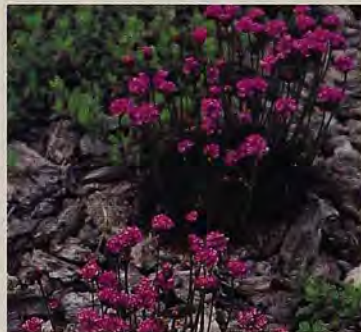
Harris, on the other hand, first ordered from Siskiyou in 1994, after he was inspired by a visit to the Betty Ford Alpine Gardens in Vail, Colorado. "I thought alpines would be suitable for our garden here in Reno because we are at about 5,000 feet with a fair amount of snow-fall," he says. For his first order, Harris sent in what he calls "a substantial check" and asked the nursery to select the plants for him. "I would say the first order came through its first year with fewer than 10 percent losses, but the second round I selected myself and I've had less success with those, probably because I'm new to rock gardening." Harris has nothing but praise for Siskiyou's staff. "They're delightful—they always write personal notes with the orders. If I have a question they will readily give me an answer. It has been a total pleasure dealing with them."

Mineo got his start in the retail nursery trade after graduat-

ing from California Polytechnic State University at San Luis Obispo with a bachelor's degree in architecture. An avid reader of gardening magazines and books, he concluded that there was a dearth of good perennials in the trade, so in 1976 he launched a small wholesale business in California. "I got seeds from the Royal Horticultural Society and other sources and started growing perennials people had never seen before," he says. Demand for his plants caused the business to quickly outgrow its initial location, so Mineo traveled to Oregon to scout out a new site. In 1978, he and a partner bought Siskiyou from the original owners, Lawrence Crocker and Boyd Kline, and moved it to four acres in the Rogue Valley of southwestern Oregon, at the edge of the small city of Medford. Mineo bought out his partner in 1990 and has been sole proprietor ever since.

For a catalog, send \$3 to Siskiyou Rare Plant Nursery, 2825 Cummings Road, Medford, OR 97501. The nursery is open for visitors from 9 a.m. to 2 p.m. on the first and last Saturday of each month from March through November. Call (541) 772-6846 to make an appointment to visit at other times.

Striking alpine and rock garden plants such as *Armeria maritima* 'Rubrifolia', left, can be found in Siskiyou's display garden, below.



"The founders started the nursery here because their mentor, Marcel LePiniec, told them the limited amount of rainfall and the availability of rare native plants in the surrounding mountains made it an excellent valley for growing alpines," recalls Mineo.

When Mineo took over Siskiyou, he continued to offer northwestern natives but began to add alpines from the Himalayas and the Middle East. "As new areas have opened up for seed collecting—in China, South Africa, and South America, for instance—we have continued to broaden our offerings."

Most of the plants Siskiyou sells are grown on site from seeds and cuttings. "We have introduced over 20 different forms that have come our way or we've discovered in the wild—we are always finding things that nature is making for us on our grounds." A new

PHOTOS COURTESY OF BALDASSARE MINEO

plant Siskiyou is working with is an as yet unnamed sport of *Oenothera berlandieri* 'Siskiyou', which Minco says has "startlingly yellow mottled leaves—it could be a very exciting plant in the future."

Cecilia Canning, a resident of Arlington, Texas, says she has been ordering from Siskiyou for several years because they offer plants she can't get locally. "This year I ordered a verbena called 'Texas Form'." This hybrid verbena is a low, spreading plant with large pink and white flower clusters from summer through fall. She has also had success with daphnes and some miniature nandinas, including *Nandina domestica* var. *capillus* 'Tamu Shishi', a six-by-six-inch dwarf she planted in her shade garden. Canning says *Gaura lindheimeri* 'Siskiyou Pink', a recent Siskiyou introduction, "has also done well—it's really drought tolerant."

Scott Reeves, production manager at Tree Search Farms, a wholesale nursery in Houston, experiments with Siskiyou plants for possible use at his nursery. "The challenge for us is heat and humidity. We have a very difficult time with heavy clay soil, too," he explains. Among the plants that have shown promise are *G. lindheimeri*, California fuchsias (*Epilobium* spp., formerly *Zauschneria*), and various cultivars of crimson flag (*Schizostylis coccinea*), a South African member of the iris family. "I think there is a good enough product mix in the catalog for anyone in the country to find something, as long as they do a little homework," says Reeves.

"I think there is a good enough product mix in the catalog for anyone in the country to find something."

One customer who did just that is John Shelley, who owns a garden center and nursery in Felton, Pennsylvania. "I was looking for a supplier of miniature perennials and dwarf conifers to grow in troughs that we make ourselves," he says, "and Siskiyou was one of the companies we heard a lot about." Shelley now offers nearly 200 Siskiyou perennials, including "some saxifrages, trilliums, pussytoes, and *Androsace*—a real hodgepodge of things to give different colors and bloom times."

Another long-time Siskiyou customer is Betty Blake of Onsted, Michigan, who has been ordering from the nursery for more than 25 years. "I think it's a wonderful place. When Baldassare and his partner first bought the nursery we had planned a trip out West, so we called ahead to see if it was all right to visit. It turned out we were their first visitors," recalls Blake. Siskiyou plants in Blake's rock garden include a miniature heuchera (*Heuchera cylindrica* var. *glabella* 'Siskiyou'), a baby's-breath (*Gypsophila arctioides*), and a shooting star (*Dodecatheon hendersonii*). "One thing I got from them that has been truly wonderful is a phlox hybrid called 'McDaniel's Cushion', which is bright pink with a large flower," she adds.

In West Vancouver, British Columbia, retired teacher Bob Woodward integrates Siskiyou plants into his mountainside rock garden. "They have had some very special daphnes in the last two to three years, rare high-alpine daphnes—tricky plants—that are just unavailable elsewhere in the United States," he observes. Despite what Woodward describes as "bureaucratic problems" with importing plants from the United States into Canada, he continues to order regularly from Siskiyou. "They have a real devotion to what they are doing and carry a number of specialty plants that you can't get anywhere else. The plants are very well grown and excellently packaged and shipped." —D.E.

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urban gardener

HIGH ON ROSES

Story and photographs by Barbara Dege

My rose garden is one of the great joys of my life. I love stepping out my back door to admire their forms and sniff the freshly opening blooms. It's easy to forget that I'm standing on an apartment balcony, six flights up.

My total gardening space measures just five by 15 feet, but I've managed to squeeze in up to a half-dozen rose varieties in a season. Hybrid teas, floribundas, and miniatures all perform splendidly for me in containers.

Apartment balconies do present challenges as garden spaces, of course, and each individual terrace has to be considered a unique microclimate. Before buying any plants, take stock of your local conditions. Does your patio face directly into the broiling sun, or is shade a problem? Do you overlook a sheltered courtyard, or are your plants battered by high winds? And, to be really practical, just how far is it from the kitchen water tap to your plants?

While a little extra dedication can overcome most of these problems, roses won't prosper in deep shade from neighboring buildings or overhanging terraces. You'll avoid disappointment—and save money—if you choose other plants for these shadowy nooks.

My own balcony faces north, but gets sun until 2 p.m. in mid-summer. It's also completely exposed to the prevailing winds, and especially in spring, cold westerly gusts rake across the concrete surface. In spite of the less than ideal conditions, my container roses are among my most successful balcony plants.

PICK YOUR PLEASURE

Except for the huge climbing and shrub roses, any variety can be grown in a container. The only real limiting factor is the size of the tub you are willing to provide.

The marvelous miniatures make a good choice for your first growing season. "Miniature" in this case refers to the size of the blossom, not the plant. Some minis are really small shrubs, two feet high and two feet wide, loaded with clusters of one-inch blooms. Micro-mini-roses, on the other hand, are tiny enough to live happily in six-inch pots, and you can combine several in a larger container for a spectacular show. A favorite mini of mine is 'Starina', which gets barely more than a foot high and wide, blooms nonstop in a vibrant orange-red, and rarely has any problems with disease. Others I find rewarding are the deep red 'Centerpiece' and 'Old Glory', also red but with a touch of yellow at the base of the petal.

If you're looking for an indestructible rose for your first experiment, try 'The Fairy'. This polyantha shrub rose will reward you with nearly nonstop clusters of small pink flowers, will remain compact all season, and is remarkably winter hardy.

For larger blossoms to pick for arrangements, consider the flori-



bundas and hybrid teas. Floribundas make a showy splash on the terrace with their stocky habit and clusters of medium-sized flowers. The vigorous 'Europeana' has old-fashioned-looking dark red flowers and is wonderfully hard to kill, and 'Angel Face', while more prone to blackspot, is irresistible for its soft lavender petals.

My personal favorites, however, are the hybrid teas. Give me one huge, handsome bloom instead of a cluster of tiny ones any day! I try to select short, sturdy varieties that won't become too lanky by season's end. Very tall canes are vulnerable to wind damage; I look for plants that can be easily kept to three feet or less. The red-and-white 'Double Delight' has a naturally bushy shape, but surprisingly delicate canes. 'Fragrant Cloud' is more upright and grows a little taller, but both are worth a bit of fuss for their fragrance.

As a class, though, hybrid teas are tougher than their glamorous flowers might lead you to guess. I delight in picking big bunches

Despite the less than ideal conditions, my container roses are among my most successful balcony plants.

of 'Peace' roses from a huge bush that somehow manages to thrive in a 16-inch pot. So don't hesitate to give your favorites a chance.

If your terrace is sheltered from high winds, you should try a tree rose or two. The lushly flowering heads perched on two- or three-foot stalks will add drama and a dimension of height to your rose garden. Since tree roses are top-heavy by nature, careful staking is essential. Some hybrids are chosen to train in

this manner because of their vigor—translating to a lot of time with the pruners or a top that will catch too much wind on a balcony. A consulting rosarian for the American Rose Society (ARS) said I should try ‘Bill Warriner’ if I wanted one that was more restrained.

THOUGHTS ON POTS

Once you’ve decided what to plant, it’s time to consider containers and growing media. The sad truth of apartment gardening is that every pot, plant, and speck of soil must be lugged inside, upstairs, and through the house. For someone like me who lacks upper body strength, weight is a real problem. For



Far left: ‘Double Delight’, ‘Sweet Innocence’, and ‘Peace’ form a lush rose garden six flights up. Left: The author enjoys the heady fragrance of her balcony roses.

this reason, I always use plastic pots (with good drainage) and a lightweight soilless growing mix.

A full-size mini-rose needs a 12-inch pot. Anything larger needs at least 16 inches, and an 18-inch tub will give the roots more room to roam and cut down on the need to water. Just remember, as pot diameter increases, the quantity of soil needed to fill it burgeons dramatically.

If you’re a beginner with roses, you might want to buy potted plants from a local nursery. Just tip the bush out of its container (watch for thorns!), set it in your tub, and fill in with potting medium. Add water and presto! An instant rose garden.

If you drool over catalogs like I do or if you have old favorites that you can get only through mail-order, there’s no reason why you can’t succeed with those plants, which are shipped bare root in late winter. Just remember to soak your new roses overnight in a bucket of water, and make sure your growing medium is moist before you start to plant. If you’re using a soilless mix that doesn’t contain a wetting agent, hot water helps penetrate the dry peat moss. Then you can pot the rose pretty much as you would plant it in the ground, making a mound of soil and spreading the bare roots over it. Then fill the container with medium and water generously. If the weather is still cold and windy, pile up extra soil to keep the canes from drying out while the roots are getting a grip.

A light mulch will keep the roots cooler in hot weather and reduce the need for watering. Instead of mulch, I like to add color to my rose tubs with annuals. Pansies perk up the tubs while the

roses are leafing out and getting established, and petunias can complement the rose blossoms when things heat up. Last season, I planted a single ‘Purple Wave’ petunia in each rose tub, so that the flowers cascaded over their rims and right over the edge of the balcony. All the neighbors were impressed by my “hanging garden”!

SUMMER SURVIVAL

Once your roses have leafed out, it’s time to start your summer maintenance plan.

Unfortunately, any container plant requires more water than the same plant would in a garden. I water whenever the soil surface looks dry. In midsummer, when the heat shimmers off the concrete balcony floor, a medium-sized pot can suck up a gallon of water a day. (This will be reduced somewhat if you have shade or if you use mulch, or you might want to experiment with moisture-retaining crystals.) I also add a liquid rose fertilizer every week. With containers, the leaching of chemicals into surrounding soil and groundwater becomes a non-issue, although salt build-up can be a problem. Rose growers who want to avoid chemical fertilizers use alfalfa meal or greensand, and add bone meal or rock phosphate a couple of times a year. A foliar spray of liquid seaweed can also give roses a boost.

Hot sun and drying winds don’t discourage the bugs and fungus spores from making their appointed rounds. Aphids are only a minor annoyance for me, but blackspot is a serious problem, and having the bushes right outside your living room window makes it hard to ignore a severe case of blackspot or mildew. I spray them with a combination fungicide-insecticide available at my local gar-

The sad truth of apartment gardening is that every pot, plant, and speck of soil must be lugged upstairs and through the house.

den center, just enough to get them wet. Some growers use sulfur sprays or homemade solutions containing baking soda to prevent fungal diseases; the first leave a slight residue and the latter seem to meet with mixed success. A new neem-based product called Rose Defense [see “Fungicide Follies,” March/April “Focus” section] is said to control both fungi and insects.

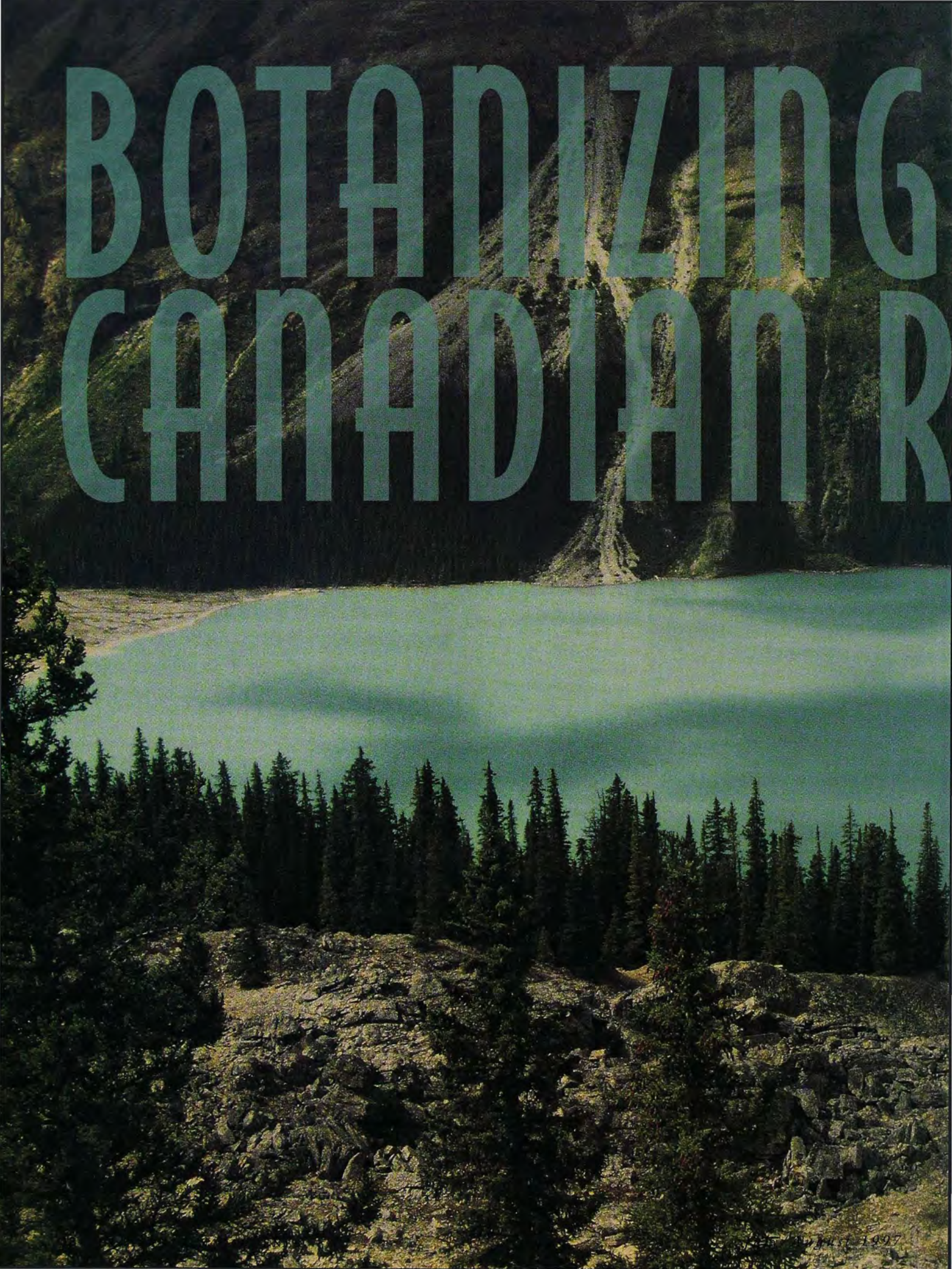
Eventually, as the days shorten and the weather cools, my roses stop producing, but I have no cool, frost-free place to store them for the winter. Now what?

Winter protection of balcony plants here in USDA Zone 6 is a challenge. On my windswept balcony, I can expect to take some losses. During the winter of 1995-96 (known here in the Northeast as “the winter from hell”), only half my bushes pulled through. The ARS rosarian recommended that the following winter I experiment with a wrap of pine branches and burlap; I tried a variation, wrapping the whole works in a garden fabric that I attached to my balcony. The protection from winter sun and wind may have helped, since I had a high survival rate.

I’ve found my balcony roses to be even more rewarding than the ones I used to grow in the ground. Up here, I have no heavy soil to loosen, no tree roots to battle, and no weeds to pull. Best of all, I enjoy beautiful blossoms almost literally under my nose. I don’t even have to cut them to enjoy their color or fragrance. I just sink into my patio lawn chair and take a deep breath.

Barbara Dege is a free-lance writer in Hackensack, New Jersey.

BOTANIZING CANADIAN R





THE ROCKIES

Whether you aspire to be a rock gardener or just want to see how nature does it, here's a way to beat summer heat and get some exercise, too.

by Ruby Weinberg

As we drove south from Calgary, the Canadian Rockies loomed to the west as stark monoliths. Yet we knew that those seemingly barren summits—with their green belts of conifers and the valleys encircling their ridges—

harbor a great deal of life. What an exciting place to hike and search for mountain wildflowers! Finally, after months of reading and laying the groundwork for this trip, my husband and I were about to make our first attempt at alpine botanizing.

Some gardeners think the word “botanize” applies only to professional plant explorers who comb the world for

uncataloged treasures. But any gardener who can put plants in the ground right-side up has acquired at least a rudimentary knowledge of botany and can become a “botanizer” by simply seeking out and identifying wildflowers in their native habitats. The pursuit has been made possible for more people than ever with the publication of hikers’ floras—handbooks of an area’s vegetation written for hobby naturalists rather

than for botanists. Hunting for wildflowers on unknown turf makes an exciting holiday, a natural outgrowth of a gardener’s interests. It is also good exercise.

My husband and I, who are no longer young with sturdy hiking legs, found the perfect place for alpine botanizing in the province of Alberta. National and provincial parks there have many walking trails no longer than five miles round trip with the starting point easily reached by auto, bus, tramway, and skier’s gondola. Roads and signage are good, and information about the flora and fauna is readily available in this thoroughly developed tourist area, as it is in most Canadian and U.S. national parks.

Here we were able to easily traverse the gently rolling foothills of the Canadian Rockies, admiring their prairie wildflowers. Over 10 days, we gradually moved onto trails in the higher strata of montane, sub-alpine, and alpine tundra. Even the tundra, Alberta’s uppermost region, is not as high as the peaks elsewhere in the Rockies chain, which runs for 3,000 miles from New Mexico to Alaska. Hiking here at elevations no higher than 7,500 feet, we were untroubled by the oxygen deprivation or “thin air” that can make walking laborious. More athletic hikers, of course, can enjoy full-day or overnight camping excursions.

Planning Every Move

My interest in Alberta had been piqued by the accounts of several friends, combined

with an article in *National Geographic* and a brochure about a trip to the area sponsored by the American Horticultural Society. We prefer to set our own pace however, lingering or moving on when we choose. I started to collect books about the area, and I wrote to the Calgary Chapter of the North American Rock Garden Society. Two members wrote back: Sheila Paulson, the president, and Pam Eveleigh, editor of their newsletter, who went so far as to photocopy trail maps with lists of plants to search for along each. I also wrote to the Alberta tourist office for their travelers’ guide.

I bought three floras specific to Alberta. Two contained plant photographs and the other, illustrations, most arranged by color of blooms. All had glossaries of botanical terms that would prove helpful in pinpointing details. I wasn’t bothered by the fact that in some cases I was only able to identify the plant’s family and genus, but hikers determined to identify plants at the species level will need a flora with taxonomic “keys”—detailed charts outlining botanical differences between closely related plants.

As a first-time botanizer, I was surprised by how many plants were familiar to me, even without blooms. The leaves of yarrows (*Achillea*), monkshoods (*Aconitum*), columbines (*Aquilegia*), delphiniums, and lupines, for example, were unmistakable even though what we were seeing were alpine versions of these common garden perennials.

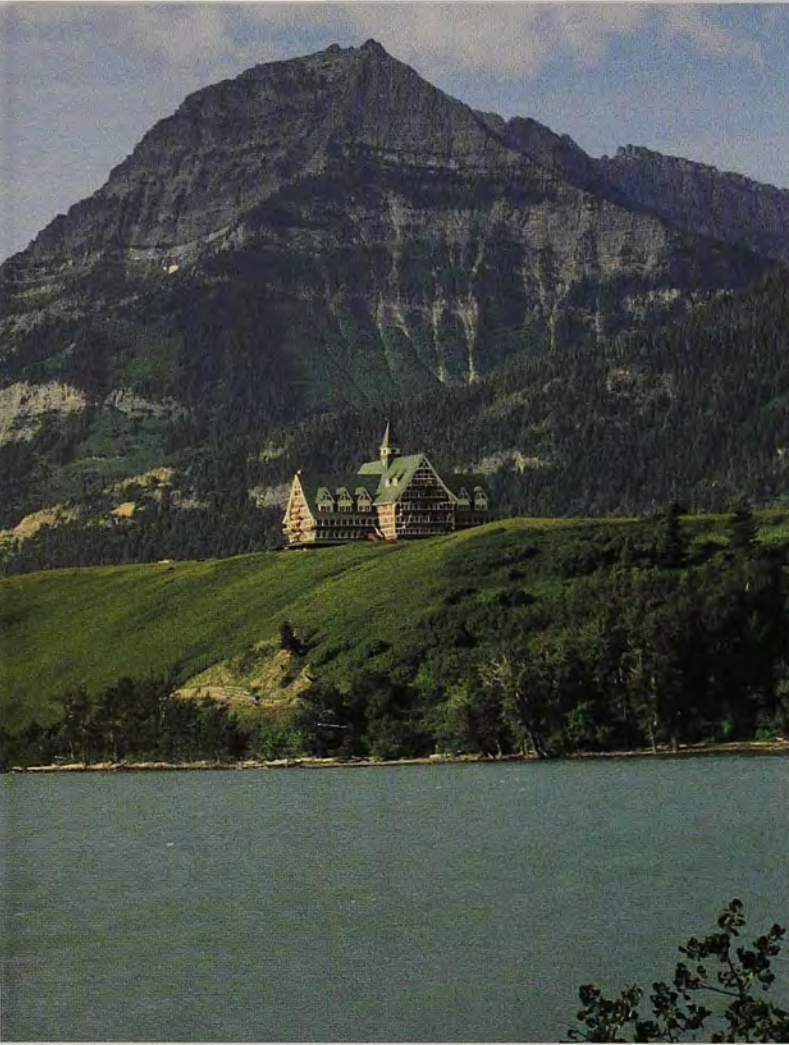
A fact worth noting is that every increase of 1,000 feet in elevation is the same as moving north 280 miles, with correspondingly cooler temperatures. It definitely makes a difference in bloom times. In mid-August, cut-leaf anemone (*Anemone multifida*) was blooming in the Canadian mountains, while in my New Jersey rock garden, it produces its exquisitely petite flowers in June.

The month in which you explore for mountain flowers makes a great difference. In the Canadian Rockies, the compressed blooming period of June and July is best for seeing a great diversity of plants in flower in different vegetative zones. Unfortunately, tourist facilities in Alberta are very crowded in midsummer, and when we began calling in late May, we found that the earliest we could reserve overnight accommodations was August. Still, there was a wealth of alpinses blooming then, and the good news for hikers is that in midsummer you can expect long hours of daylight and scant rainfall. Alberta is Canada’s sunniest province,

MARK TURNER. PREVIOUS PAGE: MARTIN WEINBERG.



Previous page: Peyto Lake, as seen from above in Banff National Park, gets its pale blue color from light reflecting off silt in its waters. Above: scarlet paintbrush, which appears in drifts in Alberta meadows. Opposite, clockwise from top left: the Prince of Wales Hotel overlooking Waterton Lake; the western monkshood, *Aconitum columbianum*; *Sedum lanceolatum*, which grows on sunny screes; and pipsissewa, *Chimaphila umbellata*, which prefers woodlands.



and humidity is almost non-existent. The towns of Calgary, Jasper, and Edmonton have average summer highs in the low 70s and lows in the mid-50s—colder on elevated trails. Banff can drop into the 40s at night, and snow can fall in any month. We were glad we'd packed both sweaters and windbreakers. At the highest elevations, we needed to pull on gloves. On the other hand, the phenomenon called the chinooks—warm westerly winds that rise up

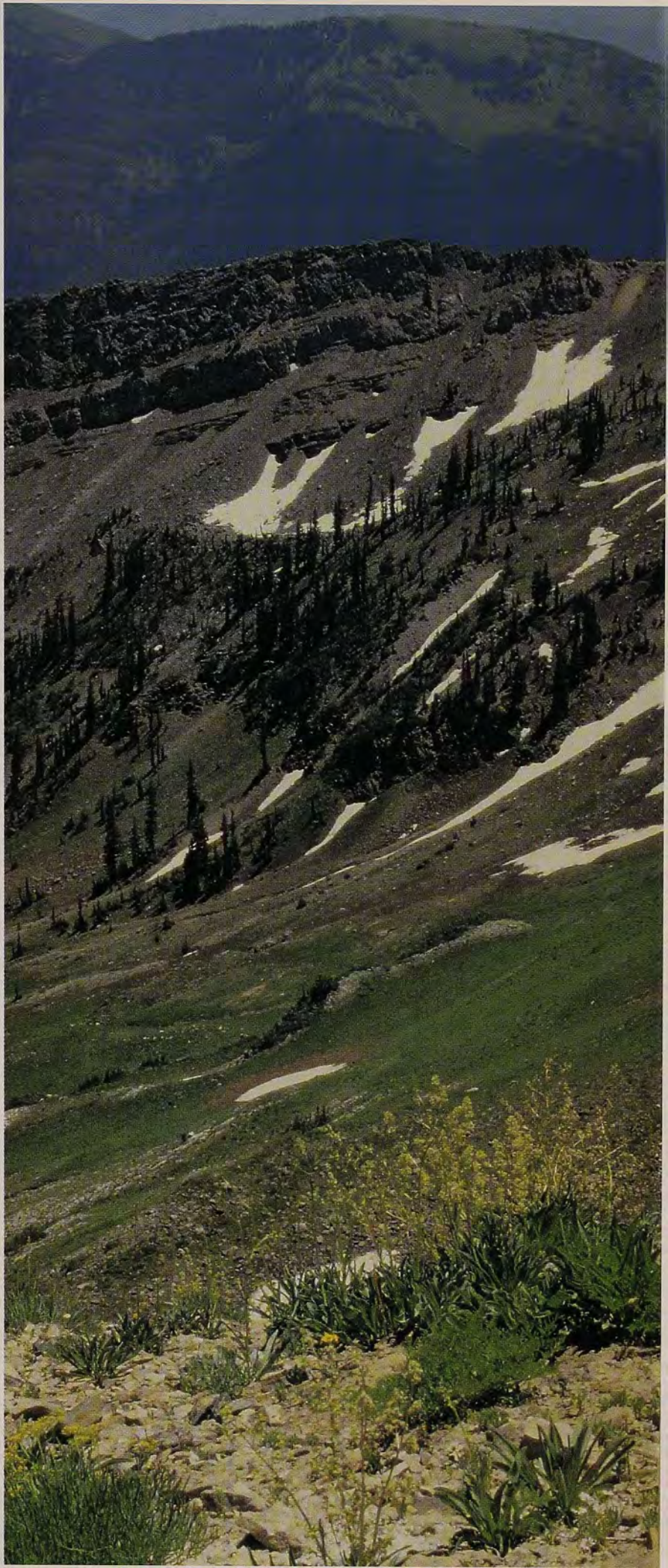
Thoughts on Collection

When you're botanizing, you have to abandon a gardener's mind set and resist the temptation to bring any of the flora home with you. In most state and national parks it is illegal—not to mention unethical—to collect plants. You might collect a few seeds from alpines that are abundant, if you are an ardent rock gardener who can germinate and grow them. Consider that the heat and humidity in your home garden is likely to mean failure. Our New Jersey garden is cooled by its location in a valley, but the damp air would prove fatal to many alpines, especially those of the western Rockies.

Of course, since the objective of the trip is to identify and learn more about the plants you see, you may want to bring back some pressed specimens. Again, if the plants are plentiful, you may feel comfortable collecting and pressing the flower and stem of an unknown along with a bit of leaf and any seed vessels that are present. I press each specimen separately between the pages of a telephone book, later adding weight to the closed book. If you need mementos of less plentiful plants, brush up on your photography or sketching skills. Concentrating on the flowers in this way will also help you with identification.

Once you're on an isolated mountainside, your conscience will have to be your guide. The most guilt-free course to take is to get permission to collect a few seeds and specimens by talking to the park superintendent. He or she can also warn you about any rare species you should treat with special respect.

—R. W.



MARTIN WEINBERG



and over the mountains from the Pacific—can raise temperatures as much as 30 degrees in a few hours, so dressing in layers proved to be a good idea.

The Adventure Begins

We began our Canadian Rockies adventure by flying to Calgary and then driving south 150 miles to Waterton Lakes National Park, which with Glacier National Park across the border in the United States forms Waterton-Glacier International Peace Park. Waterton is a splendid place for novice botanizers because the relatively small area of 203 miles is a meeting place for prairie and mountain flora. Mid-June is usually best here for observing prairie plants; mid-July for alpine.



Previous page: Members of the North American Rock Garden Society explore mountain tundra. Above: *Pulsatilla occidentalis*. Opposite: Cut-leaf anemone, *Anemone multifida*.

Approaching the village of Waterton, we passed its landmark, the Prince of Wales Hotel, high on a hill overlooking upper Waterton Lake. Built in 1927, the hotel has been a savior to residents below when severe flooding forces them to flee to this higher ground. Some of the trails had in fact been flooded out the spring before our visit, but in August, the hills and fields sported many accessible treasures.

Some of the easier trails start near the hotel. Others can be found within half an hour's drive at Cameron Lakeshore, Akima Lake, Red Rock Canyon, Rowe Lake, and Blakiston Falls. A standout in the meadows of this area were profuse drifts of the scarlet paintbrush, *Castilleja miniata*. Elsewhere we saw yellow- and pink-flowering species of this genus. In a dry, open field was a yellow form of *Anemone multifida*. Three species of rose were also here, but the plants don't look anything like garden shrubs because they're browsed by grizzly bears.

Other plants to look for in high meadows at Waterton are gentians, erigerons, crepis, and lupines, and on sunny scree, *Sedum lanceolatum*. Species of *Trollius* and *Erythronium* grow along streams and in other wet places. In heavy woodlands, we marveled at *Chimaphila umbellata*, the pipsissewa, with delicate pink flowers. If you climb into the tundra in June, you'll probably see *Silene acaulis* and *Arabis lyllyi*, both miniature beauties.

After a few days we drove north to Kananaskis Provincial Park. About 50 miles

south of Kananaskis Village at Highwood Pass is Ptarmigan Cirque (a cirque is a steep hollow gouged by glaciers at the upper end of a mountain valley). Members of the Calgary Chapter of the North American Rock Garden Society had highly recommended the cirque for plant exploring. Here a forest of spruce and fir quickly changes to boulder fields where cushions of drabas, saxifrages, and anemones are colorful in June and July.

Near Kananaskis Village are such easy trails as Aspen, Hay Meadow, and Skogan Pass. On these we spotted bunchberry (*Cornus canadensis*), a deep purple delphinium, and many species of potentillas, valerians, and penstemons. We switched trails mid-stream when signs warned of bears.

A Breathtaking Drive

From Kananaskis we headed north again on Route 93, part of which is the Bow Valley and Icefields parkways. The drive has been called the most beautiful in the world. On both sides of the road are great, hulking mountains that glisten red and gold when touched by sunlight. Here and there ever-moving cloud shadows appear like ribbons of dark velvet. A cursory study of the area's geology taught me that the Canadian Rockies were formed tens of millions of years ago when a shallow sea gradually filled up to become a marshland. Tectonic plate movement caused it to rise up as elongated folds with tilted layers of sedimentary rock. Today, the tongues of glacial ice that cut through the rock are remnants of the last of several ice ages occurring 10,000 years ago.

About four miles south of Jasper is the Whistlers Mountain Tramway, which rises abruptly to 7,500 feet. Mid-August wasn't the ideal season to hike at this elevation; light drizzle and fierce winds ran us off after an hour. Yet that was long enough to see that many beautiful plants grow in this harsh environment: *Dryas* (creeping evergreens that are also called mountain avens), cassiopes, potentillas, and the arctic lousewort, to name a few. The latter, *Pedicularis arctica*, has fernlike foliage and racemes of flowers with arching "beaks." The small white flowers of a *Dryas* that we decided was probably *D. octopetala* subsp. *hookeriana* were fully open, while *D. octopetala* far below already sported feathery seed pods.

Throughout Jasper are many trails suited to a range of walking abilities. Recommended to me were the Mount Edith Cavell Meadows, Sentinel Pass from



Moraine Lake and Larch Valley, and trails to both Helen Lake and Dolomite Pass from the Icefields. We found a trip to Pyramid and Patricia lakes most interesting, and it was here that I found yarrows (*Achillea millefolium*) with flowers of a deeper, richer red than I had ever seen in a perennial border. Descending south again, at the northern end of Banff National Park we arrived at the Parker Ridge Trail, another place to see

Silene acaulis. A good specimen carries multitudes of small pink florets on a cushion as broad as three feet. Unfortunately, it's notoriously difficult to grow well in lowland rock gardens.

Another area we explored was a trail near Peyto Lake with its gorgeous turquoise waters. Along this road, fruiting *Pulsatilla occidentalis* or "towhead babies" tossed their feathery

seed pods, and in a boggy ditch was a small clump of the northern green orchid, *Habenaria hyperborea*. Along a stream elsewhere we came upon what probably was the white rein orchid, *H. dilatata*. The word "rein" refers to the narrow lip on each flower.

For those who prefer a guide to lead the way, many parks have well qualified naturalists. Some are employees of private, commercial organizations, and others are under the aegis of the government. Because they are accustomed to working with the broader public, however, they will tend to use common names in identifying plants.

As our trip neared its end, it was time for our anticipated half-day walk with a commercial guide organization called White Mountain Adventures. They took us on a bus to the 7,200-foot summit of Sunshine Mountain outside Banff. To our amazement, several inches of snow covered the ground on August 17, but scraping away bits here and there, we found nicely blooming erigerons, the grass of Parnassus (*Parnassia fimbriata*) with delicate fringes on the petals, and a dwarf willow, *Salix barrattiana*, with creamy white catkins.

Seeing these plants in their mountain homes emphasizes more clearly than any book how precise their growing conditions need to be. When growing any plant, you should study the conditions under which it is found in nature—dry or damp, solitary or growing amid other meadow flowers, in gravelly scree or humus-covered woodland. Alpines are more exacting than most. The closer you can simulate their natural habitat, the greater will be your success.

For us there was a special joy in merely observing them and in sharpening our botanizing skills, which can be exercised as easily in the nearest state park or abandoned farm field as on a 10-day hike. As my husband and I drove east to the Calgary Airport I thumbed through several florals, reliving all we'd seen. I was eager to fly home, process our film, and identify the trickier species. Photographs help cement the details, but as all flower lovers know, the memory of a beautiful specimen in bloom cannot be easily erased from the mind.

Ruby Weinberg is a free-lance writer living in Califon, New Jersey.



MARTIN WEINBERG

Above: *Parnassia fimbriata*, the fringed grass of Parnassus, has delicate fringe at the base of each petal. Opposite, clockwise from top left: A willow herb (*Epilobium*) blooms alongside a stream; *Silene acaulis*, or moss campion; *Dryas octopetala*, or mountain avens; and *Habenaria hyperborea*, the northern green orchid.

Sources and Resources

The author used these field guides on her Alberta trip:

NATIONAL AUDUBON SOCIETY FIELD GUIDE TO NORTH AMERICAN WILDFLOWERS, WESTERN REGION, by Richard Spellenberg. Alfred A. Knopf, New York City. \$19 suggested retail.

PLANTS OF WATERTON-GLACIER NATIONAL PARKS by Richard J. Shaw and Danny Orr. Mountain Press, P.O. Box 2399, Missoula, MT 59806. \$12 plus \$3 postage.

ROCKY MOUNTAIN WILDFLOWERS by A. E. Porsild. National Museums of Canada, Ottawa K1A 0M8, Canada. \$11.95 U.S.

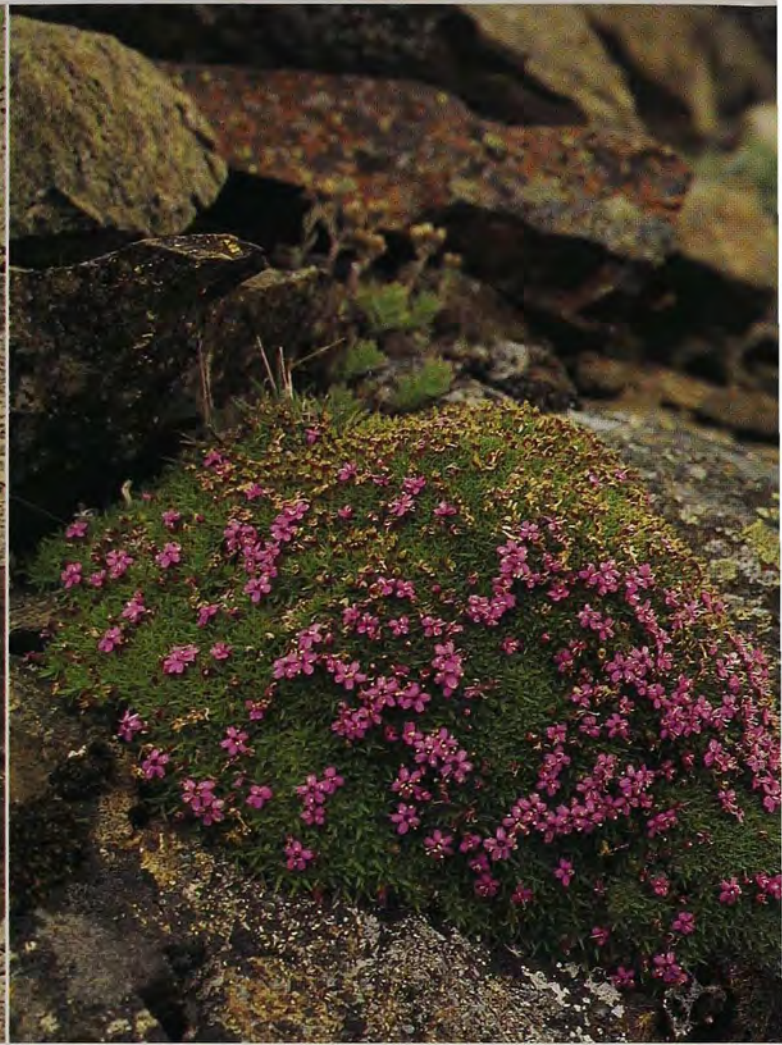
For traveler's information, contact:

ALBERTA ECONOMIC DEVELOPMENT AND TOURISM, Box 2500, Edmonton, Alberta T5J 2Z4, Canada, (800) 661-8888.

CHINOOK COUNTRY TOURIST ASSOCIATION (southwest Alberta), 2805 Scenic Drive TGB, Lethbridge, Alberta T1K 5B7, Canada, (800) 661-1222.

Information on alpine plant sources and seed exchanges is available through:

NORTH AMERICAN ROCK GARDEN SOCIETY, P.O. Box 67, Millwood, NY 10546, (914) 762-2948.



**A rocky glade in Tennessee.
The brink of a canyon in Texas.
The crest of a grassy dune in
Nebraska. A desert mountain
in Arizona.**

What do these far-flung places have in common? Each presents its own unique challenges to plant growth and survival, and each has its own distinctive flora. Yet each

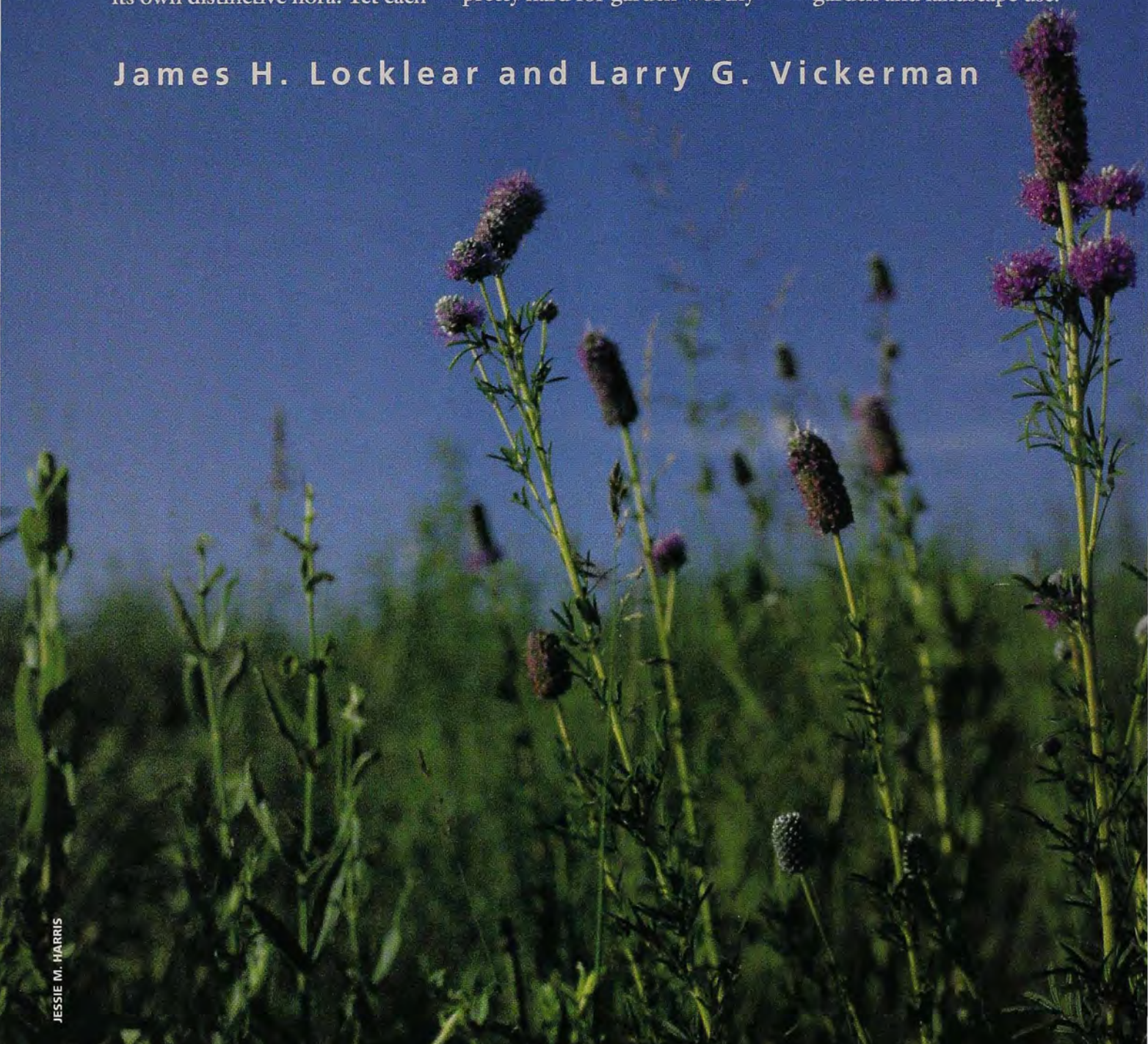
is home to at least one beautiful wildflower or shrub from the genus *Dalea*.

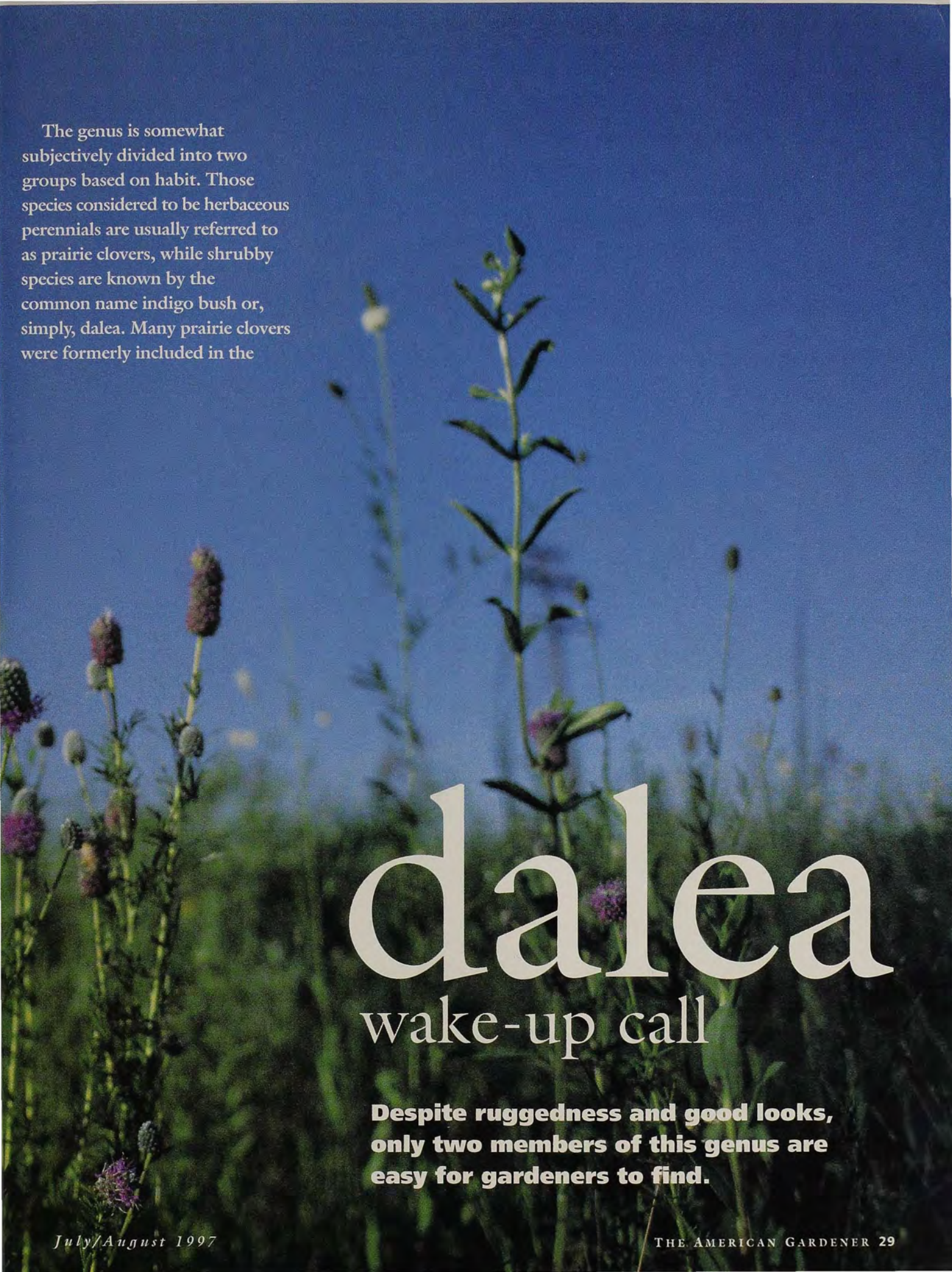
The native flora of North America has yielded many valuable plants to horticulture. Some of our more prominent genera, such as *Phlox* and *Penstemon*, have already been worked pretty hard for garden-worthy

plants. But in others we've barely scratched the surface.

One of these is the genus *Dalea*. Although Claude Barr wrote about a few of these plants in his 1983 *Jewels of the Plains*, the daleas are still largely overlooked. Yet they have much to offer those looking for new, hardy plants for garden and landscape use.

James H. Locklear and Larry G. Vickerman





The genus is somewhat subjectively divided into two groups based on habit. Those species considered to be herbaceous perennials are usually referred to as prairie clovers, while shrubby species are known by the common name indigo bush or, simply, dalea. Many prairie clovers were formerly included in the

dalea

wake-up call

Despite ruggedness and good looks, only two members of this genus are easy for gardeners to find.

genus *Petalostemon*—now abandoned by taxonomists—and some daleas are still listed under that name in nursery catalogs. The current genus name commemorates Samuel Dale (1659-1739), an English botanist. Remembering Dale's name when pronouncing *Dalea* (DAY-lee-uh) helps prevent confusion with those late season tender bulbs in the genus *Dahlia* (DAL-yuh).

Most of the more than 160 *Dalea* species that have been described are native to northern Mexico and the southwestern United States, but their range in the wild extends through the Great Plains north to central Canada and east to Illinois and parts of the Southeast.

than blooming all at once, the flowers on a given spike open sequentially, starting as a ring around the bottom of the spike. As the spike matures the lower flowers fade and the adjacent ones open, making it appear that the ring of flowers is moving up the spike. Dalea leaves are divided into slender leaflets. In many species they are covered with tiny glands containing aromatic oils that give off a faint fragrance when crushed.

Early Acclaim

Like many American natives now gaining more attention in their homeland, daleas were first cultivated in Europe in the early 1800s. The 1813 catalog of "Messrs. Fras-

As the name implies, the flowers of *D. purpurea* are purplish blue. Individually quite small, they are densely packed into a narrow, conelike spike that is usually about an inch tall. Each spike sparkles with delicate, bright orange anthers that protrude from each flower.

The flowering season of purple prairie clover is mid-June through July, making it a valuable addition to landscapes that are subject to midsummer doldrums. As an added bonus, the flowers are fragrant and attract butterflies and bees.

Purple prairie clover has a rather bushy habit, reaching between one and three feet tall, but generally staying closer to two feet.



Like Gattinger's prairie clover (previous page), leafy prairie clover (far left) is restricted mainly to southeastern cedar glades and barrens. Round-headed prairie clover (left) blooms mid-July into September from Texas to Nebraska. Silky prairie clover (opposite) is a Great Plains native with graceful, rose-colored flower spikes.

Like most members of the pea or legume family (Fabaceae), daleas have small pea-type flowers that occur in heads or spikes. These inflorescences may be dense and rounded or elongate and conelike. One appealing aspect of prairie clovers is the pattern in which they flower. Rather

er's Nursery for Curious American Plants" of London offered four daleas, including *Dalea purpurea*, the purple prairie clover. Today this is probably the best known and most widely available member of the genus, and well illustrates the ornamental attributes of the prairie clovers.

It is usually densely branched and produces numerous flower spikes on the tips of the stems. The small, dark green leaves are divided into three to seven leaflets, so that the foliage looks fine-textured.

Native to prairies and woodland openings across a large portion of the Midwest and Great Plains, purple prairie clover is well adapted to hot, dry, sunny locations. Its restrained growth habit makes it an attractive addition to perennial beds or borders, and other than being best suited to a sunny spot and well-aerated soil, purple prairie clover has no special requirements. Removing spent flower spikes will result in reblooming later in the summer. Persistent seed clusters add interest to the plant in fall and early winter.

The ornamental attributes of *D. purpurea* are mirrored in several other members of the genus, each exhibiting slight variations on the basic prairie clover theme.

Among other purple-flowered species are three that typically inhabit drier sites than *D. purpurea*. Slimleaf prairie clover

Sources

FLOWERY BRANCH SEED COMPANY, P.O. Box 1330, Flowery Branch, GA 30542, (770) 536-8380. Catalog \$4. *Dalea aurea*.

ION EXCHANGE, 1878 Old Mission Drive, Harpers Ferry, IA 52146-7533, (319) 535-7231. www.ionexchange.com. Catalog free. *D. candida*, *D. gattingeri*.

PLANTS OF THE SOUTHWEST, Agua Fria, Route 6, Box 11A, Santa Fe, NM 87501, (505) 471-2212. www.plantsofthesouthwest.com. Catalog \$3.50. *D. aurea*, *D. frutescens*, *D. purpurea*, *Psoralea scoparius*.

PRAIRIE MOON NURSERY, Route 3, Box 163, Winona, MN 55987, (507) 452-1362. Catalog \$2. *Dalea candida*, *D. purpurea*, *D. villosa*.

PRAIRIE NURSERY, P.O. Box 306, Westfield, WI 53964, (608) 296-2741. Catalog \$3. *D. candida*, *D. purpurea*.

YUCCA DO NURSERY, P.O. Box 450, Waller, TX 77484-0655, (409) 826-6363. yuccado@phoenix.net. Catalog \$3. *D. greggii*.





Except for its white flowers, white prairie clover (above) is almost identical in appearance and range to purple prairie clover. Several shrubby daleas, including trailing indigo bush (opposite left), shrub dalea (opposite center), and black dalea (opposite right), are beginning to attract the attention of nursery owners and landscape designers in southwestern cities such as Albuquerque, Phoenix, and Austin.

(*D. tenuifolia*) occurs on rocky upland sites in shortgrass prairie country from Kansas and Colorado south into New Mexico and Texas. Gattinger's prairie clover (*D. gattingeri*) and leafy prairie clover (*D. foliosa*) are native to cedar glades and barrens in central Tennessee and adjacent Alabama, with Gattinger's also occurring in Georgia and Missouri. Leafy prairie clover is also known from a few hilltop prairies in northeastern Illinois; it was thought to be extinct there for a number of years until rediscovered in the 1970s.

With its dusty rose-colored flowers and silvery foliage, silky prairie clover (*D. villosa*) is somewhat reminiscent of the popular *Veronica* cultivar 'Minuet'. Silky prairie clover is similar in height to *Dalea purpurea*, but its stems are less rigid and create a more graceful, arching effect. Its flowers occur in tapering spikes up to four inches long.

Silky prairie clover is native to a large portion of the Great Plains, but is restricted to sandy soils. It is particularly abundant

in the sandhills prairie region of north central Nebraska and the sand sage prairies of Kansas. This affinity for sand may limit the adaptability of this plant for heavier soils, but its beauty makes it worth the effort of providing good drainage.

Alternatives to Purple

Although the purples and pinks offer eye-catching color, two white-flowered daleas also have fine ornamental attributes.

White prairie clover (*D. candida*) occurs throughout much of the range of purple prairie clover and is essentially identical except for its bright white flowers. It makes a fine garden plant, although it can sometimes look dingy when the flowers are fading. It is probably the second most widely grown member of the genus.

Round-headed prairie clover (*D. multiflora*) is another white-flowered species. Its flower heads are smaller and more numerous than those of *D. candida*, and rounded rather than conelike. The plant is also more densely branched and thus looks

more floriferous. Its blooming season extends from mid-July into September.

Native from Texas north into Nebraska, round-headed prairie clover typically occurs in dry, rocky prairie habitat. Combining hardiness with abundant flowering, a refined growth habit (one to two feet high), and foliage that produces a spicy fragrance when crushed, this plant would make an excellent addition to any sunny garden or perennial border.

Writing about the round-headed prairie clover in his 1961 book, *Kansas Wild Flowers*, William Chase Stephens puzzled, "When we see the bush at the height of its bloom in July, crowned with a multitude of fragrant flower heads, we wonder that we have not made more use of it in our gardens and that the *Cyclopedia of Horticulture* does not mention it, while *Hortus* gives it but two barren lines." More than 30 years later, we can still ask the same question about its absence from nursery catalogs.

Purples, pinks, and white do not exhaust the color range of the daleas. The

flowers of the golden dalea (*D. aurea*) are a pleasant bright yellow, occurring in spikes one-half to three inches tall. Barr described it as “a plant of distinction and charm.” It is also known as silktop dalea, in allusion to the long, plumelike bracts and calyx teeth that persist after flowering, giving the seed clusters an attractive, silky appearance.

Unlike the bushy species we’ve already described, golden dalea produces only a few unbranched stems that may reach up to 30 inches high. Wandlike, they sway in response to the gentlest breeze. Golden dalea is a short-lived perennial, lasting only two years in cultivation at the Dyck Arboretum of the Plains in Kansas. It will

In his journal he recorded the discovery of “a beautiful dalea”—one on which the species name *formosa*, meaning handsome, would later be bestowed.

Shrubby Daleas

Known by the common name of feather dalea, *D. formosa* is one of a number of shrubby daleas that are at home in the arid grasslands and deserts of the southwestern United States and northern Mexico. These are typically stiffly branched shrubs, two to four feet tall, with tiny, evergreen leaves and colorful, fragrant flowers.

Feather dalea produces fewer flowers per spike than is typical of the prairie

mont’s dalea (*Psorothamnus fremontii*), Thompson’s dalea (*P. thompsoniae*), and broom dalea (*P. scoparius*) warrant mention as closely related species with superior ornamental value. Thompson’s dalea has been described as “bizarrely beautiful” in a nursery catalog and as “lavishly floriferous” even in a more understated botanical manual. Broom dalea is a mounding, three- to four-foot shrub. Its nearly leafless gray stems bear fragrant purple flowers in summer.

These shrubby daleas are beautiful plants, but at present they are only being grown by a small number of specialty native plant nurseries. Trailing indigo bush (*D. greggii*), however, is a woody species



flower the first year from seed, however, then bloom profusely the second.

The size of James’ dalea (*D. jamesii*), another yellow-flowered species, is at the opposite end of the spectrum from golden dalea. This diminutive spring-blooming plant grows only about six inches tall and has beautiful silvery foliage coated with downy hairs. Native from southwest Kansas into northern Mexico and west to Arizona, it is adapted to the harsh, dry conditions of rocky ledges and barrens. Despite its dry-land origins, James’ dalea has been successfully cultivated as a rock garden plant on Long Island, New York. It was named for Edwin James, botanist for the Long Expedition during its exploration of the “Great American Desert” in 1820.

James probably encountered his namesake plant near present-day Pueblo, Colorado, in mid-July of 1820. Several days later, somewhere along a tributary of the Purgatoire River in southeastern Colorado, he came across a quite different member of this genus that clearly won his admiration.

clovers, but the individual flowers are larger. Combining rose-purple banner petals and bright yellow keel petals, the flowers bloom from May into September on the plains, a little earlier to the south. The common name of this dalea refers to the long, feathery calyx teeth associated with each flower. These persist after flowering and add to the ornamental value of the plant. Feather dalea is the most cold tolerant of the shrubby daleas.

Other shrubby daleas with horticultural merit include silver dalea (*D. bicolor*), black dalea (*D. frutescens*), and shrub dalea, sometimes called indigo bush (*D. pulchra*). In cities such as Phoenix, Austin, and Albuquerque, their rugged beauty and drought tolerance have earned them a place in public landscapes.

Cousins, Once Removed

A number of desert shrubs that were once considered part of the genus *Dalea* have been moved to the genus *Psorothamnus*. Regardless of their taxonomic status, Fre-

that has seen much wider use as a landscape plant. This desert plant grows as a low mounding shrub usually less than 10 inches high and spreading to four feet in diameter. It has proven an effective ground cover in the Southwest, where it has become firmly established in the nursery industry. It produces numerous small purple flowers, but is primarily grown for the effect of its dense, silvery blue foliage, which softens the sharper outlines of plants such as yuccas and agaves.

Despite the wide geographic reaches of the genus *Dalea*, only the purple prairie clover of the Midwest and the trailing indigo bush of the Southwest are readily available to the gardening public. Between them occur a number of other species with exciting potential for American horticulture. It’s time to discover the daleas!

James H. Locklear is director of the Nebraska Statewide Arboretum in Lincoln. Larry G. Vickerman is director of the Dyck Arboretum of the Plains in Hesston, Kansas.

The Arboretum at Flagstaff

At 7,100 feet, well-adapted plants are the key to success here.

by Rose Houk



Arboretum founder Frances McAllister, above, outside the Reichardt House, her home-turned-visitor center. Demonstration areas include an organic vegetable garden, opposite.

When asked for his conjectures about the next week's weather, a gardener at the Arboretum at Flagstaff offered this out-on-a-limb answer: "It may rain or snow or might even be dry. I think the temperature will be hotter or cooler than normal. The wind will blow except on the days it doesn't."

An experienced horticulturist, he was keenly aware of the folly of trying to predict conditions at 7,100 feet elevation in northern Arizona, where the arboretum—the highest elevation research garden in the country—is located.

This beautiful but challenging environment tests even the most faithful gardeners. But it didn't deter Frances McAllister, who discovered the secret to gardening here and then decided to share it with others. McAllister founded the arboretum to conserve and interpret plants and plant communities of the Colorado Plateau, a huge physiographic region that encompasses the heart of the Four Corners states of Arizona, Utah, Colorado, and New Mexico. As she puts it, "I wanted to encourage people to respect and enjoy what grows locally," especially low-water-use plants.

McAllister first came to northern Arizona in 1935 at the age of 25 with her husband-to-be, John McAllister, and his sister, to the "wonderful woods and mountains" she'd heard about from John's family. As they traveled from California by train, John pointed out to Frances a place where they might retreat to continue their work editing a literary magazine. She liked the idea, and the following year they built a log summer house in the ponderosa pine forest. The local flora so piqued her interest that ultimately, as McAllister recalls, "I got the idea of making a garden entirely of wild plants from the property." In exploring the area, the couple discovered 160 acres nearby that they began to fantasize about as "our home place." This is the land that, now expanded to 200 acres, would become the arboretum.

At that time, though, the property was not accessible by road, so the McAllisters continued to spend summers and holidays in the log house. Despite John's death in 1953 the dream of a year-round house at their chosen home site remained alive, and in the mid-



1960s, Frances invited a friend, California architect Walter Reichardt, to design a house for her. The Reichardt House, as it's called, is set in a peaceful, protected clearing amid tall swaying pines. The exterior is of local malpais (basalt) boulders, while a magnificent fireplace of volcanic tufa graces the living room and generous windows look across an open meadow to the San Francisco Peaks, the highest mountains in the state.

From that spot, this gracious Quaker woman pursued her passion for native plants and gardening. "I loved collecting plants, and each year I brought in more and more," says McAllister. Her eyes light up as she names them: two species of pussytoes

biological research in the forest. She credits the late Charles Minor, dean of the university's school of forestry, as a person instrumental in her deciding that her home and land should be a focus of plant research and conservation for future generations.

In 1981 McAllister founded the Transition Zone Horticultural Institute. "Transition zone" is the name biologist C. Hart Merriam gave to the ponderosa pine forest in 1889, when he formulated his pioneering life-zone concept of ecosystems. The concept took shape from his surveys in the San Francisco Peaks and Grand Canyon areas, during which he exhaustively charted changes in plant life with changes in elevation. That year McAllister not only gave the 200 acres that would become the Arboretum at Flagstaff but included the Reichardt House as well as an endowment. She remains active on the arboretum's board of directors to this day.

Chris Sacchi came to Flagstaff a year ago to assume the position of executive director, after eight years as curator of the University of Virginia's Orland E. White Arboretum in Boyce. He was essentially returning home, since he earned his doctorate in biological sciences at Northern Arizona University. Sacchi explains that in keeping with McAllister's philosophy of "ecological horticulture," the arboretum, rather than trying to create something different, exhibits native plants already adapted to the environment. Although that may mean making more limited choices than possible in areas with more "benign" climates, "what we do have are like little jewels," he says. With a smile, Sacchi is quick to observe that as a relatively young garden, "we're still learning."

Use of appropriate technology is another facet of ecological horticulture. To deal with waste water, the arboretum aims to demonstrate the natural water-cleansing powers of a wetland. In its first experimental year, a constructed wetland on the grounds has been producing water of "swimmable" quality using such native plants as Arizona willows (*Salix arizonica*), sedges, yarrows, and St. John's-wort. The horticultural center is heated by a passive solar system, and drip irrigation is used throughout the gardens.

A major task of the arboretum, says Sacchi, is preserving the rare plants of the Colorado Plateau. In 1985 the arboretum joined the nationwide network of the Center for Plant Conservation and now holds 30 rare species, watched over by botanist Joyce Maschinski, curator of plants.

COURTESY OF THE ARBORETUM AT FLAGSTAFF; COURTESY OF STEVE YODER

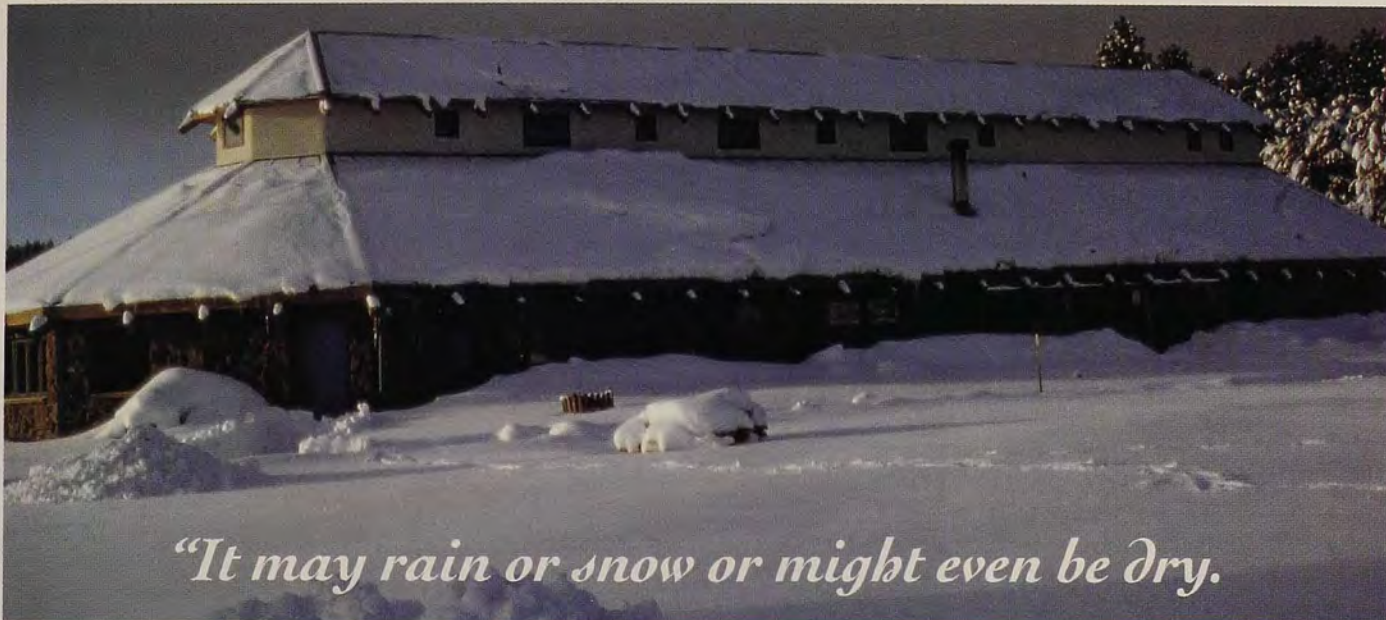


During the long winter the horticultural staff keeps busy with indoor research and propagation, above left. Volunteers are a public garden's lifeblood, and Flagstaff is no exception. Above right, an Elderhostel participant pitches into a planting project.

(*Antennaria* spp.), all kinds of penstemons, phlox, delphiniums, columbines, iris, and "eight or nine different potentillas," her favorite genus.

McAllister traces her fascination with botany to her childhood in Southern California. She would ride with her family on the streetcar to the end of the line in Pasadena, and from there they hired a donkey to haul their camping gear up into the mountains. She vividly remembers her father once bringing home a maidenhair fern, which lived for years under the shade of a back-yard tree.

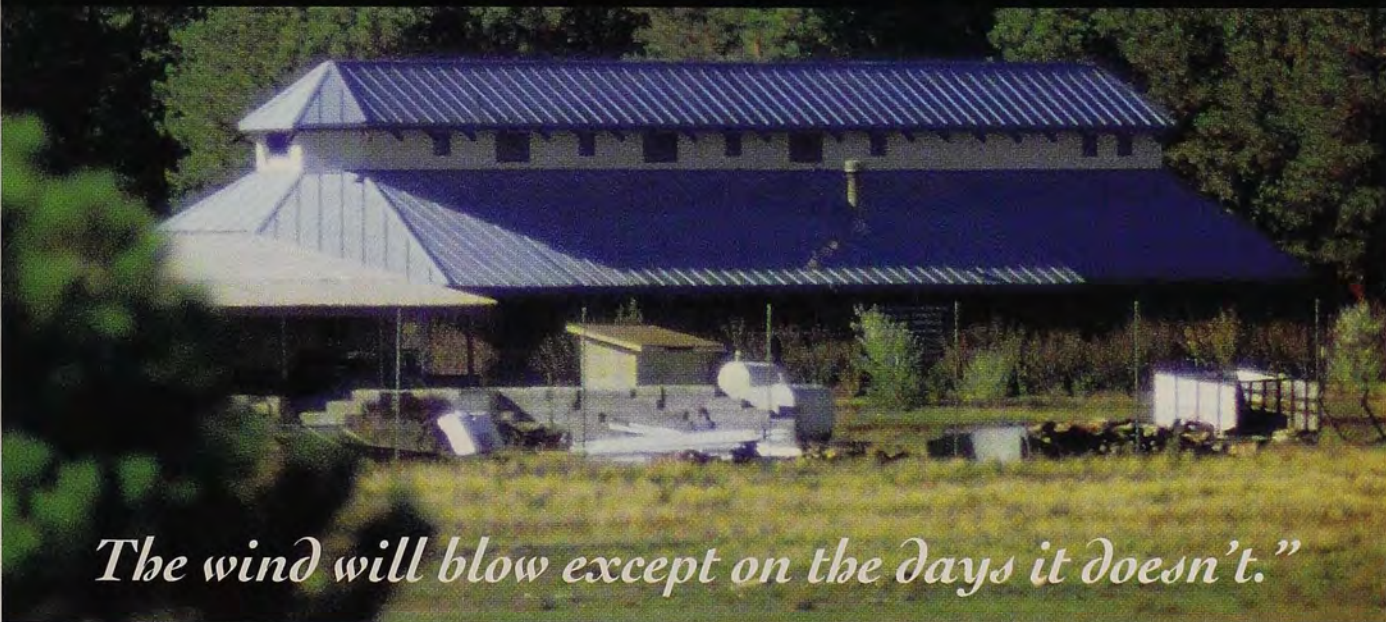
Through the years that she resided on her Arizona property, McAllister welcomed professors and students from Northern Arizona University to come out and conduct



"It may rain or snow or might even be dry."



"I think the temperature will be hotter or cooler than normal."



"The wind will blow except on the days it doesn't."

TOP TO BOTTOM: COURTESY OF THE ARBORETUM AT FLAGSTAFF, DAMON G. BULLOCK, COURTESY OF THE ARBORETUM AT FLAGSTAFF

Maschinski spends her time conducting research on various species and collecting in the field. Some plants are so rare it's difficult to find enough seeds to collect. Take the euphoniouly named autumn buttercup (*Ranunculus aestivalis*). In 1989, the year before Maschinski started work at the

arboretum, there were only 11 individual plants known to exist, in a wet meadow along Utah's Sevier River. Normally Maschinski tries to gather no more than 10 percent of the seed in a wild population, to protect the species' ability to continue reproducing there on its own. Ideally, this

would still be enough to allow her to collect thousands of seeds, so that some can be refrigerated and saved at the arboretum, others used for germination experiments, and another portion sent to the National Seed Storage Laboratory in Colorado. The autumn buttercup's wild population was so

Limahuli Garden

As a 75th anniversary gift to the American Horticultural Society, long-time member Frances McAllister gave \$7,500 to be awarded to a botanical garden whose scientific research, educational programs, and overall design best reflect and support sound environmental practices, including the conservation of water, soil, and native plants.

Many outstanding gardens were nominated, but the above description fit the winner of the AHS Natural Botanical Garden Award—Limahuli Garden on the Hawaiian island of Kauai—like a glove. In fact the name (pronounced “leema-HOO-lee”) is Hawaiian for “turning hands,” although the legend behind the name has been lost. The eight-acre public garden serves as a virtual textbook on the role of plants in Hawaiian culture. It contains one of the islands' few remaining pristine streams, which is carefully monitored by aquatic biologists for information to be used in restoring other Hawaiian waterways. Electric power for its visitor center comes from an energy-efficient photovoltaic system.

Limahuli is on the north shore of Kauai, where some of the first Polynesians settled, and the area is rich in archeological features. Within Limahuli, these include a series of terraces or lo 'I kalo built 700 to 1,000 years ago to hold water diverted for raising taro.

Visitors can study some of the other important plants introduced to the islands, such as sugarcane, banana, and breadfruit. They can also see endangered Hawaiian native plants such as the *Pisonia wagneriana*, or papala kepa'u. This member of the four-o'clock family, found only on Kauai, has a sticky gum on its seeds that was used by early Hawaiians to catch birds. Today the plant is losing ground to such invasive exotics as the schefflera. “The schefflera is currently the single worst invasive tree in the garden environment,” says garden director Charles (Chipper) Wichman, “and since this plant is familiar to most visitors as a house plant, it provides an excellent example of what can happen when aggressive introduced species escape cultivation.”

Wichman is a seventh-generation Hawaiian descended from missionaries. His grandmother, Juliet Rice Wichman, laid out most of the cultivated garden in the late 1960s and in 1976 gave it to the National Tropical Botanical Garden. The NTBG operates five gardens comprising 1,400 acres in Hawaii and Florida, and is dedicated to conserving and studying what it discovers “so that public attitudes and behavior can be enlisted to help protect and enrich the environment.”

Wichman inherited 985 adjacent acres from his grandmother and in 1994 gave this land to NTBG as a nature preserve. Closed to the public, it is home to an estimated 100 native plants representing 70 percent of Kauai's and more than half of the state's endangered

species. “The garden and preserve encompass two important ecosystems—the mixed mesophytic forest and the lowland rain forest—that don't occur at any of NTBG's other sites,” says Wichman.

While exploring the preserve in April 1991, Wichman and botanists Ken Wood and Steve Perlman discovered a new species, *Cyanea kuhibewa*, a member of the bellflower family. They returned by helicopter that August to collect ripe fruit and search the area for more of this unique species. “In spite of our best efforts we couldn't find any more, which meant that the fate of the species rested in fewer than 12 individual plants,” Wichman says. Then in September 1992, Hurricane Iniki ripped through the rain forest, putting additional stress on the



PHOTOS COURTESY OF CHIPPER WICHMAN

limited she could collect only a few hundred seeds. After a “real winter,” the plants set seed—the first time, to Maschinski’s knowledge, that has happened in a garden.

The ultimate goal of any rare-plant program is not only to keep a species going in the confines of a greenhouse, but also to

reintroduce it in its native habitat. The sentry milk vetch (*Astragalus cremnophylax* var. *cremnophylax*) illustrates the often tricky nature of this goal. This low-growing, purple-flowered plant grows in rocky limestone at a viewpoint on the South Rim of the Grand Canyon. Its major threat has

been trampling by thousands of feet as visitors flock to the rim to glimpse the canyon. The milk vetch population was fenced off, and seed gathered and propagated in the arboretum greenhouse. To attempt reintroduction, more than 200 seeds were planted at the canyon site, but only one plant has

Limahuli is home to ancient terraces, opposite, that held water for growing taro. Top left: A rare native gardenia is planted in the Limahuli Preserve. Bottom left: Staff must rappel down cliffs to hand pollinate *Brighamia insignis*.



petitive edge to *Clidemia birta*, a member of the meadow-beauty family. Birds eat and spread its small berries, helping it to form a thick, dense layer that inhibits germination and growth of native seeds and plants. “In areas of the preserve where *Clidemia* has taken hold, we’re ‘gardening’—hand-weeding and replanting native canopy species—since *Clidemia* is noncompetitive in the understory,” explains Wichman.

The Limahuli Garden and Preserve site extends from an elevation of 3,300 feet down to just 100 feet above sea level, and Limahuli Stream plummets nearly 800 feet as it falls into the lower valley. Wichman says that this setting is an illustration of the ancient Hawaiian principle of ahupua’a, which today we would call “community-based resource management.” An ahupua’a was often an entire valley or watershed, and it was controlled by the people who would benefit or suffer depending on how wisely they managed its resources.

“It provided all of the resources needed to sustain a community, from the birds and medicinal plants found in the upper rain forest to the marine resources found on the reefs and in the sea,” the garden director elaborates.

Resources found growing here today include the wauke or paper mulberry, *Broussonetia papyrifera*, used to make a cloth called kapa; the kukui or candlenut tree, *Aleurites moluccana*, with oily nuts used for candles; and the ‘awapuhi or shampoo ginger, *Zingiber zerumbet*, with flower sap that

can be used to wash hair.

While these are all introduced plants, seven plants on the federal endangered list can be found here, too. These include *Munroidendron racemosum*, a small tree in the ginseng family with smooth gray bark; koki’o ke’oke’o, *Hibiscus waiameae* subsp. *hammerae*, a white hibiscus thought to be extinct until found in 1976 on what would become the Limahuli Preserve; and alula, *Brighamia insignis*. This plant, which the Limahuli guidebook describes as looking like a cabbage on a baseball bat, has become famous for the lengths to which the NTBG staff have gone in keeping it alive. For two decades they have rappelled down cliffs to monitor and pollinate the plants.

As happy as NTBG and Limahuli supporters are about the AHS award, it has its bitter-sweet side. The garden was nominated in a December letter from William Klein Jr., who died of a heart attack in February, before the selection was announced. Klein had come to NTBG as director in 1994 from the Fairchild Tropical Garden in Florida—where he led restoration efforts following Hurricane Andrew. He had also been director of the Morris Arboretum of the University of Pennsylvania and an assistant director at the Missouri Botanical Garden. “Dr. Klein would be proud,” says acting director Diane Ragone, “to know that his nomination bore fruit.”

—Kathleen Fisher, Editor

For information on visiting Limahuli, call (808) 826-1053.

plants. Since then, none of them have flowered or fruited and several have died, although Greg Koob, a scientist at Lyon Arboretum on Oahu, has succeeded in cloning the plant from a basal sucker.

To survive, the *Cyanea* requires the wet conditions found deep in the preserve, but when possible, the Limahuli staff grows other rare natives in the garden, where the public can see and learn about them. “One advantage of having the garden adjacent to the preserve is that visitors can see rare plants that we’ve propagated from those growing in the back of the valley,” says Wichman. “Having endangered plants accessible in the garden makes research on their reproductive biology a lot easier and more practical, too.”

Creating a smooth transition between the virginal pre-

serve and the cultivated garden was one of the tasks given to the designer, Geoffrey Rausch of Environmental Planning and Design in Pittsburgh, Pennsylvania, who downplays his role. “We basically took Chipper’s vision and put it on paper,” he says. Rausch helped solve the problem of parking for visitors to the once private garden—it was open “by appointment only” until March 1995—and shaped the path to open vistas to sites enshrined in legend. These include Makana Mountain, the Bali Hai made more famous by the musical “South Pacific.”

A small grant from the U.S. Fish and Wildlife Service is being used to reduce alien plants and otherwise restore the hurricane-damaged area. By allowing sunshine to reach the forest floor, Iniki gave a com-

survived. At first, Maschinski was dismayed by the poor results, but other botanists indicate that such odds are the best they can hope for in many reintroductions.

The arboretum's research on rare plants also has direct applications for land management decisions. The U.S. Forest Service, for instance, was concerned about the potential impact of timber cutting and grazing on the Arizona leatherflower (*Clematis hirsutissima* var. *arizonica*) of the ponderosa pine forest. By clipping the plants to simulate grazing by both wild and domestic animals, Maschinski found flower production was not affected if the clipping was done in the fall rather than earlier in the

year. Thus land managers could release cattle onto the range at a time least damaging to the leatherflower. Maschinski is also "manipulating the canopy" to see how much shade the plant needs. So far, it looks like the leatherflower fares best in dappled sunlight rather than deep shade, so that thinning the forest's dense "doghair" thickets, which have grown up in the absence of fire, may benefit the rare plant.

A new greenhouse will house a five-year study with the Arizona cliffrose (*Purshia subintegra*), a shrub that grows in only four locations in central Arizona. Maschinski and her colleagues are looking at factors that limit its distribution and hope to identify the necessary conditions for seedlings to become established. Because Arizona cliffrose grows only in a particular soil type, part of the study will examine the possible close association between the shrub and mycorrhizae—soil fungi that develop a symbiotic relationship with plants.

While much of the arboretum's basic research goes on behind the scenes, some of the rare species are on display in the gardens, Maschinski adds, so people have a chance to learn about plants they might never glimpse in the wild.

Growing numbers of visitors come to the Arboretum at Flagstaff to experience the 10 acres of naturally landscaped gardens and explore the possibilities of the Colorado Plateau's native flora. Their first stop is the Reichardt House, which now serves as the arboretum's visitor center and gift shop. Beyond its glass doors is the courtyard garden, where some of McAllister's original plantings still grow.

Visitors can stroll through other specialty gardens: a traditional herb garden, an organic vegetable garden, a butterfly garden, and a garden devoted to members of the composite family. A mixed conifer garden re-creates higher elevation, wetter habitat. Along with limber pine and Douglas fir, this garden features an aspen grove and a small island of Bebb and Arizona willows. A meadow of Rocky Mountain iris (*Iris missouriensis*), shrubby cinquefoil (*Potentilla fruticosa*), and lupine, and a pond and stream bank planted with narrowleaf cottonwood (*Populus angustifolia*) and coyote willow (*Salix exigua*) show some of this habitat's rich diversity.

For horticulturist Jan Busco, an exciting part of the job is planning new gardens. Among them is one devoted to ethnobotany, especially the high-elevation plants used by Native Americans for food, fiber, and dyes. Also in the works is a display of plants with different water needs, from wettest to driest, and a wildlife demonstration showing interactions between plants and animals. On winter days, she keeps busy with such tasks as spooning out potting soil in preparation for the arboretum's big annual sale the following spring.

"It was 18 below the other night," Busco relates in late February. "We're really at the extreme of climate." Even more than for other gardeners, the elements frequently deal out harsh lessons about what will, or won't, survive. The growing season can be as short as 60 or as long as 110 days, but generally she assumes 90 days—still brief by most standards. There have been years when frosts have occurred 11 out of 12 months on the arboretum grounds. Rainfall variability is a major factor for Busco to cope with. A severe drought in 1996 doomed many of the garden's plants and reinforced the need to incorporate more xeric species.

None of this seems to trouble Busco's optimism. On a bright March morning, she stands outside the horticultural center and looks out over a snow-covered meadow, eagerly anticipating a colorful spangling of native dryland wildflowers come summer.

It's clear that for her and the rest of the arboretum staff, the landscape that captured Frances McAllister's heart and mind more than 60 years ago is still weaving its magic.

Rose Houk is the author of Wild Cactus, which was excerpted in the September/October 1996 American Gardener. She lives in Flagstaff.



COURTESY OF STEVE YODER

The sunset crater penstemon (*Penstemon clutei*) can be seen growing in the arboretum's collection as part of its efforts to conserve rare plants of the Colorado Plateau.

The Flagstaff Arboretum is open 9 a.m. to 4 p.m. daily from May to October, and weekdays from November 1 through December 23 and March 17 to April 30. There is a small admission charge. For more information, write to the Membership Office, P.O. Box 670, Flagstaff, AZ 86002, call (520) 774-1441, or visit www.flagguide.com/arboretum.

A Place in History

Scott Kunst wants you to see your garden as a chapter in time.

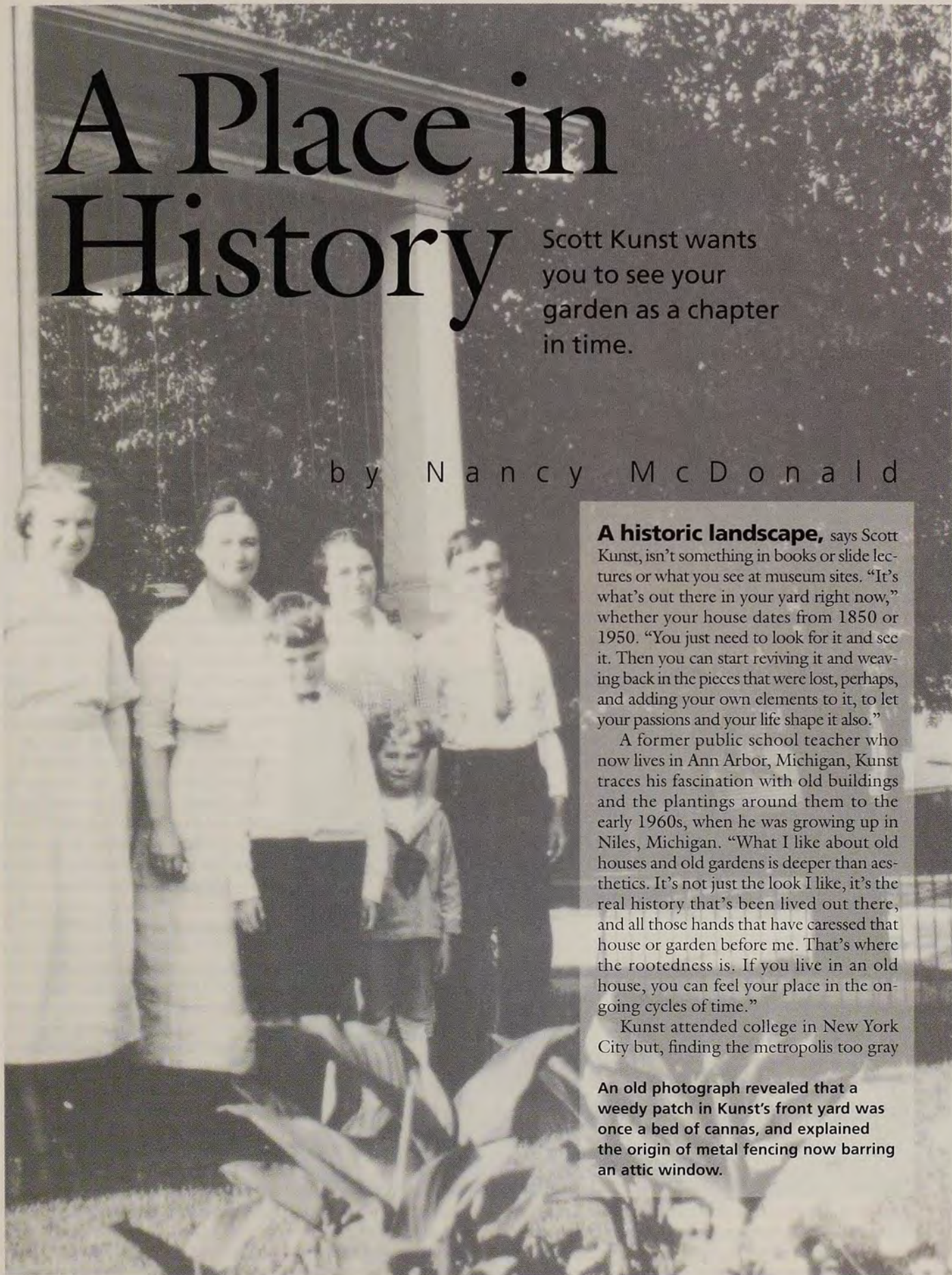
by Nancy McDonald

A historic landscape, says Scott Kunst, isn't something in books or slide lectures or what you see at museum sites. "It's what's out there in your yard right now," whether your house dates from 1850 or 1950. "You just need to look for it and see it. Then you can start reviving it and weaving back in the pieces that were lost, perhaps, and adding your own elements to it, to let your passions and your life shape it also."

A former public school teacher who now lives in Ann Arbor, Michigan, Kunst traces his fascination with old buildings and the plantings around them to the early 1960s, when he was growing up in Niles, Michigan. "What I like about old houses and old gardens is deeper than aesthetics. It's not just the look I like, it's the real history that's been lived out there, and all those hands that have caressed that house or garden before me. That's where the rootedness is. If you live in an old house, you can feel your place in the ongoing cycles of time."

Kunst attended college in New York City but, finding the metropolis too gray

An old photograph revealed that a weedy patch in Kunst's front yard was once a bed of cannas, and explained the origin of metal fencing now barring an attic window.



for his tastes, returned to get a teaching certificate from the University of Michigan in Ann Arbor. He began teaching English to middle schoolers and bought a little old house—big enough for a bachelor—in nearby Ypsilanti. Then at age 30 he married Jane Raymond, a sixth-grade teacher he met while playing softball, and together they bought an 1880s house on Ann Arbor's historic west side.

After five or six years of teaching, he realized he enjoyed poking around old gardens more than he did being in a classroom and began working on a master's in historic preservation. In 1983 he hung out his landscape historian shingle, although he continued to teach full-time until 1990. He taught half-time until last year, when he "retired." Now he devotes all his time to Old House Gardens, a historic-bulb catalog that he and Jane started in 1993, and to helping other homeowners discover that both they and their gardens are vital aspects of history.

Attitude Adjustment

The first step in discovering historic landscapes, Kunst says, is simply to start seeing them. In old houses, it's easy to identify fine woodwork, brass fixtures, and other wonderful details that have managed to survive. Garden relics may be harder to recognize. Whenever you move to a different house, it's a good idea to learn the lay of the land for a year before you begin major garden renovation, and this is even more true if you want to weave the history of the garden into your landscape.

It's partly a matter of shifting your attitude. "When I bought my first old house, I was intrigued by the remnants of the past I found there," Kunst says. "But I went into it thinking that I would

read a book telling me what historic landscapes are like, and then I would create one in my yard. I thought it was something you had to do or bring to the site after learning about it somewhere else. But it's already there; you just need to learn to see it. A house or garden speaks to you if you learn the language."

Surviving historic plants are often well hidden. Go into the neglected areas, Kunst counsels. Look along the borders, behind the garage, along the alley fence, behind the neighbor's garage, in those wild edges that never quite get mown or weed-whacked. "At first you may think there's nothing there. I thought that was true of this place. There were just a few scraps here and there. Most sites are like that, and the relic plants or relic features are invisible—or invisible because we don't look hard enough."

Rather than looking for an overgrown specimen shrub, try looking closer at your weeds, Kunst suggests. A patch of weeds in the lawn can indicate an area that was disturbed in the past—the former site of a tree or shrub or a small outbuilding. A photograph from a previous owner of Kunst's home showed that a weedy spot in the lawn was the site of a bed of cannas in the early 1900s. "Rather than thinking that they're weeds and you need to get rid of them, ask yourself 'Why are they there?'" A weed can be an indicator of a pattern that's been broken, or it might be a plant like bouncing Bet (*Saponaria officinalis*) that we don't use much in gardens anymore.

"A plant's an artifact in itself," Kunst teaches, "but it can also be a shard or marker of what was there in the past. Imagine a painting on a piece of glass that was dropped and broken. Through the years, this piece and that got lost. Now you just have these little scraps, and they just look like garbage sometimes, or nothing, because

you've lost the sense of the picture. But the more of those pieces you can find in your own yard, the more they can suggest what the picture did look like at some time. Of course a garden is more complicated than that, because it's not just one picture for one time, but a picture that's moving through time and changing all the time."

It's always a good idea for gardeners to map their property, however roughly. This will provide a base to plan from, and maybe a new perspective on patterns. It's also a way to preserve the landscape even as you begin to change it. It can be a gift to gardeners of the future, who will wonder what your yard—their yard—looked like way back in the 1990s. Take some photos before you make any permanent changes, Kunst advises. "We've been in our house 10 years," he says. "I looked at pictures from when we'd just bought the place, and already I'd forgotten what it was like then."

Plants are only one part of the historic landscape. There may be relics of design as well, like where the old drive was, or bits of trellis or furniture. Check the attic, the cellar, the garage—areas of benign neglect.



Traces of old landscapes can be blatant or subtle. Clockwise from top left: Dry grass is the ghost of a sidewalk; the zigzags up the middle of the lawn of Drayton Hall in Charleston, South Carolina, reveal former planting patterns; a sidewalk honors the memory of a deceased tree; creeping bellflower calls attention to a former flower bed.



This photograph, found in a museum in Mount Carroll, Illinois, shows that this home had no foundation plantings—instead, plants were displayed on trellises, plant stands, and in hanging baskets.

Kunst found a piece of decorative metal fence barring the window of his garage attic; he later saw an old photograph showing that same fence along the sidewalk of his property.

Sometimes features can be hidden in plain sight. When the Kunsts bought the house in 1985, an overgrown, rusty, tumble-down iron-pipe grape arbor stood right outside Kunst's new home office window, blocking the view. "At least that's the way I experienced it at first. I thought it was really poorly sited, and rusty iron pipes aren't very elegant. If I'd been anything but a landscape historian, I'd probably have torn it down. But I held myself back and gave myself time to appreciate it and learn about it."

Practicing Patience

Exercising patience is hard for most new homeowners, and the reason much garden history is lost. It takes time to learn to appreciate an existing garden, and when you've just moved into a house that's new to you, you're anxious to make your own mark. Try to wait at least a year before making any large or irreversible changes. Things that don't make sense to you at one season may become clear later. You won't know where the bulbs are until spring; you won't reap the benefits of a shade tree until July. Getting to appreciate someone else's vision of the landscape is a bit like getting to know new people. You may not be favorably impressed at first, but later come to appreciate their unique qualities.

Possibly the most difficult old landscapes for us to appreciate are those of a slightly more recent vintage, such as the 1950s. "Every generation finds it easy to scorn things our parents appreciated," says Kunst, "although we might like what our grandparents or great-grandparents had." During the generation that these things are being snubbed and discredited, they're being lost—all

the more to be valued when they're rediscovered. "Every age has a way of making sense of the world," says Kunst. "We need to look at ranch houses or tract houses and ask ourselves what's different and likable about them. Evergreen foundation plantings of yews and junipers are looked down on now. But at the time these houses were built, the ideal look was one of clean lines and simplicity, and those plantings were absolutely perfect."

To some homeowners, the worst sin a plant can commit is to be "overgrown" and "out of scale." There's nothing inherently wrong with age; in fact, the gnarled look of an old woody plant can be dramatic, and a "mature landscape" is a goal of most serious gardeners. With some careful pruning, a tree or shrub that has become ragged can often be renewed—not to make it look like a five-year-old plant again, but to reflect the passage of time.

Pruning deadwood is a way to keep your hands busy during that first year of learning about your garden's history. Go ahead and remove identifiable weeds such as poison ivy and burdock, and cut beds out of the lawn (you can always put sod back in if you change your mind later). If you need color, garden in containers.

This is the research stage. Check your local historical society archives for old photos, letters, and diaries. Use your local library. And history isn't always hidden in dry, dusty papers. Talk with your neighbors, especially people who have lived in the neighborhood a long time, and the previous owners of the property.

Even if you can't find photos or diaries relating to your own property, you can learn about gardens of the same period. "The more you understand about what gardens looked like in the past," Kunst explains, "the more you're going to understand the relics you find at your site. Just as if you went to an archeological dig and dug up two little shards of a Greek vase—if you had no idea

what Greek vases used to look like, there's no way you'd ever reconstruct the thing. But if you have that context when you look at those two little scraps, or twelve, or twenty, you think, 'Oh, I can see what this was like.' It's the same with a garden."

Look locally, of course, since what gardeners did in New England in 1850 may not relate much to your situation in Utah or Mississippi. And look at historic records of houses and neighborhoods of more or less the same economic level as your own.

Kunst's grape arbor is a case in point. "I did some investigating and found it wasn't really hard to get some more pipe and patch it together. We pruned the grapes and opened up the view, and discovered that at one time it had run all the way across the yard. When I looked back in 19th-century garden books, I saw that this is illustrated fairly often, to divide the work space in the back yard from the ornamental space in the side and front.

"You can tell from the structure itself that it used to have wires running through the iron pipes, so that the grapes were trained all up and down the sides and it made a completely enclosed room. An older woman who used to live next door stopped by one day and told me how they used to play under it when she was a girl. So when I gave it some time, the significance of the arbor began to reveal itself. What I learned about it enriched it for us. It's still not elegant, but it's the heart of our old yard. We sit out there and have breakfast or lunch in summer, and when people come to visit, they love the arbor. They say they wish they had one too!"

Building on the Past

You've inventoried and mapped. You've given yourself time to learn about your garden relics. Now it's time to make your own landscape history. Think about yourself and your family, and what you want out of that landscape. For any historic feature, there is a range of approaches you can take. Say you have a small ornamental concrete pond that came with the house, but you have small children and feel it would be dangerous to have a pond they could fall into. You could rip it out, but then that relic would be lost forever. Or you could document its history and fill it in for another use, such as a bog or rock garden, or even make careful note of its location and cover it completely. You've still preserved

it for future generations, even though you're not using it now.

Sometimes, as we all know, a tree or shrub described as overgrown or out of scale is really in the wrong place. Gardeners in the past didn't necessarily have any more sense than we do now and may have planted evergreens, for example, far too close to the house. But several decades later, you've lost the use of three windows and a door. What do you do?

"Old trees can be the glory of an old landscape," says Kunst, "but sometimes I see some that I think should be removed." If the problem can't be solved by pruning and the plant is too big to move, he says, "document it, identify it, photograph it for your records—and then get rid of it. But preserve the knowledge that it was there. I encourage people to do that, to pass that on, leave a copy for all the gardeners that come after at your house. Because you know how you'd love to have something like that from your property in the past: the garden diary of the woman who gardened there in the 1880s. What a resource!"

You can also use simple means to mark the site of any changes you make. At historic sites, buildings that have been destroyed are sometimes indicated with an outline of brick in the lawn. Kunst has done the same thing in his yard with small flowering bulbs. A ring of glory-of-the-snow (*Chionodoxa*) marks the former site of a flower bed he removed. It's a way of physically documenting the change in addition to the documentation you do on paper.

Kunst believes that developing an appreciation of past landscapes—even if we elect not to re-create them or preserve them intact—helps us see ourselves as part of the whole stream of history, and not just as the end point. "If you're at the end point," he says, "you can do whatever you want, but if you see yourself as part of the whole flow, and that there are people who come after you who will be affected by the decisions you make in your landscape, then maybe you'll think about things differently and approach them with a different perspective."

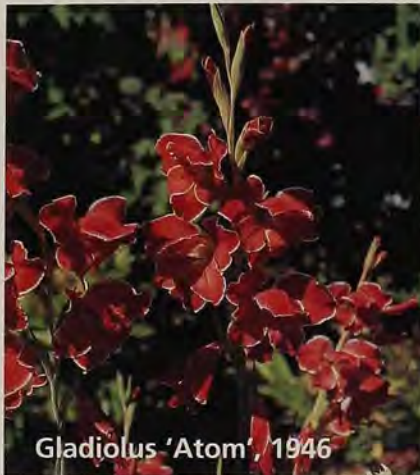
Working with his grape arbor helped Kunst feel connected to the people who built it, even though it is not in its original form. "We could have put the wires back down the sides and we could have rebuilt it across the whole yard. I decided not to do that; I like it open and I want the view. In its original form, it wouldn't work as well for us today. We've kept that relic because we thought it was priceless. It conveys that sense of age more than anything else in our back yard.

"I'm really passionate about ordinary home landscapes like ours. If the only historic resources we conserve in this country are in museums, we're really going to be impoverished as a culture. A historic garden is something that you share with the people who came before you and the people who come after you, and to me that enriches it. You're part of a community that doesn't just exist in space at the present moment, but through time, through all of time. I like that sense that you're sharing, that you're a chapter in the history of your land."

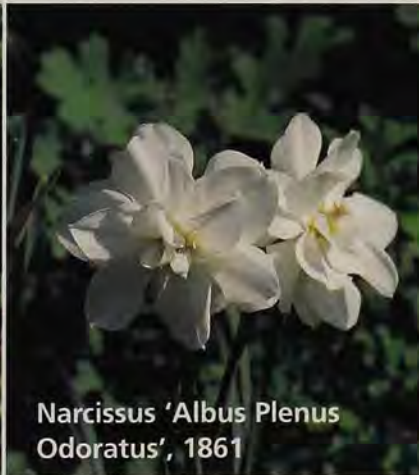
Nancy McDonald is co-editor of The American Cottage Gardener.



Kunst, left, prunes a grapevine on an old iron arbor, right, that his family inherited from previous owners. His first reaction was to see it as falling down and poorly sited, but a little research and repair have made it "the heart of our old yard."



Gladiolus 'Atom', 1946



Narcissus 'Albus Plenus Odoratus', 1861



Tulip 'Bleu Aimable', 1916

Resurrecting Antique Bulbs

Scott Kunst knew he wanted to make a living from his passion for landscape history. But writing and lecturing about it wasn't paying the bills, and consulting took him away from his family.

Then in 1988 he wrote an article for *Old House Journal*, describing Victorian tulips still available in mainstream catalogs. He was growing a lot of those tulips, including 'Prince of Austria', which was introduced in 1860 and remained extremely popular until about 1930. By 1988 there were only two sources. Then, what has been described as one of the most fragrant of all tulips, a tulip that comes back tenaciously in Kunst's Ann Arbor garden, disappeared from the trade.

"It occurred to me that in my garden I had maybe the last two dozen that existed in the world," he recalls. "Then other tulips I loved started dropping out of the commercial catalogs I was getting. I felt that if I didn't do something, these wonderful flowers would

just be gone." Kunst realized that while there were people specializing in antique perennials and vegetables, no one was selling old bulbs. "And if I didn't do it, someone else would, and I was going to kick myself."

He produced his first modest catalog in 1993. By 1996, sales were 20 times greater, and he retired from his 19-year teaching career.

How does he find and identify plants that have been orphaned for decades? "You have to live with a lot of uncertainty," he admits.

Kunst started with bulbs still available in commerce. Most of the time, he notes, they aren't sold as antiques, so he had to research their date of origin and description from international checklists and old catalogs. "Distressingly often, the descriptions didn't match. You'd look up one name and read that it had been introduced in 1923. Then another one with the same name was introduced in 1947—and maybe 1980." While a written description is a start, he finds old illustrations even better.

Kunst says he frequently asks bulb dealers about any not listed in their cata-

logs, hoping that they may have antique bulbs in quantities too small to list. "I have a British grower who inherited what he calls 'trials'—plants they bought to experiment with—as part of his family legacy. These things have fallen out of the mainstream, and I'm hoping to get them back in."

Kunst has discovered other plants through sources ranging from old library books to the Internet. But he says it's hard to beat personal contact with his customers and other growers as a means of both verifying the identity of plants currently in the catalog and discovering new ones. "Once someone came up after a lecture I was giving and told me, 'You said double hyacinths were rare, but I have a whole yard full of them.' I thought she had to be mistaken. In Ann Arbor hyacinths usually just dwindle away. But it was true. We need to get these back into gardens and get people breeding them."

From a correspondent in central Texas, where tulips are hard to grow because of the mild winters, he discovered a red tulip re-

ported to return and multiply. "It has very thick, fuzzy insulation between the tunic and the bulb itself, although you would think that would be an adaptation to cold rather than heat."

Kunst was thrilled a year ago when the American Daffodil Society encouraged all its sanctioned shows to add a special section for pre-1940 cultivars. He thinks this will both focus attention on the heirloom varieties and help sort out the real oldies from the imposters. "Sometimes if we think an unidentified plant is worthy of being in the catalog, we'll offer it under a study name. I've learned to accept that."

Kunst hopes other plant sellers will follow his lead and list dates of introduction. "It's like holding up a lantern, and once you start shining dates on things, then people say, 'Oh, this is an antique variety. I think I'll grow it!' We need to get more people doing that, to make sure these things don't slip through our fingers."

—Kathleen Fisher, Editor

For a copy of Kunst's catalog, send \$2 to Old House Gardens, 536AG Third Street, Ann Arbor, MI 48103.

focus july/august

what goes around...



KARI HAGA

GARDENING AND RECYCLING GO HAND IN HAND. *We add our grass clippings and heat-prostrate annuals to the compost pile in summer, then amend our perennial bed with the resulting compost the following spring. We collect seeds from our heirloom tomatoes so we have a crop for next year. We divide our daffodils and daylilies and share them with friends and family. We use old polystyrene coffee cups to germinate seeds, and we protect our tender seedlings with cut-up plastic milk containers. Old panty hose become plant ties; old clothes garb the scarecrow.*

There are countless examples of recycling in the garden, but there are also some things that are difficult to recycle. For instance, what can you do with all those plastic pots that build up over time? What recourse is there if you have more yard trimmings than you can compost and if your municipality doesn't have a yard-trimmings collection program? In the following pages we describe some successful small- and large-scale recycling programs and practices and offer ideas for recycled products you can use in your garden.

coffee-shop crop

by Rob Lubke

Twenty years ago, the land at the corner of Holmes and Cooley streets in Missoula, Montana, produced plenty of rocks, but no meals. Today, summer finds it loaded with sunflowers and raspberry bushes weighed down with fruit. Zucchini vines meander through patches of leaf lettuce and plump, ruby red tomatoes. Rows of onions, carrots, and beets stand in neat rows, their green tops offering stark contrast to the rich, black earth. This season alone thousands of pounds of fruit and vegetables will be harvested from this half-acre spot, now known as the Northside Community Garden. This success will be due in large part to many years of composting, the last three of which have involved massive quantities of coffee grounds.

Two of those who can take some credit for the metamorphosis are Steve Carroll, a staff member at the Missoula Urban Demonstration Project (MUD), which has managed the community garden since 1990, and Mark Waltermire, a former MUD staffer.

Like a lot of Missoulians, Carroll and Waltermire got caught up in the coffee craze three years ago. It migrated east from Seattle and brought to Missoula, a city of 70,000 in the Rocky Mountains of western Montana, a host of corner cappuccino stands and neighborhood coffeehouses. It also brought an idea. With the easy accessibility and relatively high nitrogen content of coffee grounds, they thought, why not try recycling the grounds these new businesses would pro-

Steve Carroll dumps a bucket of restaurant kitchen scraps into one of MUD's smaller compost bins.

Cruisin' on Crisco

The gardeners at MUD are about to embark on another recycling venture. This time it's got nothing to do with what will go into the garden. But if all goes according to plan, when MUD workers drive out to pick up their coffee grounds late this summer they'll be doing it in a diesel vehicle powered in part by used cooking oil.

Cooking oil is not something that ordinarily comes to mind when we think about recycling. The idea came to the MUD staff after they learned about a similar project at the University of Idaho, where researchers succeeded in powering a vehicle with rapeseed oil. Although used cooking oil is a little different because of the many impurities it contains, the MUD crew hopes to attain similar success.

The HobNob Café has agreed to donate the cooking oil. Students in Steve Nelson's chemistry class at Missoula's Loyola Sacred Heart High School are experimenting with the oil to determine the level of fatty acids present and how much methanol will have to be mixed with the cooking oil to turn it into an energy source. Once the students feel they have attained the correct mixture, the fuel will be tested in engines at the College of Technology at the University of Montana. From there, MUD plans to conduct a number of tests and get answers to some important questions: What kind of mileage will the fuel get? Can it be mixed in the MUD kitchen? Is it practical? What will the emissions be? Information they have read indicates that the fuel may be lower in carbon monoxide emissions than gas or diesel, but higher in nitrous oxide, which could be damaging to the ozone layer.

Positive test results will send MUD looking for an organization or individual willing to donate a vehicle to the cause. —R.L.

duce to help furnish compost for the Northside Community Garden?

The idea seemed to fit well with MUD's philosophy. MUD projects include demonstrations of native plant landscaping and use of alternative energy sources, and last year it initiated a summer camp where children could learn urban ecology, garden science, and cooking. The overall mission is to promote self-reliant living through community gardening, education, and experimentation, and this project would involve a little of all three. "We try to demonstrate a low-cost alternative to help people grow their own food," says Carroll. "We also try to demonstrate that 'this doesn't need to end up in landfills.'"

So while countless cups of coffee were being ordered in Missoula's coffee shops, Carroll and Waltermire were placing orders too—to go. We're not talking about your typical 12-ounce paper cup here, but 55-gallon baby blue barrels heaping with espresso remains and concoctions of thick black sludge. The stuff sloshes about with each movement of the drum and sometimes resembles the contents of the La Brea tar pits. MUD is proving that there's still quite a bit of life left in these otherwise languid restaurant leftovers, which without them would end up buried alongside mountains of disposable diapers and product packaging.

Early each Friday morning, Carroll and one or two others from a rotating corps of six volunteers pile into an '81 Ford pickup shared with Garden City Harvest, a collaborative community organization working to improve the nutrition of low-income Missoulians. They travel to eight locations throughout the city where coffeehouses and restaurants store their weekly supply of spent coffee grounds in barrels that have been sanitized and donated by Borden Chemical Company. In parking lots and alleys, the barrels share space with dumpsters and other recycling bins labeled for aluminum, glass, and cardboard. Passersby rarely notice any of these, but react with surprise to MUD's containers: "Coffee?"

MUSH! MUSH!

The approximately 900 gallons of coffee grounds that MUD recycles each month have helped improve soil that provides food for 30 families, the Missoula Food Bank, and the Poverello Center, a local homeless shelter. "One of the things that people really like to see when they come to the food bank is fresh produce," says Bonnie Buckingham, its acting director. "As far as the healthiness of people's diet, it's really going to make an impact."

Because so many people benefit from the project, it's not hard for Carroll and the other MUD volunteers to get moti-

vated even on the sort of winter days Missoula experienced last season. Like the local letter carriers, they made their appointed rounds each week, often in biting cold, and got plenty of exercise trudging through waist-deep snow to reach the barrels. Once they got to the compost piles, they frequently had to hurl sledgehammers against the sides of the barrels to free the grounds, whose moisture froze them to the bottoms. It's not the average person's idea of fun, but the project's success has now led to collecting kitchen scraps as well, although on a much smaller scale. Crunchy white eggshells, carrot pulp, and orange peels make tasty treats for worm-box denizens, as well as adding essential variety to the more traditional compost piles.

"Feeding the soil is similar to feeding ourselves," says Carroll. "We need a variety of things to have a balanced diet." The table scraps and coffee grounds are mixed with llama manure, and leaves and grass clippings from nearby St. Mary's Cemetery, to form berms 20 feet long, three feet high, and four feet wide. It's always a work in progress that involves experimenting to determine what ratio of ingredients works best.

Getting the coffeehouses to donate their leftovers was probably the easiest part of the whole affair, according to Carroll. There wasn't a single objection when MUD asked the coffeehouses to use only nonchlorine-bleached coffee filters to reduce the risk of dioxins working their way into the soil. The coffee shop owners saw the recycling project as the perfect way to demonstrate their concern for the environment. "I instigated recycling and composting because it's in my nature," says Esther Ball, owner of Bernice's Bakery, one of the participating establishments. "Most of us here are very earth friendly."

Since the project has taken off, MUD has had to turn away—at least for the time being—other restaurants that would like to participate. They're getting as much compost as they can use right now, but as Missoula's community garden network expands, chances are good that there will be a use for more coffee grounds. With each cup of java they pour, coffee drinkers all over town can ultimately help put food on many a table.

To anyone who'd like to try emulating their project, Ball observes: "It's easy. Minimum effort—and it's the right thing to do."

Rob Lubke is a graduate student in journalism at the University of Montana.

municipal composters log successes

The average person creates approximately four pounds of garbage a day. The population of the United States as of July 1996 was 266,476,278. That's over 1 billion pounds of garbage a day. So why aren't we drowning in garbage?

Perhaps because many cities and counties are reducing the amount of garbage going into landfills by encouraging residents to recycle yard trimmings.

Montgomery County, Maryland, just outside Washington, D.C., with a population of approximately 810,000, began its recycling program in 1994. The county's Ten-Year Integrated Solid Waste Plan required that solid waste be reduced or recycled by 50 percent by the year 2000.

By the end of 1995, the county had cut the amount of yard trimmings entering landfills from 110,000 tons to 57,000 tons. Much of this reduction was accomplished through a widespread media outreach and education campaign. One goal was to bring about a shift in attitude—for example, the use of the term “yard trimmings” rather than “yard waste.” Joseph Keyser, environmental specialist with the Montgomery County Department of Environmental Protection, says the latter term perpetuates the idea that leaves and grass clippings are garbage, rather than something that can become a valuable product.

In addition to composting, the county has encouraged “grasscycling”—leaving grass clippings on the lawn rather than bag-

ging them. Grass clippings help improve soil structure; add nitrogen, phosphorus, and potassium to the soil; shade grass roots; and reduce water loss.

Residents, from elementary schoolchildren to older “Master Composter” volunteers, have learned about composting and grasscycling through a recycling hotline, presentations at the county fair, a bi-weekly environmental gardening newspaper column, T-shirt slogans, public service announcements, bumper stickers, workshops, lectures, and community television programs. “This is a great example of social engineering versus civil engineering,” says Keyser. “We made an investment in public education to change residents’ behavior, instead of investing in additional facilities.”

GOOD NEIGHBOR

On the other side of the country, Pierce County, Washington, began its waste reduction efforts in 1990 with a pilot program that included a reduced fee for residents who separate yard trimmings from their garbage. In 1995 the program became countywide, and the county went from an average of 3.9 pounds of solid waste per person per day to 2.9 pounds per day. They attribute their success to easily accessible recycling sites and aggressive public education efforts, including information on back-yard composting.

“We proved that a properly designed and operated composting facility can be a good neighbor and not impact the surrounding area with odors,” says Sally Sharrard, senior planner with the county.

Another successful program is that of the Western Lake Superior Sanitary District in Minnesota. While the district encompasses 500 square miles, the composting site is used mainly by residents of Duluth. They began composting in 1993, after the State of Minnesota banned yard trimmings from landfills, and Duluth officials decided that they no longer wanted to be responsible for a municipal compost site. In 1996 the district accepted 4,000 cubic yards of herbaceous trimmings and 2,000 cubic yards of brush from a population of approximately 85,000.

The site accepts herbaceous trimmings for free and charges \$7 per cubic yard of brush to defray the cost of grinding it. The trimmings go into long rows that are

turned and watered weekly for a year, after which they are screened to be ready for use by residents. “The demand for the compost is very high, and we never have enough,” says Laurie Brown, solid waste program coordinator. As a result, the district also encourages home composting.

plastic pileups

We all have one somewhere. It might be in the basement, in the garage, or in the tool shed. Somewhere there is a stack, or stacks, of plastic pots in various sizes, shapes, and colors. There may also be plastic flats and plastic cell packs, along with a few clay or porcelain pots. The plants that arrived in the pots, flats, and cell packs have since been planted—we try to forget about the ones that languished and died before we got around to planting them. The containers remain because hope springs eternal that a use will be found for them—and because we just hate to send them to the landfill.

And pots are just the tip of the...er, plasticberg? In addition there are the plastic bags in which we bought mulch, peat moss, and topsoil; plastic containers that hold pesticides and fertilizers; and the plastic film used to cover greenhouses, as row covers, and as mulch. None of these products are currently accepted in curbside recycling programs, in part because they are made of so many different combinations of plastics. Pots for indoor plants are made of polypropylene, but most outdoor pots and pesticide containers are made of polyethylene, which can tolerate freezing. Cell packs and flats are made of high-impact polystyrene, for which there is currently little market for recycling.

AN INDUSTRY-WIDE PROBLEM

The plastic problem is not restricted to homeowners; many nurseries would like to be able to recycle the plastic waste they generate. Some are forced to pay extra landfill fees to dispose of items such as greenhouse film and pesticide containers.

“One of the big challenges to our industry is we generate a lot of plastic and the items are not standard,” says Lois Berg Stack, an Extension specialist in ornamental horticulture at the University of Maine in Orono. “If there were a standard it would be a lot easier. It doesn't seem like it would take a lot for manufacturers

Some Pointers

Pierce County, Washington's Sally Sharrard offers some suggestions for other municipalities looking to start composting programs:

- Design the system locally so that it will fit local needs.
- Use bins instead of noncompostable plastic bags.
- Coordinate with nearby cities and use the same system for everyone.
- Start with a pilot drop-off program and add curbside service where you can, with incentives that encourage participation elsewhere. “You need a system that provides some opportunities for everyone,” she says.

to put numbers on their plastic products.”

In Maine, Stack has coordinated the efforts of homeowners, nurseries, and a recycling company in developing an innovative program for recycling plastic pots, flats, cell packs, and plant labels. The Maine Green Industry Plastic Recycling Project is funded by a grant from New England Grows, a trade organization that supports worthy Extension programs in New England states.

Stack provides nurseries—more than 200 participated last year—with generic news releases and handouts they can use to advertise that they recycle plastic containers. The nurseries, in turn, send the press releases to local newspapers and give recycling handouts to their customers at checkout counters. When customers bring their containers in, the nurseries sort out those that can be reused and stockpile the rest for recycling.

The biggest challenge last year was getting all the recyclables in one place. “I really needed those people to come to a central location and drop off their plastic,” says Stack. To solve that problem, Stack came up with the idea of hosting a field day that would feature programs of interest to nurseries and garden centers. Last year she brought in Adrian Bloom, chairman of Blooms of Bressingham in Norfolk, England, as guest speaker for the event. Partic-

ipating nurseries were asked to bring their excess plastic containers to the field day so they could be collected by New England Processing, a recycling company in Lowell, Maine, that agreed to handle the mixed plastic products.

All in all, more than 70 cubic yards—enough to fill a large truck—of plastic pots, cell packs, flats, and labels were recycled in the first year of the program.

The success of last year’s program has inspired Stack to add an extra item—the plastic containers florists use for arrangements—to the planned recycling list this year. To reduce the burden on the recycling company and give more businesses an opportunity to drop off their recyclables, she is also planning to hold three or four field days this year rather than just one.

Two years ago, the Canadian Polystyrene Recycling Association (CPRA), a trade organization of polystyrene product manufacturers, started collecting horticultural polystyrene to supplement the food service-grade polystyrene it was recycling at its 80,000-square-foot facility in Mississauga, Ontario. “The horticulture industry provides us with a big chunk of our stock,” says Brad Melmer, CPRA’s supplier development coordinator. Initially the association picked up material only in southern Ontario, but has since expanded into the northern United States.

At CPRA’s plant, horticultural polystyrene—cell packs, plug trays, and flats—is ground up, cleaned, dried, melted, and extruded as pellets. End uses for the recycled polystyrene include a wide range of durable goods, from new cell packs and flats to compact disc trays, building insulation board, and audio and video cassettes.

ACT LOCALLY

Organized recycling programs such as the ones in Maine and Ontario are rare, but many individual nurseries around the country are reusing, and even recycling, plastic containers returned by customers. Behnke Nursery, which has outlets in Beltsville and Largo, Maryland, takes plastic pots and flats, but does not accept cell packs. The nursery reuses some pots and recycles the rest. “We do get a large number we can’t reuse, so we have a recycler from West Virginia who comes in a couple of times a year and picks up pots,” says Behnke’s vice president, Alfred Millard.

Dick Bonnett, who owns Plastic Recycling Services in Parkersburg, West Virginia, picks up Behnke’s extra pots, along with those discarded by hundreds of other growers east of the Mississippi. An intermediate processor of plastic greenhouse containers, Bonnett cleans and grinds the pots before shipping them to producers. He expects to handle four million tons of plastic contain-

Resources

California Materials Exchange (CALMAX), (916) 255-2369. Sponsored by the California Integrated Waste Management Board, this Sacramento organization acts as a clearinghouse for information about non-hazardous waste, scrap, and other reusable items. CALMAX publishes a bimonthly catalog listing available materials and requests for materials. Listings are free and merchandise exchanges are left to the discretion of interested parties.

The Harris Directory, 522 Acequia Madre, Santa Fe, NM 87501, (505) 995-0337, bjharris@igc.apc.org. \$45 plus shipping and handling. This database lists recycled and pollution-preventing materials for

home, office, and garden. **Sustainable Landscapes and Gardens: The Resource Guide**, Third Edition. Wesley A. Groesbeck and Jan Striefel. 1996. Environmental Resources, Inc., 2041 East Hollywood Avenue, Salt Lake City, UT 84108-3148, (801) 485-0280. \$35. This comprehensive guide lists thousands of companies that offer a wide range of innovative products for sustainable landscapes. It is published to help landscape architects, garden designers, landscapers, home builders, and homeowners connect with sources of environmentally friendly building and landscaping materials.

Sources

Gardener’s Supply Company, 128 Intervale Road,

Burlington, VT 05401, (800) 863-1700. Plastic lumber, raised bed kits, composters, tool bucket/garden seats.

Langenbach, MSC 90, 638 Lindero Canyon Road, Oak Park, CA 91301, (800) 362-1991. Plastic composters, rubber soaker hoses.

Mobil Chemical Company, Composite Products Division, 800 Connecticut Avenue, Norwalk, CT 06856, (800) 289-8739. Composite lumber.

New World Furniture, P.O. Box 20957, San Jose, CA 95160, (408) 268-1670. Redwood outdoor furniture.

Oriana Pavers, 750 8th Street South, Kirkland, WA 98033, (206) 803-9518. Glass/concrete pavers.

Peaceful Valley Farm Supply, P.O. Box 2209, Grass Valley, CA 95945. Plastic

composters, worm bins, soaker hoses, soil blockers.

Real Goods, 555 Leslie Street, Ukiah, CA 95482, (800) 762-7325. Plastic composters, newspaper pot makers, rubber door mats, rubber soaker hoses.

Recycled Plastics Marketing, Inc., 2829 152nd Avenue NE, Redmond, WA 98052, (800) 867-3201. Plastic lumber, raised bed kits, garden carts, bird feeders, fence kits, composters, worm bins.

Smith & Hawken, Two Arbor Lane, Box 6900, Florence, KY 41022, (800) 776-3336. Glass cloches, redwood cold frames.

Worm’s Way, 7850 North Highway 37, Bloomington, IN 47404, (800) 274-9676. Plastic composters, row markers, worm boxes, raised bed kits; cedar composters.

ers this year, but says that is still less than five percent of what is available. "Some growers are taking back significant quantities of pots from places like Kmart and Wal-Mart, but it's not a formal process."

Collecting pots for reuse is labor-intensive and expensive for nurseries, many of which do it mainly as a service to their customers. Some nurseries will take back only their own pots; others only accept pots that have been cleaned. Before loading up your car with old pots, call ahead and find out if your local nursery accepts plastic containers and what restrictions there are on what they take.

Other potential markets for used plastic pots include elementary schools, community groups, and horticulture programs at community colleges and vocational high schools. Such groups are often glad to save money through donations of reusable plant containers and they may not be as picky as nurseries about accepting nonstandard sizes, shapes, and colors.

ALTERNATIVES TO PLASTIC

It's hard to avoid getting plastic pots when you are buying plants from nurseries, but there are many ways to avoid purchasing plastic pots for your own use. If you really want to use plastic pots, canvass your friends and neighbors to see if they have any old ones. They would undoubtedly be delighted to share their excess stacks with you. Make sure you clean and sterilize pots before reuse to avoid the spread of disease.

Consider using biodegradable peat pots or peat pellets in place of plastic pots. Peat pots reduce transplant shock because you can plant them directly into the ground without disturbing the roots. Many gardening catalogs and stores now offer kits with which you can make your own biodegradable pots out of old newspaper. You can also buy soil blockers, which create containerless, free-standing blocks of soil that can be used for starting seeds.

recycled garden products

It's nigh on impossible to be a gardener and not be concerned about the environment. So, not surprisingly, manufacturers of garden-related products are offering more and more items made of recycled materials. Recycled plastic items make up the



Long-lasting recycled plastic lumber is a perfect replacement for wood when creating raised-bed gardens.

bulk of the garden fare, but the resourceful consumer can also find products made of recycled wood, glass, and rubber.

PLASTIC FANTASTIC

Plastic lumber may not appeal to everyone, but it has, nevertheless, become one of the most common recycled plastic products used in the garden. "Plastic lumber is one of the best ways gardeners can use recycled products. One of the benefits of that application is that while wood starts to rot over time, the plastic doesn't," says Susanne Brunhart, manager of Montgomery County, Maryland's master recycler/composter program.

Plastic lumber is being used for everything from raised beds to fencing, from boardwalks to retaining walls. It is also used to make products such as garden benches, Adirondack chairs, picnic tables, flower boxes, trellises, mailbox stands, and even bird feeders. Plastic lumber is available by the piece from some companies; others offer kits for making raised beds, fences, and outdoor plant containers.

Most recycled plastic lumber is made from milk containers, which are ground up, melted, and extruded into standard lumber sizes. Because most plastic lumber is hollow-centered, it is much lighter than wood, yet since it has no grain it can be nailed and sawed without splitting or splintering.

There is no risk of leaching of toxic residues, so plastic lumber is particularly popular as a replacement for pressure-treated lumber in raised-bed vegetable gardens. Hollow-center plastic wood is not recommended for use in load-bearing

situations, however.

To prevent degradation by sunlight, most plastic lumber contains an ultraviolet protectant. ReBound plastic lumber, produced by Recycled Plastics Marketing, Inc. (RPM), of Redmond, Washington, is protected by a thin "skin" of white virgin plastic over the recycled material. According to John Bissell, RPM's vice president, ReBound lumber is made from mixed-color bottles—such as those that hold shampoo and other toiletries—rather than from milk containers. "This is really the only way to use mixed-color bottles," says Bissell. The company offers a 25-year limited warranty on the lumber, but tests at universities have indicated that consumers can expect most recycled plastic lumber to last between 35 and 50 years.

A composite lumber called Trex—made of 50 percent reclaimed plastic and 50 percent waste wood—is manufactured by Mobil Chemical Company. Trex is advertised as suitable for decks, boardwalks, retaining walls, and other load-bearing structures.

COMPOSTERS

After plastic lumber, compost bins are the most commonly used recycled plastic product in gardens. Finding a recycled plastic compost bin is no longer a problem, but choosing one can be difficult because there are dozens of different designs available. "Most of the ones on the market are pretty good," says Bissell. "They just represent different theories on how best to create compost." In deciding which to buy, compare the recycled content—most black

compost bins are 100 percent recycled plastic, but some of the green ones contain only 50 to 80 percent recycled material.

"You need a critical mass to get the heating going for good compost. The bigger it is, the better," says Mel Buss, research and development manager for Gardener's Supply Company. "My goal has been to try to develop larger composters. One we're now developing will hold about 12 cubic feet."

Another thing to look for in a composter is thickness of plastic. "In some of the composters now being mass marketed, to keep costs down they have gone to a thin plastic wall. These can break easily during loading and unloading," warns Buss.

WOOD

Some companies are offering garden products made of reclaimed red cedar. Through their catalog, Worm's Way in Bloomington, Indiana, offers the Compost Corral, a composter made of reclaimed cedar planks. The Smith & Hawken catalog includes a cold frame made of recycled redwood. A wholesale company, New World Furniture in San Jose, California, distributes recycled redwood furniture such as patio tables and chairs, arbors, potting carts, wheelbarrows, and tool chests.

RUBBER

By using recycled rubber soaker hoses you are helping the environment in two ways. First, soaker hoses conserve water by reducing the loss to evaporation and watering only where you need it. Second, soaker hoses are made from recycled tires that would otherwise be burned or sent to the landfill. Recycled rubber soaker hoses come in various lengths—from 50 to 200 feet—and won't crack or freeze like some plastic hoses. Just like their nonrecycled counterparts, recycled soaker hoses can be used either underground or on the soil surface.

GLASS

Recycled products can be both practical and beautiful. Take, for example, the recycled glass cloches available through the Smith & Hawken catalog. These bell-shaped covers, made from recycled, hand-blown glass, help protect tender seedlings from late frosts and hungry pests.

Recycled glass is also being used in pavers and tiles suitable for patios or walkways. Oriana Pavers in Kirkland, Washington, makes 16-inch-diameter hexagonal pavers with 65 percent post-consumer glass blended in concrete. The interlocking pavers come in a standard gray or can be custom colored.



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book reviews

- 🌱 *heirloom vegetables*
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TAYLOR'S GUIDE TO HEIRLOOM VEGETABLES

Benjamin Watson. Houghton Mifflin Company, Boston, 1996. 343 pages. 4 1/4 x 8 1/2". Color photographs. Publisher's price: hardcover, \$19.95. AHS member price: \$17.95. **STO 023**

HEIRLOOM VEGETABLE GARDENING

William Woys Weaver. Henry Holt and Company, Inc., New York, 1997. 592 pages. 7 3/4 x 9 1/2". Color photographs and line drawings. Publisher's price: hardcover, \$45. AHS member price: \$40. **HOL 008**

Heirloom vegetables have had the attention of a certain subset of gardeners for many years, but they have only recently emerged into mainstream gardening conversation. Many seed catalogs have begun to feature these antique food crops, touting their superior flavor and old-fashioned hardiness, as well as their frequently unique shapes and colors. The result has been a broader appreciation for the potential of these historical varieties to again play a part in our everyday food supply and preserve genetic treasures for the future.

Taylor's Guide to Heirloom Vegetables is a solid reference for gardeners seeking to expand their heirloom selections beyond the tomato, pepper, and bean varieties most commonly featured in seed catalogs. In addition to covering these crops quite

thoroughly, this small book is densely packed with information on 50 more vegetable crops—more than 500 varieties in all—as well as a wealth of stunning photographs of some 200 individual vegetables.

This book's organization makes for easy and enjoyable browsing, much like a very thick and informative nursery catalog. All of the photographs of plant varieties are grouped together, providing easy comparison. Concise plant descriptions focus on characteristics such as flavor, shape, and color, and Watson has provided a similarly concise and well-

organized guide for growing and harvesting each species he covers.

Watson's book is not intended to provide complete coverage of the entire breadth of heirloom vegetables available today. Rather, it is a serviceable guide to heirloom vegetables, designed to help gardeners identify what their seed-saving neighbors might be growing or to select plants for historical gardens of their own.

In contrast, *Heirloom Vegetable Gardening* is a study of heirloom vegetables at much greater length and in much greater detail than any resource I have seen. Weaver's book goes far beyond a pure reference guide to present a study in the delights and history of the American kitchen garden.

Weaver's treatment of vegetables as a part and product of history sets this book apart from other works on the subject. Enjoyable introductory essays on the history of the American kitchen garden and the development of the heirloom vegetable movement set the stage for the detailed information about nearly 700 varieties. Weaver's vegetable descriptions begin with a guide to each crop, including the history and sociology of its development, historically important varieties, and digressions into the mythologies and politics that have surrounded many of our crops.

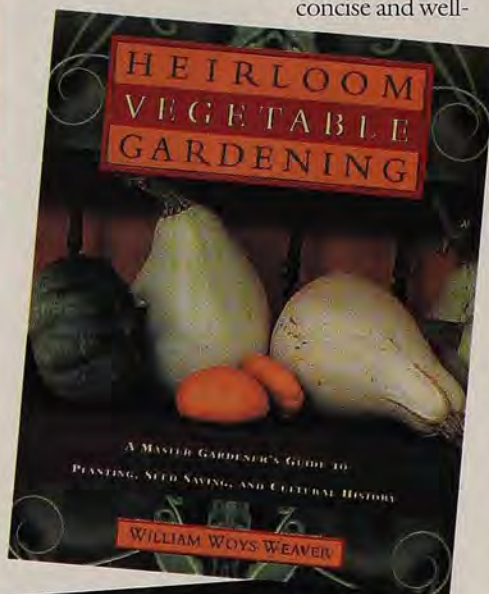
For serious seed savers, perhaps the most valuable aspect of Weaver's book is the detailed physical description of each variety. Use of nontechnical language ensures that these descriptions are accessible to experienced and novice gardeners alike. Particular attention to lookalike varieties and synonyms make this guide even more valuable in navigating the occasionally confusing array of information available from seed exchanges and heirloom seed companies.

Because it includes so many unusual crops—root chervil and red shiso, for instance—the information on the uses and culture of various crops is particularly valuable. Weaver often includes recipes and cultural information that shed new light on the history of food production and utilization.

In addition to the basic growing instructions, Weaver gives detailed seed-saving instructions for every crop, providing the next step for the serious vegetable gardener. The end result is a scholarly and practical book that is certain to enlighten and inspire the beginner and the experienced seed saver alike.

—Chris Blanchard

An experienced heirloom gardener, Chris Blanchard is garden manager of Harmony Valley Farm in Viroqua, Wisconsin.



MOSS GARDENING: INCLUDING LICHENS, LIVERWORTS, AND OTHER MINIATURES

George Schenk. Timber Press, Inc., Portland, Oregon, 1997. 264 pages. 6 1/4 x 9 1/4". Color photographs. Publisher's price: hardcover, \$34.95. AHS member price: \$31.45.

TIM 100

A friend asked the other day, "Are there any books out there on moss gardening? I'm tired of fighting moss creeping into parts of my lawn, and I think it's about time I give in."

"You won't believe it," I said, "but only yesterday I got a review book by George Schenk, a gentleman who left the far west and went to New Zealand to start life anew. Now he's back and the mosses have him."

It's a delightful book dealing with a delightful subject. Mosses tell an ancient success story of longevity, appearing in the fossil record more than 400 million years ago, yet growing, little changed, on a tree trunk in the back yard.

The book covers mosses, all of which reproduce by spores instead of seeds, as well as lichens, liverworts, lycopodiums, and selaginellas. There are clear instructions applicable to gardens of practically any climate on propagating, cultivating, and transplanting these tiny plants. Recommendations are offered for the use of these plants in alpine and rock gardens; integrated with flowering plants in borders; as a lawn supplement; and, best of all, in elegant miniature container gardens.

The enchanting photographs in the section on containers include a charmer where moss is set within the gaping maw of a giant seashell. Another shows a lava rock festooned with different mosses. The Victorians have not been forgotten—on page 143 there is a hanging garden of beardlike *Usnea* lichens growing on a pillar of lava chunks, set off at the base by a gray succulent and a fernlike perennial. It all makes you want to grab a trowel and head for the woods—or the back yard.

A small complaint is that the author doesn't discuss some of the wonderful common names conferred on mosses by

early American settlers, such as that most romantic of moss names, the triangular wood-reveler (*Hylocomium triquetrum*), or the apple moss (*Bartramia pomiformis*), so named because the spore cases look like miniature apples.

More disturbing is that the annotated bibliography completely ignores the great American book on mosses, *Mosses with Hand-Lens and Microscope*, published in 1903 by A.J. Grout (reprinted in 1965 by Eric Lundberg, Ashton, Maryland). Also missing are a number of other useful books, including that marvel of American lichen books by G.C. Nearing, called—appropriately enough—*The Lichen Book* (1947), *How to Know the Lichens* by Mason E. Hale (1979), and *Mosses and Lichens* by Nina L. Marshall (1914).

"I am a gardener," writes Schenk, "little grounded in botany and much more of a grounding. In that distinguished capacity, however, I wear no fewer than ten badges of merit: an almost constant decoration of humus under my fingernails. Good dirt it is, and I've probably worn a pound or two of it just in my moss gardening these many years."

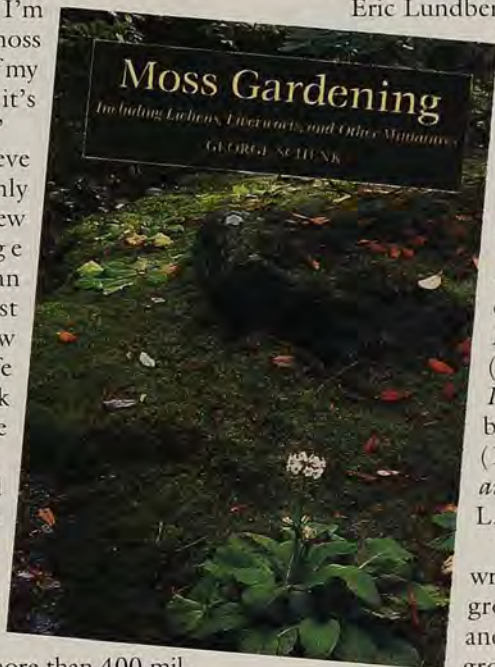
Now he's got an eleventh badge—this charming and enlightened book on mosses.
—Peter Loewer

Author and illustrator Peter Loewer grows mosses quite stylishly in his own garden in Asheville, North Carolina.

THE SERIOUS GARDENER: ROCK GARDENS

Anne Halpin with Robert Bartolomei, Clarkson N. Potter, Inc., New York, 1997. 192 pages. 6 x 9". Color photographs. Publisher's price: softcover, \$23. AHS member price: \$20.70. CRN 009

The publication of *Rock Gardens* signals the launch of a new series of gardening handbooks written with the help of experts from the New York Botanical Garden (NYBG). If this book is an indication of what is to follow, the series will be a winner. Not only is *Rock Gardens* well



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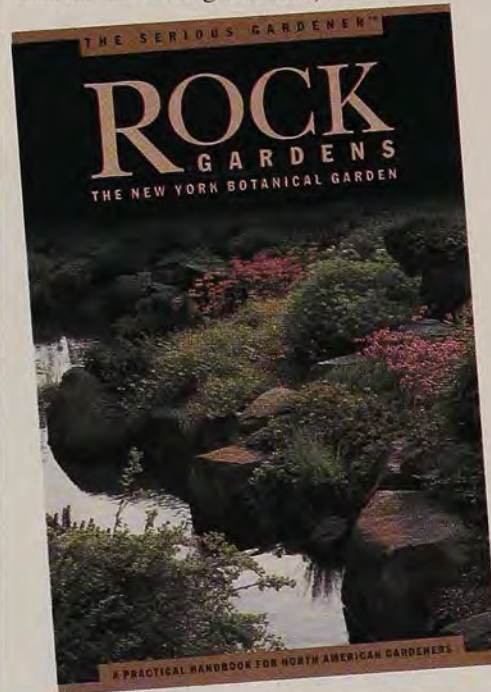
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organized and easy to use, but it is written in a style that will be attractive to both experienced rock gardeners and beginners looking for advice and direction.

Lincoln Foster's *Rock Gardening*, published in 1968, became the bible for a generation of rock gardeners,



myself among them.

Anne Halpin, a respected garden writer, and Robert Bartolomei, curator of NYBG's T.H. Everett Rock Garden, have produced a book that is firmly in that tradition. It has two additional attractions: The photography is stunning, and the book recognizes that in recent years interest in rock gardening has spread across the United States. Thus, the book has the potential to open the door to what surely will become a lifelong passion for many gardeners across the country.

The organization and content of the book are excellent and concise. Following the introduction, which describes Bartolomei's eight-year reconstruction of NYBG's rock garden, the remainder of the book deals purely with principles and practices. Separate chapters discuss the history of rock gardening, define and identify its distinctive features, and address development and planting. The final chapter is a mouth-watering selection of 75 plants that Bartolomei recommends as core plants for starting a rock garden.

Despite a fine selection, these plants are only the tip of the iceberg. The number of plants available for rock gardens is now staggering, and on a nationwide basis the plants used will vary from region to region. It is easy to conceive of a Santa Fe rock garden, planted almost exclusively with plants of the

Southwest, melding seamlessly into a larger, water-wise landscape. This reality makes the chapters on the principles of development and construction even more valuable. For it is the creation of micro-environments at the construction stage that allows for the growing of a wide range of rock garden plants. And there is no style of gardening in which one can have as many interesting plants in a small space as in rock gardening.

The only shortcoming I found in the book was the absence of a section on propagation. The authors acknowledge—and every rock gardener knows—that many choice rock garden plants are short-lived, either by nature or by circumstances of their created environment. Consequently, out of necessity and desire, most rock gardeners become skilled propagators and seed collectors.

This is nonetheless an important book for all rock gardeners, particularly for anyone contemplating starting their first rock garden.

—Don Humphrey

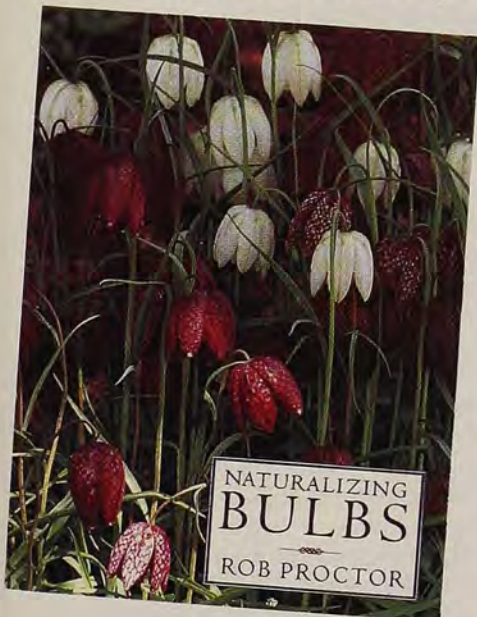
An avid rock gardener, Don Humphrey recently retired as manager of Green Spring Gardens Park in Alexandria, Virginia.

NATURALIZING BULBS

Rob Proctor. *Henry Holt and Company, Inc., New York, 1997. 254 pages. 7³/₈ × 9³/₄". Color photographs. Publisher's price: hardcover, \$35. AHS member price: \$31.*

HOL 009

In this ambitious book, designed to help gardeners in all areas of the United States, Denver-based garden writer Rob Proctor shares his enthusiasm for growing a diverse array of bulbs in all seasons. His interpretation of what is "bulbous" includes surpris-



Last year, Laura Johnson spent hours and hours pulling weeds.

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es such as blazing stars, spiderworts, milkweeds, and toad lilies, in addition to the more familiar bulbs, corms, and tubers.

In the introductory chapters he challenges many garden tenets and gives sensible advice, such as not cutting back the leaves of iris in spring. Cultural recommendations are derived mainly from his own experience and that of gardening friends around the country, rather than from other books. Among the useful sections is one on suggested companion plantings of bulbs with other perennials to hide dying foliage and to enhance beauty when in flower.

Proctor conveys a remarkable sense of the problems and pleasures of gardening in different areas and offers intelligent advice on ways to plant the land as it lies, without manipulation of topography or soil. He recommends selections appropriate for a wide range of gardens and habitats—from small city gardens to woodland gardens and from wet sites to dry.

He also offers amusing yet practical tips for controlling pests such as deer, slugs, and rodents. Although he discusses integrated pest management and organic methods of pest control, I would have felt more comfortable with an even more conservative approach to pesticide use.

Since certain bulbs—hardy cyclamen and snowdrops, for instance—are still endangered in the wild, it is good to see Proctor recommending that such bulbs be purchased only from companies known to sell nursery-propagated plants. To further protect bulbs in native habitats, he also encourages gardeners to try growing bulbs from seed.

In writing this book, Proctor accepted the extraordinary challenge of recommending bulbs for every section of the country. Although for the most part he successfully accomplishes this task, I felt he gave short shrift to many bulbs that grow successfully in the mid-Atlantic region.

The chart at the end of the book is a useful guide to where bulbs for naturalizing can be expected to grow. Occasionally, however, it differs from recommendations made in the text. I noted this especially when looking up one of my personal favorites, hardy cyclamen.

Naturalizing Bulbs is not an encyclopedia of bulbous plants, but a fine introduction to them. Keep a pencil handy as you read because you will end up with a list of plants and ideas for your garden.

—Nancy Goodwin

Nancy Goodwin gardens, writes, and leads tours of Montrose, her Hillsborough, North Carolina, garden.

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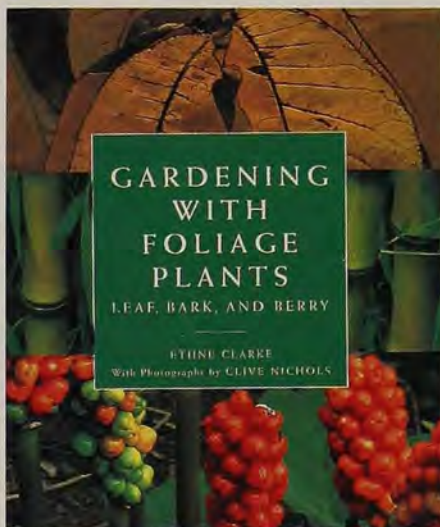
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gardeners' books

Books are chosen for the AHS Horticultural Book Service based on perceived reader interest, unusual subject matter, or substantive content. The following descriptions are not intended to be critical reviews, but are written to give an overview of the books' contents. For further information about these or other gardening books—or to order books—please call Barbara Catherwood at (800) 777-7931 ext. 36.

NEW PLANT BOOKS



GARDENING WITH FOLIAGE PLANTS: LEAF, BARK, AND BERRY

Ethne Clarke. 1997. 160 pages. Publisher's price: hardcover, \$29.95. AHS member price: \$26.95.

ABV 013

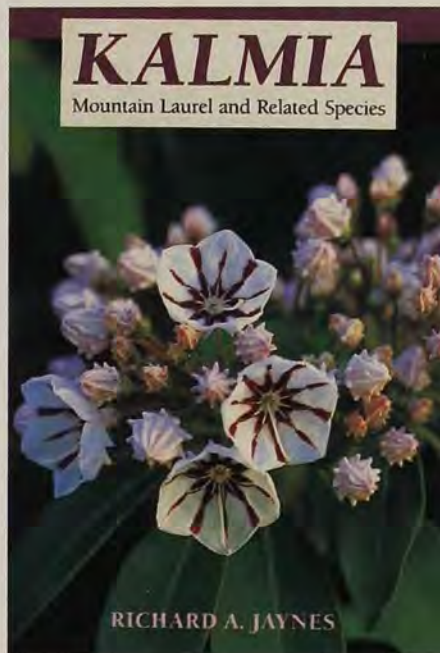
Encouraging us to use foliage plants as the focal point of our garden design, this beautifully illustrated book provides superb examples of colored stems, beautiful bark, striking leaf shapes, and vibrant foliage. Includes 325 color photographs.

TRILLIUMS

Frederick W. Case Jr. and Roberta B. Case. 1997. 220 pages. Publisher's price: hardcover, \$29.95. AHS member price: \$26.95.

TIM 101

In this blend of field guide and gardener's handbook, these woodland wildflower gems finally have a book of their own. Includes chapters on history, hybridization, conservation, and propagation of trilliums. Illustrated with color photographs, line drawings, and maps.



KALMIA: MOUNTAIN LAUREL AND RELATED SPECIES

Richard A. Jaynes. 1997. 360 pages. Publisher's price: hardcover, \$34.95. AHS member price: \$31.25.

TIM 103

Jaynes, a plant breeder and nurseryman, is the acknowledged expert on these beautiful eastern native shrubs. This third edition describes a host of new cultivars and significant advances in propagation. Separate chapters address cultivation and landscape uses of mountain laurels along with descriptions of the author's search for unusual plants in the wild. In addition to 140 color photographs, there are black-and-white photographs, line drawings, charts, and maps.

THE SMALLER PERENNIALS

Jack Elliott. 1997. 176 pages. Publisher's price: hardcover, \$29.95. AHS member price: \$26.95.

TIM 104

This dictionary of perennials is ideal for gardeners wishing to grow a large number of plants in a limited space while maintaining an elegant garden scale. Includes a reference list of 400 genera illustrated by 160 color photographs.

TAYLOR'S GUIDE TO ORNAMENTAL GRASSES

Roger Holmes, editor. 1997. 309 pages. Publisher's price: softcover, \$19.95. AHS member price: \$17.50.

HOU 010

This joins the short list of useful books on grasses for the garden. Along with a thorough encyclopedic section, there is a terrific design chapter called "Grasses in the Landscape." Includes more than 250 color photographs.

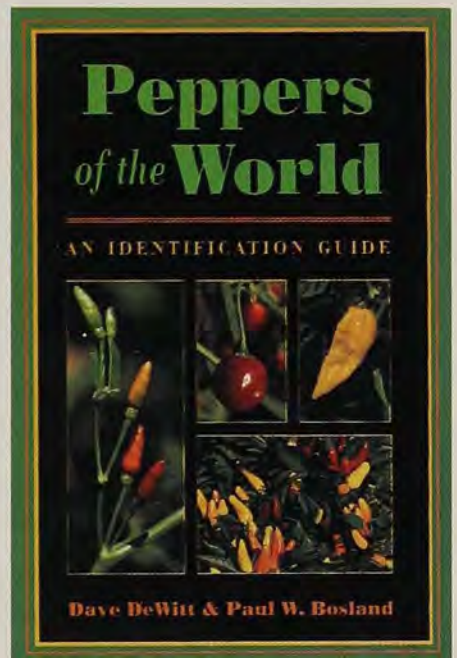
EDIBLE GARDENING

BROTHER CADFAEL'S HERB GARDEN

Rob Talbot and Robin Whiteman. 1997. 200 pages. Publisher's price: hardcover, \$29.95. AHS member price: \$26.95.

LIT 008

The enthusiastic medieval gardener and herbalist Brother Cadfael, a fictional character created by mystery writer Ellis Peters, is the spirit behind this beautifully written and illustrated book on the herbals and herb gardens of the period. An encyclopedic section lists all the herbs and plants mentioned in Peters' popular book series. Includes nearly 150 color photographs.



PEPPERS OF THE WORLD: AN IDENTIFICATION GUIDE

Dave DeWitt and Paul W. Bosland. 1997. 224 pages. Publisher's price: softcover, \$19.95. AHS member price: \$17.95.

TSP 003

Illustrated with terrific color photographs of each of the 300 peppers presented, this book by two renowned chile pepper experts includes chapters on identification of old and new varieties, wild species, tabascos, rocotos, and much more. For the really adventurous, there are even instructions for breeding your own chile peppers. The companion volume on growing peppers, DeWitt and Bosland's *Pepper Garden*, is available for \$14.50 (book code TSP 002).

TANTALIZING TOMATOES: SMART TIPS AND TASTY PICKS FOR GARDENERS EVERYWHERE

Karan Davis Cutler, editor. 1997. 111 pages. Publisher's price: softcover, \$9.95.

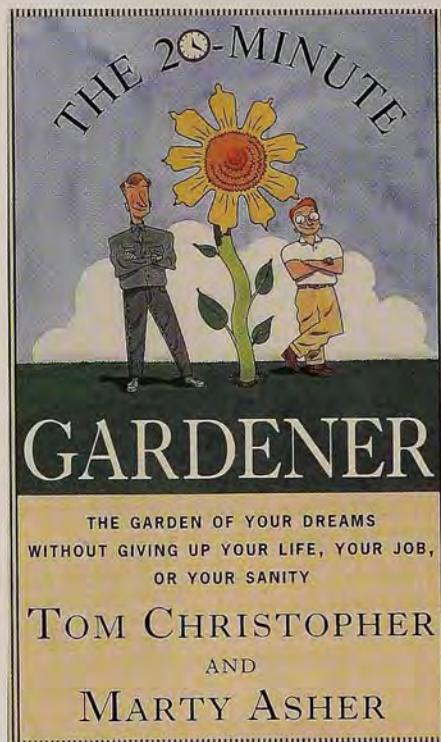
AHS member price: \$8.95. **STO 045**
 A guide to growing tomatoes throughout the United States, the Brooklyn Botanic Garden's newest handbook covers propagating, planting, pruning, and culinary tips for these garden favorites. Heirloom varieties, new hybrids, and favorites for each region are highlighted. A useful book for both beginning gardeners and experts looking for new ideas. Includes more than 50 color photographs, mail-order sources, and references for further reading.

GARDEN POTPOURRI

HEIRLOOM GARDENS
Mimi Luebberrmann. 1997. 107 pages. Publisher's price: softcover, \$14.95. AHS member price: \$13.50. **CHR 003**
 Subtitled "Simple Secrets for Old-Fashioned Flowers and Vegetables," this book covers some of the most popular heirloom plants, from 'Brandywine' tomatoes to 'Mlle Cécile Brunner' roses. It provides ideas and instructions for potted heirlooms inside and out, as well as for outdoor cultivation and culinary uses. Contains more than 50 color photographs and a list of mail-order sources.

LEAVES IN MYTH, MAGIC AND MEDICINE
Alice Thoms Vitale. 1997. 352 pages. Publisher's price: hardcover, \$29.95. AHS member price: \$26.95. **STC 004**
 Illustrated with autprints—exquisitely detailed reproductions of leaves created by the author—this beautiful book contains fascinating descriptions of the leaves of

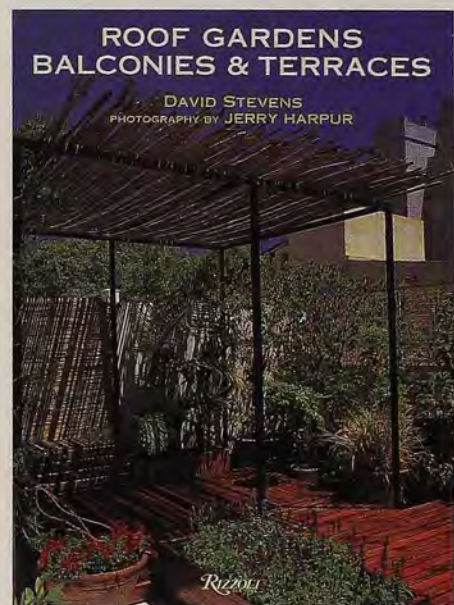
more than 100 plants found in North America. Drawing on her experience as a librarian, Vitale has integrated information about history, folklore, and medicinal and culinary properties to weave vivid botanical portraits of each plant.



THE 20-MINUTE GARDENER
Tom Christopher and Marty Asher. 1997. 223 pages. Publisher's price: hardcover, \$19.95. AHS member price: \$17.95. **RAN 021**
 With a blend of humor and practical advice, Christopher and Asher, a horticultural version of the "Odd Couple," take on the world of gardening. Among the 20-minute

projects outlined are "Flowers That Plant Themselves," "Rooting for Roses," and "A 20-Minute Wetland." An enjoyable read bolstered by down-to-earth, time-saving hints. Illustrated with line drawings.

ROOF GARDENS, BALCONIES, AND TERRACES
David Stevens. 1997. 160 pages. Publisher's price: hardcover, \$35. AHS member price: \$31.50. **RIZ 001**
 Stevens, winner of 11 gold medals at Great Britain's Chelsea Flower Show, reveals many new ways to design and enjoy contained outdoor spaces that range from city rooftops to suburban decks. Topics covered include great fence and flooring ideas, water garden designs, and more. Includes more than 250 color photographs.



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regional happenings

a look at what's happening around the nation

MID-ATLANTIC

JULY 19 ■ Woody Plant Propagation.

Workshop. Monticello Garden Shop, Charlottesville, Virginia. (804) 984-9822.

AUG. 15 & 16 ■ Historic Plants

Symposium. Monticello, Charlottesville, Virginia. (804) 984-9822.

AUG. 23 ■ Native Plant Seminar and

Sale. Irvine Natural Science Center, Stevenson, Maryland. (410) 484-2413.

NORTH CENTRAL

JULY 12 ■ Hosta Show and Sale.

Chicago Botanic Garden, Glencoe, Illinois. (847) 540-8051.

JULY 12 ■ Preschool Nature Study Program. The Children's Garden, Ridgeway Center, Missouri Botanical Garden, St. Louis, Missouri. (314) 577-9506.

JULY 12-16 ■ Ohio International

Floral Short Course. Cincinnati Convention Center, Cincinnati, Ohio. (614) 478-1117.



JULY 15-AUG. 15 ■ Asiatic Lilies Display. Peace Garden, Dunseith, North Dakota.

(701) 263-4390.

JULY 18 & 19 ■ Olbrich Home

Garden Tour. Fitchburg, Wisconsin. (608) 246-4716.

JULY 19 & 20 ■ Flower Show and

Sale. Cook Energy Information Center, Bridgman, Michigan. (800) 548-2555.

JULY 24-26 ■ How to Teach Youth

About Trees and Environmental Stewardship. Workshop. Lied Conference Center, Nebraska City, Nebraska. (402) 474-5655.

JULY 27-AUG. 2 ■ Forest Ecology

Summer Camp. Wolf Ridge Environmental Learning Center, Finland, Minnesota. (800) 444-4238.

JULY 31-AUG. 2 ■ AHS Children's

Gardening Symposium. Chicago Botanic Garden, Glencoe, Illinois. (847) 835-8280.

AUG. 1 & 2 ■ National Meeting of

the American Conifer Society. Best Western Midway, Elk Grove Village, Illinois. (908) 879-4788.

THROUGH AUG. 3 ■ Cincinnati

Parks' Butterfly Show. Krohn Conservatory in Eden Park, Cincinnati, Ohio. (513) 352-4080.



AUG. 14 & 15 ■ Herb Symposium. Minnesota Landscape Arboretum, Chanhassen, Minnesota. (612) 443-2460 ext. 180.



Events marked with this symbol are official "Diamond Anniversary

Gardening Events" chosen as regional sites where AHS members can help us celebrate our 75th anniversary during 1997. Look for others in your area throughout the year.



AUG. 17 ■ Sundae in the

Garden. Information, food, entertainment, children's activities. Olbrich Botanical Gardens, Madison, Wisconsin. (608) 246-4586.



AUG. 28-SEPT. 1 ■ South

Dakota State Fair. Exhibits, activities, music, and food. Heron, South Dakota. (605) 353-7340.



AUG. 30-SEPT. 1 ■ Annual

Japanese Festival. Missouri Botanical Garden, St. Louis, Missouri. (314) 577-9400.

NORTHEAST

JULY 2 ■ Gardens of Gael Hammer

and the Robinsons. Garden Tour, Washington, Connecticut. (203) 322-6971.

JULY 10-12 ■ Managing Invasive

Exotics. Workshop. Conway School of Landscape Design, Conway, Massachusetts. (413) 369-4044.

JULY 10-13 ■ Herbs '97 Conference.

Tara Ferncroft Hotel, Danvers, Massachusetts. (847) 949-4372.

JULY 11-13 ■ North American

Lily Society's 50th Anniversary

Show. Boston Marriott Burlington Hotel, Burlington, Massachusetts. (508) 368-7710.

JULY 12 ■ Delaware Valley Daylily

Society Show. Paoli Presbyterian Church, Paoli, Pennsylvania. (610) 642-3941.

JULY 12 ■ Hidden Treasures of

the Berkshires Garden and House

Tour. Stockbridge, Massachusetts. (413) 298-3089.

JULY 12 & 13 ■ Garden Fair.

Genesee Country Village and Museum, Mumfords, New York. (716) 538-6822.

JULY 12 & 13 ■ Newport Flower

Show. Marble House, Newport, Rhode Island. (401) 847-1000.



JULY 13 ■ Gardens of the Watershed and Upper Watershed of the St.

George River. Tours. Georges River Land Trust, Rockland, Maine. (207) 594-5166.

Lewis Ginter Ground Breaking

The Lewis Ginter Botanical Garden in Richmond, Virginia, held a ground-breaking ceremony in March for construction of three new structures. The Anne Holt Massey Greenhouses are scheduled for completion in November, while the E. Claiborne Robins Visitors Center is to be the garden's "Christmas gift to the community" in December 1998. The timeline for construction of the Charles F. Gilette Education Complex—which will include classrooms for lectures and workshops, a library, and a herbarium of 25,000 specimens from Virginia Commonwealth University—is three to five years.

Speakers at the ground-breaking included Susan Allen, first lady of Virginia. Children and grandchildren of the individuals for whom the buildings are named and students from two Richmond-area elementary schools—representing future visitors, horticulturists, and students—turned over earth on the site.

The garden has raised \$19 million toward a goal of \$35 million. The next phase of its construction plans includes a display conservatory, children's garden, and expansion of its horticultural collections.

Gardening Goes to the Dogs

Gardeners who own dogs have a problem: How do you integrate a doghouse into a landscape setting? One solution may be the architect-designed doghouses that will be auctioned on July 19 at St. Paul, Minnesota's Dog Day Afternoon fund-raiser. Benefiting DIFFA (Design Industries Foundation Fighting AIDS) and local humane societies, this tongue-in-cheek festival of things canine is a wonderfully offbeat way to enjoy an afternoon outdoors.

The doghouses at Dog Day Afternoon '96 were truly one-of-a-kind pieces of functional outdoor art. Versatile too—the larger ones could serve as tool storage sheds or children's playhouses. One house even had wheels on one end, like a wheelbarrow, so it could be moved for lawn mowing.

Not only can doghouses provide strong geometric lines as elements for landscape design, but taller ones can introduce shade into an otherwise relentlessly sunny setting. That's sure to be appreciated by both dogs and certain plants. And thinking ahead to next winter, one of these doghouses would provide welcome color and structural interest to a snow-covered garden.

After you and your dog (yes, pooch can attend) have picked out his new house, you can enjoy the nearby Minnesota Landscape Arboretum, Bakken Physic Garden, and 1876 Squire House Gardens. For more information, call Pamela Diamond at (612) 377-5586.

—Janet Cass, special from North Oaks, Minnesota



Shalom Biblical Botanical Garden, Pittsburgh, Pennsylvania. (412) 621-6566.

NORTHWEST

JULY 12 ■ Deadheading Day Party.

Lakewold Gardens, Lakewood, Washington. (206) 584-4106.

JULY 12 ■ A World of Medicinal Plants. Symposium. Center for Urban Horticulture, Seattle, Washington. (206) 685-8033.



JULY 27 ■ Annual Garden Tour. Self-guided tour of private gardens. Anchorage Garden Club. Anchorage, Alaska. (907) 278-2814.



AUG. 2 & 3 ■ Herb Symposium and Flower Show. Alaska Botanic Garden, Anchorage, Alaska. (907) 278-2814.



AUG. 3 ■ Gatiss Garden Festival. Gatiss Memorial Gardens, Kalispell, Montana. (406) 755-2418.

AUG. 7 ■ Propagation Workshop. Center for Urban Horticulture, Seattle, Washington. (206) 685-8033.

AUG. 22-24 ■ Farwest Flower Show. Oregon Convention Center, Portland, Oregon. (503) 653-8733.

AUG. 27-30 ■ Bridging Natural and Social Landscapes. Conference sponsored by the Natural Areas Association. Red Lion-Lloyd Center Hotel and Conference Center, Portland, Oregon. (503) 579-2920.

SOUTH CENTRAL

AUG. 1 ■ Organic Herb Gardening. Workshop. Ozark Folk Center, Mountain View, Arkansas. (501) 269-3851.

THROUGH SEPT. 21 ■ Margaret Mee: Return to the Amazon. Exhibit. Houston Museum of Natural Science, Houston, Texas. (713) 639-4600.

THROUGH NOV. 30 ■ Big Bugs. Outdoor sculpture exhibit. National Wildflower Research Center, Austin, Texas. (512) 292-4200.

SOUTHEAST

JULY 19 ■ Gardening With Mushrooms. Workshop. Daniel Stowe Botanical Garden, Belmont, North Carolina. (704) 825-4490.

JULY 23-26 ■ Landscaping With Native Plants. Conference. Western Carolina University, Cullowhee, North Carolina. (704) 227-7397.

JULY 13 ■ Summer Garden

Maintenance. Class. Brooklyn Botanic Garden, Brooklyn, New York. (718) 622-4433.

JULY 17-19 ■ Schoolyard Habitats. Workshop. Conway School of Landscape Design, Conway, Massachusetts. (413) 369-4044.

JULY 17-AUG. 3 ■ Rockefeller Center Flower and Garden Show. Rockefeller Center, New York City. (212) 632-3975.

JULY 18 ■ Woody Plants for the Landscape and Garden Center Industries. Conference. Lang Performing Arts Center, Swarthmore College, Swarthmore, Pennsylvania. (215) 988-8800.



JULY 19 ■ Yellow Barn Garden Tour. Yellow Barn Music School and Festival, Putney, Vermont. (802) 387-6637.



JULY 26 ■ Rutgers Gardens Open House. Rutgers Display Gardens, New Brunswick, New Jersey. (908) 932-8010.



JULY 26 & 27 ■ Garden Trail Tour. Madison, New Hampshire. (603) 447-5988.

JULY 31-AUG. 2 ■ Ecological Wetland Restoration. Workshop. Conway School of Landscape Design, Con-

way, Massachusetts. (413) 369-4044.

AUG. 2 ■ Summer Garden Day. Talks, tours, and demonstrations. Old Sturbridge Village, Sturbridge, Massachusetts. (508) 347-3362 ext. 270.

AUG. 3 ■ Grass Identification. Workshop. Frost Drew Nature Center, Ninigret Park, Smithfield, Rhode Island. (401) 949-0195.

AUG. 8-10 ■ Summer Conference and Celebration of Rural Life. Northeast Organic Farming Association. Hampshire College, Amherst, Massachusetts. (508) 355-2853.



AUG. 9 ■ Trial Beds Open House. Tours and lectures. Johnny's Selected Seeds, Albion, Maine. (207) 437-4357.

AUG. 9-13 ■ American Phytopathological Society Annual Meeting. Riverside Convention Center, Rochester, New York. (612) 454-7250.

AUG. 16 ■ Family Garden Festival. The Garden Institute at Merry Gardens, Camden, Maine. (207) 236-9064.

AUG. 23 ■ Plant Sale and Auction. Delaware Valley Daylily Society. Church of the Good Samaritan, Paoli, Pennsylvania. (610) 458-0177.

THROUGH SEPT. 15 ■ Paper Plants and Paper Making. Exhibit. Rodef

AUG. 5-7 ■ Perennial Plant

Association Meeting. Sheraton Imperial Hotel, Research Triangle Park, North Carolina. (614) 771-8431.

AUG. 14 ■ The Art of Drying

Flowers. Workshop. The State Botanical Garden of Georgia, Athens, Georgia. (706) 542-1244.

AUG. 21 ■ Piedmont Meadow

Workshop. The State Botanical Garden of Georgia, Athens, Georgia. (706) 542-1244.

SOUTHWEST

JULY 19 & 20 ■ American Indian

Sunflower Festival. Denver Botanic Garden, Denver, Colorado. (303) 370-8187.

JULY 19 & 20 ■ Region 20 Iris Society

Plant Sale. Denver Botanic Garden, Denver, Colorado. (303) 370-8187.

AUG. 8-10 ■ Southwestern Low Desert Gardening and

Landscaping. Conference. Wigwam Resort, Litchfield Park, Arizona. (602) 470-8086 ext. 824.

AUG. 10-13 ■ International Water

Lily Society Symposium. Marriott Denver Tech Center, Denver, Colorado. (410) 730-8396.

WEST COAST

JULY 5 & 6 ■ National Cactus and

Succulent Show. Huntington Botanical Garden, San Marino, California. (818) 405-2141.

JULY 12 ■ Plant Sale. Strybing

Arboretum, San Francisco, California. (415) 661-1316.

JULY 13 ■ More Dabbling With

Water Gardens. Workshop. Descanso Gardens, La Cañada Flintridge, California. (818) 952-4401.

JULY 14-25 ■ Permaculture Design

Course. International Institute for Ecological Agriculture. Private ranch near Half-Moon Bay, California. (415) 365-2993.

JULY 15-19 ■ Master Gardener

International Conference and Trade Show. Hyatt Regency Hotel, Sacramento, California. (408) 241-9973.

AUG. 2 ■ Growing Ornamental

Oreganos and Using Them for Crafts. Workshop. University of California Botanical Garden, Berkeley, California. (510) 642-3352.

AUG. 16-24 ■ Southern California

Home and Garden Show. Anaheim Convention Center, Anaheim, California. (714) 978-8888.

New York Community Gardens Threatened

Up to 750 community gardens in New York City could be destroyed as the city sells off 11,000 "vacant" lots to make way for development. Five community gardens have already been bulldozed. The gardeners affected say they recognize the need for more housing, but question why the city is not rehabilitating abandoned structures, rather than razing community gardens to build new ones. They are also concerned that the new developments will be mainly market-rate, or high-cost housing, rather than much needed lower-income housing.

These community gardens grew up on vacant lots throughout the city in response to a need for green space, and as a way to stop vacant lots from being dumping grounds or homes to prostitutes, drug dealers, and gang wars. The gardens have also become sources of additional food; safe places for neighbors to congregate; ways to preserve cultural heritage; sites for weddings, birthday parties, graduation parties, and church festivals; and places for schools to introduce children to gardening. In these gardens, Haitian immigrants work next to Middle-Eastern immigrants, who garden next to native New Yorkers—a sort of green United Nations. The gardens have mellifluous names like Parque de Tranquilidad (Park of Tranquility), Brisas del Caribe (Caribbean Breezes), Green Oasis, All People's Garden, Miracle Garden, and Winners Circle.

Some of these gardens are leased under the auspices of GreenThumb, a city community gardening program run by New York City's parks and recreation department. (See the July/August 1996 *American Gardener*.) GreenThumb leases each space to gardeners for \$1 a year, but because these leases are controlled by the city, the agreement can be withdrawn at any time.

The New York City Coalition for the Preservation of Gardens, formed in November in response to the threatened demolition, includes gardeners, community members, local schools, religious institutions, and community centers. To bring attention to the issue, the coalition has held a procession, sent representatives to speak before the housing authority committee and community boards, and held public meetings.

Those interested in helping preserve New York City's community gardens can reach the New York City Coalition for the Preservation of Gardens by phone at (212) 777-7969 or by fax at (212) 505-7303. More information can also be found at their Web site at <http://www.interport.net~earthcel/>.

Paris Will Still Be Beautiful in the Springtime...

And the rest of the year as well. Bernard McLaughlin's three-and-a-half-acre garden in Paris, Maine, has been rescued to be enjoyed by the public, as it was before its owner died in December 1995. (See the September/October 1996 *American Gardener*.)

On April 23, the McLaughlin Foundation, a nonprofit corporation founded to preserve the garden and establish a horticultural center, purchased the property. The foundation intends to follow McLaughlin's tradition of keeping the garden free and open to the public, and will meet its annual expenses by holding tours, peak season festivals, horticultural lectures, workshops, and cultural events; renting the site for weddings and private parties; and soliciting donations and grants.

McLaughlin's will left no money to endow the property, which includes 96 varieties of lilacs among its 500 plant species. The home, barn, and six-acre property were to be sold and the money divided among local charities.

The foundation has been endorsed by the Garden Conservancy, a nonprofit organization dedicated to preserving historic garden areas. Also voicing support were the Maine State Historic Preservation Commission, Western Foothills Land Trust, the National Trust for Historic Preservation, and the Maine Olmsted Alliance. Individuals can join the foundation for \$20 per year, with lower levels for students and higher levels for those who wish to make a larger donation. All members receive a newsletter called *Trillium*.

To join or make a donation, contact the McLaughlin Foundation at P.O. Box 16, South Paris, ME 04281, (207) 743-8820, or e-mail them at mclgarden@megalink.com. The foundation has a Web site at <http://www.dma.net/garden/>.

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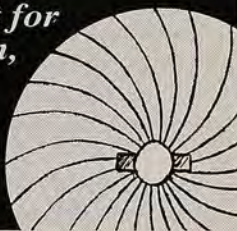
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pronunciations

a simple speaking guide to plants found in this issue

Achillea millefolium
ah-kih-LEE-uh mih-lih-FO-lee-um

Aleurites moluccana
al-yew-RY-teez maw-luh-KAN-uh

Anemone multifida
uh-NEM-o-nee mul-TIF-ih-duh

Arabis lyallii
AIR-uh-biss lie-AL-ee-eye

Aristida purpurea
ah-riss-TEE-duh per-PER-ee-uh

Aster depauperatus
ASS-tur dee-paw-pur-AY-tus

Astragalus crennophylax
var. *cremnophylax*
uh-STRAG-uh-lus krem-no-FY-laks
var. krem-no-FY-laks

Brighamia insignis
brig-HAY-mee-uh in-SIG-nis

Broussonetia papyrifera
broo-saw-NAY-tee-uh

Castilleja miniata
kas-tih-LAY-yuh
min-ee-AY-tuh

Cerastium arvense var. *villosum*
seh-RASS-tee-um ar-VEN-see
var. vil-LO-sum

C. velutinum
C. vel-oo-TEEN-um

Chimaphila umbellata
ky-MAF-ih-luh um-bel-LAY-tuh

Chionodoxa
ky-on-o-DOK-suh

Clematis hirsutissima var. *arizonica*
KLEM-uh-tiss her-soo-TISS-ih-muh
var. air-ih-ZOWN-ih-kuh

Clidemia hirta
kly-DEE-mee-uh HUR-tuh

Cornus canadensis
KOR-nus kan-uh-DEN-siss

Cyanea kubibewa
sigh-AN-ee-uh
koo-hee-HAY-wah

Dalea frutescens
DAY-lee-uh froo-TES-enz

D. gattingeri
D. gat-in-JUR-eye

D. pulchra
D. PUL-kruh

D. tenuifolia
D. ten-yew-ih-FO-lee-uh

Dodecatheon hendersonii
doh-deh-KATH-ee-on
hen-der-SOWN-ee-eye

Dryas octopetala subsp. *hookeriana*
DRY-as ok-toh-PET-uh-luh
subsp. hook-ur-ee-AN-uh

Gaura lindheimeri
GAW-ruh lind-HY-mur-eye

Gypsophila aretioides
jip-SOF-ih-luh uh-ret-ee-OY-deez

Habenaria dilatata
hab-eh-NAIR-ree-uh
dih-luh-TAY-tuh

H. hyperborea
H. high-pur-BOR-ee-uh

Heuchera cylindrica var. *glabella*
HYEW-ker-uh sih-LIN-drih-kuh
var. gluh-BEL-luh

Hibiscus waimeae subsp. *hannerae*
high-BISS-kus why-ee-MEE-ay
subsp. han-NUR-ee

Iris missouriensis
EYE-ris mih-zur-ee-EN-sis

Munroidendron racemosum
mun-roy-DEN-dron ras-eh-MO-sum

Nandina domestica
nan-DEE-nuh doh-MES-tih-kuh

Oenothera berlandieri
ee-no-THEE-ruh bair-lon-DEER-eye

Parnassia fimbriata
par-NASS-ee-uh fim-bree-AY-tuh

Pedicularis arctica
ped-ik-yew-LAIR-iss ARK-tih-kuh

Pisonia wagneriana
pih-SO-nee-uh wag-nur-ee-AN-uh

Populus angustifolia
POP-yew-lus ang-gus-tih-FO-lee-uh

Potentilla fruticosa
po-ten-TIL-luh froo-tih-KO-suh

Psoralea scoparioides
saw-ro-THAM-nus sko-PAR-ee-us

P. thompsoniae
P. tomp-SO-nee-ee

Purshia subintegra
PUR-sha sub-in-TEG-ruh

Ranunculus aestivalis
rah-NUNG-kyew-lus es-tih-VAL-iss

Salix arizonica
SAY-likes air-ih-ZOWN-ih-kuh

S. barrattiana
S. bar-rat-tee-AN-uh

S. exigua
S. eks-IG-yoo-uh

Saponaria officinalis
sap-on-AIR-ee-uh o-fiss-ih-NAL-iss

Schizachyrium scoparium
skits-ah-KEER-ee-um sko-PAR-ee-um

Schizostylis coccinea
skits-o-STY-lis kok-SIN-ee-uh

Sedum lanceolatum
SEE-dum lan-see-o-LAY-tum

Silene acaulis
SY-lean uh-KAW-lis

Sorghastrum nutans
sorg-ASS-trum NOO-tanz

Talinum teretifolium
tuh-LY-num tair-et-ih-FO-lee-um

Zauschneria
zowsh-NAIR-ee-uh

Zingiber zerumbet
ZIN-jih-bur zeh-RUM-bet

What's in a Name: *Chimaphila umbellata*

Once considered part of the heath family (Ericaceae), the genus *Chimaphila* is now assigned to the wintergreen or shinleaf family (Pyrolaceae), which contains four genera of herbaceous to shrubby plants found mainly on acid soils in temperate areas of the Northern Hemisphere. In reference to its leathery, evergreen leaves, the plant's generic name is formed from the Greek words *cheima*, which means winter, and *phileo*, which means love.

There are six species in this genus of rhizomatous woodland plants, known by the common names pipsissewa or prince's-pine. The name pipsissewa comes from a Native American (Cree) word *pipisikweu*, which translates roughly to "it breaks into pieces." This name apparently stems from the use of the plant to treat kidney stones and gallstones. It was also used by Native Americans—and later by settlers—to induce sweating and relieve rheumatism.

Native to parts of Europe, Japan, and North America, *C. umbellata* has several subspecies, including three in North America. The species name describes the structure of the pipsissewa inflorescence, composed of three to 10 flowers that nod gently from a common stem extended above the leaves. The leaves of *C. umbellata* were once used as an ingredient in root beer.

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- PUSHES BACK DESERTS, LANDSCAPES SHEIKS' PALACES, Saudi Arabia.
- PLANTED OVER 600,000 BARE-ROOT ROSES, 16 YEARS, LOSS FEWER THAN 1 IN 1,000, Albuquerque, New Mexico.
- SAVED ALL TREES TRANSPLANTED by U.S. Corps Of Engineers, FOR CAMOUFLAGE, WORLD WAR II.
- TWO WEEKS DIFFERENCE IN HYDROMULCHED GRASS STAND, ALONG FREEWAY BANK FOR EROSION CONTROL. — Maryland.
- SAVED ALL CELERY TRANSPLANTED IN 17 LARGE HOUSES, before and after one without, IN WHICH ALL LOST. — California.
- 1200 TREES WITH 4" CALIPER TRUNKS BARE-ROOTED IN DESERT JUNE. NO LOSS. — Tucson, Arizona, City Parks Department.
- BIGGEST TRANSPORTATION OF LANDSCAPE MATERIALS, CALIFORNIA TO FLORIDA, TO PLANT Disney World.® NO LOSS.
- KEPT ALL PALM SPRINGS DESERT GOLF COURSE'S GREENS PERFECT, SUMMER WHEN ALL OTHER COURSES WITH BENT GRASS GREENS IN AREA LOST 6 TO 14 GREENS.
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