FALL PLANTING: *Now's the time to get a head start on spring*

THE AMERICAN GARDENER

A Publication of the American Horticultural Society

September/October 1998 $3.95

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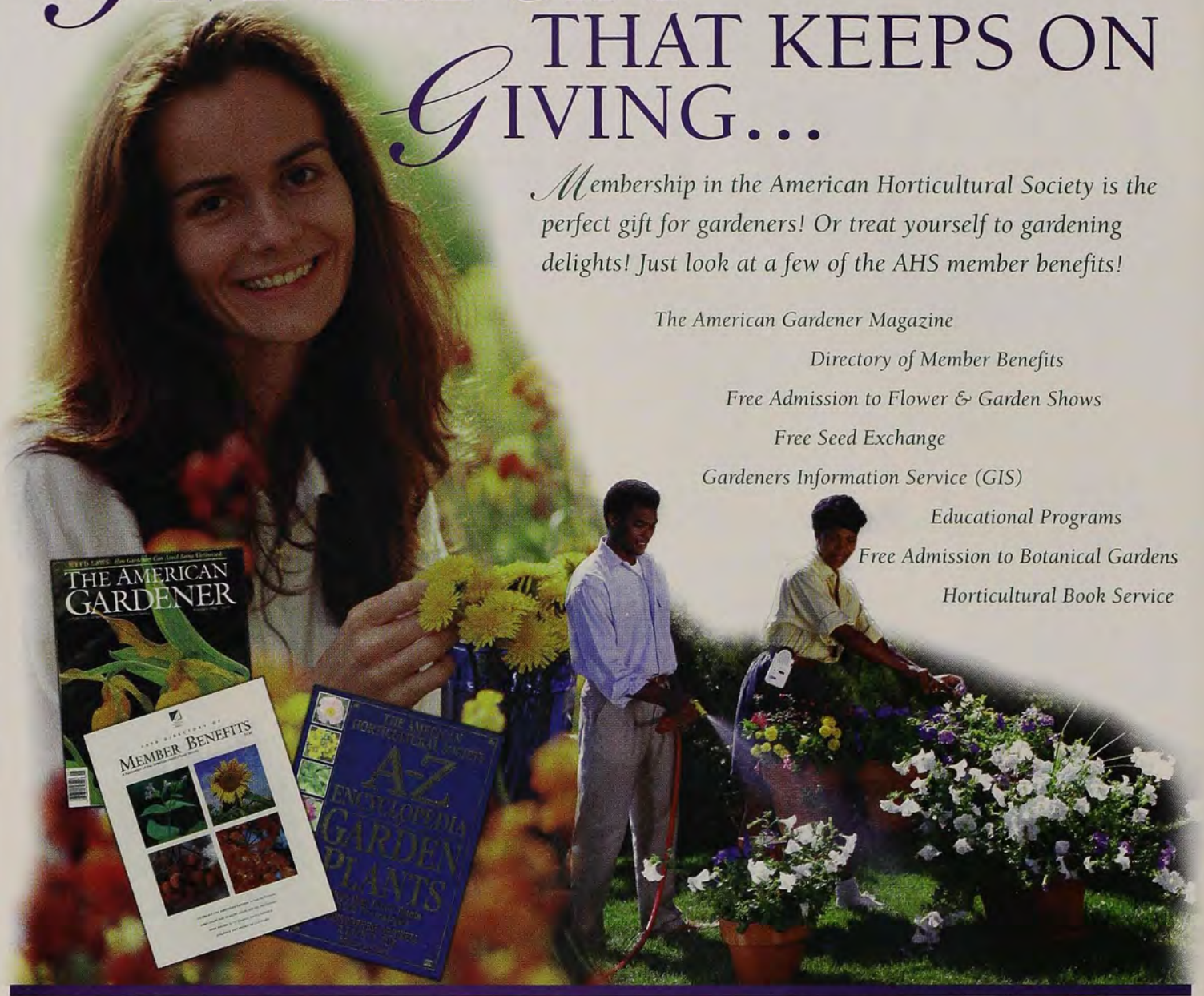

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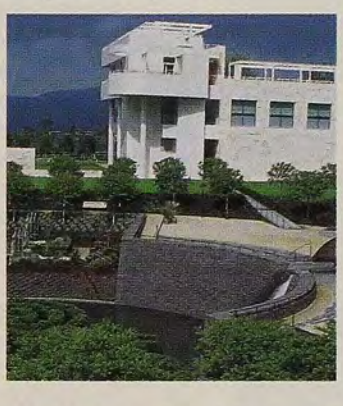

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On the cover: *The fall-tinted Blue Ridge Mountains form a backdrop for this private garden near Charlottesville, Virginia, designed by James Van Sweden and Wolfgang Oehme. Photograph by Roger Foley.*

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The American Horticultural Society (AHS) educates and inspires people of all ages to become successful and environmentally responsible gardeners by advancing the art and science of horticulture.

commentary

Fall is often portrayed as a time when the garden—and the gardener—is slowing down. As anyone who gardens will quickly assure you, nothing could be further from the truth. The fall garden usually requires just as much work as the spring garden does. There are bulbs to be planted, seeds to be collected and carefully stored for late winter sowing, and tender perennials and tropicals to be mulched or dug up. Many gardeners, especially those who live south of USDA Zone 7, are learning that fall is the ideal time to plant many herbaceous perennials, trees, and shrubs to give them a good start the following spring. And of course there are the ever-present fall cleanup tasks—raking leaves, deadheading perennials, and preparing flower and vegetable beds for winter.

In this issue we focus on what gardeners can do this fall to ensure a fruitful spring. For those who want to savor the season, we also tell you where to go to catch the best fall leaf displays and how to find out when the foliage color is at its peak.

In the course of our travels, many of us have come across inspiring natural scenes that we wish we could take away with us. In an excerpt from an upcoming Timber Press book, *Reflecting Nature: Garden Designs for Wild Landscapes*, father-and-son team Seth and Jerome Malitz describe how to reproduce small details from natural landscapes in our gardens.

From Los Angeles we bring you the story behind the design of the multimillion-dollar landscaping around the new Getty Center, including amazing photographs of the controversial Central Garden designed by artist Robert Irwin. Although definitely not a reflection of nature, this is a garden that has to be seen to be believed.

When most people think of bulbs, they think of the large spring-flowering types such as hyacinths, daffodils, and tulips. Nancy Goodwin, whose renowned North Carolina garden, Montrose, is a popular tour site, tells us about some of the best little bulbs to provide color in the garden in late summer, fall, and winter. Nancy tapped into the resources of AHS when she started gardening years ago and now she shares with us some of what she has learned from her years of growing bulbs.

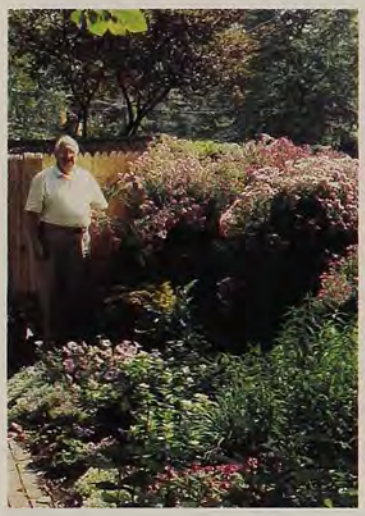
And plant hunter John Creech, a long-time AHS member and former Society president, brings us the story of how loropetalum—a flowering shrub from China that is closely related to witch-hazel—has emerged from anonymity to become one of the hottest commodities in American horticulture.

Whether you spend time in your garden or escape to seek the sights of the season, we look forward to hearing about your activities and interests, your gardening trials and successes. Your feedback is vital to the planning process for our publications and educational outreach programs, so keep those letters, e-mails, and calls coming.

Linda D. Hallman

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

members' forum



Aster novae-angliae 'Alma Pötschke' is rose-pink.

LEFT: COURTESY OF WALTER M. PICKARD; RIGHT: ALAN AND LINDA DETRICK.

NEW ENGLAND ASTER

In the low period of our northern Virginia garden in September—when many of the summer bloomers are gone or looking poorly—there is one plant that can be relied upon for eye-catching masses of color. It is the New England aster *(Aster novae-angliae)*, which is sometimes called Michaelmas daisy, although that common name is usually reserved for *A. novae-belgii*.

Starting about mid-September, they are covered with hundreds of small one- to two-and-a-half-inch daisylike flowerheads in a wide range of colors—from white to many shades of pink, salmon, and maroon to blue and deep purple. Bees and butterflies love to sip nectar from the blooms, sometimes covering the plants in hordes. Even without their blooms, the plants are attractive in the background of a bed or border because they are covered with lance-shaped, dusty pale green leaves.

New England asters are easy to grow. They bloom most vigorously in full sun and like well-drained, humusy soil, but they will tolerate less than ideal conditions—we have some volunteers growing in the shade of a crabapple tree in almost pure clay. Our plants haven't had mildew or insect problems, either.

A minor drawback is their height: Our plants grow in clumps in our herbaceous borders, reaching four to five feet tall or taller. Pinching them back in early July helps make them bushier and somewhat shorter, but they still require staking when they flower and become top-heavy. They also tend to become leggy, but we plant low, bushy perennials such as sedums and chrysanthemums in front of them to solve that problem.

Although New England aster is native to eastern North America, British and German horticulturists have been mainly responsible for breeding dozens of cultivars—including a number of lower-growing and mildew resistant selections—now available to American gardeners.

We have five cultivars in our garden: 'Alma Pink', 'Harrington's Pink', 'Alma Pötschke' (rose-pink), 'September Ruby', and 'Hella Lacy' (violet). Mixed and matched, these plants produce great clumps of exuberant color that are a delight to the eye.

Colonel (Retired) Walter M. Pickard
Alexandria, Virginia

PULLED OVER

Your article "Highway Sideshows" in the last issue (May/June, 1998) was of great interest to me. As a state chairman for the Garden Club of South Carolina and South Atlantic regional chairman for Roadside

THE AMERICAN GARDENER

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The American Gardener (ISSN 1087-9978) is published bimonthly (January/February, March/April, May/June, July/August, September/October, November/December) by the American Horticultural Society, 7931 East Boulevard Drive, Alexandria, VA 22308-1300, (703) 768-5700. Membership in the Society includes a subscription to *The American Gardener*. Annual dues are $45; two years, $80. International dues are $60. $10 of annual dues goes toward magazine subscription. Periodicals postage paid at Alexandria, Virginia, and at additional mailing offices. **Postmaster:** Please send Form 3579 to *The American Gardener*, 7931 East Boulevard Drive, Alexandria, VA 22308-1300.

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

Council/ Scenic Highways, the topic could not fail to interest me. However, I deplore your failure to mention the active support and participation of the National Council of State Garden Clubs in all aspects of highway beautification: the elimination of unsightly dumps, advertising, etc. and the active encouragement of landscaping and enhancing the natural beauty of our very lovely countryside.

In North Carolina, which in my opinion is the undisputed leader—at least in the Southeast—of this beautification program, the state offers generous financial aid, but the state garden clubs also contribute greatly through a system of annual awards. In poorer states like South Carolina, garden club members do everything they can—including a great deal of back-breaking labor and individual contributions—to make up for inadequate state assistance. They have been fortunate also in benefiting from grants such as the PETALS program fostered by Shell Oil Company. They have been generous with this assistance in South Carolina, not only to the state club but to many local clubs. Through such assistance, my own 14-member Blackville Garden Club has established a butterfly garden at Healing Springs, South Carolina, a scenic and historic site along the Heritage Corridor.

Much as I enjoyed your article, I feel you only told half the story. If highway beautification were left to the mercies of our government agencies only, there would be very little done—and that would be obscured by the billboards.

Mary Francis Gyles
Blackville, South Carolina

We certainly didn't intend to overlook or diminish the role of groups such as the National Council of State Garden Clubs, but too many volunteer groups are involved in planting and taking care of roadside plantings for us to mention them all by name. We tried to cover volunteer activities in the sidebar, "Volunteers Can Make a Difference" (page 15 of the May/June issue), but obviously did not dig deep enough in our research. Without the efforts of groups such as yours, there is no doubt our roadsides and rest areas would be far less hospitable than they are.

Correction

In the May/June issue the photograph on page 39 of "Eurasian Honeysuckles" should have been credited to Charles E. Williams.

ORCHIDS REVISITED

The following are the first three essays we received about members' experiences viewing native orchids in the wild. These were submitted in response to our offer of a free copy of Philip Keenan's book Wild Orchids Across North America: A Botanical Travelogue, *to be published in October by Timber Press. Our thanks go to all the other readers who also submitted essays.*

Swamp pink orchid, also appropriately known as dragon's-mouth.

I've been photographing plants, both cultivated and wild, for close to 20 years, mainly in the Midwest, where I live. While I have more than 3,000 species of plants in my photo stock list, I've always had a special place in my heart for wild orchids—due in part to their rarity and elusiveness. It's always amazed me to think of the bizarre and out-of-the-way places these unique plants live in. Every time I see an orchid, it's usually due to a combination of timing and effort.

On one occasion I learned the ways of a cranberry bog where, while photographing various flowers, I happened upon a single swamp pink orchid *(Arethusa bulbosa)*. Just getting to the bog had been an ordeal: I struggled through thick underbrush, crawled and sometimes tripped over fallen logs, and was attacked by hordes of hungry mosquitoes—all while carrying a backpack of camera equipment and a tripod. When I got to the bog, I came close to having my knee-high rubber boots sucked off my feet by the tenacious grip of the waterlogged terrain.

Once I reached the orchid and had fired off several exposures, I suddenly noticed that my feet and backside were feel-

ing a bit wet. Looking down, I found, to my surprise, that the tops of my boots were disappearing into the ooze. I had been slowly sinking into the bog! Fortunately, I was able to extract myself without falling over, losing my boots, or damaging my camera equipment.

But in the end, I feel that's why orchids have such appeal for me. To see an orchid, you often have to work for it.

Bill Johnson
Minneapolis, Minnesota
(Bill Johnson is a frequent photographic contributer to The American Gardener.)

I was on a leisurely stroll on a small woodland property my wife and I recently purchased for retirement on San Juan Island in Washington state when I saw several orchids in one day. It was midsummer and there was a strong scent of conifers in the air. The path was soft with a deep cover of fir needles. A group of small plants with dark green leaves mottled with white and a prominent whitish midrib caught my eye: They had finished flowering, but their attractive foliage was unmistakably that of the common ground orchid *(Goodyera oblongifolia)*. A few steps farther down the path there were several withering stalks of *Corallorhiza maculata*, an old friend seen many times on walks on the island. At the next turn in the path there were several bright green plants, each with a spike of many whitish, spurred flowers, which I later confirmed as *Piperia elegans*. On a hummock beside the path were several plants of another orchid I hadn't seen before, plants about two feet high, with numerous small greenish yellow flowers mostly on one side of the stalk and several bright green elliptic-shaped leaves on the upper stem. Later identified as *Epipactis helleborine*, it is considered to be a somewhat weedy European species that has naturalized on Vancouver Island as well as here across the channel. This greatly satisfying short walk revealed not one but four species of ground orchids, all within a few feet of each other—a good omen for our retirement.

Richard E. Norris
Fort Worth, Texas

I grew up walking the woods with my father. As a wildflower photographer by avocation he knew the names of just about all the wildflowers that flourished in our northern Virginia neighborhood and beyond. For many years there was a woodland path that ran through our property and followed a small stream for a mile or more. It was along this path that I saw my first native orchids. Just a few feet from the trail each spring grew a cluster of low-growing showy orchis *(Galearis spectabilis)*, with their broad basal leaves and delicate pink and white spurred flowers. They would have been easy to miss, especially to a child's eye that was expecting something as flamboyant as the orchids at the local greenhouse. Nevertheless, my father's quiet enthusiasm was contagious, and like a child on an Easter egg hunt I was eager to find more.

Now, years later, with a few botany courses under my belt, I'm still walking with my father. In a bog in northern Minnesota we've found the small woodland orchid *(Platanthera clavellata)* tucked amid pitcher plants and sundews. And we've searched for—though never found—the yellow lady's-slippers that once carpeted areas along the Potomac River.

My parents have moved from their wooded neighborhood, now overtaken by development. But my father and I have already begun to explore the creeks and woodlands of their new home.

Catherine Berkemeyer
Falls Church, Virginia

news from ahs

TOUGH NEW MAPLES

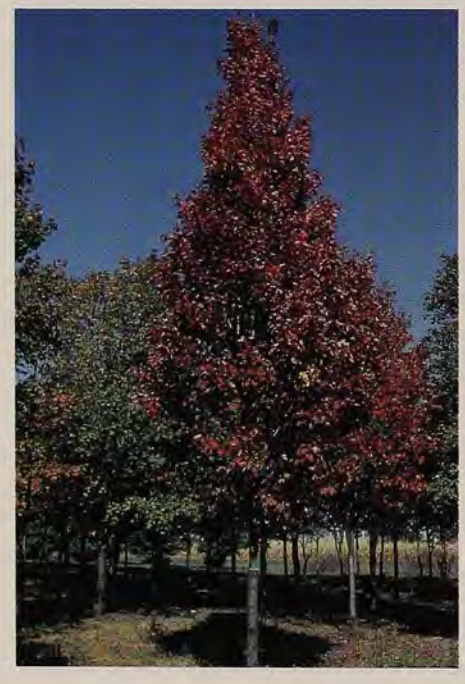
Researchers at the U.S. National Arboretum in Washington, D.C., have developed two colorful new red maple *(Acer rubrum)* cultivars, 'Red Rocket' and 'New World'. Both exhibit resistance to potato leafhopper, a serious pest of maple trees, and are extremely cold-hardy. 'Red Rocket' thrives as far north as USDA Zone 3, where temperatures can drop to –40 degrees Fahrenheit, and 'New World' grows to Zone 4.

The new trees are the products of 20 years of genetic research to expand the range of maples available to gardeners and to build greater genetic diversity within the species. "There are only a few popular maples available commercially," explains Denny Townsend, a research geneticist at the arboretum who, along with arboretum director Thomas Elias, developed the new cultivars."We decided it was time the plant industry tried to diversify."

In the late 1970s the arboretum began testing 3,500 maple trees grown from seeds collected throughout the trees' native range in Eastern and Central North America. They rated the trees for various qualities, including resistance to insects and disease, tolerance to air pollution, and cold hardiness, as well as aesthetic attributes such as shape, growth rate, and fall color. Of the 3,500 trees, two stood out because of their extreme cold hardiness, nice shape, and attractive fall color. Later tests showed that they also withstood attacks by the potato leafhopper, a pest that feeds on maple leaves. 'Red Rocket' showed exceptional resistance, suffering only two percent leaf damage when challenged by a hopper attack, compared with nine to 10 percent leaf damage on other popular cultivars.

'Red Rocket' has a columnar shape and bright, fiery-red fall foliage. In addition to making a good windscreen, its exceptional cold hardiness makes it ideal for a large container plant. 'New World' is characterized by orange-red fall foliage and a shape rather unique to maples: it branches up, then out and weeps at a high level, making it an excellent shade and street tree.

Propagators will begin growing the trees next spring, Townsend says, but they won't be available through retailers for two or three more years.



'Red Rocket', left, and 'New World', above, are new red maple cultivars from the U.S. National Arboretum.

COURTESY OF UNITED STATES NATIONAL ARBORETUM

YOUTH GARDENING GRANTS AVAILABLE

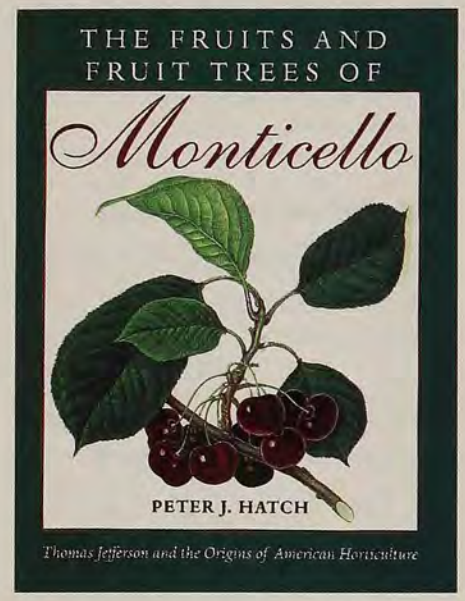
The National Gardening Association (NGA) is accepting applications for its 16th Annual Youth Garden Grants Program. Each year the nonprofit organization, based in Burlington, Vermont, awards gardening supplies and equipment worth more than $700 to various schools and organizations. The NGA plans to hand out 300 such grants in 1999. Winners are chosen based on their need, the strength of their programs, and the programs' degree of community involvement. To be eligible, a school or organization must plan to implement an outdoor gardening program in 1999 that involves at least 15 children between the ages of three and 18. The application deadline is November 15, 1998. To receive an application, write to Garden Grants, Dept. PS, National Gardening Association, 180 Flynn Avenue, Burlington, VT 05401—or download a form by visiting the NGA Web site at www.garden.org.

FRUITFUL SUMMER AT MONTICELLO

Thomas Jefferson's gardens at Monticello, in Charlottesville, Virginia, were honored in May with the first Horticultural Landmark Award presented by the American Society for Horticultural Science (ASHS), a professional organization based in Alexandria, Virginia. The award, part of the society's newly developed Horticultural Landmark Program, is designed to commemorate sites of horticultural accomplishments selected for their historical, scientific, environmental, and aesthetic value.

Under the stewardship of the Thomas Jefferson Memorial Foundation, which has owned and operated Monticello since 1923, much of the house and gardens at Monticello has been restored to reflect how it appeared when Jefferson resided there in the early 19th century. Donald Maynard, chairman of ASHS's board of directors, says, "The gardens and grounds at Monticello are the most magnificent recreated acres in the United States."

Anyone interested in learning more about the restoration of Jefferson's orchards and vineyards should consult *The Fruits and Fruit Trees of Monticello: Thomas Jefferson and the Origins of American Horticulture,* written by Peter J. Hatch, Monticello's director of gardens and grounds. The book, published earlier this year by the University Press of Virginia in Charlottesville, offers a detailed account of Jefferson's fruit gardens and the painstaking efforts that have gone into authentically re-creating them.



MULCH TO AVOID

Researchers at Michigan State University in East Lansing have found that grass clippings from turf treated with common pesticides damaged garden plants when used as mulch. As reported in the December 1997 issue of the journal *HortScience,* MSU researchers mulched tomato, bush bean, petunia, and impatiens plants with four inches of grass clippings at intervals of two, seven, 14, and 28 days after treatment with pesticides. Herbicides tested were 2,4-D (combined with the growth regulator triclopyr), clopyralid (also combined with triclopyr), and isoxaben. Also tested were the insecticide chlorpyrifos and the growth regulator flurprimidol.

According to the researchers, damage to plants was most severe when the grass clippings were applied within a week of pesticide application; no injury to plants was observed when clippings were applied 28 days after treatment. Clippings treated with combinations of 2,4-D or clopyralid with triclopyr caused greatest injury. Clippings exposed to chlorpyrifos did not cause significant injury.

So, if you use pesticides on your lawn, it's advisable to wait at least four weeks before using grass clippings as mulch.

autumn pleasures

FAR FROM THE DYING OF THE YEAR, *fall is a joyous time for gardeners. We can savor nature's bounty at the same time we lay the groundwork for spring. In his book* The Garden in Autumn, *writer Allen Lacy says a garden "can be at its very best in autumn.... It is a kindly season, and a forgiving one, with its own special rhythms."*

Northern gardeners are beginning to learn what those in Dixie have known for years: Fall is an ideal time to plant a variety of trees, shrubs, and herbaceous perennials. Read on to learn why fall is coming into its own as a planting season and to learn about those ever-present exceptions to the rule.

Fall is also a time for getting away from the garden to see the natural alchemy that creates fall color. We offer you a foretaste of those amazing colors, and tips on how to find out when to plan your leaf-watching trip.

Fall is a time for many quiet joys, from splendid vistas such as this country road at Crawford Notch, New Hampshire, above, to the sounds and smells of raking leaves, right.

fall planting

by Christina M. Scott

Fall has traditionally been a time for clean-up–deadheading perennials, packing up the gardening tools, analyzing the successes and failures of the year's garden, and planning for spring. But fall is also a great time for planting—and

not just for bulbs! Planting many trees, shrubs, and even herbaceous perennials in the fall will give them a head start over those planted the following spring.

CHANGING TRENDS

While southern gardeners have been reaping the benefits of fall planting for decades, northerners have had trouble fighting the natural instinct to limit planting to the spring and summer months. "In the fall, we typically sell only about half of what we do in the spring," says Peg Prag of Forestfarm, a mail-order nursery in Williams, Oregon. "But," she adds, "things are starting to change." André Viette, of André Viette Farm and Nursery in Fishersville, Virginia, attributes the trend toward fall planting in part to changes in nursery growing practices. "Containerization has revolutionized planting," he says. "It used to be that most plants were grown directly in the ground and then had to be dug up when they were ready for sale. Container-grown plants make planting much easier because there is less shock to the root system."

Whatever the reason for the change, there are many benefits to fall planting—benefits for both the plant and the gardener. For starters, we all know fall is a delightful time in the garden: The soil is still warm from the hot summer months, but the air temperature is much cooler. This is a gardener's paradise. The warm soil is easy to work, and you won't roast in the process. For the plant, the cooler temperatures and warm soil encourage vigorous root growth. Cool air signals the plant that it's time for the top growth to go dormant, thus reducing the likelihood of damage from early frosts and allowing the plant's energy to be concentrated below ground.

Fall also affords some relief to summer-baked plants and soil. "The soil is much better in the fall," says Bob McCartney of Woodlanders, Inc., a mail-order nursery in Aiken, South Carolina. "As the days get shorter and the sun is not so strong, there is less water evaporating from the soil, as well as less transpiration in the leaves." This moisture retention helps promote strong root growth and reduces the time you need to spend watering.

Because root growth will continue as long as the soil temperature is above the low to mid-40s, perennials planted in the fall have an enormous advantage over those planted in the spring. "There is an amazing difference between spring- and fall-planted perennials because the fall-planted ones have had a much longer time to become established," notes Dan Hinkley, co-owner of Heronswood Nursery in Kingston, Washington.

Blanketing a bed of foxgloves with shredded tree leaves for winter protection.

"Fall is a much more uniform and stable time for planting than spring," adds Reeser Manley, an assistant professor of landscape horticulture at the University of Maine in Orono. "Spring can be cold and wet—sometimes we can't even get into the garden to plant until early summer here." As a result of these more stable conditions, nursery owners say plants purchased in fall are more likely to be planted as soon as they arrive than plants purchased in spring, which often languish in containers or plastic bags in the garage until conditions are right for planting.

HOW LATE IS TOO LATE?

Of course, the gardener's life is never simple. What about zones? What about plants that resent fall planting? And how about

Fall Bargains?

In late summer and early fall, many nurseries reduce prices on their leftover stock so they don't have to winter it over or transplant it into larger containers. While this is a time to pick up some plant bargains, watch out for plants that are on their last legs after at least a full growing season—often alternately subjected to over- and underwatering—in a container. Particularly keep your eyes out for:

Potbound plants. Check the bottom of the pot to see if roots are growing through the holes. If not, gently tap the plant out of its container to see if it has a network of overlapping roots that encompasses the entire root ball. It's possible to salvage potbound plants, but they are more likely to have suffered from water and nutrient deficiences over the summer and may be slow to take root in your fall garden.

Diseased plants. Plants that have been kept in containers all summer and fed on high nitrogen fertilizers are easy targets for pests and diseases. Check plants for spots on the foliage, wilted or curled leaves, discolored roots, or visible signs of pest damage and infestation such as webbing or sticky residue on foliage. Not only will these plants do poorly, they may infect other plants or the soil in your garden.

Badly shaped plants. These are the Charlie-Brown-Christmas trees of the nursery world, the unwanted orphans that have been passed over all year because they are pruned badly or have a poor shape. With imagination, and skillful pruning, some may be resurrected, but don't set yourself up for an ugly tree or shrub that you will have to live with for years just because you wanted to save a few bucks.

Mislabeled plants. By the end of the season, many plant tags have been lost, torn off, or mixed up, so you are more likely to get a plant with flowers that aren't the color you expected, or even a different species. Unless you like such surprises, stick to plants that are part of large displays of identically labeled plants, or which have labels that are firmly attached and look like they've been there for a while.

—David J. Ellis, Editor

Better Left for Spring

Pincushion flower *(Scabiosa* sp.) is one of the perennials best planted in spring.

Some plants don't do well if planted in the fall. Among the herbaceous plants that don't like typical wet, winter conditions are many with silvery, hairy foliage, such as wormwoods *(Artemisia* spp.), lamb's-ears *(Stachys byzantina),* and dusty miller *(Senecio cineraria).* Plants that are native to dry climates, such as penstemons and pasque flowers *(Pulsatilla* spp.), also generally fare better when planted in spring.

According to *Perennials and Their Garden Habitats,* by Richard Hansen and Friedrich Stahl, ferns and grasses generally do not respond well to fall planting. The same is also true of several other perennial species, including *Anchusa* spp., *Anemone japonica,* certain bellflowers *(Campanula* spp.) leadwort *(Ceratostigma plumbaginoides), Kniphofia* spp., *Leucanthemum maximum, Lupinus* hybrids, and *Verbascum* spp.

Steven Bradley, author of *Getting Ready for Winter: Pruning, Protecting, and Other Fall Tasks,* says that—except in regions with very mild winters—pincushion flower *(Scabiosa* spp.) is best left for spring planting. *—D.J.E*

soil types? While it is impossible to make a list of fall planting guidelines that will encompass every gardening situation and region, there are some general rules to follow when planting in the fall.

Manley says it's critical to get plants into the ground early. The fine, hairlike roots the plant depends upon in spring for absorption of water and nutrients need time to develop. "One thing we know is that the youngest fibrous roots are the most susceptible to frost," he warns. "You need to give the plant an early enough start that a substantial inventory of those feeder roots can become established."

To ensure the plant has enough time to become established, first consider its hardiness. If a plant is only marginally hardy in your zone, give it a little extra time to get established. Planting at least six to eight weeks before the ground normally freezes is a good rule of thumb for most plants. Less hardy species may need an extra couple of weeks. The window of opportunity for fall planting obviously varies widely from region to region. In the South, gardeners can often get away with planting into early November, but Manley notes that in areas such as upper New England—where the ground can freeze by mid- to late November—fall planting "actually translates into late summer."

In any season, soil type is another important consideration when planting a garden. Although many sources warn against fall planting in heavy soils, Bob Westerfield, a consumer horticulturist with the Georgia Extension Service, Fort Valley, says fall planting in clay is fine as long as you amend the soil. "What we're fighting here is compaction and anaerobic soil conditions," he says. Also, water-retentive soils are slow to warm up in the spring, creating a delay in the spring growing season. To alleviate these problems, Westerfield recommends improving drainage by tilling garden beds thoroughly—and as deep as possible—and adding at least three to four inches of organic matter.

When planting—in any garden—keep in mind that a plant's needs are different in the spring than in the fall. Particularly avoid the use of high-nitrogen chemical fertilizers when planting in the fall, because such fertilizers stimulate excessive vegetative growth that will be vulnerable to winter damage. Instead, use organic fertilizers such as dried kelp, cocoa hulls, bone meal, and blood meal, or mulch with finished compost.

After planting, mulch the plant with your usual, year-round mulch. In addition to keeping out weeds and retaining moisture, a permanent mulch keeps the soil

warm a little longer in those areas where the ground freezes during the winter. In northern gardens, mulching is especially important in years when there is little or sporadic snow cover. "Snow cover is definitely an asset in terms of protecting roots from winter freeze damage and frost heaving," says Manley. If you garden in a very cold area where it freezes every night, cover the plants with a light winter mulch of marsh hay, straw, or pine boughs *after* the ground is frozen. Once the ground is frozen, you want it to stay frozen. This will help prevent heaving—plants being literally pushed out of the ground—caused by recurrent freezing and thawing of the soil. Keep the mulch light, though. "You should be able to see flecks of foliage and soil through the straw or boughs," emphasizes André Viette. "And be sure to remove the winter mulch in early spring so the soil can warm back up."

Finally, remember that roots are less hardy than top growth, so be conservative when planting in raised beds or containers in fall. Make sure the plant is hardy to at least a zone colder than your own when planting in a raised bed; leave a safety margin of two to three zones for container plantings, or bury the pots in the ground over the winter.

WOODY PLANTS

Most decidous shrubs are good candidates for planting in the fall, but evergreens and many deciduous trees need to be evaluated more carefully. "We don't rule out late summer to fall planting of evergreens," says Manley, "but we emphasize that they should be planted as early as possible." Many evergreens have slow-growing roots, and their leaves tend to lose water quickly when exposed to dry winter winds.

Other trees that are not good candidates for fall planting, says Manley, are birches *(Betula* spp.), larches *(Larix* spp.), sweet gum *(Liquidambar styraciflua)*, ornamental pears *(Pyrus spp.)*, ginkgo *(Ginkgo biloba)*, oaks *(Quercus* spp.), and magnolias *(Magnolia* spp.). The last, he notes, "have a very fleshy root system and their feeder roots are not extensive when young, so they are likely to be frost-heaved."

If you are in doubt about the merits of fall planting for any particular genus, consult your local nursery owner or county Extension horticulturist.

So don't clean off those gardening tools just yet. Get out in that garden and start planting! Your work this fall will be greatly rewarded by healthier, happier plants come next spring.

Autumn is a brilliant time in many parts of the country. Above: Vine maples *(Acer circinatum)* blaze near a waterfall in Wenatchee National Forest in Washington State. Right, top: A quintessential Northeastern view of fall in rural Putnam, New York, complete with church spire. Right: A wash of golden colors in La Crescent, Minnesota.

seeking fall colors

In the fall, people flock to national forests and park lands to see nature reveal itself in all its splendor. The Appalachian, Rocky, and Sierra mountain ranges host brilliant displays of fall color during September and October and are traditional stopping points for those seeking a good show. Of course, beautiful fall foliage is not limited to massive mountain ranges or large forests; often you need only to look out into your own back yard to see a splash of fall color to brighten your days.

Peter Del Tredici, director of living collections at the Arnold Arboretum, notes that it's nearly impossible to predict when, where, and how intense fall color will be. But the combination of "a deciduous forest, a northern latitude, a high altitude, and a sharp frost early in the season" will usually produce the best color. "Bright colors are associated with a sharp frost," says Del Tredici, which is why fall color is not always great in warmer regions of the country. "In areas where it gets cold very gradually, leaves will tend to just turn brown and die on the tree." Sudden, hard frost is a major reason for the exquisite fall foliage often found in New England, which attracts thousands of people each year from all over the world.

Fall color changes provide urban dwellers with an excellent excuse for escaping crowded cities for a few days each year. "Many trees that thrive in urban areas are exotic species, which don't color up as well as native species," says Del Tredici. "You tend to get better colors in the country, where there is more native vegetation." And country towns are often scenic in their own right, notes Mary Cochran of the California Division of Tourism. "Many places, such as Grass Valley and Nevada City, have very quaint, Victorian buildings in addition to spectacular fall foliage," she says, "creating an even more picturesque view."

To find out when peak color arrives in your area, try the fall foliage hotlines listed on the facing page.

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

CLOCKWISE FROM TOP LEFT: MARK TURNER; DON JOHNSTON; BILL JOHNSON

For More Information

There are hundreds of resources available to help you determine the best places and times to see fall foliage. Beginning the first week in September, the U.S. Forest Service offers a toll-free fall color hotline, (800) 354-4595. Updated weekly, the hotline provides information on the condition and peak viewing times for fall foliage in national forests around the country. Here are a number of other sources of fall foliage information for popular regions in the United States and Canada. For areas that are not listed here, contact individual state tourism bureaus, park services, or city chambers of commerce.

Alabama. The Alabama Tourism Council, (800) 252-2262.

California. The California Division of Tourism provides a listing of the many information sources within the state, (916) 322-2881.

Colorado. U.S. Forest Service–Rocky Mountain Region, (303) 275-5350.

Kentucky. The Kentucky Tourism Council begins its "Fall Color Watch" in mid-September. Information is updated daily, (800) 225-TRIP.

Maine. The Maine Department of Conservation offers the "Maine Fall Foliage Page" at www.state.me.us/doc/foliage/foliage.htm.

Minnesota. The Minnesota Office of Tourism, (800) 657-3700.

New Hampshire. The New Hampshire Office of Travel and Tourism Development provides an online report, updated twice a week, at www.visitnh.gov.

Ohio. Ohio Department of Natural Resources, call (800) 282-5393 or visit www.dnr.state.oh.us/odnr/color/.

Virginia and North Carolina. Blue Ridge Parkway, call (828) 298-0398 or visit www.nps.gov/blri/.

Canada. The Tree House provides updates for the New Brunswick province, (800) 365-3255.

ILLUSTRATION BY RON FLEMMINGS

offshoots

TERMINATOR TOADS

by Julie Cole Shaw

I have seen her in the garden so many times. She moves with catlike grace and snap reflexes among the beds. She is as quiet as a puma on the prowl and just as deadly, at least to the bugs that find an easy meal in my garden when the plants are stressed. Sometimes I teasingly call my daughter Renfield, after the fly-eating disciple of Dracula. She dismisses that, knowing that she is performing a dual service, decimating the bug population and feeding her friends.

In an organic garden, you rarely get a plague of bugs that come in and consume healthy plants. It is only when there is insufficient water or nourishment, or when there have been environmental disturbances, such as too much shade or wind damage, that the bugs move in for the cleanup job. But even at the best of times, there are always plenty of good and bad bugs inhabiting the beds and rows.

So stressed or not, my garden is regularly visited by my daughter, who has kept toads, along with more conventional companions such as cats, since she was five or six. But here I speak of her toads. One beautiful creature she kept for over five years. The ToadBall finally succumbed to a winter virus. We mourned our loss like family. She was *Bufo americanus* 'Shaw'.

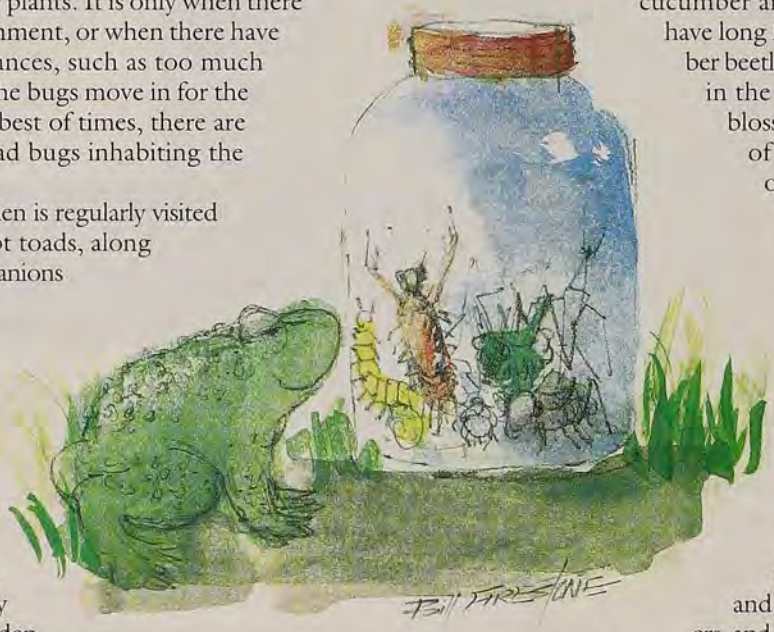
In order to keep these toads happy and well fed, my daughter daily combs the garden for toad treats. Delicious crickets; cuke, bean, and asparagus beetles; pilly bugs; squash bugs; click beetles; spiders—the list goes on and on. I discourage her from taking beneficials, but on occasion she does. I often watch her quick hands as she performs pest prestidigitation and, poof, ends up with a jar full of goodies.

This week she is out of town. Now many of us feed our sister's cats, walk our aunt's dogs, and check the fish on occasion. But toads?

When we went on family vacations, we knew not to trust people to do toad care. Our toads have done the Rockies, hiked the Utah desert, and dined on the Pacific shore. They have enjoyed the Catskills and the Smokies, as well as Daytona Beach. They even visited art museums in Texas and in the Big Apple. But this year, my daughter declined to take them to Kansas.

So it falls to me to debug the garden. I head out early, as the morning light just begins to peek over the horizon. The dew is heavy on the plants and on my shoes. The hour is heavy on my head—the jar is heavy in my hand.

My first target is the tiny crickets that live around the edges of beds and the compost pile. These little guys begin catapulting all over the place as soon as I come near them. I get the jar ready. I find a likely specimen and wait until it stops popping all about. When it's landed on a fairly high grass stem, I hold the jar above it and whop! Missed. Oh well, let's try again. So I do—10 or 20 times until I finally whop just at the right moment when a cricket's guard is down. Whop! Whop! Wham! Three in a jar. Now what goes nicely with cricket? A little salad of cucumber and beans—beetles, that is. I have long known that bean and cucumber beetles like to take their night's rest in the bright bedrooms of squash blossoms. I gently grasp the base of a squash blossom and pour out several beetles like sticky cereal from a box. The bugs don't go without a fight, but a nice deep nut jar does seem to confuse them—particularly when I agitate it lightly as I continue my hunt.



I realize this all sounds vicious, but it is the way of organic gardening. If we lived further out of town—where the space was larger, a pond available, and there were fewer cars, mowers, and nonorganic lawns—we would let the toads live out in toad houses of cool porous pottery and make their own living.

But then, my daughter would not have had this lengthy opportunity to closely observe the lifestyles of these charming amphibians. Perhaps someday she will be part of the effort to save the world's amphibians, which are rapidly diminishing due to nonorganic culture and pollution. It is worth it to collect bugs in order to be a small part of saving them. They are among the most varied, beautiful, and adaptable species in the animal world. Like gems of the forest, their colors and voices attract and inspire us. Yet they are dying out faster than any other group of creatures. It is a terrible loss.

Excuse me, the sun is just peering through the lowest branches of the maple. I'm outta here.

Julie Cole Shaw is a free-lance writer in Louisville, Kentucky.

BILL FIRESTONE

gardeners information service

I swabbed my gardenia plant with rubbing alcohol to remove spider mites, and the treatment was ineffective. Then, with an eyedropper, I applied drops of alcohol at the leaf-stem junction and the pests disappeared. To my amazement, the eyedropper treatment also caused the plant to produce flower buds. Was this due to the removal of pests, or did it have something to do with the alcohol itself, or both?

—M.B., Vienna, Virginia

It's likely the two incidents are not related. "A case of statistical serendipity, I suspect," says Arthur O. Tucker, a plant physiologist in the Department of Agriculture and Natural Resources at Delaware State University. "Ethylene [a gas given off by ripening fruit] is a growth regulator and, in some cases, is used to encourage plants to initiate flower buds. Rubbing alcohol is made up of 70 percent denatured ethyl alcohol, but it has not been documented to promote flowering as far as I know." Your gardenia was probably ready to produce flowers at the time you applied the alcohol. By controlling the mites, you gave the plant more strength to bloom. Try testing the alcohol on just one area of the gardenia this year. Let us know if you get similar results!

We want to plant a fast-growing tree on our property with the following requirements: Ideally it should be a good climbing tree for children, have edible fruit for people or wildlife, be an understory tree (to grow in the shade of about 25 oaks and elms), have aromatic flowers, and not be weedy. We live in USDA Zone 5. *—S.S., Chicago, Illinois*

No tree will meet all of your requirements, because certain qualities in this "ideal" tree contradict others. For example, a fast growing tree has weaker wood than a slow grower, thereby making it less suitable for climbing—and few understory trees will achieve climbable size in less than 15 to 20 years. Also, most trees that bear edible fruits require more light than an understory tree would receive. Trees that are most often recommended as good for climbing are fast-growing hardwoods such as oaks, maples, beeches, and weeping willow, but these are not suitable for understory trees. Molly Dannenmaier, author of *A Child's Garden,* also recommends apple, mulberry, and other fruit trees for climbing, but these trees grow best in full sun—and mulberry can be weedy.

We've selected a few trees that, depending on growth habit, may provide good low climbing trees in 10 to 20 years.

Cornus alternifolia, pagoda dogwood, grows to about 20 feet tall and wide—strong to climb on—with fragrant, cream to yellow flowers, and fruit that is eaten by birds. (Zone 4–8.) Other dogwoods—such as *C. kousa* and *C. controversa*—are also possible choices, but none of the dogwoods will be suitable for climbing until they reach their mature size, which may take 20 years.

Halesia carolina, Carolina silverbell, is a low-branched understory tree native to the Southeast that grows to 25 feet tall and a little wider. It has bell-shaped, white flowers in the spring, but its four-winged fruit is not edible. It is exceptionally pest resistant and not weedy. (Zone 5–8).

Tilia americana, American linden or basswood, is a low-branched tree that can grow to 60 feet. It tolerates part shade but really is too large for an understory tree. This tree has beautiful, fragrant pale yellow flowers, but its nutlike fruits are inedible. (Zone 3–8.)

Last year I purchased a container rosemary plant from an organic farm. It thrived outdoors during the summer but developed powdery mildew when I brought it indoors for the winter. This summer, the plant did put out new growth, but even those leaves developed mildew. I do not want to use a chemical spray, because this is an herb I like to use in cooking. What can I do? *—S.G., Bethlehem, Pennsylvania*

Culinary rosemary *(Rosmarinus officinalis)* is native to the Mediterranean region and therefore thrives in hot, dry weather and lean, sandy, rocky soil. It is difficult to recreate those conditions in our homes. Robin Siktberg, a horticulturist at the Herb Society of America in Mentor, Ohio, says, "Improper air circulation, poor light, and too much humidity are factors that can lead to powdery mildew. In the fall, before you bring the plant inside, cut back the rosemary and remove all infected leaves. Put it on a sunny window, don't overcrowd it with other plants or overwater it during the winter, and be sure that the soil is aerated with perlite or coarse sand. In the spring, the plant should put out healthy new leaves."

If you still have problems with powdery mildew after taking those measures, try spraying the affected areas with compost tea, sulfur, or an organically accepted fungicide such as Bordeaux mix, which is a blend of copper sulfate and hydrated lime. A good reference to consult is *The Organic Gardener's Handbook of Natural Insect and Disease Control,* edited by Barbara W. Ellis and Fern Marshall Bradley, published in 1992 by Rodale Press.

—Melanie Bonacorsa, Information Specialist

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

RON FLEMMINGS

mail-order explorer

OIKOS TREE CROPS: EDIBLE LANDSCAPING

by Christina M. Scott

Ken Asmus challenges, "Take a look around your city. Many trees, such as large oaks, are slowly dying and are not being replaced. Logging, diseases and insects, and development have taken a toll on a lot of trees. It's a situation where you don't know you're missing it until it's gone." This is where Asmus steps in. "A lot of nurseries may not feel there's a need for a lot of these tree crops, but I do."

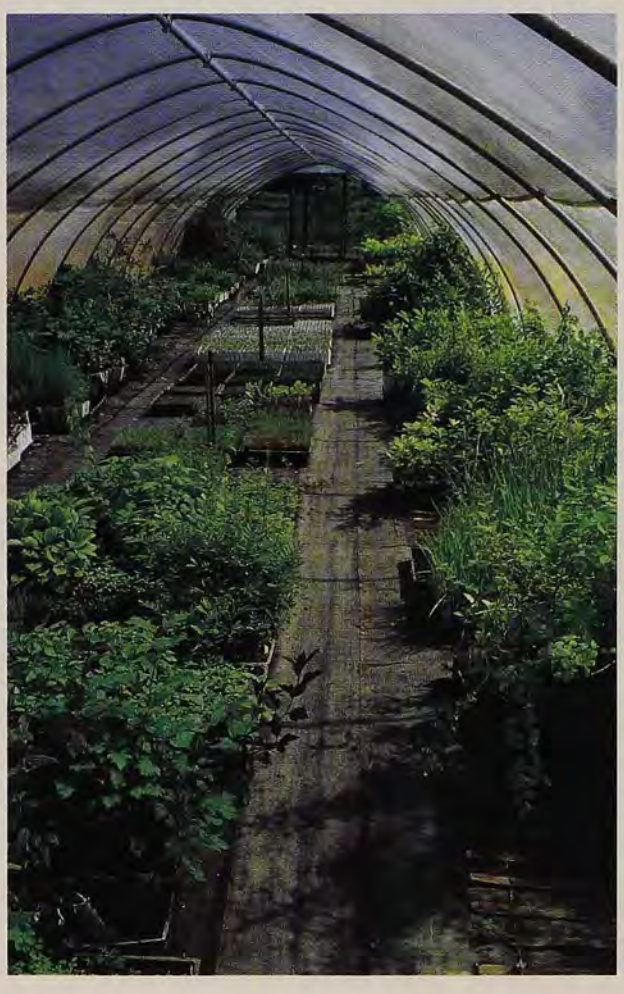
Asmus, owner of Oikos Tree Crops in Kalamazoo, Michigan, has always had an interest in fruit- and nut-bearing trees. Growing up on his family's Saginaw, Michigan, Christmas tree farm, Asmus was more interested in the native fruit and nut trees that grew near the farm than in the Christmas trees. "It was a boring job," Asmus recalls, "pruning Christmas trees." So to entertain himself, he would pack up some books and head for the hills to look for fruits and nuts to make edible mixes that he could survive on.

After receiving a degree in biology from Western Michigan University in 1978, Asmus bounced around between garden centers, nurseries, and even briefly worked in a toxicology lab. But he maintained his interest in fruiting trees and in the mid-'80s Oikos Tree Crops was born. Beginning as a wholesale operation, Oikos—a Greek word meaning "home"—soon grew into the retail mail-order nursery that it is today.

The nursery consists of 13 acres, five of which are dedicated to plant cultivation and the other eight are used as seed orchards. "Collecting seeds from our own plants makes the seeds more reliable than those collected in the wild," Asmus explains. Although the nursery is only staffed by two full-time employees and a handful of seasonal workers, Asmus retains a large group of seed collectors—he refers to them as "champions" of trees—from around the country. This team of champion seed collectors is one reason Richard Gilbert, a full-time book publisher and part-time sheep farmer in Athens, Ohio, likes Oikos. "Ken is extremely knowledgeable, and he also deals with a large group of people who have a missionary zeal about these plants," he says. "By buying from Oikos, you are benefiting from all of that."

DIVERSE OFFERINGS

One of the products of this expertise is the diverse range of plants available from the nursery. "Ken Asmus is at the forefront of introducing trees and food crops that few people have been able to successfully propagate," says Guy Sternberg, a writer and arborist from Petersburg, Illinois. Oikos boasts a wide selection of fruit and nut trees, many of which also have attractive ornamental features. Among Asmus' favorites are golden currant *(Ribes aureum)*, which has fragrant yellow flowers and large orange or red fruits;



In addition to acres of field crops, Oikos grows many rare or difficult-to-transplant trees in its greenhouse, left. Planted in heavy paper pots, these trees can be shipped almost year round. Among Oikos's stock is American persimmon *(Diospyros virginiana)*, which produces sweet edible fruit, above, in autumn.

beach plum *(Prunus maritima)* with its dense white flowers and black, blue, red, or yellow fruit that "makes a great jam"; and American persimmon *(Diospyros virginiana)*, "the most lucious of all fruits," according to the catalog. One of Oikos' most popular trees is pawpaw *(Asimina triloba)*, due in part to the potentially medicinal and insecticidal properties of its leaves, twigs, fruit, and bark as well as to its fruiting and ornamental attributes.

To receive a free catalog, write to Oikos Tree Crops at P.O. Box 19425, Kalamazoo, MI 49019-0425. You can also e-mail Oikos at Oak24@aol.com, or call (616) 624-6233.

Among the many nut-bearing trees Asmus offers are seven buckeyes *(Aesculus* spp.), nine walnuts *(Juglans* spp.), and seven hazelnuts *(Corylus* spp.). But Asmus's specialty is oaks: nearly 40 species and hybrids are currently available, and he expects the number to double in the next year. Among the rarer selections are the shrub live oak *(Quercus turbinella)*, a dwarf, evergreen oak with hollylike foliage that grows to eight feet, and the shinpost oak, a cross between *Q. harvardii* and *Q. stellata*, which Asmus calls "a species bridge between eastern and western oaks."

For gardeners with small yards, Asmus recommends the currants, thimbleberry *(Rubus parviflorus)*, and any of the four serviceberries *(Amelanchier* spp.) he offers. "The most popular nut trees for small yards are the hazelnuts," Asmus says. "These trees are relatively small, produce good nuts, and make great screens, making them perfect for the average homeowner."

AN INSPIRING CATALOG

While many of Asmus's customers learn about Oikos through word of mouth and even through recommendations from other nurseries, many are also drawn to Oikos after simply stumbling across a catalog. Initially attracted by the large selection of oaks and oak hybrids in the catalog, Richard Gilbert was pleasantly surprised to also find an impressive range of other trees and shrubs. After one look, he was hooked: "Oikos has the best selection of native and hardy plants for wildlife." Among the many plants and shrubs Gilbert buys from Oikos are pawpaws and serviceberries. "They're great food for the wildlife," he says, quickly adding "and for me, too!"

Asmus writes the catalog himself, providing not only wonderful descriptions of each plant but also sharing planting and growing tips, personal anecdotes, and curious tidbits about many plants. In his description of Osage orange *(Maclura pomifera)* Asmus writes: "This tree has been used for many purposes, including cockroach removal. (Place the large 4-inch fruit in an out-of-the-way place and wait a few days.)"

What sets Ken Asmus apart from many nursery owners, say customers, is his belief in planting for the sake of the earth and its human and animal inhabitants. "It's more than a business for him—it's a passion," says Bruno Tantner, who has been buying trees from Oikos for the last three or four years for his 100-acre property in Montreal. For about 25 years, Tantner has been working to establish his personal collection of native North American trees. But it has only been since he learned about Oikos that he has been able to find many of the trees he was seeking.

Gilbert trusts Oikos because "it has an ethic behind it, a sensibility. It's the integrity of the product and the enlightened view the nursery holds regarding stewardship of the earth." Because of this, Gilbert says, "It just makes you feel good to buy from Oikos—not just because you are supporting a good company but because you are supporting the ideas behind it."

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

urban
gardener

MY WINDFALL GARDEN

Story and photographs by Heidi Santschi

I simply imagine that the two 1960s stucco apartment buildings on either side of my garden are not there. Which they weren't when my Santa Monica bungalow was built a good five decades before apartments became the majority housing of this seaside community. Once wide lawns, mustard fields, and vacant lots separated the sparse population of wood-framed houses built as retreats from the hot developing inland city of Los Angeles. This area in USDA Zone 10 and AHS Zone 3 seemed almost tropical to the many Midwestern and Eastern American transplants who settled here long ago—a place where plants could be grown as they'd never been grown before.

After my family and I bought the house in 1990, we converted the front porch into an office, but it took seven years and the Northridge earthquake of 1994 to reach the planting stage in the spring of '97. Almost the entire front of my house had been cemented for parking by previous owners. In 1995, a year after the earthquake, the converted office had to be torn down and replaced with a new one. I didn't pay much attention to the plans when meeting with the architect—I was too busy trying to build my own garden design business. With three school-aged kids, all I wanted was a functional workspace as soon as possible.

Toward the end of the remodeling, I realized the new redwood front steps were much deeper and broader than the old traditional concrete ones. There were no longer two square pillars on either side, just one modern concrete wall on one side for a railing. Giving access to the front door from the side and center, the new stairs encroached into what little planting space I had left. The yard needed surgery badly. From under the concrete I could hear a call from gardens past.

I began by having workers break the concrete, leaving enough driveway to handle the cars in my life—and revealing another 200 square feet of soil even harder than the concrete. Now visions began to appear. Maybe an old-fashioned lawn with a walkway down the middle of it to the sidewalk, with flowers along the walk, as it once might have been. No, the wide straight line of the new area and porch needed a softer, more contoured, approach leading from the parking areas, and I didn't quite know where I was going to enter from the sidewalk. How were visitors who weren't parking in my driveway going to get to my front door? How was I going to curtail foot traffic from the street through my yard?

It was time for a fence. Economics and practicality dictated a four-foot-tall green chainlink fence and gates. An inner section of the fence was added to separate my garden from the walkway to three apartments in back. At the corner of my house, set back about 25 feet from the street sidewalk, I ended the short section of separating fencing and put a little entry gate right there. That would be my secret entrance. Screened by shrubs, only people who knew it was there would use it.

I used excess buff flagstone from one of my jobs to lay a walkway from my driveway to my secret gate; the stones also provided a landing for my awesome wooden steps. One-and-a-half cubic yards of decomposed granite made a level bed for the flagstone.

Months before, I had discovered three score of granite river rocks about 12 inches in diameter. They were piled high next to

The author transformed her front yard from a parking area to a garden by removing tons of concrete and replacing it with paving stones, above. The addition of grass, plants with colorful foliage, and a fanciful bathtub water garden creates this oasis in the city, right.

the curb in a nearby neighborhood with a sign that read, 'Free Rocks'. For about $60 labor, they were trucked to my site. The beds began to appear, bordered and edged by the river rock. Finally I could place the classic 1910 bath tub, which I'd saved from my bathroom remodeling, in my garden. It would make a perfect water garden. Now 320 gallons of water per hour—recycled through a fountain pump—could pour through a half-inch copper tube in the shape of a question mark. The tubing seems to echo the curious thoughts of passersby: "What is a clawfoot tub doing in this front yard?" The hummingbirds and dragonflies supply the answer. The serene and pleasant sound of running water hearkens back to the early days of Los Angeles, when water from the Sierra Nevada first turned this semi-desert into an Eden by the shores of the Pacific.

I began considering a lawn again—just a grassy patch where I could lie on my back and stare up into the waving palm trees that line my street. Knowing a standard sprinkler system could cost over $700, I chose drip irrigation at a tenth of the price. Using a combination of half-inch plastic tubing, quarter-inch feeder lines, and specialized emitters, and mini-spray nozzles, I was able to ensure that the lawn and each plant got the water it needed. After a few hours of grading, 130 square feet of sod was delivered, and on my hands and knees, I trimmed and patted each piece into place.

Only the two-to-three-foot-wide semi-circular beds surrounding the new lawn remained to be filled. For the next two months I adjusted my budget so that every week or so I could afford a few more plants.

By then my shale and clay soil was dark with redwood soil conditioner and home-made compost that I had mixed in—it was ready for a variety of semi-tropical plants. A trip up the California coast garnered a young banana start that became the first official plant in the garden. Other plants that followed include tricolor-leaved *Canna* 'Durban' with beacon red flowers; and *Otatea acuminata,* the Mexican weeping bamboo which, when it reaches its full height of eight feet or so, will provide a billowy screen here and there, mixed with hopbush (*Dodonea* spp.), hibiscus, chain fern *(Woodwardia* spp.), papyrus *(Cyperus papyrus),* and Japanese maple *(Acer palmatum* var. *dissectum* 'Dissectum Nigrum'). An angel's trumpet *(Brugmansia versicolor* 'Charles Grimaldi'), with an unbeatable fragrance, displays its large pale orange flowers above my water garden, which is filled with duckweed and water lilies. One of my prize plants is a pink-and-green-culmed bamboo, *Bambusa multiplex* 'Alphonse Karr'. It will eventually reach 30 feet at the corner of my big steps, so that when I lie on the lawn the apartment building to the north will disappear. I also planted variegated privet *(Ligustrum japonicum* 'Variegatum'), whose sparkly variegated leaves will eventually hide the shady secret entry gate by my house. Beneath the trees and shrubs in the bed, I joyfully planted coleus—remembering the mealy bugs I battled while trying to grow these colorful outdoor plants inside in the 1970s—and low growing perennials such as columbine, dead nettle, oregano, lady's mantle, variegated sedum *(Sedum spurium* 'Tricolor'), and liriope. Golden bamboo *(Phyllostachys aurea)* sits ready to spread and hide a few more angles of the apartments at the back of my gravel parking bed.

In less than five months my banana tree has grown almost five feet. I watch it lead the other plants in the race to screen my patch of green. One day, when I walk out of my front door, I'll see a jungle between me and the street lined with cars and wall-to-wall buildings. Then I'll simply imagine that I'm living in a time when bananas and cannas flower and clawfoot water gardens flow—in a climate where things can be grown like they never could be grown before.

Heidi Santschi is a garden designer in Santa Monica, California.

natural
connections

INDIAN PIPE

by Alice Brantley Yeager

For the last 40 years, my husband, James, and I have lived on 20 acres of land in southwestern Arkansas that were originally homesteaded by his paternal grandparents at the turn of the century. By this time you'd think we would be familiar with every plant on the place, but that is part of the fun of living where the unexpected can occur. So I was especially thrilled when I first found Indian pipe *(Monotropa uniflora)*, one of our most unusual native woodland plants, blooming in the forested section of our property.

Our house is about 200 feet from the state highway, where our mailbox is located. On my way to and from the box I am always on the lookout for the beautiful natives I sometimes encounter—bird's-foot violets *(Viola pedata)*, bluets *(Houstonia caerulea)*, black-eyed Susans, ironweed, and many others. One day, during my daily trek to the mailbox, I became aware of a heavy sweet odor in our piney woods. It was almost like the scent of elderberry blossoms, but more intense. It was late October and our nights had become quite chilly, so I wondered what could be giving off such a noticeable fragrance so late in the year.

It didn't take long to trace the smell to where our mowed area ends and a tangled forest begins. There I saw some low-growing white plants that from a distance looked like some type of fungus. To my surprise they turned out to be the source of the sweet odor. There were about a dozen clumps of the plants, most of them six to eight inches high, growing under the canopy of tall loblolly pines and American beautyberry *(Callicarpa americana)*.

With the help of a fellow member of the Arkansas Native Plant Society, I identified the plants as Indian pipe. Lacking chlorophyll and thereby unable to manufacture its own nutrients, Indian pipe is what botanists term an epiparasite—a plant that "borrows" nutrients from other plants through a shared network of mycorrhizal fungi. Some references describe it as a saprophyte—a plant that feeds on decaying organic matter—but Gary Wallace, a research associate at Rancho Santa Ana Botanic Garden in Claremont, California, says Indian pipe "is an indirect parasite on conifer or oak hosts."

The entire plant has a translucent, waxy white or gray appearance that has earned it common names such as corpse plant and ghost flower. Quarter- to half-inch-thick stems bear alternate scalelike leaves and curl at the top, somewhat like a pipe or candycane, into a single—hence the name *uniflora*—drooping, bell-shaped blossom. The blossom is also usually white but is sometimes tinged with pink.

Because Indian pipe, above, has no chlorophyll, it is incapable of photosynthesis. Curiously, the plant still has plastids, cellular structures involved in photosynthesis, suggesting that its ancestors may have been able to produce their own food. Western relatives of Indian pipe include snow plant—so named because it often emerges from snowdrifts in winter — top right, and sugar stick, right.

FAR LEFT, MARK A. MADSEN; TOP LEFT, DAVID CAVAGNARO; LEFT, MICHAEL S. THOMPSON

FAMILY LIFE

Until a decade or so ago, Indian pipe was assigned its own small family (Monotropaceae) of about 10 genera and 15 species found mainly in temperate or cool regions of the Northern Hemisphere. But taxonomists are now mostly in agreement that it be considered a subgroup of the heath family (Ericaceae), which includes a variety of ornamental and fruiting shrubs such as rhododendrons, heaths, cranberries, and wintergreens.

The plant has a translucent, waxy white appearance that has earned it common names such as corpse plant and ghost flower.

The only other member of the *Monotropa* genus is pinesap *(M. hypopithys)*, which can be distinguished from Indian pipe because it almost always has more than one flower per stalk and because its stalk and flower are usually yellow, pink, rusty, or even bicolored. Wallace says pinesap usually favors drier sites and is more widespread geographically than Indian pipe, extending in a horseshoe-shaped range from Florida north through the South and East to eastern and central Canada, then down the West Coast through California and New Mexico into the mountains of northern Mexico. He notes that the southern limit of pinesap parallels that of oak trees. Both species are most prevalent in North America but are also found in temperate forests of Europe and eastern Asia.

Wallace says the eastern members of the group *Monotropa* appear tame compared to the wild-looking genera found in the West, such as snow plant *(Sarcodes sanguinea)* and sugar stick *(Allotropa virgata)*, which grows in coastal dune forests on the West Coast. "You just can't believe *Allotropa* is a real plant," says Wallace. "It has red stripes and resembles a candycane."

REPRODUCTIVE STRATEGIES

The Indian pipe plants on our property had pushed up through decaying leaves and pine needles and were apparently well established in humus-rich soil. Their fragrance, which lasted for several days, seemed to be strongest during late afternoon. None of the references I consulted mention their being fragrant, although a close relative of Indian pipe that is found mainly on the East Coast, *Monotropsis odorata*, is said to have a cinnamonlike scent.

Both members of the genus bloom any time from May to October, depending on location. I have yet to see what pollinates these strange plants, but botanists suspect the principal pollinators are bumblebees.

Once pollinated, the seed capsules turn upward as they develop in order to aid dispersal of their tiny seeds by the wind. Soon thereafter the plants turn black and wither, ending their display for the season.

Since the discovery of the patch of Indian pipe, each year I look forward to enjoying these unique forest dwellers. Unfortunately, they were almost destroyed when we had some timber removed by loggers who were oblivious to anything but the timber.

Nature has endowed its own with remarkable recuperative powers, and I believe the Indian pipes are on their way back. In the meantime, I watch for the sweet-smelling plants to appear each fall and applaud any gains they make.

Alice Brantley Yeager is a free-lance writer living in Texarkana, Arkansas.

little bulbs

Tiny treasures to brighten late summer, fall, and winter.

JOHN M. HALL

by Nancy Goodwin

Planting a dormant bulb in the ground is an act of faith— an affirmation of belief in the future. Take an unassuming little brown oval with no roots and no promising features of any kind. Bury it and come back months later to find leaves and, if your timing is right, flowers. I'm sure this is why, once I discovered gardening, I gravitated toward bulbs or, more correctly—since many are tubers, corms, or rhizomes—geophytes.

I discovered my passion for gardening about 35 years ago when my husband and I bought our first house in Durham, North Carolina. The soil was poor and sandy, but I was determined to grow everything desirable that might possibly survive in my climate. As with many gardeners, I started with bulbs from local garden centers. I often didn't know anything about them—I just selected them from the pictures above their containers.

Fortunately, two things happened to educate me quickly. Having discovered that I preferred bulbs with small flowers and long names—such as *Narcissus bulbocodium* and *Iris reticulata*—to the larger hybrids, I needed advice about how I could sow the garden of my imagination in the mid-Atlantic. In Elizabeth Lawrence's *The Little Bulbs,* first published in 1957, I found a kindred spirit and a reassuring voice. Lawrence, who died in 1985, gardened in Raleigh and then Charlotte, North Carolina, and wrote honestly and eloquently about her own experiences and those of her friends. By the time I finished the book I was captivated by little bulbs, which possess an elegance that makes their larger relatives seem coarse. Inspired, I started making lists of all the species Lawrence said might succeed in central North Carolina.

Then in the mid-'60s my husband, Craufurd, received a year's sabbatical teaching in Cambridge, England. I spent much of my time there studying plants and learning botanical Latin in the Cambridge Botanical Garden, mentally planning my own garden at home. To my lists I added narcissus, snowdrops, bulbous irises, and species I had never seen of scillas, chionodoxas, crocuses, and alliums.

When we returned to North Carolina, I began to search for the bulbs—and we began to search for more land. In only three years I had completely planted our one acre in Durham, and at that point I already knew I enjoyed gardening more than anything else. We set our sights on Hillsborough, 12 miles away, where we would have some of the best soil in this part of the state. It took 10 years to find Montrose—the house we finally bought—but I loved it at first sight. Hillsborough is a cold USDA Zone 7—a half zone colder than Durham and a full zone colder than Raleigh. I was determined, nevertheless, to grow every species of every bulb I had read about.

Local garden centers and mail-order nurseries were less sophisticated then than they are today, so to expand my collection I turned to plant societies: first to the American Horticultural Society and, eventually, to the Royal Horticultural Society, the American and Scottish rock gardening societies, and alpine plant, cyclamen, lily, and crocus societies. Each year when their seed lists arrived, I looked up unfamiliar names and imagined those plants I had never seen.

Slowly my knowledge grew, my collection grew, and my garden grew. I found snowdrops, crocuses, and scillas that bloom in fall. I found scillas that look like puschkinias *(Scilla puschkinioides)* and puschkinias that look like scillas *(Puschkinia scilloides)*. By growing all the cyclamen hardy in my cold Zone 7, I have learned that I can have one or more species of that genus in bloom every day of the year.

When it comes to bulbs, many gardeners are stuck in one seasonal pattern—planting in fall for spring flowers. This long-standing ritual symbolizes our conviction that we will survive the winter. But it is exciting to broaden our horizons by learning about little bulbs that bloom in late summer, fall, and mid-winter, too.

All the bulbs discussed in this article are hardy in my cool Zone 7 garden. Bloom times are based on my experience here in North Carolina and will vary correspondingly in warmer and cooler regions.

Summer to Fall

Tropical and sub-tropical summer-flowering bulbs from South Africa and Central and South America—such as *Galtonia, Ornithogalum,* and *Zephyranthes* species—are becoming all the rage, but there are also some species of more traditional bulb genera that begin flowering in late summer. In my garden, scillas begin to flower in July when purple-flowered *Scilla autumnalis* anticipates fall; mauve-pink *S. scilloides* follows soon after.

Scilla cilicica and *S. hohenackeri* send up new foliage in fall but wait until spring to produce their racemes of medium to dark blue-violet flowers. Other species produce both leaves and flowers in spring. Look for bright blue *S. amoena, S. bifolia,* and *S. siberica;* paler blue *S. puschkinioides, S. mischtschenkoana,* and *S. persica;* and lilac *S. verna*. There are other species available with white and pink flowers.

Alliums

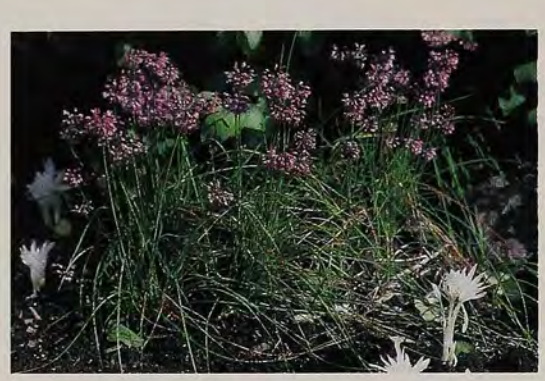
Alliums are best known for their spring show, but a few species bloom continuously from early summer through fall. *A. globosum* (formerly *A. saxatile)* raises its many-flowered pink heads at the edge of our rock garden from mid- to late summer. In more northerly gardens it can bloom into September. Another long bloomer is *A. senescens,* which bears round clusters of blue-violet flowers in our garden from late spring through the entire summer. One subspecies, *A. senescens* subsp. *senescens,* has bluish leaves while another, *A. senescens* subsp. *montanum,* has green leaves.

Growing amid the bright yellow flowers of winter aconite *(Eranthis hyemalis),* the lilac and purple blossoms of *Crocus tommasinianus* are a cheery sight in late winter. In the author's North Carolina garden they sometimes bloom in January, but March is their usual bloom time in cooler regions. Previous pages: Pink- and lavender-colored forms of *Cyclamen coum* are among the several species of cyclamen and other little bulbs that grow beneath a deodar cedar in the author's garden.

Fall-blooming Crocuses

- ***C. asumaniae*** white
- ***C. banaticus*** lilac to purple or white
- ***C. boryi*** cream with yellow throat
- ***C. cartwrightianus*** purple or white with pale throat
- ***C. caspius*** white to lilac with yellow markings
- ***C. goulimy*** pale lilac to deep purple
- ***C. kotschyanus*** large, white or pale lilac with whitish throat
- ***C. medius*** mauve with dark veins, white throat, red style
- ***C. niveus*** white with orange-yellow throat, red stigma
- ***C. pulchellus*** pale lilac with dark veins
- ***C. serotinus*** lilac with pale throat, orange style
- ***C. speciosus*** large flower, violet-blue or white
- ***C. thomasii*** lilac, yellow throat, red style
- ***C. veneris*** white, violet stripe, yellow throat

JEFFREY GRACZ



Finally, in late fall, several forms of *A. thunbergii* come along and last until early winter. The darkest of these is purple-flowered *A. thunbergii* 'Ozawas'; the palest, a pure white form. The typical species plant has flowers that are medium blue-violet.

Fall-to-Winter-blooming Narcissus

N. asturiensis
***N. cuatrecasasii* (also known as *N. rupicola* subsp. *pedunculatas*)**
N. cyclamineus
N. jonquilla
N. minor
N. poeticus
N. pseudonarcissus
N. rupicola
N. triandrus

Cyclamen

In my garden, one or more cyclamen bloom during each season in pink, white, or red, but the majority return from dormancy to bloom in late summer and fall. *C. graecum, C. hederifolium, C. cilicium, C. intaminatum,* and *C. mirabile* have peaks of bloom at that time while *C. coum, C. parviflorum, C. pseudibericum,* and *C. libanoticum* produce their leaves.

In winter *C. coum, C. trochopteranthum,* and *C. parviflorum* bloom, withstanding temperatures down to at least four degrees Fahrenheit without damage even to fully opened flowers. Spring is the time for *C. repandum, C. balearicum, C. creticum,* and *C. pseudibericum*. Before these finish blooming, *C. purpurascens* and *C. colchicum* grow new leaves and begin their long summer display of fragrant rosy purple or white flowers that continue into winter.

The easiest cyclamen to grow and the first to try are *C. coum* and *C. hederifolium,* which are hardy throughout much of this country. The leaves of *C. coum* grow in fall well ahead of the white, pink, or carmine flowers that often appear by Thanksgiving. Their rounded or heart-shaped leaves are solid green, green with silver markings, silver with green markings, or pewter. The flowers are usually short but occasionally have elongated petals. Some forms have fragrant flowers but most are scentless. The blooming period lasts into May and during that time there is seldom a day in my garden without at least one blossom.

LEFT TOP AND BOTTOM: GALEN GATES; RIGHT TOP AND BOTTOM:

Opposite, clockwise from upper left: purple *Allium thunbergii* 'Ozawas' and bright white *Colchicum autumnale* 'Alboplenum'; yellow hoop daffodils (*Narcissus bulbocodicum*) bloom in a regal combination with royal purple grape hyacinths; the pink blooms of *Scilla autumnalis* contrast against gray rock; *Chionodoxa luciliae* 'Pink Giant' is white with pink at the edges of its petals. This page: Backlighted by weak winter sunshine, *Galanthus nivalis* blooms through crystalline snow.

C. hederifolium also has a long blooming season beginning in late May or June and extending to early December. The peak is September and October, when our woods are filled with flowers. Flowers come before the leaves with this species and the first sign of leaves signals an end to their blooming. The flowers may be white, pink, or deep pink, and some forms are incredibly fragrant. Leaves vary even more than the flowers both in shape and pattern. Some are ivy-shaped as their specific epithet implies, a few are nearly round, and some have hastate, or sword-like, shapes.

These are forgiving plants that do best with benign neglect. They prefer shallow planting in an area away from any artificial irrigation. Good drainage and part shade are all they need.

Fall to Winter

Daffodils are intractably linked with spring. But the narcissus season really opens here when nights begin to cool off in September, with the appearance of *Narcissus serotinus.* From then until May we have one or more species in flower. As early as October the white flowers of *N. cantabricus* appear with their horizontal petals and flaring cups. Brightening winter in our scree garden are the brilliant yellow flowers of *N. fernandesii,* a jonquil type with a short flaring cup and broader petals. Many forms and subspecies of *N. bulbocodium* bloom from winter through spring. These sun lovers usually have bright yellow flowers with narrow petals and flaring cups. There are many other fall-through-winter bloomers (see list on opposite page), and breeders have also developed many garden-worthy hybrid miniatures, such as 'Minnow', 'April Tears', 'Wee Bee', and 'Tête-a-Tête'.

Crocuses

Crocus season begins here in September, too, with flowers that are white, mauve-pink, purple, or golden yellow. Although I don't have all the known crocus species, one or more is in bloom for seven or eight months a year. Most crocuses require sunlight to open fully, but you should look closely at them when they are closed, too, since the backs of some petals bear stripes or feathering of a color different from the interior. An example is *Crocus corsicus,* which on the outside is gray striped with purple but opens to reveal a lilac interior with brilliant orange styles. This species blooms in mid-winter here in North Carolina but will emerge in March or early April in cooler areas.

A fall bloomer that doesn't demand sun is *C. tournefortii*, whose fragrant lilac flowers bloom in light shade and stay open on cloudy days and even at night. If you want a long blooming season, look for *C. longiflorus*, which begins to open its lilac purple, yellow-throated flowers in October and continues into December.

In December, winter species begin to bloom, including *C. biflorus* and *C. corsicus*, and by February the spring ones, *C. minimus* (dwarf, pale violet) and *C. vernus* (white to dark purple), bloom with the large Dutch hybrids. There are still new crocuses being discovered, such as *C. kerndorffiorum* from Turkey, and I continue to search seed exchanges in hopes of having them bloom even longer in my garden.

Snowdrops

Snowdrops bloom when crocuses do, beginning in October in my garden with *Galanthus reginae-olgae*. Its medium green leaves are distinguished by a gray stripe down the central vein, and the flowers have a single green spot on the tips of the three inner petals. The season continues with *G. caucasicus*, *G. elwesii*, *G. gracilis*, and *G. nivalis*, and ends finally in spring with *G. ikariae*. A cursory glance reveals differences in the size and color of leaves or the size and shape of flowers of different species, but you have to get close to see the variable green markings inside their cups. Some cups are entirely green, with green or yellow spots at the tips of the exterior segments, and there are double-flowered forms worth looking for. *G. nivalis* is one of the few snowdrop species in commercial production, but it's splendidly variable in size and bloom time. After many years, it's finally starting to self-sow in my garden.

Irises

Many bulbous irises bloom in winter. The pointed leaf tips of *Iris reticulata* break the soil surface just as the season begins in earnest here. The flowers open in late January or February, then continue blooming through much of the spring. All of the little irises—*Iris bucharica* (fragrant, yellow and white), *I. danfordiae* (fragrant, bright yellow), *I. histrio* (pale blue and lilac), *I. histrioides* (even bluer), and *I. pamphylica* (deep purple and pale blue)—grow easily in woodland and rock gardens. They appreciate the winter sun but during summer's heat lie dormant in relatively cool shade. These irises do best if they are kept fairly dry in summer.

Right: White *Puschkinia scilloides* bloom in naturalized clumps in a meadow at the New York Botanical Garden. Bottom left: *Chionodoxa sardensis* has bright blue flowers centered with a white star. Bottom right: *Iris reticulata* 'Harmony' blooms in January or early February.

Winter-blooming Crocuses

All are small-flowered compared to the commonly sold hybrid crocuses.

- ***C. alatavicus*** white with purple stripes
- ***C. ancyrensis*** orange
- ***C. angustifolius*** yellow-gold marked with brick red
- ***C. biflorus*** white or lilac, yellow throat, purple stripes
- ***C. chrysanthus*** scented, pale to golden yellow
- ***C. corsicus*** lilac inside, buff outside
- ***C. flavus*** yellow
- ***C. fleischeri*** white with purple stripes
- ***C. gargaricus*** yellow or orange
- ***C. imperati*** purple inside, buff outside, some with purple stripes
- ***C. korolkowii*** yellow marked with brown
- ***C. laevigatus*** white, lilac, buff, or yellow with multi-colored markings
- ***C. olivieri*** pale yellow to deep orange
- ***C. sieberi*** scented, white or mauve
- ***C. tommasinianus*** pale lilac to purple inside, sometimes silver or buff outside

Late Winter to Spring

We seldom have snow in the mid-Atlantic, and when we do it usually melts quickly. To us, therefore, the common name for *Chionodoxa*, "glory of the snow," means little. Regardless, the intense blue flowers of *Chionodoxa luciliae*, *C. forbesii* (formerly *C. siehei*), and *C. sardensis*, centered with a white star, add to the glory of late winter and early spring. Their cousins, *Muscari* (grape hyacinths) and *Bellevalia*, bloom a little later with blue, violet, or white flowers. Don't let the rapidly spreading *Muscari neglectum* discourage you from trying the many other species that aren't pesty, such as *M. botryoides*, *M. tenuiflorum*, and *M. armeniacum*.

This is by no means a complete list of the little bulbs that can be grown. I've left out many because they are difficult to grow, and others, such as trilliums, that are too often collected from the wild by unscrupu-

TOP: JEFFREY GRACZ; BOTTOM (2): MICHAEL S. THOMPSON.

lous wholesalers. But there are enough little bulbs here to enrich your garden immensely throughout the year.

Nancy Goodwin is a free-lance writer who also leads tours of her Hillsborough, North Carolina, garden, Montrose. For information about tours of Montrose, or to be added to a mailing list about seminars held there, write to Montrose, P.O. Box 957, Hillsborough, NC 27278.

Growing and Propagating Little Bulbs

I have found bulbs to suit almost every site in my garden. In choosing sites, I don't worry about having areas that are interesting all year, and I often plant bulbs with other bulbs. Most bulbs like good drainage, however, so I work stones into the soil when necessary. Some, such as *Narcissus serotinus,* need to be dry in winter, so are best lifted and stored in the basement or cool greenhouse. Others, such as some narcissus and tulips, survive better if allowed to dry out during summer.

Propagation is fun and easy. I may get 25 seeds in a seed capsule of narcissus and thus increase my drift more quickly than just by dividing the bulbs. I pollinate narcissus in the greenhouse in winter and sow the seeds when ripe. These germinate the following fall, and the young plants bloom in about two to three years.

In the garden I let many seeds fall where they will. Others I collect and scratch into the earth where I would like to establish them. Occasionally I sow flats of alliums, lilies, scillas, and leucojums just to build up my numbers more quickly. Seeds sown when ripe will usually germinate when the species normally comes into growth.

Cyclamen

Some people assume that cyclamen are difficult to start from seed, but they aren't. Collect the seeds when the capsule feels slightly flabby and the coil relaxes. Wash them in cool water and sow on gritty soil, cover with a quarter inch of soil, and top dress with more grit. Bottom water, cover the flat with plastic wrap, and put it in a dark place where the seeds will get summer heat and fall cooling, such as an unheated outbuilding.

When the seeds begin to germinate (fall for most species, late winter for *C. repandum,* and summer for *C. purpurascens),* bring the flats into a well-lighted, well-ventilated area. Water carefully, making sure the soil is never soggy, and fertilize with half-strength water-soluble fertilizer every second week. The tubers can be planted in the garden after two years. Cyclamen seeds that have been stored for a time or received through exchanges should be soaked for six hours or so.

Tips on Dividing

I often divide and replant bulbs when they are in bloom and growth so I can see how they will look with their new neighbors. In winter I dig crocuses in bloom and plant them near cyclamen and galanthus that are flowering at the same time. I also divide *Iris reticulata* and narcissus and move them in full bloom. Don't be afraid to experiment. Little bulbs are tougher than they look.

—N.G.

Sources and Resources

ALPINE GARDEN SOCIETY, AGS Centre, Avonbank, Pershore, Worcs., WR10 3JP, England.

CYCLAMEN SOCIETY, 9 Yudor Drive, Otford, Kent TN14 5QP, England.

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

NORTH AMERICAN LILY SOCIETY, INC., P.O. Box 272, Owatonna, MN 55060-0272; (507) 451-2170.

ROYAL HORTICULTURAL SOCIETY, 80 Vincent Square, London, SW1P 2PE, England; www.rhs.org.uk.

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Reflecting Nature

Seeking garden details in wild landscapes.

story and photographs
by Jerome and Seth Malitz

Throughout the centuries, garden planners have taken their inspiration from nature. After all, there are enough ideas to be found there to landscape the entire planet. The variety is endless, and gardens that are modeled after nature's landscapes can be delicate or powerful, serene or exciting. They can be as abstract and formal as a Japanese courtyard garden, or as direct and informal as a woodland garden; they can be as spare and understated as a Zen Buddhist stone garden, or as crammed with variety as an alpine rock garden.

You don't have to be a landscape designer to satisfy your desire to emulate scenes from nature. It's not difficult to adapt natural designs in your garden or landscape, ironing out the rough edges and condensing the effects. Naturalistic elements can be tamed or personalized by adding elements such as fences, paths, and benches, or they can be allowed to develop in their own unrestrained glory. When completed, you will have your own private Eden—a personal paradise offering a lifetime of rewards.

Landscape Haiku

Haiku is that pithy form of poetry perfected by the Japanese—each a mere 17 syllables in length, yet nonetheless rich in allusion and

imagery. Sometimes a fragment of a landscape can be seen as visual haiku by evoking a certain mood or suggesting a larger theme.

A garden can also offer such vignettes of special interest—engaging small treasures to view up close and to linger over. In order to deliver their full effect, however, details from nature have to be properly staged and carefully integrated into the garden, where they will not only provide a focal point but complement the overall design.

Not only do details add the finishing touches to a garden, they also provide an opportunity to personalize the design. Iris lovers can accent a path with some of their favorites; a shady corner can host a collection of primroses or hostas; and those with a rock-strewn hillside can turn a curse into a blessing by creating a rockery for delicate alpine plants.

Hints from the Master Gardener

Nature is an inexhaustible source of designs—and it is also the most reliable source of horticultural information. What grows where? In what soil? In what climate? Does the plant prefer sun or shade? Is it a loner, or would it rather be in the company of others? Will it tolerate standing water? Does it tolerate drought?

Of course, the horticultural information provided by nature is advisory and should not discourage experimentation. For example, bald cypress *(Taxodium distichum)* has a limited natural range in the swamplands of the Southeast, but once established it is hardy enough and drought tolerant enough to grow in Boulder, Colorado, without protection or supplemental water. We also know of two giant sequoias—planted as seeds and each now eight feet tall—growing in a garden in Boulder.

Stone is a prominent feature in almost all the following examples from nature. Plants and rocks were meant to play against each other; each enhances the beauty of the other by textural contrast, color, and form. In the garden, rock also has practical uses—to build paths, walls, stairs, planters, tables, and benches. Stones stabilize hillsides and stream banks. Stone warms slowly and cools slowly, thus moderating temperature fluctuations.

Father and son Jerome and Seth Malitz are mathematicians who reside in Boulder and Aurora, Colorado, respectively. This article was excerpted from their book Reflecting Nature: Garden Designs for Wild Landscapes, *to be published in October by Timber Press. AHS members can order the book for $36 through the Horticultural Book Service.*

BUNCHBERRY IN ACADIA NATIONAL PARK

In a secluded enclave within a hundred yards of the ocean in Maine's Acadia National Park, we found a superb stand of bunchberry *(Cornus canadensis)*. This diminutive relative of the eastern flowering dogwood *(Cornus florida)* stands at a height of only 8 inches, but its relation to the tree is unmistakable. The leaves are similar, and the glistening white, green-centered flowers are nearly identical. From mid-August to mid-September you see it as pictured here, studded with brilliant red pea-size berries. It loses its leaves in winter, but what a joy it is for the remainder of the year.

Bunchberry thrives in northern gardens in acid soils that are moist and well-draining. In other sites it has a more difficult time, but we know of no other plant that will provide all its features.

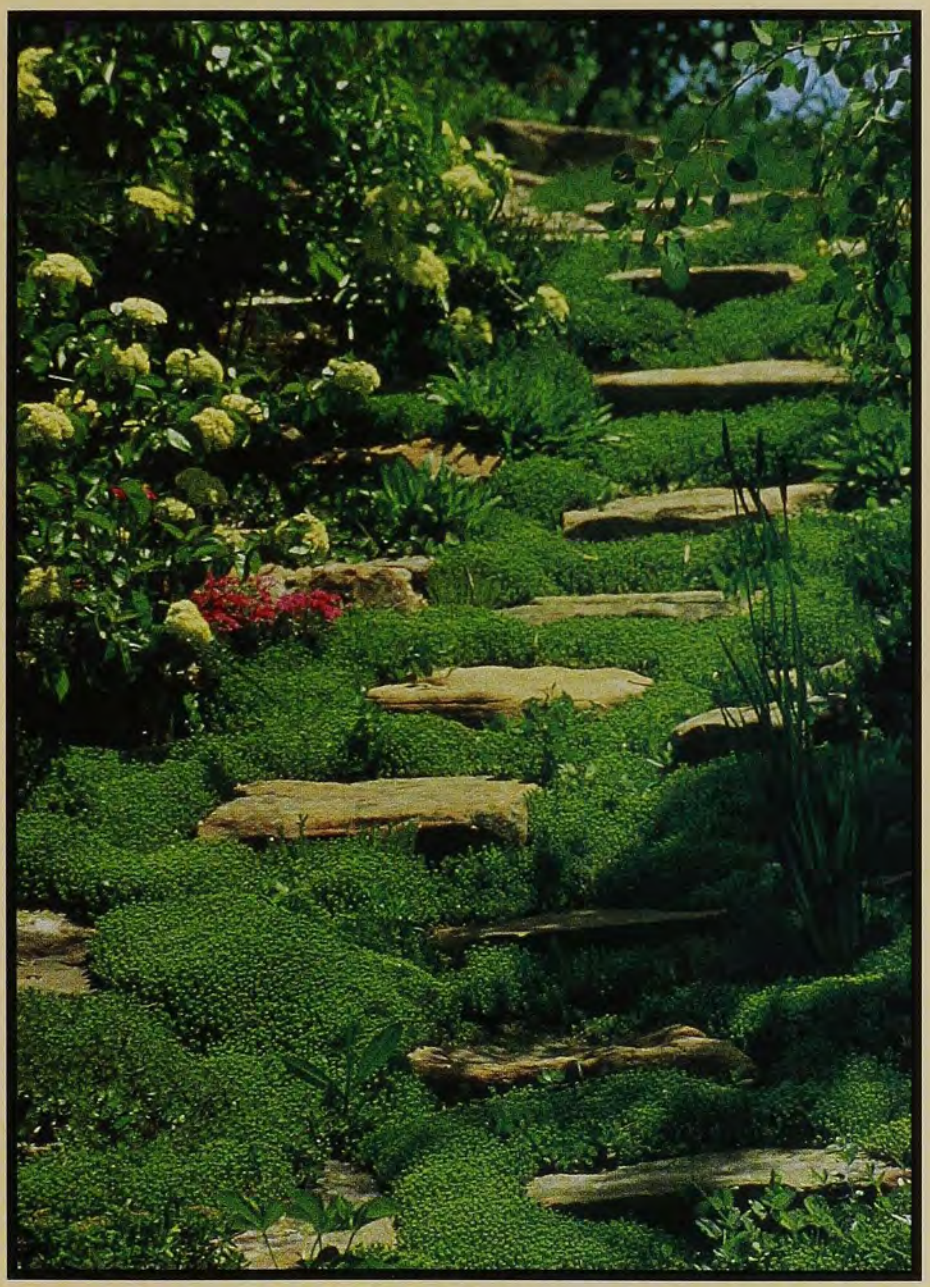
MAPLE LEAVES AND BOULDERS

At rest on these upright boulders and contrasting with the evergreen leaves of the pachysandra, these maple leaves are painted in autumn's flashiest hues. This small corner holds its own in every season, but it is at its best in the fall, when the display can linger for a glorious six weeks. Here in our Boulder, Colorado, garden, we used Amur maple *(Acer tataricum* subsp. *ginnala)*. In warmer zones, say Zones 6 through 9, one can choose small cultivars of Japanese maple (*A. palmatum)* or full moon maple *(A. japonicum)*. We can think of no other better choices.

Moss. *Moss—billowy, velvety, and spongy soft—is the most luxuriant of all ground covers. It is not to be walked on, however—it is too fragile for that kind of barbarism—and its strict cultural requirements strongly limit its use. Moss is a small-scale ground cover, one that can turn a corner of a garden into a place rich with allusions to primitive forests.*

Unfortunately, mosses have special needs; most require deep shade, high humidity, and abundant water to thrive. Where these demands cannot always be met, there are other more adaptable plants that can provide a similar effect. Scotch moss (Sagina subulata *'Aurea') is not a true moss, but it is close enough in color and texture to be acceptable. Moreover, this psuedo-moss, hardy to Zone 5, tolerates sun as well as light shade, and even a bit of foot traffic. Another apt stand-in for golden moss is one of the vegetable sheep* (Raoulia australis) *of New Zealand. It, too, is evergreen (greener in the winter, much more golden in the summer), soft, billowing in habit, and very dense.*

Another candidate for a mossy effect is rupturewort (Herniaria glabra)*—a horrible name for such a fine and useful plant. It tolerates and appreciates the same conditions as* Sedum *'Green Acre' but is a much darker green and its texture is not as soft. Other candidates to consider for the same conditions include short, tight-growing* Dianthus *such as 'Tiny Rubies', any low-growing* Veronica, *and several of the low-growing thymes .*



"MOSS" IN COLORADO SUN

This photo of the stone staircase in our Boulder garden shows *Sedum* 'Green Acre' playing the role of moss on a dry hillside. The soil is a sandy bentonite clay: quick-drying, crusty, not in the least friable, and strongly alkaline. Yet the sedum is right at home; it rewards us with this verdant, cushiony look of moss season after season, year after year. Only for a few weeks in June is the deception revealed, when the sedum covers itself with a mantle of tiny, shiny, yellow, star-shaped flowers.

GOLDEN MOSS, BLACK ROCK

Gold against black satin—that's how a jeweler might display the precious metal. Golden moss might be less precious, but it, too, is displayed to perfection when set off by a shiny black background. That is how we saw it along the Twin Falls Trail in Canada's Yoho National Park, growing atop black schist slick with moisture. As with the display of a fine piece of jewelry, there is no clutter and no superfluous embellishments to detract from the display.

WILDFLOWERS IN A MOUNTAIN MEADOW

Beaver Meadows in Colorado's Rocky Mountain National Park offers a bounty of wildflowers in summer. It can be overwhelming, but there are always small features that are distinct enough to hold their own even in such grand surroundings. This gathering of wildflowers around a granite boulder is a perfect example of such a simple but striking arrangement. Growing together in a surprisingly small area we found Indian paintbrush *(Castilleja* spp.), wall flower *(Erysimum* spp.), pearly everlasting *(Anaphalis* spp.), buttercup *(Ranunculus* spp.), and several other species enjoying the protection offered by this boulder.

Golden Ferns. *A display of color coming from ferns is quite unexpected. But in autumn in Rocky Mountain National Park, along Fern Lake Trail, bracken ferns* (Pteridium aquilinum) *are Midas-touched by the chill and turn golden yellow. They are uncommonly beautiful when seen against a dark stream or carpeting a grove of aspen and are most dramatic set off against a dark boulder or the black trunk of an ancient pine.*

In the garden, a single fern displayed against a boulder or tree trunk provides a similar effect. Many ferns thrive under cultivation, including the wood ferns (Dryopteris *spp.), some of which are evergreen. The Japanese shield* (D. erythrosora), *however, displays its autumn colors of bronzy reds in the spring only. The Japanese painted fern* (Athyrium nipponicum *'Pictum') is colorful for most of the year but is more subdued. One could use interrupted fern* (Osmunda claytonia), *cinnamon fern* (O. cinnamomea), *lady fern* (Athyrium felix-femina), *hay-scented fern* (Dennstaedtia punctilobula), *and many others, but few can compete with the bracken fern for fall color.*

MAIDENHAIR FERN AND MAPLE

In the photograph above, you can see how we've tried to emulate a natural fern scene in our own backyard in Boulder, Colorado. A maidenhair fern *(Adiantum* spp.) and a young Oregon vine maple *(Acer circinatum)* are tucked into a rocky bank that we constructed. It's a simple arrangement whose delicate beauty provides us with three seasons of pleasure. Autumn makes it even more special, when the first frosts tint the fern auburn and splash the maple leaves with red and orange.

For airy grace, nothing can outdo the northern maidenhair fern *(Adiantum pedatum)*, hardy to Zone 3. Substitutes for vine maple include full moon maple *(Acer japonicum)*, Japanese maple *(A. palmatum)*, and Amur maple *(A. tataricum* subsp. *ginnala)*.

A RESIDENTIAL SUBALPINE MEADOW

In their front yard, our neighbors have a small, flower-filled island garden that features a mix of annuals and perennials around some striking pieces of driftwood. It's the kind of scene that one might find in a subalpine meadow, although the mix of plants is considerably more diverse and flamboyant than one is likely to encounter in the wild.

Careful attention was given to colors and form to provide variety while maintaining the coherence of the design. The result is a delicate balancing act that makes the garden a delight from whatever angle you view it. The choice of plants has been skillfully made so that the garden is awash in bloom from early spring to late fall yet changes dramatically from month to month as colors and forms come and go. The owners accomplished this using only plants that are readily available: Asiatic lilies *(Lilium* spp.), chrysanthemums, purple coneflower (*Echinacea purpurea),* brown-eyed Susan *(Rudbeckia fulgida),* and many annuals. As small a feature as it is, it's an attention-getter, and few visitors pass by without taking notice.

ASPEN AND BROWN-EYED SUSAN

We have enjoyed this example of a landscape detail for nearly twenty years, for this is a small part of our own garden in Boulder. The design has two main elements: quaking aspen *(Populus tremuloides)* and the brown-eyed Susan *(Rudbeckia fulgida)* cultivar 'Goldsturm'.

For nearly two months, from early August to late September, 'Goldsturm' lives up to its name, setting a golden storm of long-stemmed, brown-centered, yellow-orange daisies against the smooth white trunks of the aspen. Even the bold leaves please us, but since they emerge rather late in the season, we have interplanted tulips of several kinds to provide a welcome splash of color in early spring.

This planting is suitable for Zones 3 through 6, although the aspen will be none too happy in the warmer zones. Birch *(Betula* spp.) or maybe serviceberry *(Amelanchier* spp.) might be better choices in Zones 5 through 7. As for a rudbeckia substitute, all sorts of daisies can be used, such as purple coneflower *(Echinacea purpurea)* in white or pink, shasta daisy (*Leucanthemum maximum),* or various other single daisies.

A MACRAMÉ OF SEDUM

It's the trees that draw visitors to Redwood National Park in California, but the park also has other attractions. The park extends to the shore of the Pacific Ocean, where one can walk the expansive beaches and explore the tide pools. We were doing just that when we came upon the colonies of Tinker-Toy-chained sedum *(Sedum spathulifolium)* clinging to the sheer face of black rock. They formed a wall-hanging of silver macramé—a striking composition of contrasting color and form.

The range of this sedum is not restricted to the coast; it can be found inland in several states well away from the ocean. There are also other much hardier and more adaptable plants that can weave a silver pattern on a rock wall, including other sedums, as well as members of genera such as *Androsace, Saxifraga,* and *Sempervivum.* Not that these will yield exactly the same effect, but they can give a respectable approximation.

Loropetalum Gains Luster

This Asian shrub no longer hovers on the horticultural fringes.

by John Creech

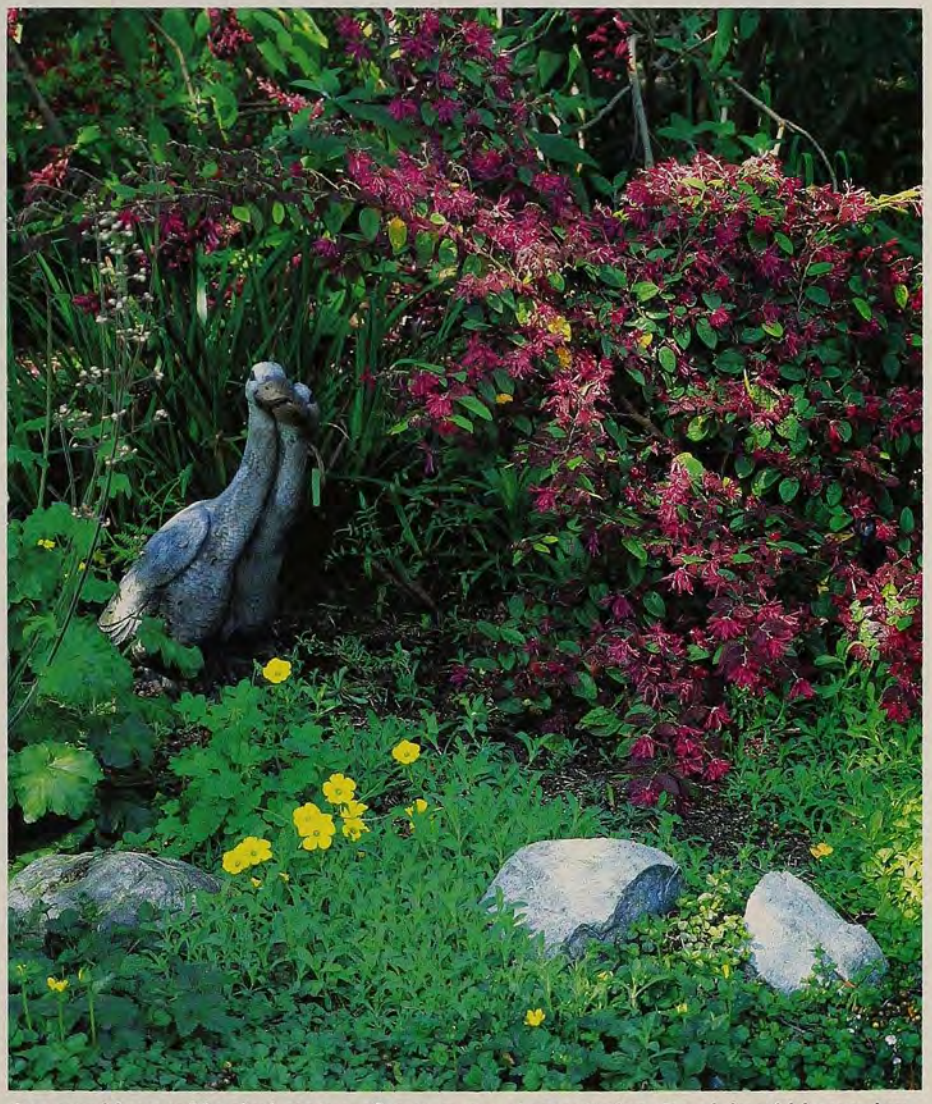
Catalogs will always entice consumers with new plants. Some will merely be old standards dressed up with exotic descriptions. Some will be truly unique twists on current favorites. But every once in a while, along comes a wholly new and exciting introduction that, like a charismatic actor with a top-notch agent, immediately commands center stage. In the past few years, the red-leaved, pink-flowered forms of *Loropetalum chinense* have been the Leonardo DiCaprio of the gardening world.

In the most recent revision of his renowned *Manual of Woody Plants* (see review on page 54), the University of Georgia's Michael Dirr calls this shrub "the most significant happening in Zone 7 to 9 gardening."

Until the red-to-purple-leaved forms were discovered about nine years ago, the species was a rather obscure little evergreen, despite an interesting history and the admiration of a few horticultural collectors.

Roots in China

Found almost exclusively in China, the *Loropetalum* genus has only the one species. *L. chinense*—sometimes called Chinese fringe flower—is a member of the witch-hazel family (Hamamelidaceae). The connection is obvious when loropetalum is in bloom, because the twisted, straplike petals are shaped almost exactly like those of witch-hazels. The leaves are very different, though. Both witch-hazel and loropetalum



Accented by a whimsical statue of two geese, *Loropetalum* Razzleberri blooms luxuriantly in the dappled shade of a California garden in early spring.

Also known as fringe flower, loropetalum bears blossoms that are similar to a close relative, the witch-hazel. Red leaves and flowers distinguish the cultivar 'Fire Dance', shown here thriving as a container plant in a sunny location. Most loropetalums grow best in full sun to part shade.

have alternate and oval leaves, but those of the latter are smaller, glossier, untoothed, and evergreen. They're dark green on top, and gray and fuzzy underneath. Although I have seen it growing 30 feet tall in the wild, loropetalum usually remains a little shorter than the witch-hazel at 10 feet or so, and it's much more densely branched. Nevertheless, English botanist Robert Brown thought it was a variant of witch-hazel when he first described it in 1818. Daniel Oliver, another English botanist, declared it a separate genus in 1862.

The species was introduced into western trade 18 years later, when plant hunter Charles Maries brought it to the Veitch nursery in England. Considered too tender to grow outdoors in most of that country, it was marketed for the spectacular show it would make in February as a conservatory plant.

It's possible that a few private collectors brought loropetalum to the United States from England around the turn of the century. But its first verified introduction was in 1908, after U.S. Department of Agriculture plant explorer Frank Meyer found it widely distributed in central and western China. Meyer collected some samples near Suzhou (formerly rendered Soochow) in Jiangsu Province in southeastern China and described it as covered in early spring with "masses of fringed white flowers that are delightfully fragrant." Among his notes on the plant were that the Chinese rarely cultivated it and that wild specimens did not transplant easily.

In 1932, two Japanese botanists reported *Loropetalum chinense* growing wild in their country's Ise Grand Shrine Forest. When I visited the area as a plant hunter with the USDA 23 years later, the loropetalums there numbered only 10 straggly trees. It grows nowhere else in Japan, yet because of this tiny stand it is usually listed as native to that country as well as to China.

Ise is a centuries-old Shinto shrine, so it is entirely possible that loropetalum was in-

Sources

FORESTFARM, 990 Tetherow Road, Williams, OR 97544, (541) 846-7269. Catalog $4.

GREER GARDENS, 1280 Goodpasture Island Road, Eugene, OR 97401, (800) 548-0111. Catalog $3.

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

WOODLANDERS, INC., 1128 Colleton Avenue, Aiken, SC 29801, (803) 648-7522. Catalog $2.

While white-flowered forms of loropetalum have not enjoyed the same fanfare as the red forms, the late J. C. Raulston admired the species' white flowers, comparing them to drifts of snow. 'Snow Dance', above, resembles the species with its green foliage and white flowers, but it has a compact growth habit and smaller leaves.

troduced there several hundred years ago, when Japanese emissaries to China returned home with a number of plants—bamboo, peony, and tea, among others—that eventually naturalized and came to be considered almost native in Japan. On the other hand, since loropetalum was not widely cultivated in China, it would be surprising if it were considered worthy of inclusion in this group. Whatever the real story, loropetalum is widely cultivated in Japan. There are some outstanding specimens in the Metropolitan Botanic Garden in Kyoto. When they are in bloom, the entire plants are creamy yellow.

Into the Spotlight

In this country, interest in loropetalum languished for some 80 years. Then in January 1989, now-retired U.S. National Arboretum horticulturist Sylvester March noticed a photograph and brief description in a Japanese horticulture magazine of a red-flowered form of Chinese origin. This selection *(L. chinense* var. *rubrum)* had first been described growing among cultivated plants in China in 1942. Likely it was a naturally occurring sport among cultivated plants, since it has never been found growing in the wild. During the war years new plants were not a high priority, however, so little notice was taken at the time.

The University of Georgia's Michael Dirr calls this shrub "the most significant happening in Zone 7 to 9 gardening."

Knowing that I had a trip to Japan scheduled for the fall of '89, March asked if I would try to locate some of these plants. I visited an old acquaintance in Kawaguchi City, Tomazu Masuda, president of the Nihonkaki Corporation nursery, who had always been generous with rare plants for the National Arboretum. He led me through a plastic house in back of the main nursery, crammed with all sorts of tempting plants, to where several flats of loropetalum sat on the ground. He let me take my pick, and since they weren't in bloom, I chose those with the most distinctive foliage color. We washed the soil from the roots, packed the plants in moist sphagnum moss, and I flew home with them to Hendersonville, North Carolina. A few days later I shipped the plants to the National Arboretum, where

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

Among the growing number of loropetalums now on the market is the popular Razzleberri, a spectacular red selection with leaves that change from purple to green as they mature. Some horticulturists believe this trademarked selection and several cultivars are nearly identical to 'Blush', which was released by the U.S. National Arboretum in 1993.

March propagated them and distributed them to evaluators. When we saw them in bloom, we were both astounded by the contrast of their shocking pink flowers to the creamy white flowers of the species. Here, in a plant that had been relegated to the backwaters of horticulture, was a major breakthrough.

In 1991, March named and registered two new loropetalum cultivars, and two years later, the USDA concluded that there were enough propagated plants to announce their release. 'Blush' produces its flowers in clusters of five to 10 and the leaves change from bronze-red to olive-green as they age. 'Burgundy' has flowers in clusters of four to seven, and the reddish purple foliage matures to purple-green.

In the same year that we collected plants for the arboretum, others were also discovering the pink-flowered loropetalums. Missouri-based plant hunter James Waddick collected a pink-flowered clone at the Shanghai Botanic Garden and sent cuttings to the Arnold Arboretum of Harvard University and to horticulturist J.C. Raulston at what was then the North Carolina State University Arboretum. Audrey Teasdale, working for Monrovia nurseries in Azusa, California, collected plants from the Watanabe Nursery in Japan. For the next five years, other purple-leaved clones with both white and pink flowers were introduced from China and Japan. In all, there may have been as many as 17 introductions of loropetalum during this "gold rush" period.

Here, in a plant that had been relegated to the backwaters of horticulture, was a major breakthrough.

During a 1995 trip to Japan, March and I found nurserymen there feverishly selecting other loropetalums with variegated or otherwise colored foliage. Selections similar to 'Burgundy' and 'Blush' have since made their way into England, and it will be interesting to see if the English evaluation of loropetalum will reverse the earlier conclusion that it was suitable only for conservatories.

This year, the J.C. Raulston Arboretum—formerly the North Carolina State University Arboretum—in conjunction with the North Carolina Association of Nurserymen, named *Loropetalum* 'Bur-

gundy' one of 12 outstanding plants for the Southeast. Not only does this shrub thrive as a container plant, it makes an interesting hedge and has even been recommended as an espalier. The exfoliating bark is interesting but can barely be seen because of the dense foliage. The shrub tolerates a lot of pruning, grows quickly, has no disease or insect problems of note, and will even grow in dense shade. Its only flaw seems to be its somewhat limited hardiness range.

The late J.C. Raulston was a big fan of the genus. In *The Year in Trees,* a book he co-authored with horticulturist Kim Tripp, he lauds the way the dense surface of leaves follows the undulations of the shrub's growth. In spring, he notes, the white flowers are so thick that they create the impression of drifts of snow—a boon for those who live in areas that rarely get the real thing.

Evaluating Hardiness

Loropetalum has always been considered a plant for the Deep South. This may be, in part, because of lack of experience growing it elsewhere. Raulston, as do many others, rated the plant as hardy to USDA Zone 8 but suggesed it may survive in protected sites in Zone 7.

The USDA's Division of Plant Exploration and Introduction distributed a number of these plants in 1915, and in the late 1930s and early '40s received feedback from evaluators from Florida to New York on the East Coast, and from California and Oregon in the West. It appears from reports in the mid-Atlantic that it does best where temperatures don't go below zero degrees Fahrenheit, although some successes as far north as Pennsylvania indicate that it might be worth pushing these official limits. Still, I recall seeing one plant from the early distributions growing in the test plant block at the Federal Plant Introduction Station in Glenn Dale, Maryland, when I arrived there in 1947, and I can't say that it was very robust.

In the latest edition of his manual, Dirr lists 15 cultivars of pink-flowered or purple-foliaged loropetalum. Like me, he feels that there is no difference among many of these selections. In a letter published in the September 15, 1993, edition of *American Nurseryman* magazine, Randy Johnson, who was then at the National Arboretum, suggested the primary reason that this was occurring was because so many different people were obtaining similar plants from Asia at the same time and distributing them through this country by different routes. It is to be hoped that eventually genetic testing will be done to sort out the confusion.

Although there are likely to be a lot of conflicting claims from different distributors, gardeners can be comforted by the thought that, no matter what label is on the loropetalum they choose, they can hardly go wrong. As Dirr writes in his manual: "My feelings are that any red loropetalum is better than the average flowering shrub."

A former president of the American Horticultural Society, John Creech now lives in Columbus, North Carolina. Sylvester March also contributed to this article.

Cultivating Confusion

***Loropetalum* 'Zhuzhou Fuchsia'**

Michael Dirr, whose long-awaited new edition of the *Manual of Woody Landscape Plants* finally rolled off the press in July, says pink loropetalums "have moved faster than any plant we've ever seen."

Says the University of Georgia horticulture professor: "They're in Home Depot, Lowes, and Walmart. A few years ago we started with two cultivars, and now we have 19. I suspect they're in danger of becoming a cliché—the next barberry."

Dirr agrees with author John Creech that some of the named selections are the same: the trademarked Razzleberri ('Monraz'), for instance, he calls identical to 'Blush'. Nevertheless, he says the "horticultural underground" is percolating with new selections that will prove superior to 'Burgundy' and 'Blush', most importantly in cold-hardiness. One of his favorites, 'Zhuzhou Fuchsia', is a half to a full zone hardier than other pink forms, he believes; it has a distinctly upright growth habit, and its blackish maroon leaf color "persists even in the heat of an Athens summer." Others that he finds noteworthy:

Red-leaved Selections

- 'Bicolor' is at this point the only loropetalum available that has both deep maroon new leaves, which eventually turn green, and white flowers with a pink streak.
- 'Pipa's Red' has a mounding form, dark pink flowers, and intense and persistent foliage color.
- 'Sizzlin' Pink' appears to have a more horizontal branching pattern than other cultivars. It grows wider than high and blooms repeatedly if well fed.
- 'Suzanne' and 'Ruby' both have rounder, more undulating leaves than other forms and grow to only three or four feet high and wide.

Green-leaved Selections

- Snow Dance, a trademarked selection, is slow-growing and has a shrubby, compact form and smaller leaves than the species.

Dirr is also excited about an as-yet unreleased green-leaved form, 'Snow Muffin', from nursery owner Bob Head in Seneca, North Carolina. At only 18 inches tall, it could fit into the ground cover category. It also has extremely leathery leaves. He's heard rumor, too, of a form featuring green leaves with creamy margins.

Culture

Dirr notes that loropetalums should be kept out of open, wind-swept locations. But just as they respond vigorously to pruning, they will also bounce back from some cold. One plant in his garden died back to less than a foot when the temperature dipped to three below but is now 15 feet tall. Loropetalums perform best in full sun to part shade in acidic, moist soils that are high in organic matter. Propagation is by stem cuttings, which can be easily rooted in a perlite/peat mix.

—Kathleen Fisher, special from Alexandria, Virginia.

LEFT: CHRISTI CARTER; RIGHT: JOSEPH G. STRAUCH JR.

BABYLON REV

ISITED?

The Getty Gardens Are Creating a Buzz in Both Art and Gardening Circles.

by Karen L. Dardick
photographs by Claire Curran

From all over Los Angeles you can see it, perched on its hillside like a stone citadel. Thirteen years in the making, the cultural Xanadu known as the Getty Center officially opened last December to accolades from architects but some derision from plant people for its choice of an artist, rather than a landscape designer, to create its Central Garden.

At the pinnacle of the 110-acre site—in a $1-billion modern interpretation of an Italianate village—are clustered six buildings that house the J. Paul Getty Museum, the Getty Research Institute for the History of Art and the Humanities, the Getty Conservation Institute, the Getty Education Institute for the Arts, the Getty Information Institute, and the Getty Grant Program.

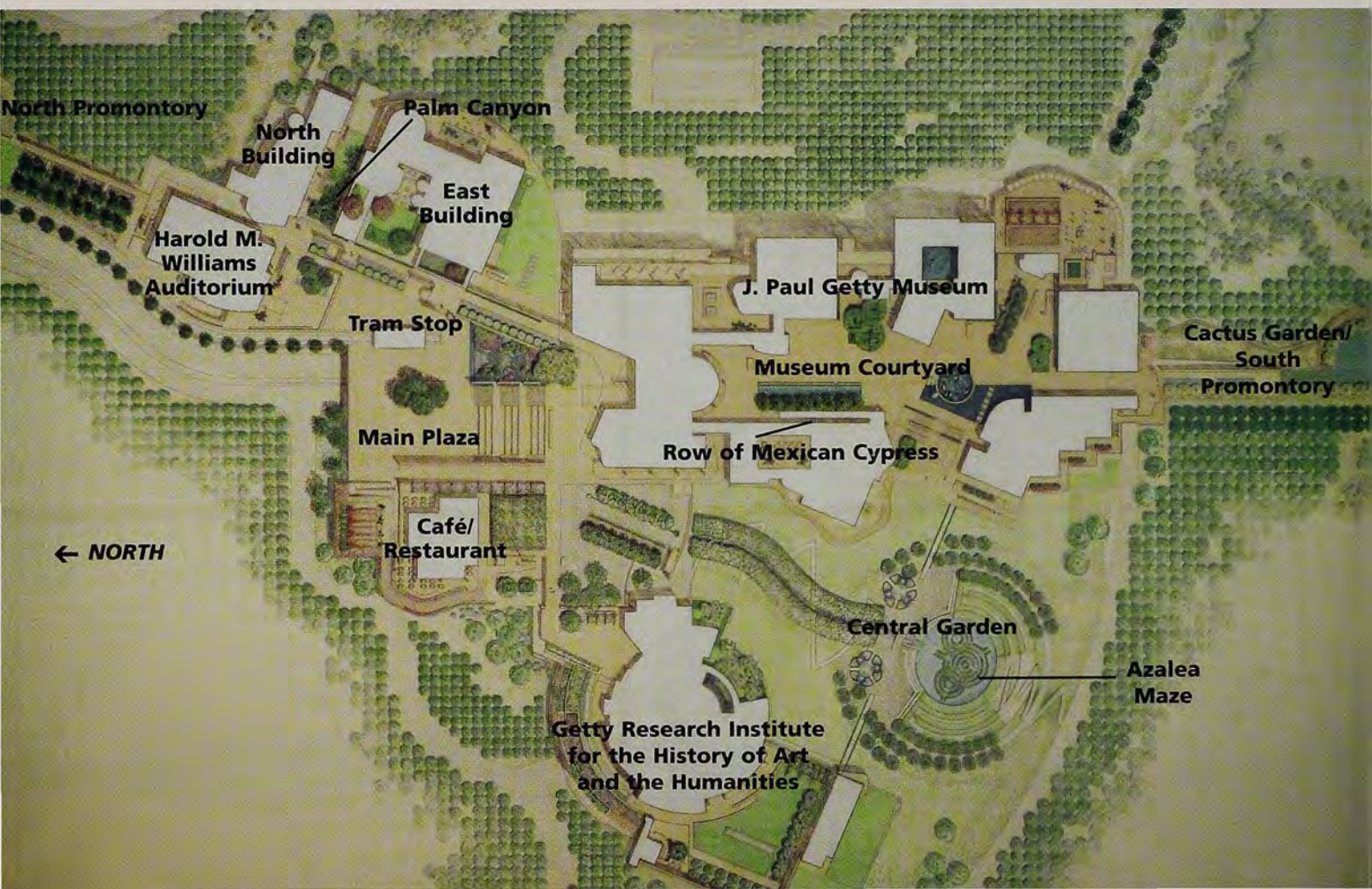
The Getty Center architect, Richard Meier, was recipient of the 1984 Pritzker Prize for architecture. His previous projects include museums in Frankfurt, Barcelona, and Atlanta, the city hall for The Hague, and in Los Angeles, the Museum of Television and Radio. The landscape designed to complement the Getty Center may be the most complex and costly in this century, estimated at $100 million for site work and development; $22 million was budgeted for planting and irrigation, more than one third of which was for the Central Garden alone.

Like some of the cinematic blockbusters that have been produced a scant dozen miles away, the landscape project has seen its share of directors. Respected Vermont landscape architect Dan Kiley was fired, and Emmet Wemple of Pasadena—who designed the Getty Villa in Malibu—died in 1996. Laurie Olin and Dennis McGlade, of the Olin Partnership in Philadelphia, served as overall landscape architects for the site, but without missing a beat they credit Meier for the concept and a half dozen others for plant selection and other assistance. This collaborative design melds ancient Mediterranean and traditional California principles, with echoes of the Malibu villa that Wemple designed. "Our challenge," says Dennis Hickok, landscape architect with Meier's firm, "was to translate classic garden elements into the language of modern landscape architecture."

The Getty Trust envisioned the three-acre Central Garden as "an ever-changing work of environmental art," and gave the job of realizing that lofty goal to Robert Irwin, a San Diego-based artist who launched the Light and Space movement in the 1970s. While the overall design of the Getty Center shows a consciousness of the natural environment and native vegetation, the Central Garden has offended many with its odd plant choices—including a maze of 460 azaleas planted in full sun—and its overall busyness.

Hollywood Squares

Meier's buildings are starkly geometric, and so is the landscape design, with formal parkways and piazzas, rectangular planting beds, and a grid of more than 8,500 California live oaks. This was Kiley's idea, and it required nearly every nursery-grown *Quercus agrifolia* in California, along with some 50 live oaks that were already growing on site. These were carefully removed and replanted during construction.



With the goal of symbolizing the center's integral connection with the city, the trees are planted along the central axis of the museum's courtyard and arrival plaza in a 15-to-20-foot grid that parallels the street grid of Los Angeles.

In all, the Meier/Olin design features more than 500 different plant species. The north-facing slopes emphasize cool colors, primarily blue and purple, while the southwest slope blazes with reds and oranges. As visitors ascend the hill, natives give way to non-natives in what McGlade calls a "cultural landscape," in keeping with the Italian-villa style of the buildings.

The hillside setting affords magnificent views of the city and Pacific Ocean. Within the center, garden features offer their own views. Some—such as the spectacular cactus promontory designed by McGlade—are designed to be seen from above, others serve as frames for other vistas. The recurring hardscape theme is travertine stone, quarried in Italy. It clads the buildings, provides walking surfaces, and pops up as decorative elements. The result is a blinding glare of white; visitors are well-advised to bring sunglasses.

Setting the Stage

The Getty Center is surrounded by 600 acres of fire- and flood-prone chaparral. The zone between the boundaries of the 110-acre site and the 24-acre campus has been planted to achieve both a seamless visual transition—from chaparral natives such as poverty weed *(Iva hayesiana)* and toyon *(Heteromeles arbutifolia)* to formal plantings—and fire retardation. One concession to nearby residents was construction of a pad from which helicopters can take off to fight brush fires. Another was building a four-story underground parking facility. Because much of the campus is planted on top of this structure, it requires a complex system of drains and drip irrigation. Many of the planters are five feet deep, filled first with sand, then a sand-soil mixture, and finally an 18-inch layer of topsoil. The drip system fertilizes these planters continuously.

From the underground garages, visitors ascend to this modern-day acropolis by way of a five-minute tram ride. Surprisingly, this juxtaposition of theme park and fine arts Mecca is not jarring, but rather serves as a transitional zone where visitors begin to sense the atmosphere the architects have tried to create. The entryway is a grove of California sycamores *(Platanus racemosa)*, which echoes those that line the entrance to the Getty Villa. At the Lower Station, where visitors wait for the tram, is a lavender-colored trellis covered with white wisteria; at the top is a white trellis planted with lavender wisteria. Purple-flowered jacarandas *(Jacaranda mimosifolia)* and white-flowering crape myrtles *(Lagerstroemia* 'Natchez') continue the theme. The 900-foot ascent offers an up-close look at some of the thousands of live oaks, underplanted with poverty weed, toyon, sages, and artemisia. Along the tram line is a procession of 100 Italian stone pines *(Pinus pinea)*. At the Arrival Plaza a huge planter of four more stone pines welcomes visitors to an otherwise barren and glaring plateau of pavement.

The Getty Research Institute looms above the Central Garden's azalea maze, left. The massive scale of the Getty complex can be seen on the site plan, opposite.

Previous pages: Exuberant—some would say garish—color combinations abound in the Central Garden, left, where red hot poker Kniphofia (Gold Mine) *holds court above red* Rosa *'Trumpeter', yellow* Aquilegia chrysantha, *variegated-leaf* Felicia amelloides, *and rose-pink-flowered Diascia* (Red Start). *Right, the acclaimed cactus promontory looks south across Los Angeles.*

Opposite: A fountain-pool filled with hand-picked boulders lies at the south end of the Getty Museum courtyard.

This page, clockwise from left: Pepper trees (Schinus molle) *line one of the museum complex plazas. Surprise elements in the gardens include a planter of bird-of-paradise mingled with common mint. Artist and Yankee fan Robert Irwin and James Duggan, the Central Garden horticulturist, view the controversial garden as a work in progress.*

The museum is yet another ascent, this up a series of stairs. To its left, water cascades into a fountain. On the far side of this waterfall are terraced beds that spill over with an assorted cascade of weeping and trailing dryland plants—ceanothus *(Ceanothus* 'Joyce Coulter' and 'Julia Phelps'), rosemary, tea tree *(Leptospermum scoparium* 'Ruby Glow'), and Cape plumbago *(Plumbago auriculata)*. Crowning these literal and horticultural cascades, at the museum entrance, is another stand of native sycamores.

The museum consists of five two-story pavilion galleries surrounding the largest—at 61,000 square feet—of the Getty courtyards. A 120-foot fountain-pool, inspired by old Spanish irrigation ditches, runs its length, bordered by rare Mexican swamp cypress *(Taxodium mucronatum)*. At the south end of the court is a circular pool where water spouts playfully among boulders hand-picked by Hickok and Olin from the heart of California gold country. This fountain, on a central line to the museum and offices of the Research Institute scholars, is intended to contrast starkly with the surrounding geometry.

On the museum's south terrace is a planter filled with hundreds of bird-of-paradise *(Strelitzia reginae)*, underplanted with common garden mint in a surprising juxtaposition. This is the route toward what is perhaps the site's most visually dramatic planting, McGlade's cactus promontory. Jutting out toward a view of Catalina and the urban sprawl between are rows of 1,100 golden barrel cactus *(Echinocactus grusonii)*, prickly pears *(Opuntia robusta* and *O. macrocentra* 'Santa Rita'), organ-pipe cactus *(Stenocereus thurberi)*, and variegated century plant *(Agave americana* 'Marginata'), set off by lavender crushed stone that evokes a painted desert.

McGlade says he planted this area, the hottest part of the site, with what could survive there (even so, the promontory is generously laid with irrigation lines), while at the same time making an ironic statement about the city's life support system. "I wanted to remind people that Los Angeles is dependent on water brought from hundreds of miles away, and raise the question of what would happen if that water would stop—pointing out the city's artificiality and delicacy." He admits that the native landscape is not really desert but scrub, "but it is hot and dry, and the cactus could survive."

In yet another direction from the large courtyard, visitors cross a walkway between the East building (housing conservation, education, and grant programs) and North building (with offices for the Getty Information Institute and trust administration). This walkway is planted with white crape myrtle, Spanish lavender *(Lavandula stoechas* 'Otto Quast'), and star jasmine *(Trachelospermum jasminoides)* to repeat the purple-and-white theme previously encountered along the visitors' route. From this bridge you can look into a garden room of tree ferns and a canyon of kentia palms, underplanted with Asian jasmine *(Trachelospermum asiaticum)*.

Visitors can assuage hunger and thirst at the restaurant and café building, where London plane trees *(Platanus ×acerfolia* 'Yarwood') serve as the imported counterpart to the sycamores. The plane trees are pollarded—cut back to the main branches every year—so that they create

The Getty Story

Minneapolis-born J. Paul Getty made his fortune in the oil industry and become one of the world's wealthiest men. He began collecting art in 1931 and in 1953 established a small museum at his residence in Malibu, California, to showcase his growing collection of Greek and Roman antiquities, 17th- and 18th-century French furniture, and European paintings. He later built the Roman-style villa in Malibu that housed the J. Paul Getty Museum from 1974 to 1997.

Following Getty's death in 1976, the bulk of his vast personal estate passed to the Getty Trust, the activities of which are overseen by a board of trustees. Created in 1982 and dedicated to the visual arts and humanities, the trust embarked upon expanding activities in art scholarship, conservation, and education. The new Getty Center was designed to unite all elements of the trust in one location, as well as serve as a national cultural resource.

shade in summer but let in sun in winter when the low sun creates dense shadows.

Central Garden

Beyond the plane trees is Robert Irwin's controversial Central Garden. Although the three-acre space contains 500 varieties of flowering plants—none of which are native—in addition to trees, shrubs, and lawn, Irwin is quick to point out that it isn't really a garden. The Getty Trust commissioned him to transform the 134,000-square-foot parcel into an outdoor museum piece. He describes the result as "a sculpture in the form of a garden aspiring to be art."

Whether or not you like his garden, it is impossible not to like this disarmingly charismatic and gentle man. The first to admit he knew nothing about plants when he started the project, he brought in a team of 14 firms to help him fulfill his vision of a space that would act as a foil to the rigid geometry of the rest of the Getty Center.

"The outside is determined by the geometry, but I created this space to match the scale of the architecture while offering a mesmerizing series of experiences," he says. "I also didn't want to compete with the view, so I turned it back into a canyon with as deep a descent as possible."

The path into his garden crisscrosses a stream, which Irwin designed to change in sound as water cascades over hand-picked and hand-placed boulders. The stream is flanked by more London plane trees—in this case the cultivar 'Bloodgood'—which are being carefully shaped to form an entrance canopy. The stream, bordered by a flashy array of flowering plants, continues through a plaza and culminates in a pool where the masses of 'Red Bird', 'Pink Lace', and 'Duc de Rohan' azaleas appear to float in a geometric maze. In reality, they are planted in a peat-based soil mix; evaporation of the surrounding water prevents the azaleas from cooking in full sunshine.

"I love the stream beds leading down the canyon into the amphitheater and maze," says Gary Jones, a landscape designer and owner of Hortus, a nursery in Pasadena. "It's hard to judge it now since it's so young, but it's very interesting. It brings people down into the center." But he is less satisfied with the azalea maze. "I think it's very curious that azaleas were selected for this formal maze. Since the azaleas have to be trimmed, flowers are being sacrificed. Why not just choose a green plant?"

The pool is the center of a terraced amphitheater encircled by three rings of mass plantings, including flax, lilac-

Opposite: Lilac-flowered society garlic **(Tulbaghia violacea)** *lines the foreground of this view across the Central Garden toward the museum complex. Left: Concentric rings of clipped azaleas in the Central Garden appear from a distance to float on water but are actually growing in a peat-based soil mix.*

flowered society garlic *(Tulbaghia violacea)*, and kalanchoe. Irwin says he chose plants with the goal of being "as rich and exuberant as possible." And even within this garden, he adds, color gets more intense as you move into the center of the space. Texture is also important, he notes, pointing out sprawling succulents in the top bed from which visitors descend into this amphitheater. At each step down, plants become taller.

Irwin includes practical sculptural elements in the form of metal along the pathway and central pool and imposing cones planted with bougainvillea. The space was designed to accommodate 5,000 visitors daily, so broad walkways of brown decomposed granite are another functional part of the design. Despite the emphasis on bright colors, earth tones are important to Irwin's design scheme. He not only custom-tinted the walkways, he altered the planting soil to a richer, deeper brown by adding worm castings and scoria, a ground volcanic rock.

This is inarguably a high-maintenance space, sustained by massive inputs of water, fertilizers, and pesticides. From its staff of 36 full-time gardeners, the Getty has allocated five to the three-acre Central Garden. Irwin points out that it is a work in progress. He has been given three years to test plants and various combinations thereof, so at this point, nothing is permanent. Many perennials and even woody plants are used as annuals. For example, Irwin likes the dark winter bark on the red osier dogwood *(Cornus stolonifera* 'Flaviramea'), but since its leaves burn in summer, each shrub is to be carefully removed and stored for replanting the following winter.

In spite of this and other evidence to the contrary, Irwin has sought the guidance of landscape designers and horticulturists in selecting plants that will survive in this region. One of his principal advisors is the Central Garden horticulturist James Duggan, an Encinitas nursery owner who specializes in South African bulbs.

Irwin expects people to have a strong response to his work, and he doesn't seem to care if the responses are not all favorable. People are definitely reacting, although few in the industry are willing to be quoted by name. David Snow, a landscape designer and owner of English Arbors, Inc., in Thousand Oaks, says, "I was disappointed in the Central Garden. I wanted to like it, but it just didn't pull me into it. I think there are too many plants and too much color."

There have also been mutterings about the heavy reliance on exotic plants at the expense of better adapted California or Mediterannean plants. Jones says the Central Garden "challenges our preconceptions as to what we think a garden is. That's why so many people are having a hard time with it." But, he adds, "What I don't like is the idea of experimenting with plant materials. It leads to a reckless attitude of disposable gardening, which is not how we should be thinking in this day and age when we should be environmentally sound and honest."

As to the choice of plants, he says, "I think the plant materials used could have been more Mediterranean. They would look better and are better suited to this climate."

To such criticisms Irwin retorts, "I think using only native plants is akin to the ethnic cleansing that's going on in Bosnia. I'm philosophically opposed to it."

Frank Burkard, a landscape designer and owner of Burkard's Nursery in Pasadena, says that his customers are all talking about the Getty Center gardens. "At least 70 percent like the gardens," he notes. "The other 30 percent don't, many because they have difficulty understanding the design. And the rest who don't like it think it's overdone."

Although purists will no doubt continue to criticize the garden as ecologically unsuited to its site and the plantings as sensory overload, Irwin's goal is to make visitors view gardens in a different way. "I want each person to say 'Wow!', even if he or she doesn't know why. And I want them to want to experience this space at least three or four times." An engraved stone near the amphitheater reads: "Ever present, never twice the same, ever changing, never less than whole." To that extent at least, Irwin seems to have succeeded.

Karen L. Dardick is a free-lance writer in Los Angeles.

Want to see it for yourself? The Getty Center has experienced a flood of visitors—1 million as of June 1—and its limited parking spaces are now reserved six months in advance. The Center is accessible by public transportation, however. Admission is free, but parking is $5. Call (310) 440-7300 for more information.

The path leading to the Central Garden criss-crosses over a stream, opposite, whose banks are lined with London plane trees and a variety of other plants. Riotous use of color, left, is one of the hallmarks of the Central Garden. Here the unearthly orange and green foliage of Euphorbia tirucalli *'Sticks of Fire' is planted in combination with* Heliotrope *'Black Beauty' and* Campanula *'Dickson's Gold'.*

book reviews

Dirr's latest perennials lilies

MANUAL OF WOODY LANDSCAPE PLANTS: THEIR IDENTIFICATION, ORNAMENTAL CHARACTERISTICS, CULTURE, PROPAGATION AND USES

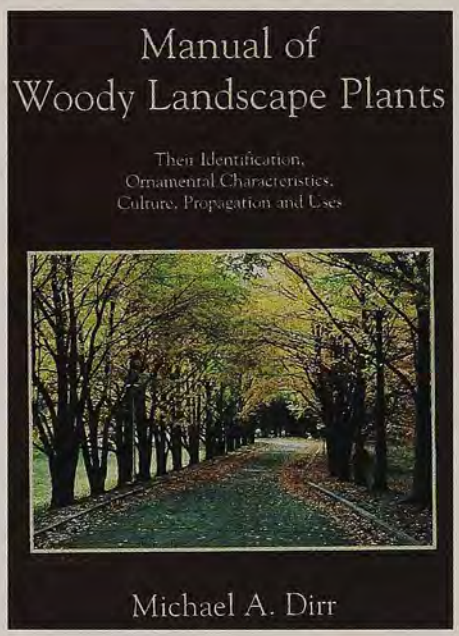
Michael A. Dirr. Stipes Publishing, Champaign, Illinois, 1998. 1,232 pages. 8½ × 11". Publisher's price: hardcover, $63.80, softcover, $48.80. AHS member price: hardcover, $57, softcover, $43.50. **STI 004**

Of the hundreds of gardening books published this year, few have elicited the kind of feverish anticipation that surrounds the fifth edition of Michael Dirr's *Manual of Woody Landscape Plants.* It's been a long wait—eight years, to be exact—and Dirr himself admits wondering at times "whether this latest version of the *Manual* would make its way to press." Finally, however, we can all replace our battered fourth editions with the fully updated manual.

This edition is nearly 200 pages longer than the last, mostly because of the hundreds of new cultivars listed. Many of the cultivars Dirr mentions are so new they are not even in nursery production yet. Among these are *Acer rubrum* 'New World' and 'Red Rocket', just released by the U.S. National Arboretum (see "News from AHS," page 8), and *Loropetalum* var. *rubrum* 'Pink Pearl', about which Dirr explains he has "only observed one small plant and simply wanted to alert the reader to the possibility of another clone."

Typical of the expanded cultivar listings is the entry on *Buddleia davidii.* Dirr admits that "butterfly-bush mania is a serious disease and to some degree I have been infected." Clearly so, for his list of cultivars has grown from 25 in the fourth edition to 70 in the fifth. The same is true for Chinese elm *(Ulmus parvifolia),* which Dirr has championed for years as a tree to fill the void left by the demise of the American elm. Reflecting on his earlier prediction that the tree would have a bright future, he writes, "so many plantsmen and growers are assessing *Ulmus parvifolia* germplasm that it gives me the chills just to think about the possibilities." Indeed, the fifth edition includes descriptions of 16 new cultivars as well as brief mention of 10 other forms that are often used for bonsai.

In addition to expanded and updated



coverage of plants, Dirr has revised the classification and nomenclature section into a reader-friendly outline form that includes clear explanations of terms and plenty of examples. Also new is the inclusion of authority—the person who first correctly names each plant. The new edition also references the USDA Plant Hardiness Zone Map rather than the Arnold Arboretum map used in previous editions. This brings the manual more in line with other horticulture references.

Additions notwithstanding, readers will find the general format of the manual unchanged: Each plant is listed with its scientific, common, and family name, followed by a discussion of size, hardiness, habit, rate of growth, texture, bark and stem color, leaf color, flowers, fruit, culture, diseases and insects, landscape value, cultivars, propagation, related species, native habitat, and anything else Dirr thinks is important or interesting. Dirr's wife, Bonnie, has penned more line drawings of foliage, stems, and buds to further aid field identification.

In his preface, Dirr writes, "In a meaningful and spiritual way, the *Manual* and I are enmeshed so seamlessly that it is difficult to tell where Dirr starts and the *Manual* picks up." Indeed it is Dirr's passion for plants and his willingness to offer his opinions on them that makes this one of the most useful reference books around for gardeners, horticulturists, designers, students, or anyone who has an interest in what Dirr lovingly terms "woody landscape plants."

—Christina M. Scott

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

CARING FOR PERENNIALS: WHAT TO DO AND WHEN TO DO IT

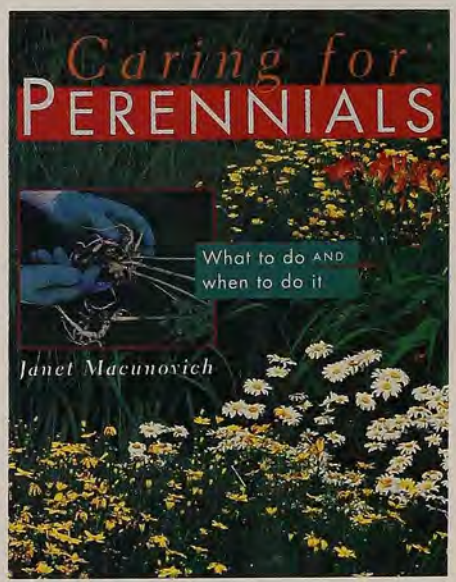
Janet Macunovich. Storey Communications, Pownal, Vermont. 1996. 191 pages. 8½ × 10 15/16". Publisher's price: softcover, $17.95. AHS member price: $15. **STO 051**

THE WELL-TENDED PERENNIAL GARDEN: PLANTING AND PRUNING TECHNIQUES

Tracy DiSabato-Aust. Timber Press, Portland, Oregon, 1998. 269 pages. 7¾ × 10⅝". Publisher's price: hardcover, $29.95. AHS member price: $27. **TIM 142**

"At the end of the season, it's not the work that you remember but the glimpses of perfection for which you did the work."

Such satisfying reflections, along with whimsical turns of phrase, a lively anecdotal style, and sparkling design, make Janet Macunovich's *Caring for Perennials* a gem. In addition, its reliable horticultural advice

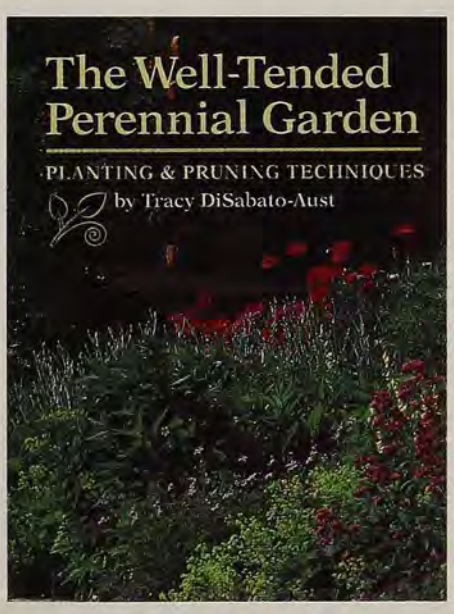


is dispensed from a refreshingly practical hands-on point of view.

The book features large print, generous amounts of white space, and lots of excellent graphics, photos, and line drawings. Macunovich's text and the catchy headings are well organized and easy to read; her style is friendly and accessible.

Macunovich takes you through a year of caring for her wonderfully diverse perennial border using simple descriptions and illustrations to explain each step. Headings and highlighted items help the reader locate key points, and practical information is clearly depicted with photographs. In keeping with the accessible tone of the book, Macunovich uses plant common names throughout, but a plant care chart includes botanical names.

Despite its title, the book covers more than just the maintenance of herbaceous perennials—it includes pruning of woody plants, finding the right tools, tips on designing a perennial bed, the basics of soil preparation, identifying pest problems, and even suggestions for the right clothes to wear! Regarding footwear, she advises, "It's not strong legs. It's the boots." She recommends buying a pair with a steel arch, especially for digging with a shovel. A wealth of



practical advice like this abounds. Although I've been gardening with perennials for 25 years, Macunovich filled in some hitherto unknown gaps in my knowledge.

The Well-Tended Perennial Garden by Tracy DiSabato-Aust has much in common with Macunovich's book. Both authors write from experience and have a strong, hands-on approach; both offer insightful and reliable information; both will enable any gardener to create and maintain the best possible perennial displays.

DiSabato-Aust goes into greater detail, however, and her style is a little more textbookish. While the book's information is horticulturally sound and the author's tips and techniques excellent, the book lacks the photographs, illustrations, charts, and design elements that are so agreeable and helpful in Macunovich's book.

What makes *The Well-Tended Perennial Garden* especially valuable, however, is its focus on the pruning of perennials for maintenance and rejuvenation. After introducing this concept in her preface, the author includes detailed descriptions of the pruning needs of individual species in an encyclopedic section. I have not seen such a helpful emphasis on pruning before in other gardening books.

It's easy to recommend two such useful books as *Caring for Perennials* and *The Well-Tended Perennial Garden*. Both are welcome additions to the body of works available on maintaining perennial gardens.

—Michael Zajic

Michael Zajic is facilities supervisor at Brookside Gardens in Wheaton, Maryland.

LILIES: A GUIDE FOR GROWERS AND COLLECTORS

Edward Austin McRae. Timber Press, Portland, Oregon, 1998. 392 pages. 6 × 9". Publisher's price: hardcover, $34.95. AHS member price: $31.50. **TIM 149**

Is this just another lily book? Definitely not! Destined to become a part of McRae's lily legacy, *Lilies* highlights the depth of experience and expertise that comes from growing and breeding lilies for almost four decades. Not only is the book well written, it is timely—a decade has passed since the last important lily book, *Growing Lilies* by Derek Fox, was published.

The book is divided into three sections. The first section presents the basic cultural requirements that will produce high-quality bulbs and flowers. McRae's extensive coverage of propagation, cultivation, diseases, and pests will be useful for both the beginning lily grower and the seasoned veteran. Also, the inclusion of a list of 96 hybrid lilies suitable for the garden is an invaluable resource. The major shortcoming here is the lack of detailed information on the physiology of flowering in lilies. It would have been helpful to refer readers to other publications where this critical aspect is covered.

The heart of the book is the second section, where McRae describes 91 species. More importantly, he provides an updated classification of hybrid lilies, which has been needed for many years. McRae explains the proposed 10 divisions of lily classification, with extensive discussions of the species, Asiatic hybrids, Chinese trumpet hybrids, and Oriental hybrids. This section, which reflects the author's personal involvement and knowledge, is truly a pleasure to read.

The third section wraps up the book with a wealth of practical information for growers, as well as an introduction to some of the important figures in the industry. Topics include hybridizing, forcing, and exhibiting lilies, and commercial bulb production. The beginning lily hybridizer will find McRae's step-by-step in-

structions on hybridizing—from selecting parent plants and collecting pollen to harvesting and storing seeds—especially interesting. Because it is focused primarily on hybrid lilies, however, the section lacks a discussion of *L. longiflorum* production, which is very important in North America. In addition, while Chapter 18 covers many important personalities in the lily industry, the book would have benefited from an index of all individuals cited. And although the book contains 108 beautiful color plates illustrating many species and cultivars, an index of these would also have been helpful to readers.

The author has throughly covered the progress that has been made in lily breeding and culture over the past few decades. Without question, *Lilies* will be a valuable addition to the library of any lily enthusiast.

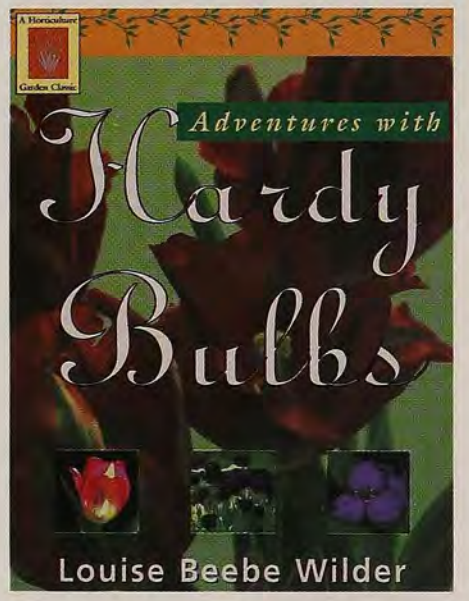
—August De Hertogh

August De Hertogh is a professor of horticultural science at North Carolina State University in Raleigh.

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 (800) 777-7931 ext. 36.

BULBS



ADVENTURES WITH HARDY BULBS

Louise Beebe Wilder. The Lyons Press, New York, 1998. 384 pages. Publisher's price: softcover, $16.95. AHS member price: $15.

LBP 010

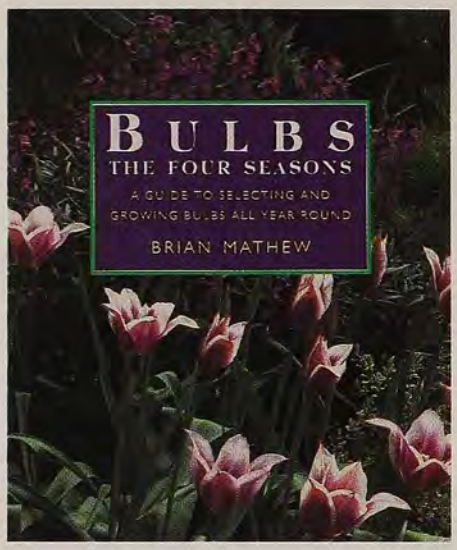
Describing her diverse experience with bulbs as an adventure, Wilder originally published this highly readable guide in 1936. From *Allium* and *Anemone* through the alphabet to *Tulipa, Uvularia,* and *Zigadenus,* she instructs us in the different ways bulbs can give us pleasure in our gardens. Contains line drawings and black-and-white photographs.

BULBS: THE FOUR SEASONS

Brian Mathew. Pavilion Books, London, 1998. 144 pages. Publisher's price: hardcover, $24.95. AHS member price: $22.50.

PAV 001

This season-by-season cultivation guide covers more than 200 popular bulbs. It also



has sections on Cape bulbs, and on tender and tropical bulbs to grow inside the home. Includes 120 color photographs to help identify the plants described.

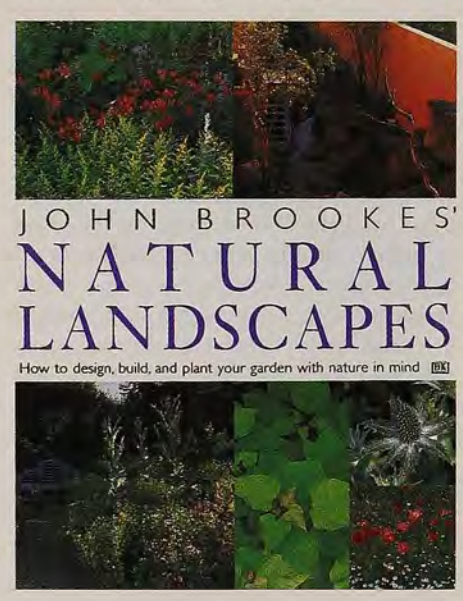
DESIGN AND LANDSCAPING

NATURAL LANDSCAPES: HOW TO DESIGN, BUILD, AND PLANT YOUR GARDEN WITH NATURE IN MIND

John Brookes. Dorling Kindersley, New York, 1998. 192 pages. Publisher's price: hardcover, $29.95. AHS member price: $26.95.

DK 028

This is an exceptionally well designed and beautifully photographed book by one of the world's best known garden designers. Brookes' aim is to create gardens that have good design elements while harmonizing with their natural surroundings. This book contains wonderful and diverse examples of such landscapes illustrated with hundreds of color drawings and photographs.



BOLD ROMANTIC GARDENS: THE NEW WORLD LANDSCAPES OF OEHME AND VAN SWEDEN

Wolfgang Oehme and James Van Sweden. Spacemaker Press, Washington, D.C., 1998. 312 pages. Publisher's price: softcover, $39.95. AHS member price $36. **SMP 001**

Before the immensely popular *Gardening With Water* and *Gardening With Nature* came Oehme and Van Sweden's *Bold Romantic Gardens.* Originally published in 1990, this is not just a coffee table book. Garden designers Van Sweden and Oehme have built an international reputation for reinvigorating the American garden and liberating suburban properties from the tyrannies of the lawn. Contains exquisite color photographs of their garden designs from across America.

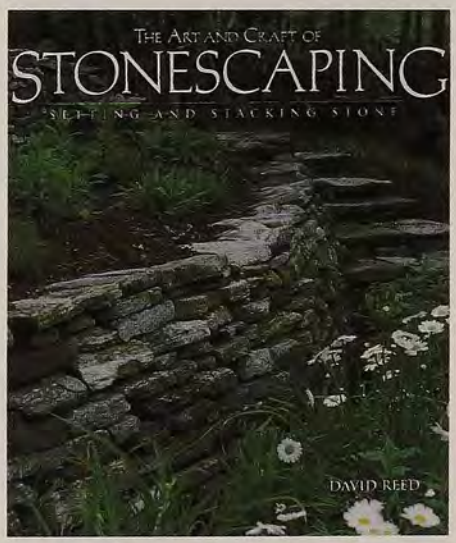
GARDEN PROJECTS

THE ART AND CRAFT OF STONESCAPING

David Reed. Lark Books, Ashville, North Carolina, 1998. 160 pages. Publisher's price: hardcover, $27.50. AHS member price: $25.

LAR 001

This book is an excellent resource for its instruction in technique and as a guide for design. Each page has color photographs illustrating the process of building stone features and showing the impressive results. The author is a stonemason with a talent for integrating his hardscapes effectively into the landscape.



GARDENING FROM SCRATCH: HOW TO TURN YOUR EMPTY LOT INTO A LIVING GARDEN

Ann Lovejoy. Macmillan, New York, 1998. 160 pages. Publisher's price: softcover, $19.95. AHS member price: $17.95. **MAC 039**

The theme of Lovejoy's newest book is

"starting from the beginning." Methods of designing, undertaking, and maintaining every type of garden plot are discussed. The author, one of America's best garden writers, will be hosting a cable television series this fall also called "Gardening from Scratch." Includes 80 color photographs and 15 black-and-white illustrations.

GETTING READY FOR WINTER, AND OTHER FALL TASKS

Steven Bradley. Stewart, Tabori and Chang. New York, 1997. 112 pages. Publisher's price: hardcover, $22.50. AHS member price: $20. **STC 013**

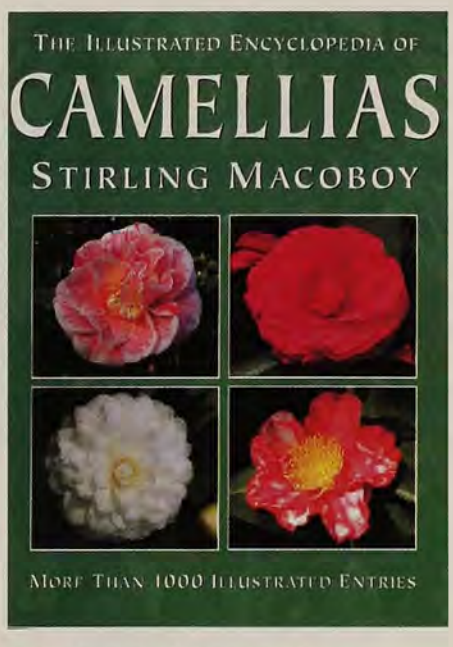
In the fall, gardeners do one of two things: some put the garden to bed; others set about soil and weed management, division, planting, and planning for the spring. This workbook lays out all the possible tasks and guides you through the ones you choose to do step by step. Includes 50 color photographs and 300 color illustrations.

MISCELLANEOUS

THE ILLUSTRATED ENCYCLOPEDIA OF CAMELLIAS

Stirling Macoboy with Roger Mann. Timber Press, Portland, Oregon, 1998. 304 pages. Publisher's price: hardcover, $39.95. AHS member price: $36. **TIM 148**

This is the definitive guide to more than 1,000 of the world's camellias, with each entry illustrated by a color photograph. With this book, the author has completely updated and revised his well-received 1981 book, *The Colour Dictionary of Camellias.* Also includes paintings and drawings.



THE TROPICAL LOOK: AN ENCYCLOPEDIA OF DRAMATIC LANDSCAPE PLANTS

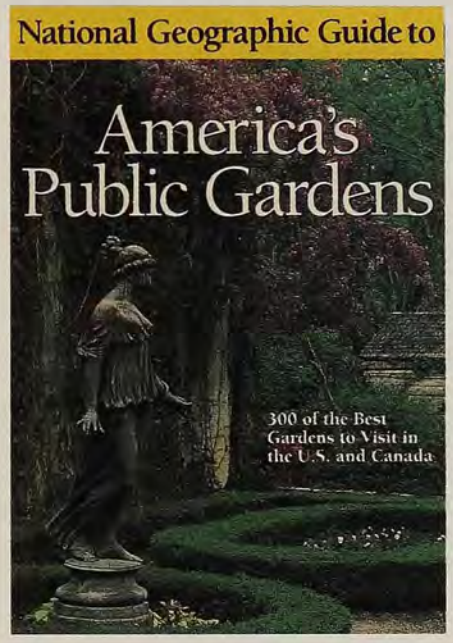
Robert Riffle. Timber Press, Portland, Oregon, 1998. 520 pages. Publisher's price: hardcover, $49.95. AHS member price: $45. **TIM 147**

Tropicals such as abutilon, bougainvillea, ginger, and palm are now among the most sought-after landscape plants. Gardeners in the South and West are integrating them into their outdoor living spaces, while in cooler regions they are popular as half-hardy, annual, or conservatory plants. This new encyclopedia—written primarily for gardeners in USDA Zone 8 to 10—includes 400 color photographs and is the most updated guide to these lush plants.

NATIONAL GEOGRAPHIC GUIDE TO AMERICA'S PUBLIC GARDENS

Mary Jenkins. National Geographic Books, Washington, D.C., 1998. 384 pages. Publisher's price: softcover, $25. AHS member price: $22.50. **RAN 034**

Featuring 300 gardens from all 50 states and Canada, this guide introduces us to little-known gems like heiress Doris Duke's ingenious glass-enclosed one-acre microcosm of the world of horticulture in New Jersey and El Zaguan, a "city surprise" garden hidden in urban Santa Fe. Small enough to travel with and detailed enough to learn from, this book is a must for the garden-loving traveler. Includes more than 250 color photographs.



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regional happenings

a look at what's happening around the nation

MID-ATLANTIC

SEPT. 1—SEPT. 27 ■ Natural Medicines Exhibit. Covers the origins of traditional medicines from rainforests around the world. Phipps Conservatory and Botanical Gardens, Pittsburgh, Pennsylvania. (412) 622-6914.

SEPT. 12 ■ Green Spring Garden Day Plant Sale. Green Spring Gardens Park, Alexandria, Virginia. (703) 642-5173.

SEPT. 12–OCT. 4 ■ GardenFest. Tours, cooking demonstrations, and more. Longwood Gardens, Kennett Square, Pennsylvania. (610) 388-1000.

SEPT. 19 ■ Home Gardeners School Fall Session. Hickman Hall, Cook College, New Brunswick, New Jersey. (732) 932-8451.

SEPT. 19 & 20 ■ Dahlia Exhibition. Greater Philadelphia Dahlia Society, Longwood Gardens, Kennett Square, Pennsylvania. (610) 388-1000.

SEPT. 25 & 26 ■ Ethnobotany and Therapeutic Uses of Herbs. Workshop. Wilson College, Chambersburg, Pennsylvania. (717) 264-4141 ext. 3247.

SEPT. 27 ■ Gardens of Imagination. American Horticultural Society Fundraiser. George Washington's River Farm, Alexandria, Virginia. (703) 768-5700 ext. 10.

OCT. 4 ■ Discovery Day: Pepper Festival. The American Horticultural Society. George Washington's River Farm, Alexandria, Virginia. (703) 768-5700 ext.10.

OCT. 10–12 ■ Orchid Show and Sale. National Capital Orchid Society, U.S. National Arboretum, Washington, D.C. (202) 245-2726.

NORTH CENTRAL

SEPT. 12 & 13 ■ Fall Garden Tours & High Tea. Hermann Garden Club, Hermann, Missouri. (800) 932-8687.

SEPT. 12 & 13 ■ Windy City Indoor Gardeners Show & Sale. The Chicago Botanic Garden, Glencoe, Illinois. (847) 835-5440.

SEPT. 19 & 20 ■ Garden Harvest Festival. The Chicago Botanic Garden, Glencoe, Illinois. (847) 835-5440.

SEPT. 20 ■ Discover Your Botanical Artistry Skills. Slides and hands-on drawing instruction. Olbrich Botanical Gardens, Madison, Wisconsin. (608) 246-4550.

SEPT. 24 ■ Gardens of the Great Impressionists. Lecture by Derek Fell. Amway World Headquarters, Ada, Michigan. (616) 975-3168.

OCT. 3 & 4 ■ Fall Festival. Interactive exhibits showcasing how early Americans used native plants. Matthaei Botanical Gardens, Ann Arbor, Michigan. (734) 998-7061. www.lsa.umich.edu/mbg.

OCT. 3–NOV. 15 ■ The Chrysanthemum Show. Chrysanthemum display. Frederik Meijer Gardens, Grand Rapids, Michigan. (616) 957-1580.

OCT. 10 & 11 ■ African Violet Show and Sale. Lake Shore African Violet Society. The Chicago Botanic Garden, Glencoe, Illinois. (847) 835-5440.

OCT. 22 ■ The Layered Garden. Lecture by Lauren Springer. Metropolitan Community College, Omaha, Nebraska. (402) 472-2971.

NOV. 2 ■ Blooming Mum Sale. Olbrich Botanical Gardens, Madison, Wisconsin. (608) 246-4550.

NORTHEAST

SEPT. 12 ■ Intervale Festival. Garden tours, hayrides, and kids' events. Intervale, Burlington, Vermont. (802) 660-3500 ext. 243.

SEPT. 13 ■ Exquisite Exotics. Tropical plant garden tour. Wave Hill, Bronx, New York. (718) 549-3200.

Margaret Mee's Amazon Comes to Minnesota

Margaret Mee painted *Clusia grandiflora* in 1983.

The artwork of one of the world's most renowned botanical artists and conservation pioneers is the focus of an exhibit opening September 19 at the University of Minnesota's Bell Museum of Natural History in Minneapolis. Margaret Mee's 15 excursions through the Brazilian rain forest from the 1950s until her death in 1988 come to life in this showing of 85 watercolors and pastels, supplemented by field sketches, photographs, and a replica of her one-room jungle hut. The British artist's works provide a valuable archive of flora that is believed to be lost forever to Amazonia's development. The exhibit, produced by the Royal Botanic Gardens, Kew, and the Margaret Mee Amazon Trust in association with the New York Botanical Garden, will run through December 13. For more information, call the Ball Museum of Natural History at (616) 624-7083. *Mark C. Mollan, Communications Assistant*

COURTESY OF THE ROYAL BOTANIC GARDENS, KEW

The Return of the Natives

Bloodroot, a woodland native

On October 23 and 24 the Central South Native Plant Conference returns to Birmingham, Alabama, bringing together landscape architects, professional nursery growers, home gardeners, and leading garden writers to discuss the benefits of gardening with the native flora of the southeastern United States.

"The gardening needs of the Birmingham community encompass a wide range, so this conference offers something for everyone," says conference coordinator Rebecca Cohn. Among the topics covered during the two-day conference are "Regeneration of Native Forests in Urban Settings," "Medicinal Plants of the Southeast," and "Step-by-Step Guide to Wildflower Propagation." There will also be tours of the Birmingham Botanical Gardens, guided birdwalks, and a wildflower photography workshop.

Registration before October 10 is $65 per person; after October 10 it increases to $75. For more information, call the University of Alabama Arboretum at (888) 349-1815.

Forest Canopies '98 Conference in Florida

How many organisms exist on earth and how many live in forest canopy ecosystems? How do tropical forests affect global warming? How can we help conserve the endangered species of a canopy forest? If these questions pique your interest, you'll want to attend the Second International Forest Canopy Conference this year in Sarasota, Florida. More than 250 botanists, horticulturists, biologists, and conservationists from more than 35 nations will convene in the beautiful venue of Marie Selby Botanical Gardens from November 4 through 8 to discuss the major issues surrounding the survival of the threatened forest canopy ecosystem. According to Selby Gardens' executive director Mark Bierner, "The conference on biodiversity, ecology, and conservation offers a unique opportunity for the public to learn about the state of our environment from some of the world's leading experts."

Academic and research leaders from Selby Botanical Gardens, the National Geographic Society, and Harvard University will give nightly lectures and presentations that are open to the public during the conference. Other open events include the Canopy Film Festival, the Canopy Photographic Exhibit, and numerous displays outlining the latest research projects and discoveries.

For more information about the conference, call (941) 366-5731 ext. 10.

—Mark C. Mollan, Communications Assistant

SEPT. 19 ■ Continuing Education Open House. Mini-classes, demonstrations, and sampler courses in certificate programs. New York Botanical Garden, New York, New York. (718) 817-8747.

SEPT. 19 & 20 ■ Mid-Island Dahlia Society 35th Annual Show. Planting Fields Arboretum, Oyster Bay, New York. (516) 334-8094.

SEPT. 28 ■ From Fountains to Temples: Ornamentation in the Garden. Lecture. Lyman Estate, Waltham, Massachusetts. (617) 227-3957 ext. 271.

OCT. 7 & 8 and 14 & 15 ■ Go A-Maze-ing. Exploring mazes in the Children's Adventure Garden. New York Botanical Garden, New York, New York. (718) 817-8700.

NORTHWEST

SEPT. 17–20 ■ 19th Annual Conference of the American Community Gardening Association. Roundtable discussions, workshops, lectures, and garden tours. Mayflower Park Hotel, Seattle, Washington. (206) 684-0264.

OCT. 1–4 ■ Fall Home and Garden Show. Speakers, seminars, and demonstrations. Portland Expo Center, Portland, Oregon. (800) 343-6973.

OCT. 4 ■ Fall Bulb Sale. Graham Visitors Center, Washington Park Arboretum, Seattle, Washington. (206) 726-1954.

OCT. 25 ■ Fourth Annual Reef Tour. Geothermal Aquaculture Research Foundation, Boise, Idaho. (208) 344-6163.

OCT. 25 ■ Mushroom Festival and Plant Sale. Mount Pisgah Arboretum, Eugene, Oregon. (541) 747-3817.

SOUTH CENTRAL

SEPT. 21–23 ■ Monarch Migration. Botanica: The Wichita Gardens, Wichita, Kansas. (316) 264-0448.

OCT. 1–3 ■ 10th Annual Herb Harvest Fall Festival. Seminars, lectures, and social events. Ozark Folk Center, Mountain View, Arkansas. (870) 269-3851.

OCT. 1–3 ■ 56th Annual Bulb and Plant Mart. The Garden Club of Houston. Westminster United Methodist Church, Houston, Texas. (713) 626-7908.

OCT. 17 & 18 ■ Harvest Focus Weekend: Herbs. The Dallas Arboretum, Dallas, Texas. (214) 327-4901.

OCT. 24 & 25 ■ Mid-America Region Lily Society Fall Bulb Sale. Ridgway Center, Missouri Botanical Garden, St. Louis, Missouri. (800) 642-8842.

SOUTHEAST

SEPT. 12 ■ Daylily Sale. Mid-Carolina Daylily Society. Riverbanks Zoo and Garden, Columbia, South Carolina. (803) 779-8717.

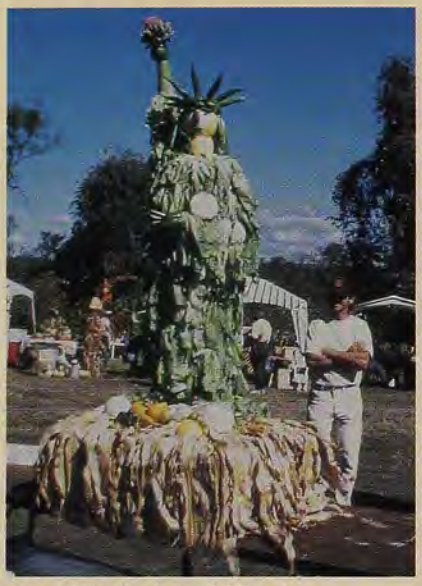
SEPT. 10–12 ■ Florida Nursery and Allied Trades Show. Orange County Convention Center, Orlando, Florida. (407) 295-7994.

SEPT. 26–OCT. 25 ■ Michaelmas: An English Harvest Fair. Biltmore Estate, Asheville, North Carolina. (800) 323-6822.

OCT. 2 & 3 ■ Perennials Conference. Cheekwood Botanical Garden, Nashville, Tennessee. (615) 353-2148.

Edible Art in California

Instead of eating all their veggies and fruit, the residents of Penryn, California, have been engaging in friendly competition by creating artwork using some of the fall harvest grown in their gardens and on local farms. The annual AGROart festival is sponsored by local businesses and county agencies, which contribute prizes for winning participants. In last year's event, more than 10,000 people attended, and $5,000 in prizes was awarded. An even bigger turnout is expected at this year's third annual free event to be held on October 10.



An edible Statue of Liberty

The AGROartists use assorted produce grown in Placer County, located 25 miles east of Sacramento on Interstate 80, where gold hunters of old hit the mother lode, and where indefatigable miners still pan the American and Sacramento Rivers for nuggets. Some of the artists who enter their edible creations are descendants of the 49ers who gave up on finding instant wealth and stayed on to prosper as foothill farmers.

Among the works of art shown last fall was Michael Anello's 6-foot-tall Statue of Liberty, made from lettuce, okra, eggplant, and bell peppers. The flaming torch was represented by an artichoke in flower.

Ali Hauser looked to Japan for her inspiration. She used a huge white radish for the face of a geisha girl. Purple eggplant provided the traditional hair style, olives were eyes, and pieces of red bell pepper became fingernails. Hauser said the figure took four hours to complete.

One young artist, 12-year-old Matt Garcia, fashioned a dragon from lemons, carrots, grapefruits, cabbage, and hot chili peppers. Other entries included a horse made of potatoes and a large scaly fish made of eggplant, zucchini, and artichokes.

In addition to the edible art, the festival features food vendors and musical entertainment that ranges from Japanese drumming to bluegrass.

Festival coordinator Joanne Neft, who helped initiate the AGROart festival several years ago, says the event is now attracting wider regional attention: "We just sowed the seeds and they are going to grow." For more information about this year's festival, call the Arts Council of Placer County at (530) 885-5670.

—Hal Rubin, special from Auburn, California

OCT. 4 ■ 34th Annual Fall Rose Show. Dixie Rose Club. Goldsmith Civic Garden Center, Memphis, Tennessee. (901) 685-1566 ext. 106.

OCT. 9–11 ■ Chrysanthemum Festival. Tryon Palace, New Bern, North Carolina. (919) 514-4900.

OCT. 10 ■ Highway Horticulture: Wildflowers by the Road. Lecture. Tryon Palace, New Bern, North Carolina. (919) 514-4900.

OCT. 15 ■ Riches of the Fall Garden. Lecture by Marco Polo Stufano, director of horticulture at Wave Hill, Bronx, New York. Day Hall, Atlanta Botanical Garden, Atlanta, Georgia. (404) 876-5859 ext. 213.

OCT. 15–18 ■ Orchids of the World Symposium. Lectures, seminars, and workshops. Naples Beach Hotel and Golf Club, Naples, Florida. (800) 237-7600.

SOUTHWEST

SEPT 10 & 11 ■ Southwest Horticultural Trade Show. Phoenix Civic Plaza, Phoenix, Arizona. (602) 966-1610.

SEPT. 19 ■ 3rd Annual Garden Art Show. Sante Fe Greenhouses, Santa Fe, New Mexico. (505) 473-2700.

OCT. 2 & 3 ■ Harvest Fair. Plant and crafts sale. Albuquerque Garden Center, Albuquerque, New Mexico. (505) 296-6020.

OCT. 3 & 4 ■ Fall Plant Sale. Tucson Botanical Gardens, Tucson, Arizona. (520) 326-9686.

OCT. 10 ■ Pumpkin Festival. Pumpkin picking, hayrides, food, and crafts. Chatfield Arboretum, Littleton, Colorado. (303) 973-3705.

OCT. 10 & 11 ■ Denver Orchid Society Show and Sale. Denver Botanic Garden, Denver, Colorado. (303) 370-8187.

WEST COAST

SEPT. 19 ■ Tea: From Leaves to Cup. Botanical Beverage Series. Van De Kamp Hall, Descanso Gardens, La Canada, Flintridge, California. (818) 952-4401.

OCT. 8 ■ Second Thursday Garden Talk Series: Winter Flowering Bulbs. Friends' Hall, The Huntington Botanical Gardens, San Marino, California. (626) 405-2141.

OCT. 8–11 ■ Los Angeles Garden Show: Gardens of the Silver Screen. The Arboretum of Los Angeles County, Arcadia, California. (626) 294-2059.

OCT 23–25 ■ 12th Annual East West Orchid Show and Sale. New Otani Hotel and Garden, Los Angeles, California. (213) 935-0560.

OCT. 31 & NOV. 1 ■ Japanese Festival. Garden tours, music, and costumed dancers. Descanso Gardens, La Canada, Flintridge, California. (818) 952-4401.

CANADA

SEPT. 12 ■ Plant Sale and Silent Auction. The Arboretum Auxillary of the University of Guelph, R.J. Hilton Centre, Guelph, Ontario. (519) 824-4120 ext. 4110.

SEPT. 14–16 ■ Green Pharmaceuticals '98 Conference and Pre-Conference Workshop. Lectures and panel discussions. Westin Bayshore Hotel, Vancouver, British Columbia. (207) 781-9800.

Reminder

To list an event, please send information at least four months in advance to Regional Happenings, *The American Gardener*, 7931 East Boulevard Drive, Alexandria, VA 22308.

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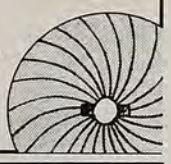

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hardiness and heat zones

a guide to USDA and AHS zones for plants found in this issue

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

A–C

Acer circinatum USDA 6–9, AHS 9–3
Allium globosum 5–9, 9–3
A. senescens 5–9, 9–3
A. stellatum 5–9, 9–3
A. thunbergii 5–9, 9–3
Ceanothus 'Joyce Coulter' 9–11, 12–9
Chionodoxa forbesii 3–8, 8–1
C. luciliae 3–8, 8–1
C. sardensis 4–8, 8–1
Cornus alternifolia 4–8, 8–1
C. stolonifera 'Flaviramea' 2–8, 8–1
Crocus ancyrensis 5–8, 8–3*
C. boryi 4–8, 8–1
C. cartwrightianus 6–8, 8–4
C. corsicus 6–9, 9–3
C. flavus 5–8, 8–3
C. fleischeri 5–8, 8–3
C. gargaricus 6–8, 8–1
C. goulimy 6–8, 8–3
C. imperati 5–8, 8–3
C. laevigatus 5–8, 8–3
C. longiflorus 5–8, 8–3
C. niveus 5–8, 8–3
C. olivieri 5–8, 8–3
C. serotinus 5–8, 8–3
C. tournefortii 5–8, 8–3
Cyclamen balearicum 7–9, 9–8
C. cilicium 5–9, 9–4
C. coum 5–9, 9–4
C. creticum 7–9, 9–7
C. graecum 5–9, 9–4
C. hederifolium 7–9, 9–8
C. intaminatum 7–10, 10–8
C. libanoticum 7–10, 10–8
C. mirabile 7–9, 9–8
C. parviflorum 7–9, 9–7
C. pseudibericum 7–9, 9–8
C. purpurascens 5–9, 9–4
C. repandum 7–9, 9–7
C. trochopteranthum 7–9, 9–7

D–L

Dennstaedtia punctilobula 4–8, 8–2
Echinocactus grusonii 11, 12–10
Galanthus caucasicus 5–9, 9–3
G. elwesii 6–9, 9–1
G. gracilis 3–9, 9–1
G. ikariae 3–9, 9–1
G. nivalis 3–9, 9–1
G. reginae-olgae 7–9, 9–7
Herniaria glabra 3–9, 9–1
Heteromeles arbutifolia 9–11, 12–8
Iris bucharica 5–9, 9–3
I. danfordiae 5–8, 8–3
I. histrioides 5–8, 8–3
I. reticulata 5–8, 8–3
Jacaranda mimosifolia 11, 12–10
Lagerstroemia 'Natchez' 7–11, 11–6
Leptospermum scoparium 'Ruby Glow' 9–11, 12–9
Leucojum autumnale 5–9, 9–2
Loropetalum chinense and cultivars 7–9, 9–3

M–O

Muscari armeniacum 4–8, 8–1
M. botryoides 3–8, 8–1
M. neglectum 4–8, 8–1
M. tenuiflorum 4–8, 8–1
Narcissus asturiensis 3–8, 8–1
N. bulbocodium 3–8, 8–1
N. cantabricus 7–9, 9–8
N. cyclamineus 3–8, 8–1
N. fernandesii 3–8, 8–1
N. minor 3–8, 8–1
N. poeticus 3–8, 8–1
N. pseudonarcissus 3–8, 8–1
N. rupicola 3–8, 8–1
N. serotinus 3–8, 8–1
N. triandrus 3–8, 8–1
Opuntia macrocentra 'Santa Rita' 9–11, 12–9
O. robusta 3–8, 8–1

P–R

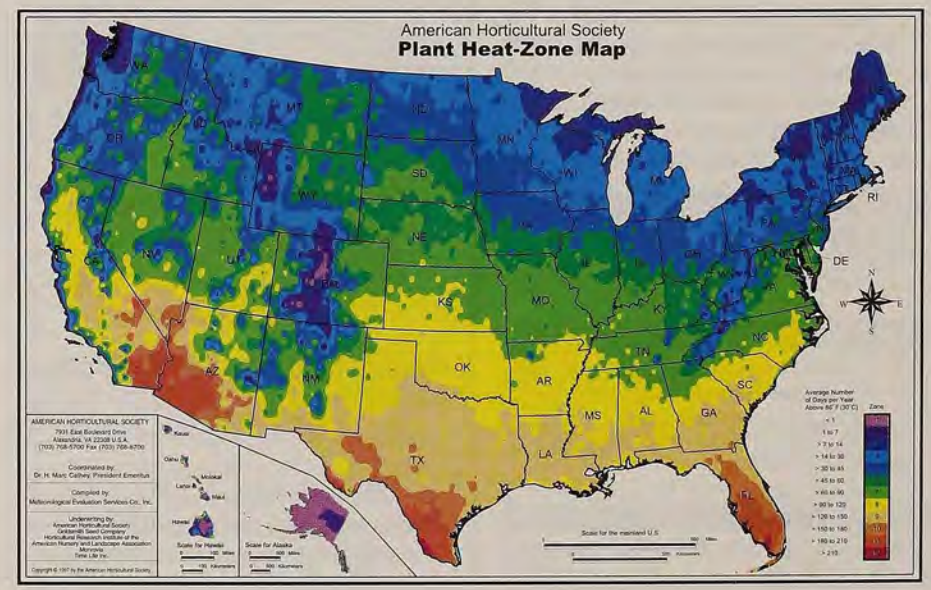
Platanus ×acerifolia 5–8, 8–3
Platanus racemosa 8–9, 9–8
Plumbago auriculata 9–11, 12–4
Puschkinia scilloides 3–8, 8–1
Quercus agrifolia 9–10, 10–9
Q. garryana 7–9, 9–7
Q. turbinella 7–9, 9–7
Raoulia australis 8–9, 9–8

S–Z

Sagina subulata 'Aurea' 4–7, 7–1
Scilla amoena 7–9, 9–1
S. autumnalis 4–9, 9–1
S. bifolia 3–8, 8–1
S. cilicica 7–9, 9–7
S. hohenackeri 6–9, 9–4
S. scilloides 4–8, 8–1
S. siberica 5–8, 8–3
S. spathulifolium 4–9, 9–1
Strelitzia reginae 9–11, 12–1
Trachelospermum asiaticum 9–11, 12–9
T. jasminoides 9–11, 12–9
Tulbaghia violacea 7–11, 12–7

*With the exception of the species listed, most of the crocuses described in the magazine are hardy and heat tolerant in Zones 3–8, 8–1.

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



pronunciations

a simple speaking guide to plants found in this issue

Acer circinatum
AY-ser sir-sih-NAY-tum
Allotropa virgata
ah-luh-TRO-puh vir-GAY-tuh
Athyrium nipponicum
uh-THIH-ree-um nih-PON-ih-kum
Cereus uruguayanus
SEER-ee-us your-uh-gweye-AN-nus
Chionodoxa forbesii
ky-on-o-DOK-suh four-BEES-ee-eye
C. luciliae
C. loo-SIL-eye-ee
Crocus alatavicus
CRO-kus ah-luh-TAV-ih-kus
C. ancyrensis
C. an-kih-REN-sis
C. asumaniae
C. uh-sue-MAN-ee-ee
C. banaticus
C. buh-NAH-tih-kus
C. boryi
C. BO-ree-eye
C. gargaricus
C. gar-GAIR-ih-kus
C. kerdorffiorum
C. kur-DORF-fee-or-um
C. korolkowii
C. ko-role-KOW-ee-eye
C. kotchyanus
C. ko-chee-AN-us
C. olivieri
C. oh-lih-vee-AIR-eye
C. pulchellus
C. pul-KEL-us
C. sieberi
C. SEE-bur-eye
C. tommasinianus
C. tom-muh-sin-ee-AY-nus
C. tournefortii
C. tor-nih-FORT-ee-eye
Cyclamen balearicum
SIGH-kluh-men bal-ee-ARE-ih-kum
C. graecum
C. GREE-kum
C. intaminatum
C. in-tam-ih-NAY-tum
C. mirabile
C. mir-AH-bil-ee
C. pseudibericum
C. sue-dy-BEER-ih-kum
C. trochopteranthum
C. troh-kop-ter-AN-thum
Cyperus papyrus
sih-PER-us pa-PY-russ
Dennstaedtia punctilobula
den-STET-ee-uh punk-tih-LO-bew-luh
Dryopteris erythrosora
dry-OP-ter-iss air-ih-THRO-sor-uh
Echinacea purpurea
ek-ih-NAY-see-uh per-PER-ee-uh
Echinocactus grusonii
eh-kee-no-KAK-tus gru-SO-nee-eye
Galanthus elwesii
guh-LAN-thus el-WEEZ-ee-eye
G. ikariae
G. ih-KAR-ee-ee
G. reginae-olgae
G. REJ-in-ee-OL-gee
Herniaria glabra
her-nee-AH-ree-uh GLAB-ruh
Heteromeles arbutifolia
het-ur-o-MEE-leez ar-byew-tih-FO-lee-uh
Hypericum calycinum
high-PAIR-ih-kum kal-ih-SIGH-num
Iris bucharica
EYE-riss bew-KAR-ih-kuh
I. danfordiae
I. dan-FORD-ee-eye
I. pamphylica
I. pam-FY-lih-kuh
Lagerstroemia ×fauriei
lag-ur-STROH-me-uh FAR-ee-eye
Leptospermum scoparium
lep-toh-SPUR-mum sko-PAR-ee-um
Leucojum autumnale
lew-KO-jum aw-tum-NAL-ee
Loropetalum chinense
lor-o-PEH-tal-um chy-NEN-see
Monotropa hypopithys
maw-no-TRO-puh hy-PO-pih-theez
Monotropsis odorata
maw-no-TROP-siss o-doh-RAY-tuh
Muscari armeniacum
mus-KAR-ee ar-meen-ee-AH-kum
M. botryoides
M. bot-ree-OY-deez
Narcissus asturiensis
nar-SIS-sus as-tur-ree-EN-sis
Osmunda cinnamomea
ahz-MUN-duh sin-uh-MO-mee-uh
Otatea acuminata
o-TAY-tee-uh ak-yew-min-AY-tuh
Phyllostachys aurea
fil-lo-STAY-kiss AW-ree-ah
Plumbago auriculata
plum-BAY-go aw-rik-yew-LAY-tuh
Puschkinia scilloides
push-KIN-ee-uh sil-OY-deez
Quercus garryana
KWER-kus gah-ree-AN-uh
Raoulia australis
row-OO-lee-uh aw-STRAY-liss
Sagina subulata
suh-JY-nuh sub-yew-LAY-tuh
Sarcodes sanguinea
sar-KO-deez san-GWIN-ee-uh
Scilla greihuberi
SIL-luh gree-HOOB-ur-eye
S. hohenackeri
S. ho-hen-AK-ur-eye
Trachelospermum asiaticum
tray-kell-o-SPUR-mum ay-zee-AT-ih-kum
Tulbaghia violacea
tull-BAG-ee-uh vy-o-LAY-see-uh

What's in a Name: *Sarcodes sanguinea*

Snow plant—so named because it is often seen rising out of snow banks in early spring—has sometimes been listed a member of Monotropaceae, but most taxonomists are now including it in the much larger heath family (Ericaceae).

Lacking chlorophyll, and thus unable to produce its own food through photosynthesis, snow plant was previously thought to be saprophytic—gaining its food from dead and decaying plant roots. However, research now shows that *S. sanguinea* also feeds on living plants through its connection with specific mycorrhizae, making it hemiparasitic (partially parasitic).

The genus name is derived from the Greek word *sarkoeides,* which means "flesh-like," in allusion to the plant's thick, fleshy flowering stalk. The specific epithet refers to the plant's shockingly vivid blood-red color.

Snow plant can be found growing at elevations of 4,000 to 8,000 feet in coniferous and mixed forests of the western United States.

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