

American Horticulturist

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News Edition

Straight Skinny on the Life of Limbs



National Arbor Day is observed the last Friday in April, although Southern states mark the day in February, Northern states in May. Current wisdom is that tree planting is better done in fall, but spring seems a good time to pay homage to these fruitful, shade-giving, air-purifying plants. Our lead article is by Cass Turnbull, founder of Plant-Amnesty, a Seattle organization that seeks to end harmful pruning of trees and shrubs. It was excerpted with permission from *The Complete Guide to Landscape Design, Renovation, and Maintenance*, © 1991 by Cass Turnbull.

By Cass Turnbull

Thank goodness for Dr. Alex Shigo! This world-renowned tree expert has scientifically proven what many gardeners suspected all along and has shown that what a lot of other experts have been doing is *wrong*. He has dissected more than 15,000 trees with chain saws and has studied trees in many countries. His research has yielded 270 publications.

Shigo has shown why topping (also called heading, stubbing, or dehorning) is very bad. He has proven that the common practice of flush-cutting limbs off trees is also bad, and that tree-wound paints and seals don't do any good whatsoever (except perhaps on rose canes, or with some special sprays that may help reduce suckers on some trees).

He and his cohorts have done this by scientifically testing these products and practices and their effects on trees. He cuts and drills and wounds and saws trees by the score and later dissects them to see what's really happening. He refers to himself as an "inside man" because he likes to look inside the trees.

But although he is highly respected and his evidence is practically indisputable, even new books on

pruning, written by authors who know of Shigo's work, often repeat misinformation. Here is the straight skinny on his pruning method and the reasons behind it, somewhat simplified, but I trust not oversimplified.

Some Tree Biology

Animals often avoid injury by moving away from the source of danger or pain. Trees can't. They wall off an injury internally and then outgrow it. If a limb is injured, it will be rotted out by microbes, and ultimately it dies. The injury doesn't kill the tree itself because the tree surrounds the rot with an interior barrier or wall that stops it. That's why that pocket in your tree where a limb rotted out doesn't get bigger, it just makes a cute home for a squirrel. When some of that rotten branch gets trapped inside the growing tree, it becomes the knothole that drops out of a piece of lumber. It's easiest for a tree to wall off a dead or dying limb. It's somewhat harder to wall off the gash you left when you backed into the trunk with your car after a Christmas party. It's hardest for it to wall off all the rot that

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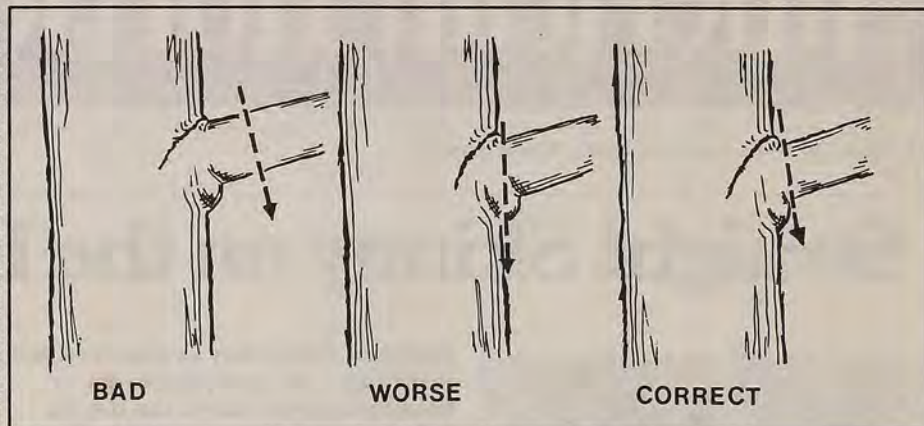
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Trees Continued from page 1

comes charging down the trunk when you top it. It's sort of the difference between bruising your knee, cutting off your hand, and cutting off your head.

Whether your particular tree dies back totally or partially when wounded depends a lot on how well it walls off wounds generally. There are several species of trees that do not compartmentalize well; in the trade they're called "rotters." They include bigleaf maple, alder, willow, poplar, tulip poplar, elm, and madrona.

Rotters often make up for their lack of toughness and short life span by reproducing like crazy. You want to help these plants by prompt removal of injured limbs and by avoiding wounding or pruning healthy green wood. Cut out the dead wood and little else. Shigo says that leaving dead wood rotting on a tree acts as a "big stick of sugar," drawing in the rotting bugs. Besides, it's ugly.

Shigo tells us that branch wood is different from trunk wood. When you go to remove a limb for whatever reason, you should be careful to cut off only the branch wood and to avoid cutting or wounding the trunk wood, which would doubly injure the tree. You will know where to make your cut on many trees because you will see a bulge or collar of trunk wood at the base of the branch.

The right place to cut is the most logical, easiest place to cut; lazy gardeners have always cut there, as do the ones to whom natural things look right.

But the invention of the chain saw enabled a lot of damage to occur with little effort. For decades, arborists have recommended "flush cutting," which wounds well into the collar, which is trunk wood, not branch wood, thus causing a second and worse injury.

They had noticed that the branch collar or callus "rolls over" the cut area and covers it up faster when it's sliced into than when the cut is made just outside it. But this "callus roll" is not a sign of healing. The real work is going on inside where things are being walled off. Cutting the collar opens the trunk to rot and is responsible for many serious problems that show up years later.

Inside the Tree

Let's divide a tree into four sections. The outside section is the protective bark. Just under the bark is where all the action takes place; this part of the tree is made up of the cambium, the phloem, and the xylem. The cambium is where all the growth happens. It pushes out the cells that turn into everything else, including the phloem and the xylem. These cells conduct



Tilia cordata.

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nutrients and sugars up and down the plant. Phloem and xylem are the major plumbing area. Just inside this high activity area is the sapwood, which is just the regular old wood making up the major part of the tree. It's actually old xylem. It conducts nutrients up the plant, too, but less energetically. Very old xylem at the central core of the tree is called heartwood and is often darker in color. Scientific types argue about whether this part is alive or dead.

When you nick the bark to see if a branch is alive or dead, you're checking out the green cambium. When you saw down a big tree and paint the edges with a deadly chemical to keep it killed, you're painting the cambium. Cambium is important stuff.

It's essential that people understand that the most living, most vulnerable part of a tree is like a sheath just under the bark. When you strip off the bark and cambium in a ring all the way around the base of your tree, by weed-whacking or scraping a lawn mower around its base, you have girdled the tree. It cannot wall off the wound or send nutrients up to the part above the ring. It will die down to the stripped section, or perhaps die altogether. If it's a good compartmentalizer, it will wall off below the injury and send up new shoots from the roots or trunk base.

You can also girdle the top of your tree by leaving something tied around it; once, at a park where I worked we managed to top five little Douglas firs in two years by forgetting to untie harmless-looking burlap tree stake ties.



Juniperus flaccida.

People assume that if a tree doesn't die right after they drive nails or a car into it, it's all right. Wrong! Trees usually die from a series of blows over a long time and when one dies, it is from the proverbial straw that broke the camel's back. You may have a giant column of dead rotten wood walled off inside your tree from some old wound and when the drought hits, whammo! You've got a dead tree. Or, as Shigo explains, wounds and injuries, including flush cuts, will often "cock the gun" and a freeze or bright sun scald will "pull the trigger," so that frost cracks or sun scald appear a year or two years later. The sun or frost gets the blame.

How to Prune a Big Limb

The major objectives in taking off a big limb are: 1) to remove all the limb so that a big stub is not left to look ugly, sucker back, and/or rot and die, and 2) not to injure the branch collar, which is trunk wood. If it's a big branch, this may not be as simple as it sounds. Most people cut downward from the upper surface of the limb. The weight of the big limb can then cause it to break and rip down the trunk wood when they get about three-quarters through, or, if the branch crotch angle is narrow, they will saw off the bottom of the collar.

To avoid these hazards, use the three-cut system. Somewhat farther out on the branch than you plan to make the final cut, make a bottom cut and then a top cut that doesn't quite match up. This will act as a hinge so that the limb will gently fold down to the ground instead of dropping on your leg. Or you can just saw it off some distance out. This relieves the weight of the branch and makes an accurate pruning cut easier and safer. When you have a narrow trunk branch crotch, you will have to use the somewhat awkward method of sawing up from the bottom to avoid cutting into the collar. If you cut from the top down, you cannot appropriately angle your saw to avoid sawing through the collar. Even when the angle is wide enough to cut from the top down, always, always make a brief undercut to keep the branch from ripping down the trunk. ♦

For more information on *PlantAmnesty*, write Turnbull at 906 N.W. 87th, Seattle, WA 98117. Turnbull's book is available for \$14.95 from Betterway Publications, Inc., P.O. Box 219, Crozet, VA 22932, (804) 823-5661.

A Monumental Dendrology

The photos on pages 1 to 6 of this issue are from the Dendrological Atlas Project. The photo bars at the top of pages 2 and 3 are the bark of *Tilia amurensis*; pages 4 and 5 show *Metasequoia glyptostroboides*; *Malus sikkimensis* is at the top of page 6.

The project is preparing a multivolume book series on the trees and shrubs of the world's temperate zones. The series will include 14 volumes with over 3,000 line drawings and over 20,000 black-and-white photos of some 6,500 species and 7,200 cultivars of cold-hardy, woody plants. The first two volumes are scheduled to be published in 1994.

The *Dendrological Atlas* is the work of Hungarian botanist Zsolt Debreczy of the Museum of Natural History in Budapest; Gyöngyvér Biró, who does literature searches and helps with writing and field work; and botanist-photographer István Rácz. Since 1971, Debreczy and his colleagues have traveled extensively throughout Asia, Europe, North America, and North Africa to study, collect, photograph, and sketch trees.

The team just returned from a three-month expedition to a high mountain area in Oaxaca, Mexico, where they documented the conifers and the broad-leaved trees and shrubs of the region. They are currently sponsored by the Massachusetts-based International Dendrological Research Institute.

The goal of the project is to create a comprehensive and beautifully illustrated work. "In general, we believe that the book will be used by professionals in botany, horticulture, and silviculture as well as by amateurs," Debreczy told *Arnoldia*. "Botanists will use the written keys and the illustrative discussion of the variability and relationships given for each species. Others may find more useful the visual keys, the morphological illustrations, or the accounts of the cultivars. We hope many people will be captivated by the beauty of the dendroflora."

For more information on the *Dendrological Atlas* contact the International Dendrological Research Institute, 649 Boston Post Road, Weston, MA 02193.

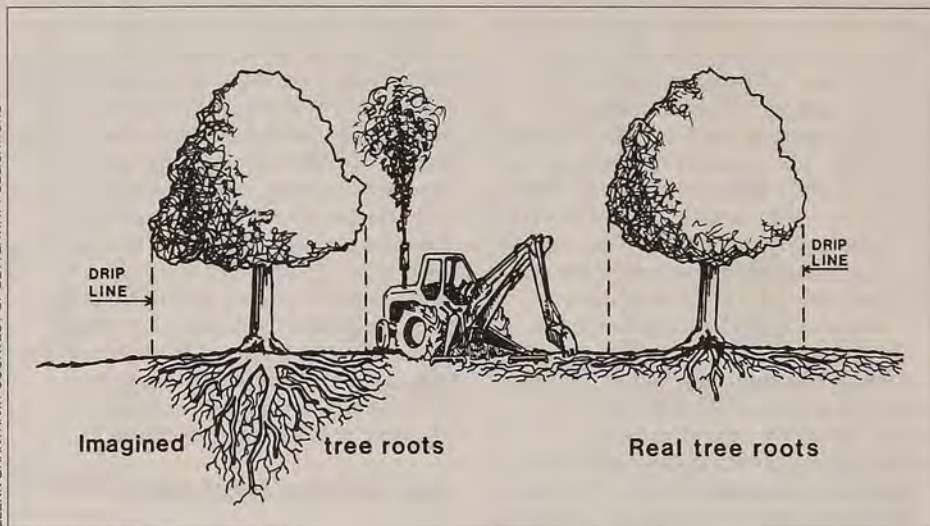
Tree Societies

For more information on a particular type of tree or tree group, contact the following nonprofit organizations:

- ♦ American Chestnut Foundation, West Virginia University, College of Agriculture and Forestry, P.O. Box 6057, Morgantown, WV 26506-6057.
- ♦ American Conifer Society, Box 314, Perry Hall, MD 21128.
- ♦ American Pomological Society, 102 Tyson Building, University Park, PA 16802.
- ♦ American Willow Growers Network, R.D. 1, Box 124A, South New Berlin, NY 13843.
- ♦ Chestnut Growers Exchange, P.O. Box 12632, Portland, OR 97212-0632.
- ♦ Elm Research Institute, Harrisville, NH 03450.
- ♦ Eucalyptus Improvement Association, P.O. Box 1963, Diamond Springs, CA 95619.
- ♦ Holly Society of America, 304 North Wind Road, Baltimore, MD 21204.
- ♦ Home Orchard Society, P.O. Box 776, Clackamas, OR 97015.
- ♦ International Dwarf Fruit Tree Association, 2500 Valley Road, Winchester, VA 22601.
- ♦ International Golden Fossil Tree Society, Inc., 201 West Graham Avenue, Lombard, IL 60148-3333.
- ♦ International Oak Society, 14870 Kingsway Drive, New Berlin, WI 53151.
- ♦ International Ornamental Crabapple Society, Morton Arboretum, Lisle, IL 60532.
- ♦ International Palm Society, P.O. Box 368, Lawrence, KS 66044.
- ♦ Magnolia Society, Inc., 907 South Chestnut Street, Hammond, LA 70403-5102.
- ♦ North American Fruit Explorers, Route 1, Box 94, Chapin, IL 62628.
- ♦ Northern Nut Growers Association, 9870 South Palmer Road, New Carlisle, OH 45344.
- ♦ Rare Fruit Council International, P.O. Box 561914, Miami, FL 33256.
- ♦ Tropical Flowering Tree Society, Fairchild Tropical Garden, 10901 Old Cutler Road, Miami, FL 33156.
- ♦ Walnut Council, 5603 West Raymond Street, Suite O, Indianapolis, IN 46241.
- ♦ Woody Plant Society, c/o Betty Ann Mech, 1315 - 66th Avenue N.E., Minneapolis, MN 55432.



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That Tree's No Carrot

A frequently seen picture of a tree's root system makes it look like a carrot, or the mirror image of the tree it supports. But the root system of trees is more horizontal than vertical. Most roots are in the top foot and a half of soil, and they extend far beyond a tree's dripline. Serious, even fatal damage is done by heavy equipment operators, and by growers who apply herbicides to a lawn or driveway under the assumption that tree roots are safely tucked away under the canopy, like chicks under the wings of a mother hen.

It hasn't been too long since the best advice on planting trees was to dig a deep hole twice as wide as the root ball, to fill the hole with heavily amended soil, and to create a "saucer" around the trunk to catch water.

More recent observation indicates that this approach creates a bathtub in which a young tree is likely to drown. Roots grow rapidly through the amended soil and stop if they reach clay, stones, or compacted soil, forming girdling roots as they might if grown too long in a container.

Think in terms of preparing a site, rather than digging a hole; or as one writer put it, not a hole, but a doughnut. Soil should be loosened and improved in the entire area of soil that will be needed to support your tree's eventual size. When planting a three-inch caliper tree that you expect to grow into a 10-inch caliper tree, you should loosen soil in a 10-foot radius from the trunk, to a depth of 10 inches.

That's a lot of digging. But the good

news is that you don't need to dig a deep hole. Nor should you add soil amendments if the existing soil is appropriate for the type of tree you're planting. The bottom of the ball should rest solidly on undisturbed soil, and the bottom half of the root ball should be surrounded by solidly packed soil.

Remove injured roots or dying branches and then save all other pruning until the tree is established. Current advice is to forget fertilizers until the tree has gone through one growth cycle. Don't make any "saucers" for water and keep mulch at least six inches from the tree's trunk.



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Pinus oaxacana.



Trees in Fiction and History

Trees, more than any other part of the world's flora, have inspired writers, artists, historians, even composers. "In the company of flowers we know happiness," writes John Stewart Collis in "Farewell to the Wood." "In the company of trees we are able to 'think'—they foster meditation. Trees are very intellectual." Here are a few books that encourage us to think differently about trees:

As of late, everyone seems to be interested in the food plants that crisscrossed the globe after Columbus's voyage to the New World. Woody landscape plants too have made epic treks. Stephen A. Spongberg, in his remarkable *A Reunion of Trees: The Discovery of Exotic Plants and Their Introduction Into North American and European Landscapes* (Harvard University Press, 1990, \$30), traces the genealogy of the trees and shrubs that have gone to and from the New World. This transcontinental exchange of woody flora transformed landscapes in North America, Europe, and Asia. Spongberg chronicles, sometimes in lush detail, the plant-hunting adventures and historical cultivation that gave rise to this horticultural revolution.

Trees: A Celebration (Weidenfeld & Nicolson, 1989, \$13.50), edited by Jill Fairchild, offers a different history of trees—their role in world literature. Fairchild has collected poems, short stories, fragments of novels, and letters that pay tribute to trees, ranging from the well-known "The Man Who Planted

Trees" by Jean Giono to pieces from more obscure writers like Collis, the Chinese poet Wang Wei (699-759), and Spanish poet Antonio Machado (1875-1939). Trees in this collection take on a like character—they are "the most penetrating preachers" (Hermann Hesse), "intrinsically 'numinous'" (Aldous Huxley), and "the best, most revealing messengers to us from all nature" (John Fowles)—and are always intertwined with the fate of humanity.

Still the best writer on the nature and history of North American trees is Donald Culross Peattie. His *A Natural History of Trees of Eastern and Central North America* (Houghton Mifflin, 1991, \$14.40) and *A Natural History of Western Trees* (Houghton Mifflin, 1991, \$16.00) have just been reissued.

Peattie wrote with the eye of a botanist, the soul of a poet, and the sweep of a great historian. He not only describes trees and their habitats effectively, but is also able to evoke meaning from each species. His essay on the often-maligned black jack oak reveals Peattie's acumen as well as his enthusiasm for the totality of our North American sylvia:

"A farmhouse among Black Jack Oaks is usually a poor one; the crops are stunted, the children ragged and pale. Far more valuable trees, which indicate good soils, have been hastily felled, or even burned down, to clear the land beneath them, while such a weed tree as Black Jack is left to flourish over hundreds of thousands of square miles. It comes up on abandoned fields, with Scrub Pine, and is a successor after fire, appearing too on erosion-ruined lands. So, as a pioneer in the tedious cycle of natural reforestation . . . Black Jack Oak deserves some credit. There are even those of us who love it, for the lichens that gather quickly on its rough bark and mottle its dark surface with subtle tints and patterns, and for the queer, awkward-looking leaves that come to seem very friendly, to those who know them daily, as they glitter in the light."

These books can be ordered from the AHS Book Program, 7931 East Boulevard Drive, Alexandria, VA 22308-1300. Add \$2.50 postage and handling for the first book; \$1.50 each additional book. Virginia residents add 4½% sales tax.



Acer pensylvanicum.

Conservation and Forestry Groups

♦ American Forestry Association, P.O. Box 2000, Washington, DC 20013-2000. AFA's Global Releaf campaign is aimed at expanding forest areas and reducing deforestation as a means of combating global warming.

♦ Committee for National Arbor Day, P.O. Box 333, West Orange, NJ 07052. Programs include the annual distribution of coniferous seedlings to local schools.

♦ International Society of Arboriculture, P.O. Box 908, 303 West University Avenue, Urbana, IL 61801. Devoted to the dissemination of knowledge of the care and preservation of shade and ornamental trees.

♦ National Arbor Day Foundation, 100 Arbor Avenue, Nebraska City, NE 68410. A nonprofit educational organization dedicated to tree planting and conservation.

♦ National Tree Society, P.O. Box 10808, Bakersfield, CA 93389. Works to preserve the balance of the earth's biosphere by planting and caring for trees.

♦ National Tree Trust, 1001 Pennsylvania Avenue N.W., Suite 1201 South, Washington, DC 20004. Created by federal mandate to plant and maintain millions of trees throughout the United States.

♦ New Forests Project, 731 Eighth Street S.W., Washington, DC 20003. Dedicated to helping stop the destruction of the earth's forests and assisting people of developing countries in improving their lives by planting trees.

♦ Rainforest Action Network, 301 Broadway, Suite A, San Francisco, CA 94133. A nonprofit activist organization working to save the world's rain forests.

♦ Save-the-Redwoods League, 114 Sansome Street, Room 605, San Francisco, CA 94104. Purchases redwood and giant sequoia forests for protection in state and national parks. Also engaged in reforestation projects.

♦ Treepeople, 12601 Mulholland Drive, Beverly Hills, CA 90210. Programs include tree plantings and other activities.

♦ Trees for Tomorrow, Natural Resources Education Center, P.O. Box 609, 611 Sheridan Street, Eagle River, WI 54521. Programs include tree seedling sales.

New Germplasm Repository for Woody Plants

The U.S. Department of Agriculture (USDA) has established a germplasm repository to collect, preserve, and distribute woody landscape plants from throughout the world. The two-acre unit at Glenn Dale, Maryland, is now growing 2,000 specimens of woody plants and has some 4,000 more in its greenhouses; plans are to eventually plant 50 acres.

Edward J. Garvey, director of the repository, pointed out to *Diversity* magazine that "while there are many genera and species of woody trees and shrubs that can be used to enhance our environment, most species we use have a very narrow germplasm base. Our job is to broaden that base so when insects or disease threaten, researchers have ready access to the inherent variability of the species."

Many of the plants are from Japan, Korea, and China, including rare seedlings of Roland Jefferson's *Prunus* accessions from Japan (collected in 1986) and T. R. Dudley's *Ilex* from China (collected in 1980). Others were transferred from the U.S. National Arboretum or sent from various USDA plant introduction centers around the country.

This fall collectors from the repository will travel with others from the Morris and Holden arboreta to northeast China's Jilin and Heilongjiang provinces to collect several woody genera. The region has been largely isolated from foreigners since Frank Meyer collected there at the turn of the century.

The repository has also placed a high priority on developing a broad-based collection of North American plants. They are currently building their flowering dogwood collection, of obvious importance in light of the threat of dogwood anthracnose to wild stands of *Cornus florida*.

Woody plants will occasionally be evaluated for desirable landscape traits. In the works is an evaluation of *Berberis* and *Mahonia* species for landscape potential and resistance to wheat-stem rust.

The repository is also working with the American Association of Botanical Gardens and Arboreta to develop a consortium of institutions to grow and study woody landscape plants.



Arboreal History

August, 1781. Generals Rochambeau and Washington rendezvous at White Plains, New York. They marshal their forces, replenish, and lay plans against the British. A few days later, Washington decamps with his French allies, strategically leaving behind a decoy contingent of 4,000 men. The remainder of the Continental Army and its commander-in-chief proceed to march toward Yorktown and the last great victory of the Revolutionary War.

March, 1992. A three-year-old sycamore (*Platanus occidentalis*) stands on an open expanse of turf at River Farm, a tract that was once part of Washington's vast riverine estate of Mount Vernon and is now home to the American Horticultural Society. About to unfold the first buds of spring, the sapling still has that naked, bony look that all sycamores acquire in winter. Yet it is well-shaped, erect, and about 12-feet tall—a fine specimen that is directly descended from the same trees that sheltered Washington and his men at their historic bivouac at White Plains.

This vital connection to a living past is the heart of the American Forestry Association's Famous and Historic Trees program. In a nationwide effort, volunteer arborists and AFA horticulturalists are harvesting and distributing the seed progeny of historically significant trees. Individual or group sponsors can plant the trees at a site of their choice.

The program aims to be both environmental and educational. In this election year, for example, the AFA offers over two dozen trees whose seeds were collected from the homes and haunts of past presidents and with them the message to citizens to take an active part in the political process. Among presidential trees now available are an Abraham Lincoln white oak, red and silver maples from George Washington's Mount Vernon, a Woodrow Wilson scarlet oak, and a Jimmy Carter slash pine.

Trees associated with inventors, athletes, writers, and social reformers will also be represented. In this vein, you can grow your own Wilbur and Orville Wright sweet gum, an Edgar Allen Poe hackberry, or a Martin Luther King Jr. water oak.

AFA, a nonprofit forestry and conservation group founded in 1875, offers three ways to participate:



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The Mount Vernon red maple.

♦ **Individual Sponsorship:** Make a famous and historic tree part of your personal landscape. For \$30 you receive an 18- to 36-inch seedling, a biodegradable protective tube, a certificate of authenticity, and a year's subscription to the program's quarterly newsletter, *Classic Tree News*.

♦ **Historic Groves:** Corporations, clubs, civic groups, and schools can sponsor a historic grove of 20 or more trees in community playgrounds, parks, or residential areas.

♦ **America's Historic Forest:** Half a million trees will be planted on 1,500 acres of donated land near Des Moines, Iowa, and every tree will have a sponsor who will also receive a certificate of authenticity and a year's subscription to *Classic Tree News*. The forest, centrally located in the Midwest and accessible to many interstate highways, will be a capital of sorts for the program. Every tree in the forest will have historic lineage, originating from parents in such places as Gettysburg, Valley Forge, and Washington, D.C.'s tidal basin. In the words of Elizabeth Mallory at Famous and Historic Trees headquarters in Jacksonville, Florida, the forest will be "the whole history of our country told through trees."

For more information, contact Famous and Historic Trees, American Forestry Association, P.O. Box 7040, Jacksonville, Florida 32238-7040, or (800) 677-0727.

Members' Forum

News on Nuese

I did so enjoy Mary Beth Wiesner's review of *Garden Dreams* (November, 1991) and as she would like to know more about Josephine Nuese I am enclosing the forward and information on the inside jacket cover from Nuese's book, *The Country Garden*, published in 1970. Nuese is a delightful writer and must have been a wonderful person. I am indebted to you as it has been a long time since I have read this book and I am enjoying now another reread.

Peggy O'Connor
Boston, Massachusetts

From the information Peggy O'Connor sent we learned that Josephine Carter Nuese created "simple country gardens that anyone can grow" at her home in northwestern Connecticut. She wrote an informal garden column in the weekly Lakeville (Connecticut) Journal and, for a brief time, she was a professional garden consultant.

Monarchs vs. Lightning Bugs

We at the *Southern Farmer's Almanac* noticed on page 6 of the May 1991 issue of *American Horticulturist* an article concerning the Entomological Society of America's campaign to name the monarch butterfly the national insect.

We are currently mounting a vigorous campaign to name the lightning bug, which we feel is a much more appropriate candidate, as national insect.

Right now, our measure is under consideration by several U.S. Congressmen, including Senators Howell Heflin of Alabama, Lloyd Bentsen of Texas, and John Warner of Virginia as well as Representatives Thomas Bliley of Virginia and J. J. Pickle of Texas. We are confident that we will have a sponsor soon.

Joe Rich, Editorial Assistant
Southern Farmer's Almanac
Richmond, Virginia

Nostalgia seems to be one of the main reasons the Southern Farmer's Almanac wants the lightning bug to be the national insect. According to an article in the 1992 issue, it has introduced children "to wildlife and the outdoors and to courage in the face of evening shadows" and is "a familiar friend, occupying a special place in the memories and experiences of millions of Americans." The almanac also points out scientists' fascination with the

lightning bug's "pilot light," "one of the most efficient light-emitting reactions known in animals or in the chemistry available to mankind."

The almanac votes against the monarch butterfly because "it's never around. It summers in Canada and a few northern states and then migrates across the United States to Mexico for the winter." It doesn't support another candidate, the honeybee, because it stings and is imported from Europe.

The almanac has received mixed support for its candidate in newspaper editorials. One argument against the lightning bug is that it is not found throughout the United States—it's located mostly in the eastern third of the country.

If you would like to support the almanac's choice of the lightning bug, write the Southern Farmer's Almanac, Lightning Bug Campaign, P.O. Box 27566, Richmond, VA 23261-7566.

'Bradford' Seedlings

On page 8SC of the January *American Horticulturist* the seed of *Pyrus calleryana* 'Bradford' is offered with a description of the parent clone.

Seedlings of 'Bradford' are almost always very thorny, twiggy, and spreading with a branching habit and quite unsuitable as garden or street trees. This is why nurseries always offer selected clones of *P. calleryana*. I think it is a mistake to offer seedlings of clones as replicas of the parent.

There is no harm in offering *P. calleryana* seed as such, but the species should be described, not the parent clone of the seed.

Bill Flemer III
Princeton, New Jersey

*We thank Bill Flemer, president of Princeton Nurseries, for bringing to our attention the differences between *Pyrus calleryana* and its popular cultivar. Seeds of the *P. calleryana* 'Bradford' tree will not be true to parental form. The 'Bradford' cultivar must be propagated vegetatively to maintain uniformity. Trees planted from this seed grow to 15 and 30 feet instead of the 40 to 50 feet that 'Bradford' can attain. Seedling branches will be thorny and their overall habit less erect and broader than those of the cultivar. However, the species also makes an excellent ornamental plant with outstanding fall leaf color of russet and red.*

Correction

In a January article on using worm boxes for indoor composting, we gave incorrect dimensions for a worm box that would consume food scraps from a family of four to six people. Such a box should measure two by three feet across and one foot deep.

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Gardeners' Q&A

Q: *How can I make my everbearing strawberries more productive? When is the best time to prune them?*
V. M., Waterloo, Iowa

A: Everbearing strawberries produce crops in early summer, late summer, and early fall. But they are generally less vigorous and productive than spring-bearing plants. Because the second and third crops develop in midsummer, when rainfall tends to be lower, you need to irrigate well immediately after the initial crop is finished to get maximum yields. Soaker hoses are best for ensuring a steady supply of moisture to the root zone. Mulching will also help conserve soil moisture. Another means of increasing the late summer and fall yields is to remove blossoms from plants after the early summer crop and through late June.

A light and balanced fertilizer (5-5-5) should be applied on a regular basis throughout the summer, rather than in one or two large doses. Also, check your soil pH level; strawberries prefer a pH of about 6.0.

You may want to try some of the new everbearing cultivars that have been bred for better yields. They include 'Superfection', which bears a medium-sized berry best used for making jams

and preserves; 'Ozark Beauty', which has a wedge-shaped berry good fresh or frozen; and 'Geneva', a reliable and high-quality everbearing.

Prune everbearings after the last harvest in the fall or in early spring before active growth begins. If plants have been set out in the hill system (12 to 15 inches apart with two feet between rows), then all runners should be removed as they form. Eventually, everbearing plants will die or become less productive. In general, they should be replanted every two to three years. If planted in the spring, they will bear a fall crop.

Day-length neutral cultivars also bear throughout the growing season. They are often listed alongside everbearings in plant catalogs, but grow more vigorously and produce heavier yields. These newly bred strawberries will bear an early summer crop followed by a heavy fall crop. Some of the most successful day neutrals include 'Tristar', 'Tribute', and 'Brighton'.

Q: *I read recently that cotton can be grown as an ornamental plant in the home garden. I would like to know if I can grow it in my area and where it is available.*

L. B., Pittsburgh, Pennsylvania

A: Cotton, primarily *Gossypium hirsutum*, is usually grown only south of Zone 7a or in greenhouses. But there has been interest in growing cotton in the home garden as a novelty, or as a fun way for parents to get children interested in gardening and plants.

Cotton is easy to grow as an annual in ordinary or fertile soil with full sun. In warmer climates, seed should be sown in spring where the plants are to grow. Cotton can be grown in Northern gardens if it is started indoors about eight weeks before the last expected frost date so that it reaches full maturity by the end of the season. If started too late, it will flower but the snowy cotton balls will not develop.

Seed started indoors should be sown in a soil mix with a temperature of about 68 to 70 degrees. Germination takes a week to 12 days. Plants grow to two feet with a bushy habit and bloom during the summer with very showy, creamy two-inch flowers that develop into the seed pods that contain fluffy cotton balls in the fall. They're attractive near other annuals or perennials with similar textures, such

as cockscomb, ageratum, *Gomphrena*, baby's-breath, or sedum. Most cotton suppliers sell in bulk for the agricultural market. A cultivar called, appropriately, 'Ornamental Cotton', is available from Henry Field's Seed and Nursery Company, 415 North Burnett, Shenandoah, IA 51602, (605) 665-4491.

Q: *I've heard that there is a new plant that repels mosquitos. Does it really work?*

T. K., Napa, California

A: You're probably referring to a plant being marketed as Citrosa, which is a trademark for *Pelargonium* × *citrosum* 'Van Leenii'. Its growers say it was genetically engineered by a Dutch horticulturist, Dr. Dirk Van Leeni, by combining chromosomes from a plant they call the grass of China and a species of *Pelargonium*—a feat that some American researchers are calling "feasible but improbable."

There are anecdotal claims that the plants do work; a July article in the *New York Times* quoted many satisfied customers. However, unpublished research conducted by Dr. G. A. Surgeoner at the University of Guelph in Ontario found that the plant's impact on mosquitos was negligible. Researchers who rubbed lemon thyme on their hands were more successful in avoiding bites. Another study, also unpublished, indicates that the plant contains almost nothing in the way of the active ingredients that would repel mosquitos.

Plants that contain more of the active ingredients—sources of oils used in insect repellants and candles—are lemon balm (*Melissa officinalis*), citronella grass (*Cymbopogon nardus*), and lemongrass (*C. citratus*). The grasses, both densely tufted perennials, are tropical plants but can be grown as annuals in areas with frost. Citronella grass grows to eight feet with long narrow straplike leaves. Lemongrass reaches about six feet with a similar habit. Both flower on nodding panicles up to two feet long. The grasses should be grown in full sun in ordinary but moist soil. They benefit from a regular application of liquid fertilizer.

Perhaps members can try planting some of these plants and report their results to our Gardeners' Information Service. In the battle against summertime mosquitos, a few attractive and unusual plants may help, and can't

GIS Pamphlets

These guides are available from the Gardeners' Information Service:

♦ "Sources for Miniature and Old Garden Roses" lists names, addresses, and phone numbers of 27 suppliers that specialize in old garden roses and miniatures.

♦ "Basic Soil Preparation" is for the beginning gardener and explains how to prepare an outdoor soil bed. It covers soil testing, adjusting soil pH, loosening soil, fertilizers, and natural ways to enrich soil.

♦ "Extending Vase Life of Cut Flowers" explains easy and effective ways to extend the life of fresh cut flowers. It covers cutting, conditioning, and feeding cut flowers and contains special instructions for cut roses and tropicals.

The bulletins are available for 50 cents each. Send your request to GIS at the AHS address.

hurt. Citronella grass is available from Mellinger's Inc., 2310 West South Range Road, North Lima, OH 44452, (216) 549-9861. Lemongrass is available from Kurt Bluemel, 2740 Greene Lane, Baldwin, MD 21013, (301) 557-7229, and Logee's Greenhouses, 55 North Street, Danielson, CT 06239, (203) 774-8038. For information about Citrosa, call Green Power, Inc., at (800) 989-0100.

Q: *Can you suggest some hardy and disease-resistant dwarf fruit trees for a small suburban back yard in the Northeast? The area gets full sun and has well-drained soil.*

J. A., Milton, Massachusetts

A: Dwarf fruit trees are those that only grow to eight to 10 feet tall. Apple, peach, and pear trees are all available as dwarfs. Some relatively new apple cultivars to try would be 'Freedom', 'Liberty', 'Redfree', and 'Jonafree', all of which have been bred for disease resistance. The fruit can be eaten fresh or made into preserves or sauces. The well-known peach cultivars 'Reliance' and 'Redhaven' now come in dwarf forms. 'Reliance' is one of the most cold-hardy peach trees. Finally, there are some excellent dwarf pears such as 'Little Princess', 'Kiefer', and 'Moonglow'. These are blight resistant and recommended for the Northeast. You could also try bush plums, which grow to four to eight feet tall. Some readily available cultivars are 'Oka', 'Red Diamond', and 'Sapa'. Remember that most fruit cultivars need cross-pollination in order to produce, and will need to be planted with another cultivar. Consult your gardening catalog or nursery professional for more detailed advice on which fruit trees to plant with each other.

Q: *We just moved from the Midwest to a new housing development in the Southeast, and would like to establish a lawn as quickly as possible in late spring. What kind of grass would grow fastest and be able to withstand the hot, humid summers?*

D. R., Atlanta, Georgia

A: An improved Bermuda grass (*Cynodon* spp.) would be your best bet. It is a low-maintenance grass with a rapid establishment rate. It ranks high in tolerance of heat, drought, wear, and compacted soil, and, because it is a vigorous grower, it can choke out most weeds. Compared to common Bermuda grass, improved cultivars have a finer, softer texture, better color, fewer seed heads, and are more disease resistant.

Eliot Roberts, director of the Lawn Institute, recommends three types of newly developed, improved Bermuda grasses for the Southeast. 'Guymon', 'Sahara', and 'Cheyenne' have all been evaluated on such qualities as texture, vigor, spread, and wear. Sow two to three pounds of seed per 1,000 square feet.

Lawn care professionals say that to keep Bermudas as green and lush as cool season grasses, they need a pound of high-nitrogen fertilizer each month of the growing season, especially if they are irrigated. Environmental concerns would argue for both less irrigation and less fertilizer. A feeding every other month should be more than adequate. In cooler weather, especially

after a frost, Bermudas may turn yellow or brown. They also have a tendency to build up a thatch layer, which will need to be removed about every other year. It should not be allowed to build up more than a half inch.

Zoysia grass would be another excellent choice for a Southern lawn, but has a very slow establishment rate.

'Guymon' and 'Sahara' are available from Farmer's Marketing Corporation, 3501 Broadway, Phoenix, AZ 85041, (800) 872-4272. 'Cheyenne' seed is available from Pennington Seed Exchange, P.O. Box 290, Madison, GA 30650, (404) 342-1234.

—Maureen Heffernan
Education Coordinator



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Regional Notes

Prairie Phlox Project

In the near future, you may find some new native phlox to plop in your garden. The Dyck Arboretum of the Plains in Hesston, Kansas, and the University of Nebraska Department of Horticulture have combined efforts to evaluate the horticultural potential of three species of native prairie phlox. Alyssum-leaved phlox (*Phlox alyssifolia*), plains phlox (*P. andicola*), and Hood's phlox (*P. hoodii*) are native to the shortgrass prairie region of the western Great Plains and they all have a growth habit similar to the widely cultivated creeping phlox (*P. subulata*). The plains phlox and Hood's phlox produce only white flowers, but alyssum-leaved phlox flowers in lavender, purple, pink, near-blue, and white.

The hope is that these Great Plains species will prove hardier and more drought tolerant than creeping phlox, which originated in the milder climates of the East Coast. The wild plains species grow in an area that receives very little moisture and where temperatures fall as low as 30 below zero.

James Locklear, director of Dyck Arboretum, surveyed wild populations of the phlox in the Black Hills region of South Dakota, and in northwest Nebraska and eastern Wyoming, in

COURTESY OF DYCK ARBORETUM OF THE PLAINS



Phlox andicola.

May 1989 and May 1990. He collected individual plants with superior flower color and size from large populations where the impact of removing the plants would be negligible. These plants are now being grown in field plots at the University of Nebraska Research and Extension Center in North Platte, Nebraska, where researchers will begin propagation from cuttings this year. Since the survival rate of the wild-dug plants has been very low—around 25 percent—because of the difficulty in transplanting, they will also be propagated by tissue culture.

After successful propagation, the new specimens will be compared with

three creeping phlox cultivars in test plots in North Platte and Lincoln, Nebraska. The plants will be evaluated for flower color, size, and fragrance; number of flowers per plant; duration of flowering period; summer and winter condition of foliage; and rate of growth. The best specimens will be maintained to provide propagation material to commercial nurseries and researchers.

According to Dale Lindgren, horticulturist at the Extension Center and cooperator on the project, it will be a minimum of five years before we see prairie phlox progeny on the market. Locklear anticipates that the demand for the new phlox will be confined mostly to the Great Plains since there are so many cultivars of creeping phlox that thrive elsewhere. He hopes it will help the local plant industry become more open to regional native plants. "Nurseries and garden centers here have been a little slow in picking up on native plants," he says. "But there are a number of prairie wildflowers that are refined enough to make their way into gardens."

The prairie phlox project is funded by a research grant from the Perennial Plant Association, a nonprofit organization devoted to promoting perennials throughout the nursery industry and the gardening public.

Tower Hill Grows

Tower Hill Botanic Garden, set on 132 acres atop Tower Hill in rural Boylston, Massachusetts, was founded by the Worcester County Horticultural Society in 1986 when the society relocated to the central Massachusetts site, then an overgrown farm. Last fall, Tower Hill added a two-acre Lawn Garden with over 950 trees and shrubs representing 350 taxa. It also has a four-acre orchard with 119 pre-20th-century cultivars, a Secret Garden with summer- and fall-blooming annuals and perennials, a 40-foot arbor with vining vegetables and flowers, a vegetable garden, and a cottage garden with perennials, bulbs, ornamental grasses, and small flowering trees.

Administrative offices, a garden library with some 7,000 volumes, and a classroom are located in an 18th-century colonial-style farmhouse. Ground breaking for an Education and Visitors Center is planned for fall 1992.

COURTESY OF TOWER HILL BOTANIC GARDEN



The Tower Hill Botanic Garden's Pergola and Secret Garden were established in 1990.

Prairie Hotline

The Iowa Prairie Network recently established a hotline that has information about natural areas conferences, field days, work days, and seminars throughout the state and information on current native plant issues. Midwest and national events are included if they are applicable to Iowa's natural areas. You can reach the hotline by calling (402) 572-3080.

The Iowa Prairie Network was established in 1990. Six regional groups conduct meetings and field trips and engage in projects such as plant inventories, endangered species monitoring, and prairie remnant management. For more information or to join (annual dues are \$10) write to Joel Hanes, 5266 Lakeview Drive, Clear Lake, IA 50428.

The Kudzu of the Palouse

A member of the cucumber family is destroying the black hawthorn woodlands along the streams of the Palouse Prairie of eastern Washington and western Idaho. According to *Sage Notes*, the newsletter of the Idaho Native Plant Society, bryony (*Bryonia alba*) kills the trees and understory by climbing over the forest canopy and blocking most of the light that normally penetrates to the woodland floor. Richard Old, weed identification specialist at the University of Idaho, says the species is also found in northern and southeastern Idaho, northern Utah, and western Montana.

Besides the fact that the species is transmitted primarily by fruit-eating birds, little else is known about the biology of bryony. It was first discovered in Idaho in 1978. Bryony is native from Europe to northern Iran. Because it was offered in the seed trade in the past—the berries were used as an emetic—it is believed that it was intentionally introduced to the landscape and then escaped.

Through 1980 bryony had never been

submitted to Washington State University for weed identification. It is now one of the most commonly submitted weeds. It often pops up in home landscapes under junipers; birds that eat bryony deposit its seeds while eating juniper berries.

According to Old, bryony is destroying the last remnant of native vegetation in the Palouse Prairie—one of the most disturbed ecosystems in the region since it has been plowed under to grow wheat. Because it does not affect the wheat, there is little impetus to conduct research on bryony, and little concern for its spread.

Unlike the thorny walnut-shaped fruits of its relative the wild cucumber (*Echinocystis lobata*), the fruits of bryony are black and smooth skinned, resembling wild grapes. The plant smells foul, like rancid meat, and is wholly herbaceous. It can be controlled by digging up the thick root. Bryony is biologically very different from kudzu, most notably in dying to the ground in winter. But like kudzu, it creates masses of amorphous lumps by totally covering trees.



RICHARD OLD



RICHARD OLD

If bryony isn't dug out by its fleshy roots, it will form dense climbing vines similar to those of kudzu.

Arizona Tree Conservation

Arizona Regis-TREE, a coalition of conservation groups, gardening clubs, Native American organizations, and botanical gardens, has been formed to protect and honor heirloom fruit, nut, and other useful tree specimens growing in Arizona. Its goal is to document these resources so trees may receive additional protection, and to identify possible uses by researchers, commercial growers, and gardeners.

Anyone can nominate a useful perennial heirloom plant, defined as planted before World War II or descended from a plant established in Arizona before then. Those chosen by a selection committee are then added to the registry, which is distributed to cooperating groups, federal and state officials, and other private, tribal, and horticultural groups. It is noted in the registry if the heirlooms are accessible to the public or if cuttings are available.

Some of the plants and gardens recognized so far include:

♦ **Quitobaquito pomegranates and figs:** Fig and pomegranate trees growing at an isolated oasis on the Camino del Diablo—the “Devil’s Road” that took gold prospectors through southern Arizona to California during the Gold Rush. The remnant trees were probably established in the 1890s and have survived harsh desert conditions.

♦ **Table Mesa agaves:** Murphey’s

mescal (*Agave murpheyi*) specimens located next to rock structures used by Hohokam farmers to capture desert rainfall runoff over 500 years ago.

♦ **Gin’s jujubes:** Two specimens of *Ziziphus jujuba* near downtown Tucson. One is a rare large-fruit tree, grown from a cutting brought from China in the 1920s or ’30s.

♦ **Roskrige olive grove:** Nineteen trees in Tucson, originally from North Africa. Planted in the late 1910s, they have colorful names like ‘Egg of the Pigeon’ and ‘Tooth of the Camel’.

♦ **Turkey Creek Orchard:** Quince and apple trees planted in the 1910s at this ranch near Canelo. The apple

cultivar is ‘Hyed King’, producing large yellow fruits with red blush.

The Arizona Regis-TREE program is managed by Native Seeds/SEARCH with support from the Pew Memorial Trust. Cosponsors include the Arizona Nature Conservancy, Boyce-Thompson Arboretum, Desert Botanical Garden, Desert Survivors, Navajo Family Farms, Permaculture Drylands, Tucson Botanical Gardens, and Tucson Organic Gardening Club.

For nomination forms or more information write Arizona Regis-TREE, c/o Native Seeds/SEARCH, 2509 North Campbell Avenue, #325, Tucson, AZ 85719 or call (602) 327-9123.

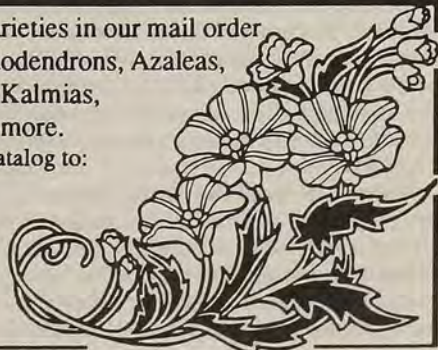
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Making a Difference

The Man Who Runs for Trees

Tim Womick has found a novel way to combine his love of the environment with his commitment to physical fitness. Last September 1 Womick began running through Virginia, stopping at elementary, junior high, and high schools along the way to talk about trees and to help students and teachers plant a few. Starting at Abingdon in southwest Virginia, Womick ran nine to 27 miles a day, finishing his trip—440 miles later—on September 26 in Washington, D.C.

At each stop in Womick's "Trail of Trees" program, he planted a descendant of the Mount Vernon red maple—one of the trees on George Washington's estate. The saplings were purchased by the American Forestry Association's Global ReLeaf program and the Virginia Urban Forest Council from Classic Tree Nursery of Jacksonville, Florida. The nursery gathers seeds from famous and historic trees across America, grows them to seedling or sapling size, and then offers the trees to individuals, schools, and groups interested in establishing a historic grove. (For more information on that program see page 6.)

At each school Womick talked to students about the environment and about the benefits of trees. He told children that a handful of citizens can change the world, and urged them to keep physically fit by eating right, exercising, and not using drugs. He gave each school a certificate that will allow every student to receive a white pine seedling—donated by the Virginia Forestry Department—this spring. Students may plant the trees wherever they choose. Womick also spent 10 days delivering trees to inner-city schools in Washington, D.C., as part of its Trees for the City program.

The Virginia run wasn't the first for Womick. He ran 570 miles through North Carolina during the fall of 1990 and 422 miles across South Carolina in the spring of 1991. He visited dozens of schools and planted or gave out over 13,000 trees.

Womick created the Trail of Trees program after a series of dramatic changes in his life. In the '70s he was a country club manager with what he calls an indulgent lifestyle. "I made a lot of money and spent a lot of money,"



SANDY BARNES / COURTESY OF THE MOUNT VERNON GAZETTE

Tim Womick received a handful of tulip poplar seed pods from Chelsea White during his Trail of Trees run in Virginia.

he says. "I was an alcoholic and cocaine addict." When a favorite uncle died of lung cancer, Womick threw away his cigarettes and bought a pair of running shoes. Then, after an Earth Day pilgrimage to the Joyce Kilmer National Forest in 1990, and listening to an audio tape of "The Man Who Planted Trees," he had the idea for the Trail of Trees.

Now Womick lives "a spartan life" in Cashiers, North Carolina. In between

runs he works at a Cashiers restaurant where he does a little bit of everything—from cooking and waiting tables to washing dishes.

He will continue running through the states, promoting trees and physical fitness. At press time he was beginning a 45-day, 700-mile trek through Florida where he planned to meet with 40,000 children in schools and juvenile detention centers. A Colorado run is planned for May and June and one to New York and possibly part of Canada is tentatively scheduled for September and October. In parts of Florida he will plant descendants of a slash pine grown by Jimmy Carter. During his 1992 runs Womick also will plant descendants of a white oak from a stand where Abraham Lincoln announced his presidential candidacy and a weeping willow that was given to Andrew Johnson by explorer William Lynch. The weeping willow slip was cut from a tree on Napoleon's grave.

Womick hopes to organize a run across the country in 1993. That would begin on the West Coast, finish in Washington, D.C., and involve other runners.

If you'd like to make a contribution to Tim Womick's Trail of Trees program, or if you're interested in having him visit your state, write Trail of Trees, P.O. Box 553, Cashiers, NC 28717.

March for Parks

The National Parks and Conservation Association (NPCA) will hold its third March for Parks from May 1 to 3. The community-based walkathon raises money for local, state, regional, and national parks. Over 500 marches will take place throughout every state and Guam.

Each local march is unique, designed to raise money for a park project in the community where the march takes place. Participants solicit pledges from friends, family, and local businesses, who agree to pay the pledged amount at the completion of the march.

Marches vary in size—from one person who walked 20 miles and raised more than \$1,000 to a group of 4,000—and benefit a variety of projects. In Baltimore, march funds were used to rebuild the walls of Fort McHenry, where Francis Scott Key wrote "The Star-Spangled Banner." Other funds have been used to create and improve hiking trails and to plant trees.

NPCA was founded in 1919 and is the only private nonprofit citizen organization dedicated to the protection and preservation of our national parks. To organize or participate in a March for Parks in your community, call NPCA at (800) NAT-PARK.

'Connecting With the Planet' in Florida

Last May, a Florida teacher asked Anne Kilmer how to plant a butterfly garden for her kindergarten class, and Project Butterfly Garden took off.

Kilmer, who writes a garden column for the *Palm Beach Post*, brought the teacher's request to the attention of the Pine Jog Environmental Education Center—a privately funded nature and education center for Palm Beach County schoolchildren that is part of Florida Atlantic University's College of Education. Susan Toth-King, Pine Jog's service project coordinator, was enthusiastic about a school butterfly project, so in her next garden column Kilmer asked that schools interested in planting butterfly gardens contact Pine Jog. She also put out a call for garden volunteers to teach butterfly gardening. Then she left for a planned trip to Ireland.

When Kilmer returned two months later, Pine Jog had a list of 52 schools where teachers were impatient to plant butterfly gardens and 100 or so would-be helpers. Kilmer and the Pine Jog staff began teaching the volunteers how to make butterflies happy in their own yards, then sent them out to teach the schoolchildren how to keep the winged creatures happy in the school yard.

Kilmer and volunteer Diane Schauer match schools with expert gardeners and find nurseries to donate plants. To entice schools to join the project, a volunteer will come to the school to talk about butterfly gardening. The lecture is enlivened by a visual aid—a flowering passionflower filled with hungry caterpillars. Students keep the plant and are able to watch the caterpillars form cocoons, then see the butterflies emerge and fly free.

Master Gardeners and members of the Rotary Club, Audubon and Sierra Clubs, garden clubs, Boy and Girl Scouts, nursery owners, and hundreds of home gardeners are involved in Project Butterfly Garden. Volunteers grow plants and help plant gardens at the schools. They also work with the children to label plants, identify butterflies, and spot interesting events.

Wildflower meadows are planted instead of lawns at the schools involved with the project. Native trees surround the meadows and small ponds provide a habitat for white peacock butterflies. Chain link fences are hung with *Aristolochia* and passionflower, and visited by gulf fritillaries, zebra butterflies, and swallowtails. Gardens are filled with blossoming milkweeds for the monarch butterfly and its cousins, the queen and soldier butterflies.



A Project Butterfly Garden participant gets a close-up view of a woolly bear caterpillar.

Kilmer says, "The best part of Project Butterfly Garden is that it gets kids outdoors where they belong, on their knees in the dirt, hanging out with bugs and beetles, and connecting with the planet. And community butterfly sanctuaries provide safe, flower-filled havens where wasps, earthworms, moths, spiders, crickets, and other little fellows can carry on comfortable lives." Children also take plants, cuttings, seeds, and expertise home to their parents and neighbors.

The presence of butterflies indicates that an area is ecologically sound, Kilmer says. Better still, a project that promises butterflies can entice a gardener to put away the spray can and learn to live with caterpillars.

"People think plants are supposed to look fresh and new, as if they just came from the store," Kilmer says. "They think chewed leaves are ugly." Fortunately, the eyes of children see things differently.

Kilmer tells of a muddy-kneed, muddy-fingered child who said with an engaging smile, "I've named our porter weed 'Cutie Pie.' How long do you think it'll be before the butterflies find her?"

"Fifth graders take their gardening seriously," says Kilmer. "They're lavish with water and rich earth. Their planting holes are generous and nicely upholstered with mulch. It shouldn't be long before the appreciative butterflies come to visit."

Students in the project are starting a pen pal link with schools from Canada to Mexico so they can follow the monarchs northward in the spring and southward as they migrate back in the fall. They'll also write and report to each other about their butterfly gardening successes and adventures.

Project Butterfly Garden's goal is to plant and maintain butterfly gardens—using mainly native plants and purely organic methods—at schools and nursing homes and in churchyards all over the world. Two local towns, Lake Park and Royal Palm Beach, have joined the effort and planted demonstration butterfly gardens around their city halls.

If you'd like to start a Project Butterfly Garden in your area, Pine Jog will provide a packet that includes a book written by Kilmer listing gardening tips and butterfly-attracting plants for south Florida. The lists can be rewritten with the help of local experts to fit any region; the rest of the book can be reprinted as is. Also in the packet are sample letters to inform schools, nurseries, and local clubs about the project. To receive a packet, send \$5 for postage and handling to Pine Jog Environmental Education Center, 6301 Summit Boulevard, West Palm Beach, FL 33406. Send \$2.50 to T. A. Wyner, 14125 North Road, Loxahatchee, FL 33470 to register for the butterfly pen pal project.

AHS Bulletin Board

Dates Set for AHS/AmeriFlora Lectures

America's top gardeners will educate and entertain audiences during the Great Gardeners of America Lecture Series to be held at AmeriFlora '92 in Columbus, Ohio, beginning in April. The American Horticultural Society planned the series, which is sponsored by the First Community Bank of Ohio.

Dr. H. Marc Cathey, national chair of the U.S. Department of Agriculture's florist nursery crops review and an AHS Board Member, will open the series on April 25. Each Saturday for the following 24 weeks, one of the nation's leading gardeners will present the latest on topics such as plant breeding, landscape design, plant exploration, native plants, or pest control. "These are some of the best gardeners in the country," says Cathey.

Cathey, former director of the U.S. National Arboretum, is coordinating the lecture series with Dr. Sherran Blair, an AHS Board Member and president of the First Community Bank of Ohio.

The schedule for the Great Gardeners of America Lecture Series is:

April

♦ **April 25.** "American Gardens in Jeopardy: Opportunities for Optimism" by H. Marc Cathey.

May

♦ **May 2.** "The Luxuriance of Peony, Hosta, and Daylily Gardening" by Roy Klehm, owner of Klehm Nursery in South Barrington, Illinois, specialists in peonies and perennials.

♦ **May 9.** "Gardening: The Great American Dream" by Carolyn Marsh Lindsay, former AHS President, from Rochester, New York.

♦ **May 16.** "Gardening in All Five Senses" by Allen Lacy, author of *Home Ground: A Gardener's Miscellany* and *The Garden in Autumn* and a garden columnist for the *New York Times*.

♦ **May 23.** "Gardening for the Design of It" by Sally Boasberg, a Washington, D.C., landscape designer and an AHS Board Member.

♦ **May 30.** "Flower Arranging for Floral Artists" by Pauline Runkle, a floral artist from Manchester-by-the-Sea, Massachusetts.

June

♦ **June 6.** "What Catalogs Can Bring to Our American Gardens" by Steven A. Frowine, horticultural research and information director at White Flower Farm, Litchfield, Connecticut.

♦ **June 13.** "Improving Your Garden With Herbs" by Holly Shimizu, horticulturist and director of information for the U.S. Botanic Garden in Washington, D.C.

♦ **June 20.** "The Gardens of Wave Hill" by Marco Polo Stufano, horticultural director of Wave Hill in Bronx, New York.

♦ **June 27.** "Oasis for City Dwellers: The Public Gardens of New York City" by Lynden B. Miller, a landscape designer with M & M Associates Garden Design in New York City.

July

♦ **July 4.** "A New Era in Gardening—The Old and the New" by Andre Viette, president of the Perennial Plant Association, an AHS Board Member, and owner of Andre Viette Farm and Nursery, and Jacqueline Heriteau, author of *The AHS Flower Finder* and *The National Arboretum Book of Outstanding Garden Plants*.

♦ **July 11.** "Gardening in Small Spaces and Containers" by Linda Yang, author of *The City Gardener's Handbook* and a garden columnist for the *New York Times*.

♦ **July 18.** "Wild Kingdoms of the City" by James Van Sweden, a landscape designer from Washington, D.C.

♦ **July 25.** "New and Better Urban Trees" by William Flemer III, president of Princeton Nurseries in New Jersey.

August

♦ **August 1.** "American Plants for American Gardeners" by John Elsley, horticulturist with Wayside Gardens in Hodges, South Carolina.

♦ **August 8.** "The Agony and Ecstasy of Specializing in a Holly Plant" by Jim Wilson, a host of the PBS series, "The Victory Garden," and author of *Masters of the Victory Garden*.

♦ **August 15.** "New Variations of Old Landscape Plants" by J. C. Raulston,

director of the North Carolina State University Arboretum in Raleigh, North Carolina.

♦ **August 22.** "Native Wildflowers: Habitat Gardening for the Future" by David K. Northington, executive director of the National Wildflower Research Center in Austin, Texas.

♦ **August 29.** "Bulbs as Companion Plants" by Brent Heath, owner of the Daffodil Mart, a nursery specializing in daffodils in Gloucester, Virginia.

September

♦ **September 5.** "The Revolution of the Vegetable Garden" by Rosalind Creasy, author of *The Edible Landscape* and *Cooking From the Garden*.

♦ **September 12.** "Gardening in the Shade: Problems and Potentials" by Allen Paterson, director of the Royal Botanic Garden in Hamilton, Ontario.

♦ **September 19.** "Hours of Pleasure From Minutes of Gardening" by Elvin McDonald, AHS Secretary, lecturer, and author of *Northeast Gardening* and a syndicated column on house plants.

♦ **September 26.** "Floral Flights" by Barry Ferguson, a floral artist from Oyster Bay, New York.

October

♦ **October 3.** "Daffodils and Other Bulbs in the Landscape" by Ruth Pardue, a narcissus authority from Columbus, Ohio.

♦ **October 10.** "Gardening as if the World Depended on It" by Roger Swain, a host of the PBS series, "The Victory Garden," and science editor of *Horticulture* magazine.

Lectures will be held at 2 p.m. Saturdays at the newly renovated and expanded Franklin Park Conservatory. AmeriFlora '92 is the official Quincentenary Celebration of Christopher Columbus's initial voyage to the New World. AmeriFlora '92 will open on April 20 and continue through October 12 in Franklin Park in Columbus, Ohio.

The Great Gardeners of America lecture series is free to the public. For more information write or call Sherran Blair, First Community Bank of Ohio, 4300 East Broad Street, P.O. Box 717, Columbus, OH 43216, (614) 239-4680.

May Talks to Explore Gardening and the Arts

Throughout May, when the American Horticultural Society's headquarters will serve as the Alexandria Decorator Showhouse, AHS will present a series of lectures on horticultural motifs in the decorative arts and horticultural interior design. The four lectures will be at Collingwood Library and Museum, 8301 East Boulevard Drive, one-fourth mile south of AHS's River Farm. The final event of the series will be a fund-raising lecture and wine-tasting at River Farm.

"Creative Interior Plantscaping for the Home," May 9, 1 to 2 p.m.

Cindy Cotton will present creative alternative house plant designs to enliven home interiors. Cotton is the owner of Cityscapes Plant Company, an interior plantscaping design company in Alexandria, and has worked as a design consultant and grower for area nurseries. Design ideas, plant suggestions for every room, plant care, and disease and pest control will be discussed and demonstrated using slides and live plants. Come with your home design problems for a question and answer period after the talk.

"The Garden as Inspiration in Decorative Arts: Horticultural Motifs in Textiles From America and Around the World," May 11, 11 a.m. to noon.

Flowers have been used throughout recorded history to decorate household items, garments, leatherwork, and ceremonial vestments and objects. Through illustrated slides and examples from her personal textile collection, Dixie Rettig will discuss the symbolism and evolution of flowers in quilts and other textiles. Rettig is a teacher, lecturer, textile historian, and creator of commissioned fiber arts.

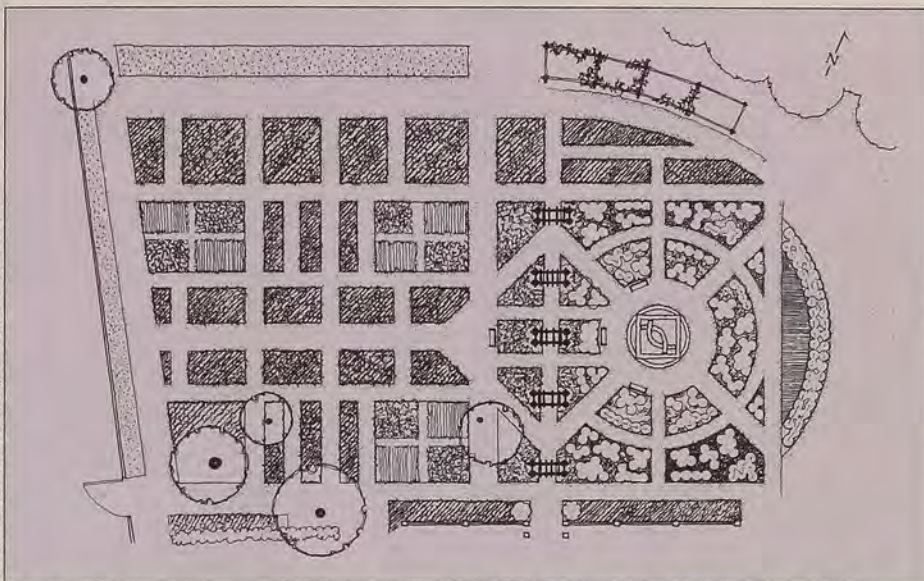
"How to Grow Orchids in Your Home," May 15, 11 a.m. to noon.

Ted Villaponda has worked as a gardener and orchid specialist for 14 years for the Smithsonian Institution's renowned orchid collection. He studied horticulture at the University of the Philippines and has grown and propagated orchids at the Rod McClellan Company's Acres of Orchids in San Francisco, and at Kensington Orchids. Villaponda also will present advice on how to solve orchid problems.

"Bringing the Outdoors In: A Visual History of Botanical Prints From the 17th and 18th Centuries," May 20, 11 a.m. to noon.

Botanical prints were used by Old World botanists to document new and unusual plants found in the New World; now they have found a new use as

COURTESY OF LILA FENDRICK, LANDSCAPE ARCHITECTS



After each Decorator Showhouse lecture, attendees will be invited on a tour of AHS gardens. River Farm's new rose garden features large rose beds radiating around a central knot garden, a design inspired by historic rose garden plans. The new layout will make roses easier to view and features a display of superior varieties of eight rose classes.

interior decoration. Ginny Sites, an assistant curator from the Colonial Williamsburg Foundation, will illustrate the golden age of botanical prints in a slide show with exceptionally beautiful examples of prints from Colonial Williamsburg's collection.

"An Afternoon With the Wines of Virginia at River Farm," May 23, 3 to 5:30 p.m.

During this special fundraising benefit at River Farm, Gordon Murchie will introduce participants to the fine Vinifera wines of Virginia. Murchie, president of the Vinifera Wine Growers Association, will discuss the history and variety of Virginia wineries. A wine tasting following the lecture will include the most outstanding and characteristic white, red, and blush wines and champagnes described in the talk. Murchie will demonstrate how to taste and judge the various wines. Proceeds will fund AHS Intern and Education programs.

Each lecture concludes with a private tour of the River Farm gardens highlighting the seven new gardens designed especially for the showhouse. Attendees are welcome to arrive before the lectures, or to stay after the garden tour, to view the showhouse rooms.

The registration fee for each lecture is \$10 and includes a coupon worth \$2 off the regular \$12 admission to the decorator's showhouse; "An Afternoon With Virginia Wines" is \$15 per person. Cost for all five lectures is \$50. Fees should be paid in advance. To register,

send the coupon below to Maureen Heffernan, AHS Lecture Program, 7931 East Boulevard Drive, Alexandria, VA 22308-1300 or call (703) 768-5700. Please register early as space is limited. Directions to Collingwood will be mailed on receipt of registration forms.

I would like to register for the following lecture(s):

- ☐ Plantscaping (May 9) \$10
- ☐ Textiles (May 11) \$10
- ☐ Orchids (May 15) \$10
- ☐ Botanical Prints (May 20) . . . \$10
- ☐ Virginia Wines (May 23) \$15
- ☐ Complete series (5 lectures) . . \$50

Enclosed is my check for \$ _____

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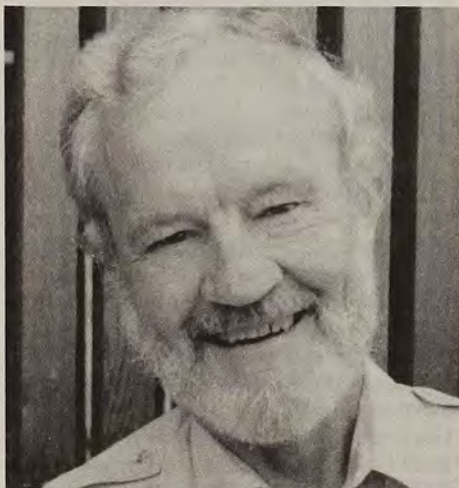
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Spend time with some great gardeners.



English writer **Rosemary Verey** notes the influence of great gardeners on British and American gardens for her keynote address.



"Victory Garden" co-host **Jim Wilson** leads the first day's program with introduction to several masters of the specialty garden.



Garden expert **Rosalind Creasy** looks at the future on the second day with her presentation about children in the garden.

Colonial Williamsburg and the American Horticultural Society present the 46th

Williamsburg Garden Symposium



April 5-8, 1992

*Every great garden is created
by a great gardener.*

Great gardeners are the subject and the leaders of this year's symposium in Williamsburg, Va. A faculty of garden experts, presentations by visiting gardeners, demonstrations and master classes fill the program.

Garden Symposium registration includes six days of access to Colonial Williamsburg's exhibition buildings, craft shops, museums, and gardens; two receptions and a dinner; and a full schedule of tours, talks, demonstrations, clinics, and conversations.

Learn from garden masters. Harvest ideas to take your garden to greatness.

For full registration information, please mail the coupon to Garden Symposium, P.O. Box 1776, Williamsburg, VA, 23187-1776, or call (804) 220-7255.

Please send information on the Garden Symposium.

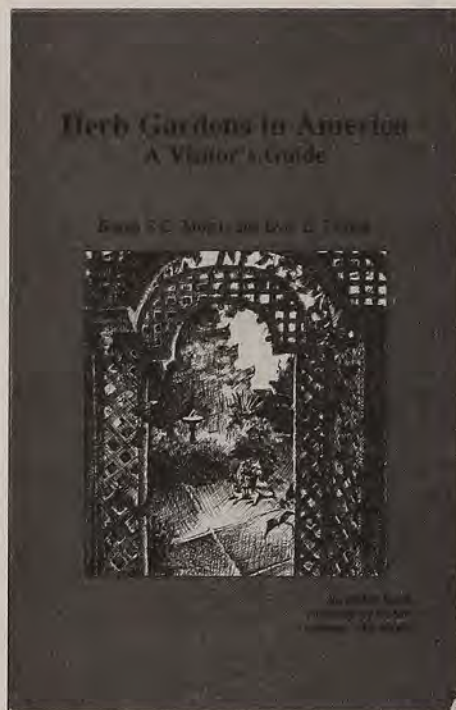
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Gardeners' Bookshelf



Herb Gardens in America—A Visitor's Guide

Karen S. C. Morris and Lyle E. Craker. HSMP Press, Amherst, Massachusetts, 1991. 191 pages. 5½" × 8½". Black-and-white line drawings. Publisher's price, softcover: \$9.95. AHS member price: \$8.50.

Garden guides—for that matter, gardening books—rarely break new ground. Perhaps a dozen new gardens are included and garden descriptions are updated, but there's not much new in the world of public gardens, right? That's what I thought before I opened this book.

Karen Morris and Lyle Craker have produced a most useful and comprehensive guide to American herb gardens, crammed full of scores of little-known gardens. Over 200 gardens are listed, including herb gardens at botanical gardens, arboreta, and nature centers, herb gardens at historic sites and museums, nursery herb gardens, herb farms, hospital and university medicinal plant gardens, and even a couple of restaurant gardens and one home garden open to the public.

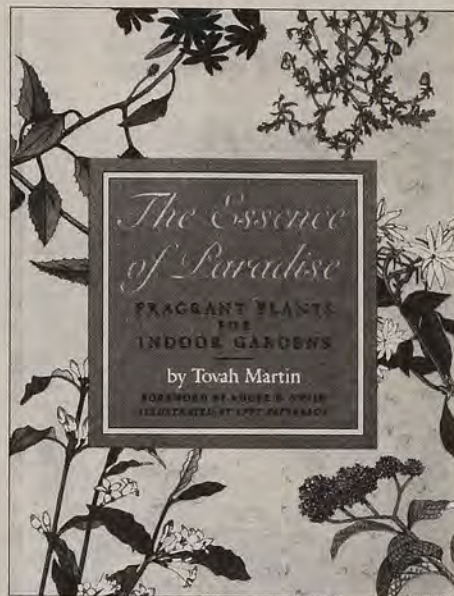
The book design is sensible and easy to use. Main entries take up a page and include garden descriptions and information on hours, admission, facilities, and services. Secondary entries on less notable herb gardens

have only abbreviated information. Especially useful are the listings of the best time to visit, the age of the garden, and the extent of plant labeling. There is nothing more frustrating than visiting a garden that sounds so exciting on paper and learning that it has just been established, that nothing is identified, and that the peak bloom is months away.

What this book makes clear is that some of the most innovative gardening occurring in America today falls under the rubric of herb gardening. Although home herb gardens all too often conform to a conservative design with classic European herbs, public herb gardening is often considerably more daring in form and plant selection. Witness the Wild Walk at Good Thyme Gardens, which includes native plants used by Native Americans (Grass Valley, California), the Pest Repellent Garden at Rhetland Herbarium (Valley Springs, California), the hop arbor at Nichols Garden Nursery (Albany, Oregon), the Thistle Garden at Herb Hollow (East Otto, New York), the Succulent Herb Garden at Herbfarm (Fall City, Washington), and the Mexican Culinary Herb Garden at the Tucson Botanical Garden.

Herb Gardens in America has the feel of a homemade production with its computer graphics, hasty sketches, and typeface inconsistency. If you're looking for a beautiful book you'll be disappointed. But if you're more concerned with content than design, this book is first-rate. It will lead you to many an undiscovered herb garden.

—Thomas M. Barrett, Assistant Editor



The Essence of Paradise

Tovah Martin. Little, Brown and Company, Boston, 1991. 218 pages. 7¼" × 9¼". Color and black-and-white illustrations. Publisher's price, hardcover: \$24.95. AHS member price: \$21.20.

Readers who enjoyed Tovah Martin's "A Little Night Music" in the August issue of *American Horticulturist* should put *The Essence of Paradise* on their must-read list. The August article was excerpted from this book, subtitled "Fragrant Plants for Indoor Gardens."

Martin's snappy writing and humor make this a book to read just for pleasure, but her first-hand knowledge of indoor plants—she is a horticulturist with Logee's Greenhouses, has written a book, *Once Upon a Windowsill*, and penned gardening articles for the *New York Times*, *American Horticulturist*, *Horticulture*, and *Fine Gardening*—makes it a valuable guide to growing fragrant plants indoors.

Using a month-by-month format, Martin writes about the histories, characteristics, and culture of dozens of aromatic species and their cultivars. January brings the scent of citrus, stevia (*Piqueria trinervia*), and winter lilac to our noses. Other months offer such olfactory delights as yesterday-today-and-tomorrow, Brazilian heart vine (*Begonia solanathera*), heliotrope, daphne, cattleya, and peace lily (*Spathiphyllum* spp.). August is devoted to not-so-fragrant plants—

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when these "malodorous blossoms begin to simmer, they create a big stink," Martin writes. Among the disagreeable plants are *Senecio articulatus*, whose handsome leaves are accompanied by blossoms that smell like "stinky cheese" and *Stapelia gigantea*, whose horror-show blooms emit "a stench similar to putrefying fish."

Although many of the plants Martin describes are more suited for greenhouse cultivation than windowsill gardens, there are plenty of plants for those of us not blessed with a glasshouse. I'm hoping to try *Stephanotis floribunda*, which Martin says smells like cherry cobbler, and *Pittosporum tobira* that has laurel-like leaves and emits the "essence of Easter lilies with a hint of baby powder and perhaps a touch of lemon."

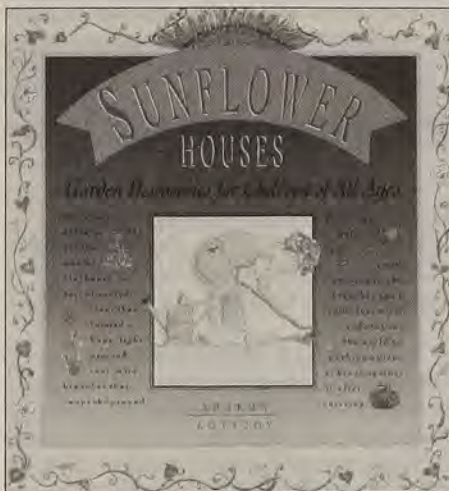
The Essence of Paradise includes a forward by Roger B. Swain and graceful illustrations by Ippy Patterson.

—Mary Beth Wiesner, Assistant Editor

Sunflower Houses

Sharon Lovejoy. Interweave Press, Loveland, Colorado, 1991. 144 pages. 8¾" × 9¼". Color illustrations. Publisher's price, hardcover: \$19.95. AHS member price: \$17.00.

In my grandmother's back yard was a small flower garden filled with bachelor's-buttons, zinnias, marigolds, and snapdragons. When we were five and four, my cousin Marianne and I spent countless summer days in that yard, picking the blossoms off the snapdragons for snapdragon "wars." Grandma was never too happy at finding her plants stripped of their flowers, although she never seemed to mind when we picked dandelions in an effort to determine our preferences for butter.



Those with similar memories of playing in the garden will thoroughly enjoy Sharon Lovejoy's *Sunflower Houses*, subtitled "Garden Discoveries for Children of All Ages." It's a book for the young-at-heart as well as a book for parents and grandparents to share with children.

Lovejoy started Heart's Ease, a community herb garden in Cambria, California. She is also a naturalist at the Morro Bay Museum of Natural History and has been a naturalist for a Smithsonian program in Baja, California. During her gardening classes she asked participants about their early experiences with flowers. Later she placed ads in magazines asking people to share their early gardening memories. Those remembrances were the beginning of this book. "I received many responses to the ads," Lovejoy writes in her introduction. "I began interviewing people and collecting historical materials, garden plans, poetry, riddles, garden lore, and flower

crafts. A true gleaning from hundreds of childhood memories!"

Sunflower Houses is filled with reminiscences of making May Day baskets, writing secret messages with "invisible ink" made of lemon juice, and making leaf hats. But it is also a book of gardening activities to share with children. It includes the basics of garden making with descriptions of plants that children like and that are easy to grow, ideas for different types of gardens, gardening word puzzles, riddles, and directions for making flower dolls, walnut boats, acorn "tops," and clover chains. There's even a section for learning to tell fortunes with dandelions. Scattered throughout the pages are garden sayings and flower poems.

The book is beautifully written and illustrated—with Lovejoy's delicate watercolors—and I will treasure it for a long time. She writes in the introduction, "An author's note in an old book I found in Castine, Maine, a few years ago sums it up for me. 'I can never repay the hollyhock the debt of gratitude I owe for the happy hours it furnished to me in my childhood.'" So it is with Marianne and me and the snapdragons.

—M. B. W.

Common and Poisonous Plants and Mushrooms of North America

Nancy J. Turner and Adam F. Szczawinski. Timber Press, Portland, Oregon, 1991. 311 pages. 6¼" × 9¼". Color photographs and black-and-white line drawings. Publisher's price: hardcover, \$55. AHS member price: \$47.

Here is a complete guide to the most common poisonous plants of North America, including plants found in the home, in gardens and urban areas, and in the wild, and household plant products (such as nutmeg and rosary peas). The authors give each plant a full botanical description in lay terms and describe habitat,

toxicity, and poisoning treatment. They also add interesting notes on the plants' folk uses and lore. Color photographs illustrate each entry.

An equally useful part of this book are the six appendices listing various types of harmful plants, including plants that yield poisonous honey and poisonous milk, medicinal herbs of questionable safety, and common edibles with potentially harmful toxins. As the authors warn, "Poisonous plants are everywhere." The key is to learn about them, and this book provides an authoritative and fascinating introduction.

—T. M. B.

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Gardeners' Dateline

Mid-Atlantic

♦ **Mar. 4-8. Washington Flower and Garden Show.** Washington Convention Center, 900 Ninth Street N.W., Washington, D.C. Information: TJS Productions, 7668B Fullerton Road, Springfield, VA 22153, (703) 569-7141.

♦ **Mar. 7. Sixth Lahr Fellowship Symposium.** "Native Plants at the Heart of the Garden." U.S. National Arboretum, 3501 New York Avenue N.E., Washington, D.C. Information: (202) 475-4857.

♦ **Mar. 14-15. Gala Herb Weekend.**
Apr. 4-5. Water Lily Weekend. Davidsonville, Maryland. Information: Bittersweet Hill Nurseries, Route 424 and Governor's Bridge Road, Davidsonville, MD 21035, (410) 798-0231.

♦ **Mar. 27-30. National Pesticide Forum.** "Hitting Close to Home: Pesticides and Local Rights." Alexandria, Virginia. Information: National Coalition Against the Misuse of Pesticides, 701 E Street S.E., Suite 200, Washington, DC 20003, (202) 543-5450.

♦ **Apr. 5-8. The 46th Williamsburg Garden Symposium.** Williamsburg, Virginia. Information: Garden Symposium Registrar, Colonial Williamsburg Foundation, P.O. Box 1776, Williamsburg, VA 23187-1776, (804) 220-7255.

♦ **Apr. 11, 12, 25, 26, May 2, 3, 9, 16. Maryland House and Garden Pilgrimage.** Spring Tours. Throughout Maryland. Information: Maryland House and Garden Pilgrimage, 1105-A Providence Road, Towson, MD 21204, (410) 821-6933.

♦ **Apr. 24-26. People-Plant Symposium.** Paramus, New Jersey. Sponsored by Rutgers University Cooperative Extension and People-Plant Council. Information: (201) 599-6162.

♦ **Apr. 25. Herbs Galore.** Sales, seminars, walks, and workshops. Maymont, Richmond, Virginia. Information: Maymont Foundation, 1700 Hampton Street, Richmond, VA 23220, (804) 358-7166.

♦ **May 2-3. Garden Tour and Art Mart.** Waterford, Virginia. Information: Waterford Foundation, Waterford, VA 22190, (703) 882-3018.

♦ **May 8-9. Discovering the British Garden.** Symposium. Washington, D.C. Hosted by the American Institute of Architects. Information: Melissa Houghton, (202) 638-3221.

♦ **May 14-16. First Annual Charles F. Gillette Forum.** Discussions by world renowned landscape architects and horticulturists and tours in the Richmond and Charlottesville areas. Information: Gillette Forum, Lewis Ginter Botanical Garden, P.O. Box 28246, Richmond, VA 23228.

North Central

♦ **Mar. 14-Apr. 19. Spring Bulb Show.** "Springtime Magic." Foellinger-Freimann Botanical Conservatory, Fort Wayne, Indiana. Information: Foellinger-Freimann Botanical Conservatory, 1100 South Calhoun Street, Fort Wayne, IN 46802, (219) 427-1267.

♦ **Apr. 2-5. Ann Arbor Flower and Garden Show.** Washtenaw Farm Council Grounds, Saline, Michigan. Information: Judith Corkran Katch or Karen Fine, Matthaei Botanical Gardens, 1800 North Dixboro Road, Ann Arbor, MI 48105, (313) 998-7061.

♦ **Apr. 3-Oct. 12. AmeriFlora '92.** Columbus, Ohio. Information: AmeriFlora '92, 1995 East Broad Street, Columbus, OH 43209-1679, (614) 645-1992, Fax (614) 645-1900.

♦ **Apr. 6-9. Third Global Warming Science and Policy International Conference.** Westin Hotel O'Hare, Chicago, Illinois. Information: Dr. Sinyan Shen, Natural Resource Management Division, SUPCON International, One Heritage Plaza, Woodridge, IL 60517-0275, (708) 910-1551 or (419) 372-8207, Fax (708) 910-1561.

♦ **Apr. 23-25. American Daffodil Society Annual Meeting and National Show.** Hyatt on Capitol Square, Columbus, Ohio. Information: Mrs. James Liggett, 4126 Winfield Road, Columbus, OH 43220, (614) 451-4747.

♦ **Apr. 23-26. Second Annual St. Louis Flower Show.** "The Secret Garden." Queeny County Park, St. Louis, Missouri. Information: St. Louis Flower Show, Junior League of St. Louis, 10405 Clayton Road, St. Louis, MO 63131, (314) 997-3407.

Northeast

♦ **Mar. 7. Bartlett Arboretum Symposium.** "Shrubs, Perennials and Ground Covers: Harmony in the Garden." Stamford, Connecticut. Information: Bartlett Arboretum, 151 Brookdale Road, Stamford, CT 06903, Attn: Symposium Coordinator, (203) 322-6971.

♦ **Mar. 8-15. Philadelphia Flower Show.** "Horizons for Discovery." Philadelphia Civic Center, Philadelphia, Pennsylvania. Information: Pennsylvania Horticultural Society, 325 Walnut Street, Philadelphia, PA 19106-2777.

♦ **Mar. 13-15. Fifth Annual Capital District Garden and Flower Show.** Knickerbocker Arena, Albany, New York. To benefit Wildwood Programs for the Association of Learning Disabilities of the Capital Region. Information: (518) 356-6410, Ext. 418.

♦ **Mar. 14. Long Island Horticultural Society's 21st Annual Symposium.** "The ABC's of Vegetable and Herb Growing." Planting Fields Arboretum, Oyster Bay, New York. Information: (516) 826-1267.

♦ **Mar. 14-22. New England Spring Flower Show.** "Rediscover the Americas." Bayside Exposition Center, Boston, Massachusetts. Information: (617) 536-9280.

♦ **Mar. 14-22. New York Flower Show.** "Discovery '92." Pier 92, 55th Street, New York City. Information: New York Flower Show, 128 West 58th Street, New York, NY 10019, (212) 757-0915, Fax (212) 246-1207.

♦ **Mar. 21. New England Plant Conservation Symposium.** "A Scientific Basis for Effective Action." Bentley College, Waltham, Massachusetts. Information: Frances Clark, Conservation Program Officer, New England Wild Flower Society, Garden in the Woods, 180 Hemenway Road, Framingham, MA 01701-2699, (617) 237-4924 or (508) 877-7630.

♦ **Apr. 22. Royal Oak Foundation Lecture.** "English Garden Style." New York, New York. Information: Royal Oak Foundation, 285 West Broadway, Suite 400, New York, NY 10013, (212) 966-6565, Fax (212) 966-6619.

♦ **Apr. 23. European Influence on American Garden Design.**

Symposium. Haverford College, Haverford, Pennsylvania. Sponsored by the Arboretum of the Barnes Foundation. Information: Haverford College Arboretum Office, (215) 896-1101.

Northwest

♦ **Mar. 25. Botanical Bounty Hunters.** Lectures by Sarah Gage and Gwen Bell. Washington Park Arboretum, Seattle, Washington. Information: Dave Stockdale, (206) 685-8033 for this and other lectures.

♦ **Apr. 10-12. Primula Worldwide International Symposium.** Portland, Oregon. Presented by the American Primrose Society, the Royal Horticultural Society, and the Berry Botanic Garden. Information: Ann Lunn, Registrar, 6620 N.W. 271st Avenue, Hillsboro, OR 97124, (503) 640-4582.

♦ **Apr. 11-12. Premier Northwest Plant Sale.** Portland, Oregon. Sponsored by the Hardy Plant Society of Oregon. Information: Jack Stryker, (503) 359-4156.



COURTESY OF THE NETHERLANDS BOARD OF TOURISM

The Olympics and the quincennial celebration of Columbus's voyage of discovery aren't the only globally important events slated for 1992. The Netherlands will host Floriade, a World Horticultural Exhibition held once every ten years. The exhibition will boast nearly 200 acres of blooms, 13 international exhibits, and seven theme pavilions. Located near the Hague, the grounds are modeled on the gardens of Versailles and Hampton Court. Floriade runs seven days a week for six months, from April 10 to October 11. It is a major destination of an AHS study tour of Holland (April 19 to May 3). For the AHS study tour, call (800) 448-2685. For general information, contact the Netherlands Board of Tourism, 355 Lexington Avenue, New York, NY 10017, (212) 370-7360.

South Central

♦ **Mar. 12-15. The 25th Annual Lawn, Flower, and Garden Show of Wichita, Kansas.** "The World is Your Garden." Century II, Wichita, Kansas. Information: (316) 721-8740.

♦ **Mar. 27-28. Second Annual Longue Vue Garden Symposium.** "City Gardens." New Orleans, Louisiana. Information: (504) 488-5488.

♦ **Apr. 10-12. Third Annual Festival des Fleurs de Louisiane.** Opelousas, Louisiana. Sponsored by the Louisiana Society for Horticultural Research and the University of Southwestern Louisiana. Information: Festival des Fleurs de Louisiane, Route 7, Box. 43, Opelousas, LA 70570.

♦ **May 1-3. Oleander Festival.** Galveston, Texas. Information: International Oleander Society, P.O. Box 3431, Galveston, TX 77552-0431.

Southeast

♦ **Mar. 4-8. Atlanta Flower Show.** "Sweet Land of Liberty: Presidential Pathways." Atlanta Apparel Mart/INFORUM, Atlanta, Georgia. Information: Carole Carley, (404) 220-2115.

♦ **Mar. 21. Gardens Conference.** Cheekwood Botanical Gardens, Nashville, Tennessee. Information: Cheekwood Botanical Gardens, 1200 Forrest Park Drive, Nashville, TN 37205, or call Jacqueline Broughton, (615) 353-2146.

♦ **Mar. 27-Apr. 26. The 45th Annual Festival of Houses and Gardens.** Charleston, South Carolina. Sponsored by the Historic Charleston Foundation. Information: Festival of Houses, P.O. Box 1120, Charleston, SC 29402.

♦ **Apr. 4, 11. The 57th Annual Spring Homes and Garden Tours.** Charleston, South Carolina. Sponsored by the Garden Club of Charleston. Information: Mrs. Charles T. Brown, 112 Waterfront Plantation Drive, Charleston, SC 29412, (803) 795-1865.

♦ **Apr. 10-12. The 37th Annual Spring Orchid Show.** "Orchid Safari." Winter Park Mall, Winter Park, Florida. Sponsored by the Central Florida Orchid Society. Information: (408) 876-2625.

Southwest

♦ **Apr. 18-19. American Orchid Society Show.** "Orchid Enchantment."

Albuquerque Garden Center, Albuquerque, New Mexico. Sponsored by the New Mexico Orchid Society. Information: Diann O'Neill, 11009 Brentwood Hills N.E., Albuquerque, NM 87112, (505) 292-1563.

West Coast

♦ **Mar. 7-21. Tulipmania Festival.** Pier 39, San Francisco, California. Information: (415) 981-8030.

♦ **Mar. 14-15. Daffodil Show.** Descanso Gardens, LaCanada Flintridge, California. Sponsored by the Southern California Daffodil Society. Information: (818) 952-4401.

♦ **Mar. 27-29. The 47th Annual Santa Barbara International Orchid Show.** "Orchid Affair." Earl Warren Showgrounds, Santa Barbara, California. Information: Santa Barbara International Orchid Show, Inc., 1096 North Patterson Avenue, Santa Barbara, CA 93111, (805) 967-7153 or (805) 967-1378.

♦ **Apr. 2. Garden Talk.** "Plants From Down Under." Lecture by horticulturist David Mason. The Huntington, San Marino, California. Information: (818) 405-2282.

♦ **Apr. 8-12. Seventh San Francisco Landscape Garden Show.** "Park Place." Fort Mason Center, San Francisco, California. Information: Janet Taber-Coppola, San Francisco Landscape Garden Show, McLaren Lodge, Golden Gate Park, San Francisco, CA 94117, (415) 750-5108.

♦ **Apr. 30-May 2. Rancho Santa Ana Botanic Garden Symposium.** "Out of the Wild and Into the Garden; California's Horticulturally Significant Plants." Seeley Mudd Theater, School of Theology, Claremont, California. Sponsored by the Rancho Santa Ana Botanic Garden. Information: (714) 625-8767.

♦ **May 9. Baldwin Bonanza Plant Sale.** Los Angeles State and County Arboretum, Arcadia, California. Sponsored by the California Arboretum Foundation. Information: (818) 821-3222.

International

♦ **Apr. 28-May 14. Gardens of the South of France.** Tour. Arles, France. Information: Friends of the Botanical Garden, U.C. Botanical Garden, Centennial Drive, Berkeley, CA 94720, Attn: South of France Tour, (510) 642-3343.

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Low Tide Landscaping

If you owned a waterfront property, which would you rather have? A crumbling crust of a shoreline where inches or even feet of land erode each year, taking with them trees, shrubs, herbaceous perennials, and wildlife habitat? A sea wall buttressing the shore with its stark girdle of wood, sharply dividing sea from land? Riprap—a scree of jagged boulders tumbling down to the water like an unloosened slag heap? Or an expertly landscaped shore, perhaps with a butterfly-laden wildflower buffer dipping through loblolly pines and bayberries to join with a marshy belt of saltmarsh hay (*Spartina patens*) and then cordgrass (*S. alterniflora*) before it meets the water?

Environmental Concern (EC) bets you'd choose the latter, especially if you knew it was as durable and less expensive than the other erosion control options. The St. Michaels, Maryland, wetland construction and restoration nonprofit has been creating such shorelines for 19 years, and demand is booming.

Ed Garbisch founded EC in 1972, giving up a career teaching chemistry at the University of Minnesota to advance the cause of wetland survival. Since then, his organization has become a leader in all aspects of wetland consulting, construction, and education, reshaping and creating 350 marshes, swamps, bogs, and shorelines from Maine to Georgia.

In the Chesapeake Bay region, EC has been particularly active in shoreline reconstruction. Shorelines are much more difficult to landscape than back yards or office parks. After determining if the site is suitable for a vegetative wave break, EC must grade



COURTESY OF ENVIRONMENTAL CONCERN

Directly vegetating existing shores is one way Environmental Concern battles erosion.

or backfill precisely to create the specific growing conditions required by the water plants. Cordgrass, for example, grows in the tidal zone, but saltmarsh hay must be just above the high tide line. "Each plant has a different hydrology requirement," says Mark Kraus, wetland ecologist at EC. "So probably the most difficult aspect is making sure the site has the correct hydrology for the plants."

The next step is to plant the appropriate plant species. EC carries close to 200 species in its nursery (which also sells the plants wholesale), so they can easily find the material they need. The plants must be raised either in regular irrigation water or, for tidal and brackish plantings, in

saltwater—the same species of plant grown in fresh water will die in salt.

EC collects seed from wild plants and grows plants for seed in its own ponds. But getting them to germinate has not always been easy. In the early years, they had difficulty growing cordgrass from seed. After much experimenting, they learned to mimic nature by stratifying the seed in cold saltwater over winter.

"When we started out, there was little information available regarding wetlands, especially how to create one," Garbisch told *Maryland* magazine in 1990. "So we had to find out how to do everything, even the very basics, like what it takes to grow marsh vegetation in a nursery for replanting. Keep in mind that marsh plants live in an environment that is always changing. It can be dry one day and two feet underwater the next. We lost a lot of plant stock in the beginning, because we didn't realize that the water level changes naturally from the winter to summer. So to grow wetland plants in a nursery, you have to duplicate the condition found in the wild."

There is more to wetland planting, of course, than simple shoreline aesthetics. Wetlands offer habitats for a variety of animals—avian, terrestrial, and aquatic; they filter waterborne pollutants and sediment; and they soak up water during floods. They are a vital part of the ecosystem and are beginning to be seen as part of the landscape as well.

For more information on the services and educational programs offered by Environmental Concern, contact them at P.O. Box P, 210 West Chew Avenue, St. Michaels, MD 21663, (301) 745-9620.



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