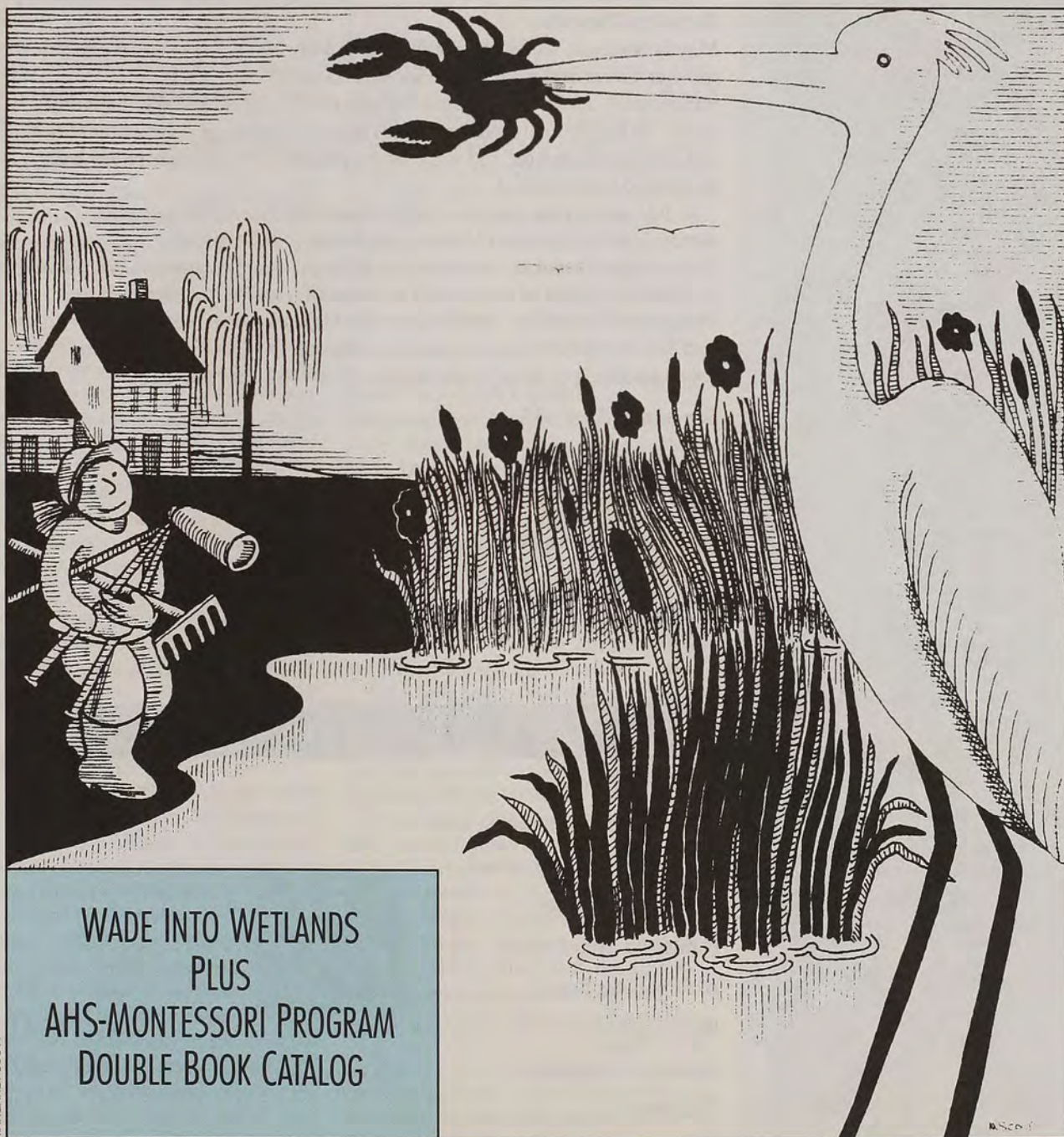


American Horticulturist

May 1994

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WADE INTO WETLANDS
PLUS
AHS-MONTESSORI PROGRAM
DOUBLE BOOK CATALOG

MARGARET SCOTT

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ARTICLES

Wade Into Wetlands

May is National Wetlands month. Just as May comes between an often too-wet spring and a frequently too-dry summer, wetlands form a transitional zone between purely aquatic environments and the "uplands" where we traditionally garden. In this issue we'll explore some of these rich and diverse ecosystems and some of the reasons that wetlands policy has become so controversial.

In July, rather than our usual news edition features and departments, members of the American Horticultural Society will be receiving a 48-page "Proceedings" based on last summer's AHS-sponsored symposium on children and gardening and the one we will be co-sponsoring this summer with the Montessori Foundation. It is the hope of AHS leaders that members will widely distribute the information it contains to educators and leaders of community youth gardening projects, furthering our efforts to "plant the future."

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MEMBERS' FORUM

Wimpy Daylilies?

In your article about 'Black-Eyed Stella' being named the first All-America Daylily, you say that the average daylily is hardy across only two hardiness zones. This has got to be wrong, since most daylilies are very tough plants. Any plants that restricted in their use would hardly be worth marketing!

Art Freen
Alexandria, Virginia

You're right of course. The language used by the All-America Daylily Selection Council, the organization of gardeners and growers that evaluated thousands of cultivars throughout the country, was that most of them "give top performance" in only two zones. Plants were rated on 13 factors, including bloom period, blooms per scape, foliage appearance, spent bloom persistence, heat and cold tolerance, sun-fastness, and resistance to disease and insect damage.

Deviled by Tasmania

While the citizens of Tasmania may be pleased, the people of Australia proper will not. On page 5 of the January issue you list Tasmania separately from Australia. Tasmania, an island south of Melbourne, is part of Australia—one of its sister states. It is a beautiful, green place with wonderful mountains and trees.

Judith P. Sargent
Chittenden, Vermont

The Seeds of Friendship

I will be using the seeds from your seed program on the grounds of our retirement center, Friendship Village, in Kalamazoo. At the back in a small birch grove we have a woods trail that is very much enjoyed in all seasons. Surrounding this are some meadowlands (with bluebird boxes!) where there is an area being developed for prairie flowers. We are continually discovering—through the four to five years that we have been working in these areas—more new flowers (last summer two exquisite, delicate ladies'-tresses orchids!).

We will enjoy planting the seeds you

send, with hopes that they will add some new flowers to those in our areas.

Bertha H. Howard
Kalamazoo, Michigan

Sharing Treasures

Today I received my seeds from you. I want to thank you for being so organized and efficient! I am thrilled with my seeds. I look forward to sending you some of my seeds to give away next year. My boyfriend and I are both horticulturists and we save a lot of seed. We hardly knew what to do with it until now! Each seed is a miracle and we never get tired of trying new ones. And what a pleasure to be able to share treasures with others.

Christine Altermann
Santa Cruz, California

Soilmates—An Update

Thanks so much for the piece you wrote about Single Soilmates in the July 1993 issue. We think it helped us receive additional publicity because it was referred to in several other write-ups.

We've grown like zucchini, increasing our membership from 13 in May of 1993 to over 760 Soilmates in all 50 states, several Canadian provinces, Guam, Puerto Rico, England, and New Zealand. We've had inquiries from Australia and Kuwait.

There have been several reports of positive meetings and correspondences among our members and even word of a proposal. Many members have told us they're enjoying making new gardening friends all over.

To celebrate our first anniversary, we made a contribution to Friends of Horticultural Therapy. Our spring newsletter, *Stamping Ground for Single Soilmates*, will feature information on urban greening and horticultural therapy programs around the country.

Gracia Roemer and Faith Wong
Ogden, Utah



For more information on Single Soilmates, a nationwide network of gardeners, write them at P.O. Box 4065, Ogden, UT 84402. Introductory memberships are \$4.

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GARDENERS' INFORMATION SERVICE

Q: I would like to try to grow wasabi, the hot radish that is added to sushi and Japanese dishes. What is its botanical name and where can I obtain seeds or plants? —L. M., San Diego, California

A: We were unable to find any information about wasabi from U.S. sources, including seed and nursery companies specializing in oriental plants. We next wrote to the Tokita Seed Company in Omiya, Japan. They did not know of any U.S. company carrying wasabi, which they identified as *Eutrema wasabi*. For more detailed information about obtaining seeds, write Tokita Seed Company, 1069 Nakagawa, Omiya, Japan 3300.

If any member knows where to purchase seeds or plants of the wasabi radish in the United States, please send in the information and we will pass it along.

Q: I just bought a very attractive conifer, with the name *Cryptomeria japonica* 'Sekkan-suji', from a discount hardware store chain. It didn't come with any growing instructions or information on growth habit or mature height. Can you tell me more about this plant?

—L. P., St. Louis, Missouri

A: The species form of *C. japonica*, commonly known as Japanese cedar, can grow from 50 to 80 feet tall and 20 to 30 feet wide with gracefully spreading branches growing in a pyramid form. It has a lovely cinnamon-colored bark, which, as it matures, peels off in long shreds. But there are many cultivars available, varying a great deal in size, habit, and coloration. 'Sekkan-suji' is a smaller tree, reaching 25 to 30 feet with a spread of 10 to 12 feet. It is most striking in spring, when the new growth is frosted with pale yellow. This coloration changes to green with summer heat. It is easy to grow, but prefers deep, rich, acidic soils. It likes more moisture than most conifers, and should be planted in full sun with shelter from high winds.



Q: Last year many of my dahlias wilted before they bloomed. How can I prevent this from happening this year?

—A. C., Stevenson, Alabama

A: Your dahlias may have been affected by a bacterial wilt or a soil fungus. A bacterial wilt will cause an infected plant to wilt quite suddenly and its stem near the soil surface to become wet and soft. If the wilt was caused by a soil fungus (the two most common are *Verticillium albo-atrum* and *Fusarium* spp.) you will see dark streaks on the inside of the stems. The fungi enter the plant through the soil and travel into the conductive tissue, cutting off water to the plant.

You can try to prevent both kinds of wilt by following careful garden hygiene. In the spring, plant only healthy-looking tubers. Carefully observe plants as they are growing and rogue out any that appear unhealthy or infected. Don't throw any plants that may be infected into your compost pile. Remove dead and spent plant parts during the growing season and in fall, thoroughly clean up flower beds and destroy all above-ground parts of the dahlias. Inspect tubers before putting them into winter storage and discard any parts that look discolored or decayed.

Harry Risetto of the National Capital Dahlia Society suggests dipping your tubers in a fungicide solution both before storage and before planting. He also notes that damage from borers can cause symptoms similar to those of wilt. If you see small holes in your dahlia stems, you need to cut the stems off below these borer entry points. The plants will send up new shoots.

Even if you haven't experienced wilt or other disease problems with dahlias, it is good practice to relocate their planting bed at least every couple of years to prevent any build-up of soil pathogens. If you have experienced problems but don't have the space to rotate plants, you may need to have your soil professionally disinfected with steam or chemicals.

Q: I saw a picture of a lovely yellow-flowering shrub called fragrant winter hazel. Will this shrub grow in my sunny front yard? I live in Zone 5.

—J. K., Lansing, Michigan

A: Fragrant winter hazel (*Corylopsis glabrescens*) is one of the hardiest members of that genus. Hardy in USDA Zones 5 to 8, it bears its fragrant flowers on long pendulous racemes and is an excellent shrub for adding a glorious pale yellow to your yard in early spring. Depending upon

DESIGNING PARTNERS

A good landscape design helps tie garden elements together visually, reducing the incidence of "plop-itis"—the indiscriminate placement of good plants so they jut out of the ground without context or are lost in a jumble of visually unrelated elements. Studies have shown that a well-planned landscape can increase property value.

The Association of Professional Landscape Designers (APLD) is an international organization dedicated to establishing professional standards for the landscape design profession. It is the only professional landscape design group to certify members who adhere to its high ethical and professional standards. "APLD members are ecologically sensitive and follow good environmental practices," says APLD President Kibbe Turner.

Now all APLD members are members of the American Horticultural Society and the two groups are co-operating on a number of projects.

Information on APLD certified designers is available through a call to the AHS Gardeners' Information Service between 11 a.m. and 3 p.m. Eastern Time, Monday through Friday.

growing conditions, this multi-stemmed shrub can range from eight to 15 feet tall with a similar spread, or can be pruned as a small tree.

It can grow in lightly dappled shade to full sun and prefers well-aerated, acidic soils. It should be mulched with peat moss or pine bark for extra soil acidity and moisture retention. These shrubs do not suffer from significant disease or insect problems, but should be planted in a sheltered spot since the buds and flowers are susceptible to late spring frosts.

Q: *What is the best soil pH for hardy ferns and columbines?*

—P. G., Portland, Oregon

A: As a very general rule, most ferns like a slightly acidic soil because their natural habitats are often shady, moist, woodland areas. This is especially true of ostrich fern (*Matteuccia pensylvanica*) and royal fern (*Osmunda regalis*). Other hardy garden ferns are not so particular about pH as long as they are planted in well-aerated, humus-rich soil. There are a few common ferns that need more limey soils with a pH of 7.0 to 7.5. These include the dragontail fern (*Asplenium ebennoides*), bulblet bladder fern (*Cystopteris bulbifera*); and hart's-tongue fern (*Phyllitis scolopendrium*).

Q: *At a flower show this spring I saw a grouping of white cosmos that were just lovely, but I didn't get their name. Can you tell me where I can get seeds for a white cosmos variety? If I can get the seeds by the end of May, will it be too late to sow them in my garden to get blooms this summer?*

—A. G., Claremont, Virginia

A: You might have seen either 'Purity' or the new award-winning cosmos called 'Sonata White'. 'Sonata White' is a profusely flowering cosmos that blooms throughout the summer until frost. It has bright white petals with golden yellow centers and lacy foliage. 'Sonata White' grows to 20 inches in height while 'Purity' grows to three or four feet. Both are very easy to grow and make excellent long-lasting cut flowers. If you obtain seeds by the end of this month and direct sow them into your garden, you should get flowers by at least midsummer. However, since you are sowing them a bit late, when the weather is warmer, make extra sure that the seeds are kept moist and not allowed to dry out while germinating. Sources for seeds include: Pinetree Garden Seeds, Box 300, New Gloucester, ME 04260, (207) 926-3400, and W. Atlee Burpee & Company, Warminster, PA 18974, (800) 888-1447. Both catalogs are free.

Q: *I recently heard about climbing spinach varieties that must be grown like climbing beans. Could you tell me about them and where I can purchase seeds to try growing them?* —B. B., Chicago, Illinois

A: Climbing spinach varieties, which originated in the orient, are not widely known by American gardeners. Like regular spinach, they can be used for salads or steamed, but unlike most commonly grown spinach types, they can grow in high temperatures and remain productive throughout the summer. One variety, 'Basella Malabar', needs to be grown over a fence, trellis, or other kind of support since it grows to over six feet tall. 'Basella

Malabar' has thick, dark green leaves with red stems that are very attractive in salads. Another variety, 'Malabar Climbing', quickly grows to 20 or 30 inches tall with large flat bright green leaves. It is an excellent flavor enhancer for soup broths, especially oriental recipes. Both varieties mature in about 35 days and like plenty of moisture as well as heat. Sources for seed include Nichols Garden Nursery, 1190 North Pacific Highway, Albany, OR 97321-4598, (503) 928-9280, catalog free; and Sunrise Enterprises (a specialist in oriental vegetable seeds), P.O. Box 330058, West Hartford, CT 06133, (203) 666-8071, catalog \$2.

—Maureen Heffernan
Education Coordinator



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Please come by, have a complimentary cup of coffee, and meet Roger Swain, host of the popular PBS-TV show "The Victory Garden." Swain is a noted gardener, biologist, storyteller, and author of *The Practical Gardener*.



CONSERVATIONIST'S NOTEBOOK

Florida's Palm Scourge

By Mark Browne

The sabal palm (*Sabal palmetto*), integral to the natural landscape of Florida and elsewhere along the Southeast coastline, is being seriously threatened by a little-known fungus from Malaysia.

Most of what is known about the invader, *Ganoderma zonatum*, comes from research conducted in its native environs in the 1930s and '40s, when it was found to be a prolific colonizer of coconut (*Cocos nucifera*) stumps. With one exception, all of the other trees it infected were also palms. Scientists aren't sure when or how the fungus entered this country, but suspect that clues left in its wake were misread for several years.

The sabal—also called palmetto or cabbage palm—isn't the only palm affected. The huge Canary Island date palm (*Phoenix canariensis*), native to North Africa and sold to landscapers for \$125 a vertical foot, is another tree frequently infected. But unlike most palms, the sabal is widely distributed throughout the state, and as the state tree of both Florida and South Carolina, it has more sentimental value. Native Americans wove mats of its fronds and held thatched roofs to their buildings with strips of the fibrous tissues found just beneath the tree's bark. They considered its small black fruits a delicacy. More recently, the tree's terminal bud attained the same status and was marketed as "palm cabbage" until the state of Florida—where large numbers of the trees grow on public lands—protected the species in the 1960s.

But while the tree is off-limits to hungry humans, countless birds and small animals supplement their diets with sabal berries, and insects are drawn by the fruit's rich, musky smell. The dead frond "beards,"



MARK BROWNE

*Sabals are commonly found in clusters, making them susceptible to the spread of *Ganoderma zonatum*.*

hanging down and eventually overlapping each other, create an environment attractive to bats, which help control flying insects. Among associated plants, the delicate hand fern (*Doryopteris pedata*) has the most to lose from a decline in these

palms, since it is found only on the trunks of young sabals.

Ganoderma zonatum is insidious—difficult to detect and always fatal. The first sign of trouble is a darkening of the trunk tissues; in extreme cases, the con-

ductive tissue appears dark brown or even black. Later, a white fungal growth, called a basidiocarp or "conk," will protrude from the trunk, usually near the soil-line. By the time the conk appears, the tree is showing an over-all lack of vigor. Growth



slows, the crown collapses, and soon the tree is dead.

Infected palms usually live three to four years, depending on their age and health when first infected. Properly fertilized trees don't seem to fare any better than those that are undernourished; excessive ground moisture and humidity do seem to make trees more susceptible to the initial attack.

The fungus is generally thought to be soilborne, entering roots where they have been damaged by soil-dwelling animals and thriving in organic matter beneath the tree. This is especially deadly for sabals, which tend to grow in clumps. But researchers have noticed that as the conk grows, it becomes brown with tiny spores crowding its surface. Some experts believe these spores may become airborne, or that they could be transmitted from tree to tree by host organisms, such as insects or birds.

Fortunately, palms have a lot of friends in Florida. Not only is the sabal the state tree, but it plays an important role in landscaping of areas often visited by tourists. The Cedar Key area, just north of Tampa, is a popular resort and recreation area with natural scrubland where sabals abound. "You can find a lot of infected sabals there," says Monica Elliot, a University of Florida plant pathologist who is directing the *Ganoderma* Research Task Force.

In March, with the support of business leaders, university horticulturists began a five-year study of *G. zonatum* throughout south and central Florida. "There have been reports of *Ganoderma* on sabal palms throughout the southeastern United States, not just in Florida," says Elliott. "It's occurring in Georgia, the Carolinas, and even into Alabama." They will be monitoring several palm species, not only sabals.

Researchers will compare tissue samples from infected and noninfected trees; test potential biological, cultural, and control agents; and study the effects that heat has on the fungus. The latter is of particular concern to people who use mulch or compost in their landscaping and gardening. While most pathogens are killed by the heat generated by the composting process, *Ganoderma* seems to survive unscathed, and it's possible that diseased stumps and branches could find their way into material shredded by municipalities and private firms. No one knows if such mulch could infect previously untroubled areas. "Everything is experimental right now," says Elliot. "We just don't know enough yet."

So far, *Ganoderma* appears most commonly to infect mature trees. Elliot suggests that residents of Florida and surrounding states notify their County Extension agents if they suspect that their palms are infected. She

advises removing the conk to reduce the chance of the fungus spreading, using disposable gloves, and afterwards sterilizing tools with bleach. The conk should be soaked in bleach or incinerated. When feasible, the affected tree should be removed and burned immediately and the soil sterilized with a fumigant. Nothing should be replanted for 30 days, and planting another palm species is not a good idea. If gardeners do so, they should ask for a laboratory report that verifies the tree has been tested and found free of the fungus.

Researchers note that the risk of *Ganoderma*, like that of other tree diseases, can be reduced by guarding against nicks and gouges such as those often inflicted by careless use of lawn-maintenance equipment. An open wound can give fungi and other pests easy access to a plant's tissues.

Whether Florida's multibillion dollar tourist industry would feel much impact from the ultimate triumph of the fungus over the palm is open to question. "I don't think people would stop coming to a Florida without palms," says Jennifer Hazelton, public relations director for the Palm Beach County Convention and Visitors Bureau. "People's perceptions of the area would have to change, however. People expect to see orange trees and palms." But there is no question that *G. zonatum* has the potential to drastically alter the Southeast's natural landscape.

Most alarmed by the potential devastation are tree growers. Palms worth hundreds of millions of dollars are grown each year for landscaping in Florida. At a seminar on palm disorders held in West Palm Beach on March 9, many growers were speculating on the reaction of the tree-buying public if control of *G. zonatum* isn't achieved within the next few years.

Landscapers fear losing a major portion of their income if people begin to replace *G. zonatum*-infected palms with hardwoods. They require more room than the average palm species and traditionally cost less, lowering the profit margin for the average landscape job.

The *Ganoderma* research project is slated to run five years, after which Elliot and the other plant pathologists will decide if the project should be extended. Team members agree that a "cure" in five years is unlikely. They hope to understand more of the workings of the fungus, what cultural practices it favors, and the most likely modes of transmission. In the balance hangs the future of Florida's palms.

Mark Browne is a free-lance writer living in West Palm Beach and specializing in horticultural topics.

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Patrick Chassé
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June 22, 24 & 25

Patrick Chassé is principal of Landscape Design Associates of Bar Harbor, Maine, a firm specializing in historic preservation, garden design, and site and land-use planning. His recent work includes two public garden restorations in Northeast Harbor, Maine: Thuya Gardens and Asticou Azalea Garden.

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NY Botanical Garden



MAIL-ORDER EXPLORER

Graceful Oddities

Running a nursery well doesn't necessarily make you a good gardener. But Bill Janssen and Diana Reeck, the owners of Collector's Nursery, are winning praise for combining both skills. "Being a gardener brings a different element into the nursery," says Judith Jones, a colleague who owns Fancy Fronds, a nursery specializing in ferns. Jones calls Collector's "one of my absolute favorite nurseries," and she credits its success to this mixture of gardener's vision with nurseryman's business sense. "You still have to grow what you can sell," she says, "but you're always willing to take that extra chance—with something that might end up on the compost heap, but it might be the next big thing."

Since they met a decade ago, Janssen and Reeck have been taking extra chances with unusual plants. Both were avid gardeners with backgrounds in the nursery business, but they approached plants from different perspectives. "We have a good combination of interests," Reeck says. "Bill is more of an artist, and I'm more interested in botany." They focused on different types of plants as well: Janssen collected unusual conifers, while Reeck's main interest was native perennials.

You can see the results of this combination in the nursery that Janssen and Reeck founded six years ago. Collector's offers many northwestern natives: perennials, conifers, and deciduous woody plants. The emphasis is on choice selections, often made by the proprietors themselves on plant-hunting forays into the mountains and forests of the Pacific Northwest. Reeck is careful to point out that this is collecting with an environmental conscience. "Our name is kind of deceptive," she says. "We almost never collect plants. We collect cuttings and seeds." A selection of foreign plants is offered as well. In their search for unusual exotics, Collector's exchanges seed with some 40 botanical gardens worldwide.



Nearly all propagation is done on the premises.

Plant cognoscenti who've seen this operation say it's obvious that the proprietors are expert gardeners. "I was just swept away," says Barbara Barton, author of *Gardening by Mail* and *Taylor's Guide to Specialty Nurseries*. "It was so beautifully arranged and cared for. They were very knowledgeable and just crazy about plants."

"It's a treasure trove," says Marco Polo Stufano, director of horticulture at Wave Hill, the historic garden in Bronx, New York. "We pulled up and there were goodies all over the place." For the past two years, Stufano has ordered plants from Collector's for Wave Hill. "I've gotten mainly unusual alpiners and shade-loving perennials," he says, "and they've all been very healthy."

Perennial genera of special interest include *Clematis*, *Epimedium*, *Gentiana*, *Hosta*, *Iris*, and *Viola*. In these and other genera, Collector's favors what Reeck calls "oddities." That preoccupation has made the nursery a source for the new and the hard-to-find. For instance, says Jones, "they were offering *Tricyrtus* [toadlilies] much earlier than just about anyone else." The current catalog lists 10 forms of these woodland members of the lily family, from a five-foot species with white and purple flowers to a six-inch yellow-flowering dwarf. One of Jones's interests is clematis, and she has mined the Collector's inventory for her own collection. The current catalog lists 17 clematis, including *Clematis afoliata*, the rush-stemmed clematis, which the catalog bills as "the clematis collector's clematis." Its leafless, twining stems bear cream-colored flowers in early spring—"if you're lucky."

Among the perennials Reeck has personally collected is the wild ginger, *Asarum hartwegii*. "There's a lot of variation in that species," she says. The striking, silver-veined leaf pattern differs from one population to the next, as does the habitat. "It's endemic to the Siskiyou Mountains and we've found it in two distinct habitats, either in shady

little ravines or along gravelly roadsides, almost in full sunlight."

Some of the nursery's collecting occurs in more domestic settings. Collector's sells several forms of plantain, for instance—relatives of the humble weed. Reeck found a red-leaved form, *Plantago major* 'Rubrifolia', in a friend's garden. *P. major* 'Rosularis', whose flowers appear amid rosettes of leaves, "is just something we picked up at a local plant sale."

Among the woody plants in this year's catalog are three little-known northwestern oaks: *Quercus garryana* var. *breweri*, *Q. sadleriana*, and *Q. vaccinifolia*. All three are dwarf or shrubby; the latter two are evergreen. Also offered are over 70 conifers. Some are well-known, if not commonly used; others are Janssen's discoveries. 'Sugarloaf', for instance, is a dwarf form of sitka spruce (*Picea sitchensis*) that the couple found in Washington's Coast Range in 1985. "I literally stumbled over it," Reeck recalls. After nine years in their garden, the original tree is extremely dense and still only about a yard high.

New finds, whether in the wild or in friends' gardens, keep the catalog changing from year to year. One recent acquisition is a clone of *Iris tenax* collected at 4,500 feet from the slopes of a nearby mountain. *I. tenax* is the hardiest of the Pacific Coast irises, and this is the highest elevation at which it is known to occur. Pacific Coast irises are notoriously hard to grow outside the Northwest, and the couple hopes to breed hardier varieties from this clone.

"We concentrate on form, texture, and foliage instead of just on the flowers," says Reeck. "It seems like a lot of the things we really like have a kind of species look, rather than having big, hybrid flowers. Often those don't have the charm and grace of the species."

—Chris Bright
Assistant Editor

Gardeners interested in the charm of the species can contact Collector's Nursery at 16804 N.E. 102nd Avenue, Battle Ground, WA 98604, phone (206) 574-3832. The catalog costs \$2.



PLANTS AND YOUR HEALTH

Phytophobia

Have you heard that many common plants are poisonous? Such cautions are a frequent refrain in garden writing, but they may tell us more about ourselves than they do about botany.

There's no question that some popular plants are toxic. The warm-climate flowering shrub oleander (*Nerium oleander*), for instance, has been celebrated as a poison at least as far back as classical antiquity. Oleander will kill livestock when ingested in amounts as small as 0.005 percent of an animal's weight, according to John Kingsbury's *Poisonous Plants of the United States and Canada*, which was published in 1964 and remains a standard survey of the topic. Death by oleander, as Kingsbury describes it, involves an elevated pulse, cold extremities, sweating, abdominal pain, vomiting, bloody feces, dizziness, irregular heartbeat, labored breathing, and coma. It takes about a day to die. Oleander is a terrible poison: a handful of leaves would drop a rhino.

So it's understandable if the sight of oleander flowers leads one to eye other plants with a new-found distrust. And suspicion always seems to fall most heavily on the poinsettia. "Poinsettia probably inspires more poison center calls than any other plant," says Steven Foster, an expert on botanicals who is preparing a field guide to the poisonous plants of North America. Every holiday season brings a frantic chorus of parents begging 911 to tell them what a chewed poinsettia portends. Could

Junior's transgression invite something like the week-long death agony inflicted by the destroying angel (certain mushrooms of the genus *Amanita*)? Here's what Kingsbury says about the fungus: "Paroxysms of pain and vomiting accompanied with cries or screams of pain alternate with periods of remission." Is that what Father Christmas has in store for the wayward holiday gourmand? Well, not exactly. "Poinsettia consumption," Foster says drily, "is generally

asymptomatic." Poinsettia's lethal reputation apparently derives from a rumor of a child's death early this century in Hawaii. But current research in rats has been unable to determine a lethal dose, or even to make the rats sick. They love it, in fact. You've probably eaten salads that are more dangerous than poinsettia.

And it's not just poinsettia. According to Foster, the New World is teeming with nontoxic plants—less poisonous than anything we can imagine. For example, goldenseal (*Hydrastis canadensis*), a woodland native of the eastern United States, is often said to cause severe irritation of mucous membranes. Foster traces this idea back to an 1892 work, *American Medicinal Plants* by Charles Millsbaugh. Millsbaugh was a student of homeopathy, a type of healing in which minute quantities of a substance are used to treat conditions that the substance itself would provoke if given in massive doses. He believed goldenseal was valuable for treating precisely those symptoms it is now blamed for causing. Eating a bale of goldenseal probably wouldn't be a good idea, but there's no need to live in fear of it. Foster says that the reputations of many plants have been similarly tarnished by attempts to read Millsbaugh's work as if it were a textbook on toxicology.

Indian tobacco (*Lobelia inflata*), another eastern native, presents a more complex case. "There's no doubt it's physiologically active," says Foster. It causes vomiting, sweating, and prostration—"which means it will lay you out."

But descriptions of *L. inflata* almost invariably assert that it has killed, and Foster is sceptical of that claim. "Since it's a very strong emetic," he says, "one could question whether a fatal dose could be held down long enough to kill someone." (One of its common names is "puke weed.") In one of his articles, Foster challenged readers to produce a reliable report of a single death within the past 200 years that could be attributed to the plant. A reply to the challenge turned up the incident that seems to have inspired

its fatal reputation. "There was a medical doctor in an 1809 court case who was accused of murder by lobelia," Foster says. But the accused poisoner refuted the charges himself by taking the stand and proceeding to eat a bunch of the suspect herb. He didn't die. Even so, the stigma of guilt has tainted the plant ever since.

So why do we persist in our fears that just off the lawn, every tendril beckons us to serious gastric complication? "I suppose it relates in part to the resurgence of interest in herbal medicine," says Foster. "That's a new tradition in our culture. We haven't been out in the wild and as we return to it, we don't want to do anything dangerous." Our ignorance can make it difficult to keep things in proportion. Foster has come across assertions, for instance, that chamomile tea can kill. The danger, first described in 1888, apparently involves severe allergic reaction to the plant's pollen. But more than a century has passed since the first case and only five deaths can be attributed to the tea. "When you compare that with the estimated one million cups of it that are drunk every day," says Foster, "that's pretty safe."

Botanical literacy may not come easily to those of us confined largely to pavement and lawn. But there's no need to view a meadow with the same suspicion that we would bring to the Love Canal. We can learn from plants and live through the lesson. The key is to treat plants with a healthy respect—and watch what we're doing.

Another plant that gets a mention in Kingsbury is skunk cabbage (*Symplocarpus foetidus*), the broad-leaved marsh dweller whose broken leaves emit a noxious stench. It belongs to a group of plants that have "needlelike crystals of calcium oxalate, particularly in the rhizome, which if taken into the mouth become embedded in the mucous membranes and provoke intense irritation and a burning sensation. Ingestion of more than the first mouthful," he writes, "rarely occurs." But the real question is: why would ingestion of the *first* mouthful occur? —C. B.



Out of the Muck of Bays

Over the past decade or so, we have all pretty much learned the litany regarding drought-tolerant plants. Whether or not we were bothered by the term Xeriscaping—a term copyrighted by the now defunct National Xeriscape Council—our collective consciousness was raised in regard to choosing and siting plants in ways that decreased the need to irrigate our gardens.

The wheel has turned. Wet is where it's at. While water that comes from the end of a hose represents a diminished resource—not to mention utility bills and labor—water features in a garden can restore both the soul and the environment. And gardeners are learning that poorly drained areas, long the scourge of a home landscape because of their refusal to support turf, can be turned to advantage with a whole array of beautiful and tough-as-nails plants native to swamps and marshes.

"Nursery crop growers are recognizing a growing demand for plants suited to wetland environments," says Craig Reggelbrugge of the American Association of Nurserymen, both from gardeners landscaping artificial ponds and those interested in wetland restoration. Some nurseries have increased their inventory of woody wetland plants while others are marketing suitable plants they're already growing, such as silky dogwood or sweetbay magnolia. "A niche that fewer people are active in, but which is on the upswing, is the emergent plants, such as pickerel weed," Reggelbrugge says.

He notes that it takes the nursery industry five to seven years to respond to a new demand. "And when a plant isn't available the temptation we hope people will avoid is to dig plants from the wild."

The ecosystems that spawn these plants—once considered wastelands in need of a higher and better use—are now widely understood to perform a variety of crucial functions. Just as the transition zone between a meadow and a woodland is especially rich in natural diversity, these transition zones between our dry "uplands" and our river and ocean systems are



teeming with life, offering sanctuary to fish, birds, and mammals.

Marshes and bogs help protect our recreational and scenic waters from nature's wrath and human folly, slowing flood waters, reducing run-off and erosion, filtering out organic wastes, chemicals, and sediments. The muck on their bottoms and shores consists almost entirely of organic matter that forms the base of the aquatic food chain.

But between the 1780s and the 1980s, according to the U.S. Fish and Wildlife Service, the contiguous 48 states lost 53 percent of their wetlands, once estimated at 221 million acres. Louisiana, which comprises 40 percent of these wetlands, is losing 30 to 50 square miles of wetland per year, and with them garden-worthy plants like the Louisiana iris. The Chesapeake Bay watershed has only 10 percent of the submerged aquatic grasses that existed several decades ago.

Much of this loss is blamed on real estate development. Other damage can be laid to dredging for navigation, and pipelines and channels used by the oil industry. Some loss can be blamed on natural forces such as droughts, hurricanes, a rise in the sea level, or overgrazing by wildlife, but these too are exacerbated by human activities.

But regulations developed to counteract wetland losses have met with unending controversy. Ranchers and farmers claim they've been denied use of what are little more than seasonal mud puddles. Develop-

ers are unable to build on once exclusive waterfront property. Landowners seeking permits for minor projects point to endless red tape, and environmentalists counter that local zoning boards are led by builders who wink at the intent of the laws.

If you don't live anywhere near a wetland, you may nevertheless wish to offset the nation's water losses by creating a mini-marsh in your back yard. If you've attained the waterfront lot of your dreams—you may want to make a few phone calls before you erect that gazebo.

BOOKS TO READ

These books contain at least one section on landscaping for wetlands. Two are on natural landscapes, three are on water gardening.

♦ *American Gardening Series: Water Gardening.* By Ken Druse. How to design, build, and landscape various water features using organic gardening practices. *AHS member price: \$8.25.*

♦ *The Natural Habitat Garden.* By Ken Druse. Public and private gardens throughout the country representing elegant adaptations to natural environments including wetlands of various types. *AHS member price: \$35.*

♦ *The Water Gardener.* By Anthony Archer-Wills. Nitty-gritty details of building all types of water gardens and pools. *AHS member price: \$40.50.*

♦ *Water Gardens.* By Jacqueline Heriteau and Charles B. Thomas. Two nationally recognized experts team up to give you the low-down on building a home water garden. *AHS member price: \$31.50.*

♦ *Waterscaping.* By Judy Glattstein. Due out this month; devoted entirely to natural wetland habitats and plants appropriate to each. *AHS member price: hardcover, \$25; softcover, \$17.*

♦ *Wildflowers in Your Garden.* By Viki Ferreniea. Contains landscaping plans for waterside gardens and bog gardens. *AHS member price: \$31.50.*

To order any of the books above, please use the book order coupon on page 26.

The Marshes of Time

It takes more than water to make a wetland. Wetlands are a collaboration of three basic elements: water, geography, and plants. But these major ingredients—along with a host of minor ones—can interact in many ways. How many types of wetland are there? A simple approach distinguishes three: marshes, bogs, and swamps. A look at each type is a good way to understand what makes wetlands such dynamic ecosystems.

Picture yourself in terrain that is mathematically flat. You're standing in several feet of water, surrounded by chest-high sawgrass (*Cladium jamaicensis*) that stretches to the horizon. The monotonous vista is broken only by occasional islands of trees. That's the view from the Everglades in south Florida—the largest freshwater marsh in the world. Most marshes are more modest, of course. They may be riverine as, for instance, along the Platte River in Nebraska. They may be lakes on their way to becoming meadows. Or they may be "prairie potholes," the cavities left by the melting of isolated lumps of glacial ice. Prairie potholes are critical to the ecology of the Great Plains: 50 percent of the continent's ducks use them as breeding sites.

But for all their variation, marshes share some common elements. Marshes are stretches of shallow water that is draining, however slowly. This movement of water is important because it guarantees a degree of aeration, which makes the water biologically more productive. Occasional pools of deeper, open water may dot the marsh and so may little islands called "hummocks." The water level usually fluctuates with the seasons: a marsh may be dry land for a good part of the year. This is one of the most confusing features of marsh ecology—and the source of many legal arguments over how wet a tract of land has to be before it should be officially labeled a wetland. Marsh soil is rich in decaying plant material—but this muck is not so thick that it prevents plant roots from reaching the mineral substrate below.

The marsh environment is not uniform

and plants have evolved to exploit just about every niche in it. In the deeper water, for instance, you'll find water lilies (*Nymphaea* spp.). Their floating leaves are attached to long stems that transmit the products of photosynthesis to tubers in the muck below. Where the water is shallow enough, underwater plants like *Elodea canadensis*—a familiar aquarium specimen—capitalize on the dim light, further oxygenating the water in the process. You can watch the bubbles form on their leaves. In still water, duckweed (*Lemna* spp.) and watermeal (*Wolffia* spp.) may blanket the surface. These are among the smallest flowering plants in the world, but they play a major role in the energetics of the marsh. Their nutritional value is so great that, by some estimates, they supply up to 90 percent of the diet of some water fowl.

The shallows may be dominated by sedges, rushes, and cattails—the genera *Carex*, *Juncus*, and *Typha* respectively. But growing in and around these you may find many other plants. Denizens of the wet meadows often defy our ordinary categories, since they're neither fully terrestrial nor fully aquatic. For instance, water plantain (*Alisma subcordatum*), a shallow water plant whose leaves resemble those of the lawn weed that shares its name, has an underground stem tough enough to survive a drought. Even so, it remains a marsh plant because it needs standing water to reproduce. Many ferns and mosses like wet meadows for much the same reason. In these plants, the union of the sex cells is an external event that requires a film of moisture through which the sperm can move. Other plants are less particular: although native to the marsh, they can be coaxed into growing elsewhere. Many celebrated garden genera come under this heading: *Iris*, *Lobelia*, *Mentha* (the mints), and some orchid genera have members native to our continent's marshes.

Today, unfortunately, a major feature of many marshes is exotic vegetation. The best known of these is probably purple loosestrife (*Lythrum salicaria*), a showy, aggressive European import that is crowding out native vegetation from Maine to the

Carolinas and west to Minnesota. Eurasian *Hydrilla verticillata* and water hyacinth (*Eichhornia crassipes*), from the American tropics, choke southeastern waterways. An important marsh plant that blurs the distinction between exotic and native is the common reed (*Phragmites australis*), which grows from 10 to 18 feet. Its cosmopolitan distribution may not be due entirely to human agency. There are, however, many marshes where it does not occur naturally and it is sometimes introduced—one of its uses is to draw heavy metals out of contaminated soil. Once established in its favorite shoreline habitat, it can crowd out nearly everything else.

The common reed is a good example of how plants shape wetlands. Because it is thirsty and because it develops a dense root mat that traps debris, it tends to dry out a marsh. Cattails often perform the same function, hastening a succession from shallow water to wet meadow and then to dry land. Pickerel weed (*Pontederia cordata*) often has a role in the process too. Its appearance may lower water levels radically, because it loses so much moisture through its broad, emergent leaves.

Woody plants may play a role in the process as well. For instance, alders (*Alnus* spp.) commonly lead a forest's advance into a marsh. Like reeds, alders produce a dense root mat, but they also have the ability to "fix" nitrogen—a relationship with soil microorganisms allows them to remove nitrogen gas from the soil and incorporate it into compounds that plants can metabolize directly. Nitrogen fixing is a well-known trait of the pea family (Leguminosae), but it's not common in the birch family (Betulaceae), to which alders belong. That ability—combined with their habit of spreading by suckers—can make alders principal agents of change.

Succession is often helped along by the introduction of reeds or cattails, but it may also occur on its own. Such change is frequently a part of the wetland dynamic. One plant community may flourish, only to create the conditions for another community that supplants it.

—Chris Bright
Assistant Editor

Bogs: Thick Mats of Debris

Succession doesn't always mean the end of a wetland. A marsh may, for instance, turn into a bog, and vegetation plays a critical role in this change as well.

A bog may look like solid ground, but it isn't. It's essentially a waterlogged mat of mosses of the genus *Sphagnum*. Beneath the living layer of moss at the bog's surface is a thick deposit of dead sphagnum and sometimes sedge. This is peat—the barely decomposed remains of generations of plants. In mature bogs, the peat can be 20 or more feet thick.

There is very little drainage out of a bog, even though water is usually draining into it. This is because the growing sphagnum is always absorbing a little more water: the moss and the water tend to accumulate together. You might think all that moist peat would make the bog an ideal place for a plant to grow. But actually, few plants can survive bog conditions. Peat has almost no nutrients and in standing water it's extremely acid. Bog vegetation is therefore a very distinctive flora.

But how does a bog take root in the first place? Imagine a lake surrounded by marsh. Perhaps a shoreline ring of cattails and sedges has begun to extend its root mat out into the shallows. As the plants drink and accumulate debris, the water level drops, inviting the vegetation farther in. Eventually, the water level sinks below its drainage point, and the remaining shallow water is rapidly colonized by sedges, grasses, and sphagnum moss. A layer of dead vegetation builds up on the lake bottom and causes the water to acidify. Here and there, the accumulated debris, well preserved in the acid water, reaches the surface.

At this point, the lake has become a fen. Peat has begun to form but it isn't yet very deep. The mineral substrate is still within reach of plants' roots. Acid-loving plants have started to appear—chiefly sphagnum mosses and members of the heath family, or Ericaceae. This large family includes such plants as blueberries, huckleberries, laurels, and a host of other genera. The ericads, as they are called, make up the



MARGARET SCOTT

dominant component of bog flora.

As the sphagnum continues to grow, the layer of peat thickens. Eventually, the shrubby, shallow-rooted plants can't reach the mineral layer below. The nutrient-poor peat and the growing acidity put an end to any remnants of marsh vegetation. Little is now growing on the moss but ericads and sedges.

As the peat accumulates, it may form a dome that rises gently above the surrounding terrain. The moss is incredibly absorbent—it can hold 20 times its weight in water—so the dome remains waterlogged despite its height. A domed bog is perhaps the only place in nature where you can find water moving uphill. At some point, the dome may begin to grow outwards as well as upwards, extending the bog onto what was once dry land. But domed bogs take thousands of years to form: peat normally accumulates at the rate of only one or two inches a century. Bogs are most common in northern wetlands but they can develop wherever the conditions are right—even as far south as Florida.

Because the bog is such a demanding environment, bog flora tends to be more specialized than marsh flora. One common adaptation is a tough leathery leaf, as in bog rosemary (*Andromeda glaucophylla*), labrador tea (*Ledum groenlandicum*), and some other ericads. Tough leaves help these plants cope with extreme acidity. In very acid soils, the high concentration of hydrogen ions—the low pH—can interfere with plants' ability

to "pump" water into their tissues. So even though a peat dome is 98 percent water by weight, it's really a kind of desert for the plants that grow on it. Ericads' thick leaves slow the loss of whatever precious water they have managed to absorb.

Other adaptations aim to increase plants' ability to capture the bog's meager nutrition. The only minerals that reach a domed bog arrive as dust or in precipitation, and these too are hard to absorb because of the low pH. In response, many ericads have teamed up with mycorrhizal fungi, which live in the plants' roots. In exchange for carbohydrates, the fungi boost the plants' uptake of minerals, particularly phosphorus. This form of symbiosis resembles the well-known relationship that members of the pea family (Leguminosae) have with certain bacteria for the uptake of nitrogen.

A few bog dwellers have staged a kind of end run around the nutrient problem: they've become carnivores. As anyone who has ever visited a bog knows, insects are among the bog's richest resources. To capture this mobile nutrition, such plants as the Venus's-flytrap (*Dionaea muscipula*), pitcher plants (*Sarracenia* spp.), and sundews (*Drosera* spp.) have evolved the adaptations for which they are famous.

Some bog plants have an unusually slow reproductive cycle, perhaps to cut down on their nutrient needs. Bog rosemary, for instance, takes two growing seasons to go from flower bud to seed.

The ericads, particularly the leatherleaf, are pioneers on the sodden barrens of sphagnum. But eventually, they may be succeeded by other plants. As the leatherleaf's root mass permeates the sphagnum, it builds firmer ground. By infinitesimal degrees, its dead tissues increase the bog's nutrient load. Eventually other shrubs and even some trees may find their way out onto the bog. This form of succession typically includes willows, hollies, birches, larches, and spruces. Where they succeed, these more robust plants will shade out the pioneer ericads. The sphagnum may also die and slowly, patches of moist forest may emerge from the bog.

—C. B.

Swamps: A Species Study

A wooded wetland is a swamp. Both marshes and bogs can turn into swamps, if the conditions are right. The process usually results in a tree canopy broken by pools and stretches of marsh. Below the canopy there may be an understory of shrubs and herbaceous plants. And as in a marsh, a swamp's water table often fluctuates greatly.

Most people think of swamps as a genre of the southern landscape. It's true that most of the famous swamps are in the South: the Great Dismal Swamp along the Virginia-North Carolina border, Okefenokee Swamp in Georgia, or the Big Cypress Swamp adjoining the Everglades in south Florida. But there are northern swamps as well: Canadian conifer swamps intermingled with bogs cover vast tracts of land.

Of course a Canadian swamp differs greatly from a southern bayou. A good way to get a sense for these differences is to look at a dominant species from each region. In the northern swamps, that title would have to go to the black spruce (*Picea mariana*). A narrow, often rather scraggly conifer with short blue-green needles, black spruce can reach 80 feet but it usually grows to only half that size. It has one of the most extensive ranges of any North American tree. It grows from the subarctic to the Appalachians of Tennessee; it ranges from Alaska to Labrador, and from Minnesota to the East Coast.

Black spruce will grow in a variety of sites but it really comes into its own on boggy, sphagnum terrain. In such sites, it usually out-competes the other common boreal conifers, red and white spruce (*Picea rubens* and *P. glauca*) and balsam fir (*Abies balsamea*).

There are large tracts of northern swamp where black spruce is virtually the only canopy tree. That's a relatively rare accomplishment: nature doesn't like uniformity.

Black spruce's reproductive abilities are formidable. A black spruce seedling may produce cones in its third year. Every winter, it will shed a little seed but the cones may persist on the tree for five years, awaiting a fire that will clear the area of competing vegetation.

Fire plays a role in many swamps and marshes. The Everglades, for instance, burn regularly: that's one reason the glades are still a marsh and not a swamp.

Black spruce also multiplies by layering. When a branch touches the ground, it tends to develop roots and may grow into a separate tree. Entire stands of genetically identical black spruce, called clones, may be formed in this way. Neither red nor white spruce layers naturally, although gardeners sometimes coax the latter into doing so.

Its adventitious roots also help keep the black spruce on top of its treacherous terrain. In cold climates, decomposition is slow so forest litter builds up relatively quickly. This accumulation of debris, combined with the instability of the boggy substrate, puts the spruce at risk of "sinking." That might suffocate the roots, since the water table in these areas is usually very high. As a remedy, the tree puts out new roots to match the rising ground level. Black spruce is said to be capable of producing some 20 feet of root layers in this fashion.

Southern swamps have their characteristic tree too: the bald cypress (*Taxodium distichum*). A stand of bald cypresses, with their fluted, buttressed trunks rising above the dark waters and their limbs draped in Spanish moss, make up the archetypal southern swamp. But the more you know about bald cypress, the more mysterious it seems.

Bald cypress is a deciduous conifer that can grow to well over 100 feet. The base of its trunk is often swollen and surrounded by "knees"—conical projections emerging from its roots. Its natural range is from south Florida and the Gulf Coast to southern Illinois, Kentucky, and Virginia. Yet it can be grown as far north as New York—even southern Canada. Why it never reached these regions on its own is a mystery: apparently, it didn't keep pace with the retreat of the last glaciation. At the southernmost point of its range, bald cypress acts like a recent immigrant as well. It has brought its habit of leafing out in March to the fire-dominated swamps of south Florida. That habit makes sense farther north, where springs are wet. But in

south Florida, the tree risks losing its new foliage because March is the start of the burning season.

Bald cypress dominates standing water swamps—areas that rarely drain entirely. On sites with somewhat better drainage, it usually gives way to tupelos (*Nyssa* spp.) and ashes (*Fraxinus* spp.). As you climb out of the swamp and into mesic forest—moist forest that doesn't flood—you'll find more diverse stands dominated by oaks (*Quercus* spp.), hickories (*Carya* spp.), and sweet gum (*Liquidambar styraciflua*). Bald cypress actually does best on mesic sites but it doesn't grow there naturally because it can't compete with these more vigorous species. In effect, the monarch of the southern swamps is a prisoner.

Given its exacting reproductive requirements, it's a wonder bald cypress dominates any portion of the swamp. It releases its tiny seeds only every three years or so. These are designed to be scattered only by water, not by wind or beast, yet they'll only sprout if they find a moist seedbed that isn't flooded. For their first year, seedlings won't tolerate more than three weeks of flooding. A drop in the soil oxygen level—due to unusually warm ground water or an accumulation of silt—could also kill them. Add to this the fact that rodents love bald cypress seedlings, and you can see why bald cypress stands are slow to regenerate. Luckily, the tree is long-lived, although how long is difficult to say. Claims of 3,000-year-old bald cypresses are likely to be the result of a misreading of tree rings, several of which may be laid down in the course of a year. But presumably the bald cypress uses its longevity to play a kind of reproductive waiting game: every so often, its seed rain will coincide with a moderately dry spell and a crop of seedlings will emerge.

The bald cypress remains a mystery that is growing increasingly difficult to study. It has probably suffered the greatest decline of any North American tree, apart from the American chestnut and the American elm. A better understanding of its ecology might also help us conserve the swamps in which it grows.

—C. B.

Help Through the Morass

How do you know if you have a wetland? After all, the Everglades are sometimes dry, and urban yards are often suitable for ducks.

Basically, the criteria are three: hydrophytic plants, hydric soils, and wetland hydrology. It's in defining these three criteria legally that things get sticky.

Of the nearly 7,000 vascular plant species found growing in U.S. wetlands, only about 27 percent are "obligate" wetland species that grow almost exclusively in wetlands. Therefore, it's difficult to identify a wetland based on plants alone.

Hydric soil is essentially anaerobic soil, low in oxides of iron and manganese. A good indicator is "gleyed" soil, which is blue gray and sticky. But two pages of fine print in the *Federal Register* describe atypical hydric soils. In many areas of the Gulf Coast, for example, hydric soils can be red.

The hydrology requirement has met with the most debate. The four agencies charged with wetland regulation—the Army Corps of Engineers, the Environmental Protection Agency (EPA), the Fish and Wildlife Service, and the Soil Conservation Service—maintained in a 1989 manual that a wetland was any area wet for seven consecutive days a year to within six to eight inches of the surface.



The Bush administration held out for a less stringent definition: inundation for 15 or more consecutive days, or saturation from ground water to the surface for 21 or more consecutive days during the growing season in most years. The National Research Council has been asked to produce a scientific definition. "It's a lot like asking for a definition of pornography," says one Capitol Hill aide. Eventually, there may be several wetlands classifications.

Four federal agencies with overlapping duties would be nightmare enough, but state and regional bodies invariably have something to say about wetland matters—zoning boards, natural resources boards,

and perhaps separate wetlands boards.

If you suspect you may have a wetland and you want to do the right thing by it—not only staying out of trouble but possibly restoring the land to a healthier state—where do you start?

The EPA, which has raised the response "I can't help you but I'll transfer you to someone who can" to a fine art, actually has a fairly helpful toll-free line. The people who staff it are not bureaucrats, but friendly and knowledgeable folks working for a private organization under contract with the EPA. They have educational materials—including a long reading list for children—some of which is free. There is a charge for other publications, such as lists of wetland plants for each state and various regions of the country. They can also direct you to regional contacts for the EPA and the Army Corps of Engineers. Their toll-free line, (800) 832-7828, is staffed from 9 a.m. to 5:30 p.m. Monday through Friday except for federal holidays.

If you are interested in restoring existing wetlands—or an area that you suspect was once a wetland before granddad filled it in to plant corn—you may want to look into the Partners for Wildlife Program of the U.S. Fish and Wildlife Service. The program offers technical and financial assistance to individuals or groups in returning wetlands to their natural state, as well as in restoring other types of wildlife habitats. In return, landowners agree to maintain land in its natural state for 10 years or longer, depending on the scope and type of the restoration. The government does not acquire any interest in the land. Since the program's inception in 1987, some 11,000 properties have been restored. There is no minimum acreage, but the wetland must be self-contained on the property involved since it's impossible to restore only part of a wetland.

There are seven regional contacts for this program: in the far West, (503) 231-6154; in the upper plains, (303) 236-8152; in the Great Lakes region, (612) 725-3570; in the Southwest, (505) 766-2914; in the Southeast, (404) 331-0830; in the Northeast, (617) 965-5100; and in Alaska, (907) 786-3545.

FOOD, FIBER, AND FLOWERS

Proposals for changes in wetlands regulations this year have kept the American Association of Nurserymen (AAN) on the alert. Under a proposal by the four agencies that oversee wetlands, "agricultural lands" would be limited to those "intensively used or managed for the production of food or fiber."

"We're concerned about setting an ugly precedent," said the AAN's Ben Bolusky. "This would drive a wedge between the nursery industry and the rest of agriculture, and we would be regulated by the Army Corps of Engineers rather than the Soil Conservation Service." Not only are the army and nurserymen rather "untraditional partners," said Bolusky, but such a step "could spill out to a whole host of water-related issues," and perhaps result in nurseries being considered industry rather than agriculture for tax purposes.

Within agriculture, the nursery industry has a low-profile because its members have never wanted price supports. "It's sort of like the stepchild in the attic," said Bolusky. "You have to let them know you're there."

Environmental Crimes

Why should you learn about wetlands? If you're not sold by the beauty of the plants that grow there, or the attraction of water to wildlife, or the reduced expense and labor of adjusting your expectations to the existing landscape, consider this: jail.

Countering the bone-chilling tales of ecosystems wantonly destroyed by heartless developers are horror stories of landowners harassed, fined, or incarcerated because they filled or dammed property they didn't know was a wetland—or at least didn't think should qualify as such.

At least two cases have gone all the way to the Supreme Court. John Pozgai was convicted of knowingly filling wetlands in Bucks County, Pennsylvania, without a permit from the Army Corps of Engineers and sentenced to three years in jail. Pozgai got a bargain on the 14-acre property because it was a wetland, according to the Environmental Protection Agency, and ignored warnings to stop filling. Neighbors whose homes began to flood as a result of his earth-moving shenanigans recorded them on videotape.

The case most relevant to gardeners—and a cause célèbre for those who contend that wetland regulations are too ruthlessly enforced—is that of William Ellen. No one should have known the rules better or could have seemed more environmentally sensitive than Ellen. Himself a former wetland regulator, he and his wife run a rehabilitation center for injured wild animals and birds.

Ellen was supervising the construction of a \$7 million, 3,000-acre wildlife sanctuary and hunting preserve in Dorchester County, Maryland. He and his boss, Wall Street trader Paul Tudor Jones II, were actually creating wetlands, with freshwater duck ponds and plantings to attract waterfowl. Ellen claims he contacted all the proper authorities, got all the appropriate soil tests and all the necessary permits. But as the project got underway, regulations were rewritten, and Ellen's crews proceeded to fill some acreage once defined as dry, but now considered wet. Jones pled guilty and paid a \$1 million fine. Ellen went to a

correctional facility for six months.

President George Bush, then claiming there would be "no net loss" of wetlands from changes in the law that his administration was proposing, denied Ellen a pardon. Ellen admits that "mistakes were made," but hopes his jail term will serve to bring some balance to land-use management and prosecution of environmental crimes.

You don't have to live near a coast to run afoul of wetlands gendarmes. One Missouri couple was threatened with fines of up to \$25,000 a day after building a levee to protect their farm from flooding.

But the property owner doesn't always lose these legal battles. When the case of David H. Lucas went to Supreme Court, Lucas got \$1.2 million and set a precedent under so-called "takings" laws. Lucas was prohibited by wetland regulations from developing two beachfront lots in South Carolina, and demanded that he be compensated by the state as other property owners would be if their property was taken for a highway or other government use. Some legal experts believe he won because he was denied *any* economically beneficial use of the property. Others suggest the ruling will be expanded to encompass denial of more specific uses, expanding the rift between environmental regulation and owner control of private property.

So far, however, there is no reason to think the court would be sympathetic to those denied a request to plant a perennial border along a shoreline.

Elizabeth Zucker is staff scientist with the Chesapeake Bay Foundation, a non-profit group that monitors bay protection in three states. Her advice in regard to gardening in an existing wetland? Forget it. "The best place to build a water garden is in an upland area," she says. "I see pictures of wetland gardens in magazines where they've dammed an existing small stream and it gives me the willies." Even if you don't use chemicals and you don't plant exotic species, it's almost impossible to garden without moving dirt. This can change drainage patterns and damage emergent plants. "Clearing of exotic species" like honeysuckle or kudzu "would be

acceptable," she allowed.

There's no doubt that frustration with the regulations is high. In its February 15 issue, *American Nurseryman* published the story of Curtis Biggar. He claimed that last spring was so wet, cattails grew in his son's pickup, and officials of the Wisconsin Department of Natural Resources ordered him not to fill the truck box unless he received a variance from each district through which he might drive his truck. The story, it turned out, was the winner of the 64th annual Burlington (Wisconsin) Liar's Club competition. Biggar said it stemmed from less than happy experiences with natural resources regulators.

Federal officials say that since the Clean Water Act was enacted in October 1979, fewer than 10 violators have been sentenced to jail and that of approximately 150,000 permit applications filed so far, they have completed steps to veto only 11.

The word "completed" may be key here; the majority of people who complain about wetland regulations cite the confusion of overlapping bureaucracies, the onerous paperwork, and the delay in their projects as they wait for approval.

"A typical landowner can expect a one-year wait for a permit," according to D. Brian Costello, an Alexandria, Virginia, attorney specializing in land use and environmental issues. He notes that in September of last year, Clean Water Act regulations were changed to require a permit to add dredged or excavated material to a wetland as a result of "mechanized land clearing, ditching, channelization, or other excavation."

The regulation doesn't define a wetland area by size, he says. "As a practical matter, if you dump a wheelbarrow full of dirt into a marshy area, nobody will know or care," but a disgruntled neighbor could blow the whistle and make life exceedingly unpleasant. "The burden is on the landowner to show that the activity does not destroy or degrade wetland of any size," Costello said. "I know a number of people who were caught up in the prior, more restrictive definition, on small to medium projects, and fined and in one case, jailed."



AHS BULLETIN BOARD

FIVE JOIN BOARD

Five new members have joined the American Horticultural Society's Board of Directors.

Mrs. Martyn L. (Gene) Miller of Ashton, Maryland, has for the past 11 years served on the board of directors of the National Council of State Garden Clubs, Inc., headquartered in St. Louis, Missouri. Between 1987 and 1989 she served as Central Atlantic Region director, working with six states and the National Capital Area Federation of Garden Clubs, of which she is a trustee and past president.

Currently she is serving the national council as chairman of the Friendship Garden at the U.S. National Arboretum, seeking funds to support the garden from garden club members and others throughout the nation. A graduate of the University of Maryland, she is also a Master Flower Show Judge and a Master Landscape Design Critic.

Mrs. Walter M. (Dudley) Morgan Jr. serves as a volunteer for many organizations both nationally and in her home city of Nashville, Tennessee. Her current board positions include Vanderbilt University Board of Trust, Tennessee Botanical Gardens and Fine Arts Center-Cheekwood, Horticultural Society of Davidson County (of which she is a past president), and national chairman of the visiting gardens committee for the Garden Club of America.

She graduated magna cum laude in 1949 from Vanderbilt University, where she was Phi Beta Kappa. She is past president of the Junior League of Nashville and the Garden Club of Nashville, and has chaired a number of fund-raisers, including the Swan Ball to benefit Cheekwood.

William A. Pusey is a partner in the business practice group of Hunton & Williams law firm's Washington, D.C., office. His practice focuses on acquisitions and mergers, securities law, natural resources, and international transactions.

He received his undergraduate degree from Princeton University, where he was Phi Beta Kappa, and his law degree from the University of Virginia. From 1963 to 1964,



Dudley Morgan



William A. Pusey



Geoffrey L. Rausch



Emanuel Shemin

he served as a deputy district attorney in Alameda County, California. Pusey writes and lectures extensively on topics relating to the coal industry. He is vice chairman of the American Bar Association's Coal Committee, and was awarded the 1993 Distinguished Lawyer Award by the National Coal Lawyers Conference.

Geoffrey L. Rausch is a landscape architect with Environmental Planning and Design in Pittsburgh, Pennsylvania. He specializes in the design and master planning of arboreta and botanical gardens, and has worked on more than 40, including the Missouri Botanical Garden, the Chicago Botanic Garden, Holden Arboretum, and Denver Botanic Gardens.

Rausch received his degree in landscape architecture from Ohio State University in 1962, and worked briefly as a landscape architect for the city of Columbus, Ohio, departments of city planning and parks and recreation. He was last year's recipient of the AHS Urban Beautification Award, and has received the Merit Award for Garden Design

from the American Association of Botanical Gardens and Arboreta.

Emanuel Shemin is past president of Shemin Nurseries in Greenwich, Connecticut, since 1986 a subsidiary of the Weyerhaeuser Company. Shemin started the business in 1955 to establish horticultural distribution—connecting producers and retail sellers—as a separate professional discipline within horticulture.

Shemin received a bachelor's degree in plant science from Syracuse University in

1952 and has served the university's board of trustees. An American Association of Nurserymen governor from the state of Connecticut for two terms, he has also held offices in the New York State Nurserymen's Association and is advisor to the Ministry of Agriculture in Israel.

ANNUAL MEETING IN OCTOBER

Members of the American Horticultural Society should begin to plan now for the Society's 49th Annual Meeting, to be held October 13 to 15 at the Crystal City Sheraton Hotel in Arlington, Virginia.

The keynote speaker will be English landscape designer and author John Brookes. In private practice since 1964, in 1980 he founded the Clock House School of Garden Design within the established garden of Denmans in West Sussex, England. He has been a lecturer for the Henry Clewes Foundation in La Napoule in southern France and for the Garden Design School of the Royal Botanic Gardens at Kew.

To Americans, Brookes is best known for his many books on garden design. His most recent books are *The Country Garden*, *The New Small Garden Book*, and *John Brookes' Garden Design Book*.

This year's garden tours will take members to private gardens in the Baltimore, Maryland, area.

A meeting agenda and registration materials will be mailed to members in June. For additional information, members should contact Bridget Flint at AHS after June 1.



AHS ENCYCLOPEDIA RECEIVES GARDEN WRITERS' HIGHEST AWARD

The American Horticultural Society Encyclopedia of Gardening has won this year's top Quill and Trowel Award from the Garden Writers Association of America (GWAA).

The book, published by Dorling Kindersley, Inc., was given the Award of the Year by the organization of garden communicators. The award is given to a product entered in any one of the competition's categories—such as writing, photography, or design in a book, magazine, or newspaper—when in the opinion of the judges it excels in a number of these categories. "It has to be outstanding as an overall product," explains GWAA spokeswoman Janine Adams, who notes that the award is not given every year.

Some comments from the judges:

"Excellent presentation of the material, nicely paced."

"Very impressive job. The mix of photographs and illustrations is very successful."

"This encyclopedia invites the reader to get into it and learn all about gardening there is to know."

"The how-to illustrations are clear and

the information blends nicely with the photographs."

"Informative with style!"

The encyclopedia was initially edited by Christopher Brickell, who for eight years was director general of the Royal Horticultural Society in England. The book was re-edited for North American audiences by author and photographer Elvin McDonald, a member of the *American Horticulturist* editorial advisory board, in tandem with Trevor Cole of Agriculture Canada.

McDonald noted that Frank Robinson, former AHS executive director, played a critical role in giving a green light to the project. And he expressed gratitude to Ray Rogers, the publisher's coordinating editor and a professional horticulturist.

McDonald has been a member of GWAA since 1951, when he was only 14. "*The American Horticultural Society Encyclopedia of Gardening* represents the achievement of a life's goal—to collect in one place all the techniques used by gardeners," he said. "This was made possible by the very forward-thinking publishers, Dorling Kindersley, and by a vast team of

participating gardeners, writers, photographers, and editors. It may be speculated that this book constitutes the road map for creating a CD-ROM that will put gardeners confidently onto the electronic information highway by the end of the century."

NEW AZALEA GARDEN

The George Harding Azalea Garden, a 400-foot-long bed containing almost 400 azaleas, is to be dedicated this month at the American Horticultural Society's River Farm headquarters.

The bed is a memorial to George W. Harding of Germantown, Maryland, one of the founders of the Azalea Society of America. As chief of maintenance of National Capitol Parks, Harding supervised plantings on the White House grounds and other capital city landscapes. Before he retired in 1959, he received the Department of the Interior's highest honor, the Distinguished Service Award. He died in 1990.

In the spring of 1989 Bob Hobbs, then the azalea society president, participated in an AHS-sponsored tour of the Windward Islands of the Caribbean. When he talked to then AHS President Carolyn Marsh Lindsay about the idea of the two societies working more closely together, an azalea display garden was one idea that emerged.

Society members have donated some 300 different species and cultivars, and local members donated more than 2,400 hours of labor. AHS helped the organization purchase an irrigation system for the site, against a brick wall at the southern edge of the River Farm property.

A central path down the length of the bed is met with a short path running from the edge of the bed every 75 feet. "We feel this arrangement of paths invites visitors into the garden and encourages them to walk through the entire garden," says Bob Stelloh, an azalea society member who has chaired the project. Each section has one or two color themes, such as purple-pink, orange-red, or salmon, with low-spreading plants near the path and the largest plants in the center. The azaleas are also grouped by bloom time, so that large sections are in bloom at one time.

Those who have worked on the garden are Ralph D'Amato, Jean Cox, Milt and Joan Lerner, Jane Newman, Nancy Stipa, George and Sue Switzer, and Stelloh.

For information on helping with the azalea society project call Bob Stelloh at (301) 840-1774.

AWARD FOR DISCOVERY GARDEN

One of the 12 children's gardens installed last summer at the American Horticultural Society's River Farm headquarters has been recognized in a national environmental challenge contest organized by the Amway Corporation and *Newsweek* Magazine.

The Children's Discovery Pond, designed by H. Kibbe Turner of Wildlife Habitats in Gaithersburg, Maryland, was selected as one of 10 prize winners from more than 250 entries.

In an awards ceremony February 8, the Amway Corporation presented a \$5,000 check to Carl Sandburg Intermediate school

in Fairfax County, Virginia. Students from an after-school program, Project Achievement, helped plan, install, and maintain the garden pond.

The project will be featured in an Amway Corporation advertisement in the May 30 edition of *Newsweek*.

The awards ceremony was attended by representatives of Amway, *Newsweek*, local school officials, and AHS staff. AHS Education Coordinator Maureen Heffernan, who conceived and guided the children's garden project, praised Turner for supporting the project financially and with hours of labor. "Without his direction, enthusiasm, and commitment to getting youth interested in environmental education, this garden project would never have materialized," Heffernan said.

Turner, who also serves as the executive director of the Association of Professional Landscape Designers, is assisting Heffernan in designing two new educational children's gardens to be seen at River Farm during the 1994 season.



ANNA CARROLL

H. Kibbe Turner

THANKS!

The Ames Lawn and Garden Tool Company of Parkersburg, West Virginia, recently sent the American Horticultural Society a generous donation of tools—trowels, weeders, hand-pruners, shovels, rakes, and wheelbarrows—to be used by staff, interns, and volunteers at our River Farm headquarters. In acknowledging the gift, AHS President H. Marc Cathey observed: "Proper tools are the foundation of great gardens."

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FLOWER SHOW AWARDS

Representatives of the American Horticultural Society attended four flower shows in March, seeking the exhibit at each that "best demonstrates the bond between horticulture and the environment," encouraging viewers to beautify their homes and communities through horticulture.

The winner of the AHS Award at the Philadelphia Flower Show was chosen by staff horticulturist Bob Blackburn. Sponsored by the J. Franklin Styer Nurseries of Concordville, Pennsylvania, the display was titled "Oh Deer!" All of the plants it contained have been found by researchers to be unlikely to be browsed by deer in normal circumstances.

The AHS award-winner at the Washington Flower Show was designed by Timothy M. Wessel of Timothy's Garden of Silver Spring, Maryland. Blackburn said the design was appealing because it was small in scale and blended naturally into the environment.

The award at the Maryland Home and Flower Show in Timonium, Maryland, went to Pinehurst Landscape Co., Inc., and was presented by AHS President H. Marc Cathey. The design used stone walls, both as vertical backdrops to plantings and as low horizontal dividers between beds. "There was a wide variety of plants, with large masses of evergreens such as juniper and *Pieris* as well as perennials, to provide interesting colors, textures, and forms year round," Cathey said.

Cathey traveled to New York State to judge exhibits at the Greater Rochester Flower and Garden Show, where honors went to Pine Creek Landscape and Palmiter's Garden Nursery. Their creation was a natural garden of stones, running water, and ridges landscaped with a great variety of perennials, bulbs, and shrubs, "all coordinated to give that first peak at spring," said Cathey.

YOUR FAVORITE SHOWS

The American Horticultural Society would like to hear which flower shows its members think are the best. We may be able to co-sponsor the events and arrange for free admission for members. Chelsea, Philadelphia, New York, New England, and Cincinnati shows have already been suggested. Tell us about others by writing Flower Shows, 7931 East Boulevard Drive, Alexandria, VA 22308-1300.



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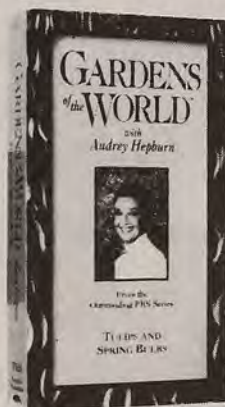
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International Symposium on Youth Gardening

*Cosponsored by the
American
Horticultural
Society and the
Montessori
Foundation*



With its second major symposium on the topic to be held August 4 to 7 at the Doubletree Conference Center in Arlington, Virginia, the American Horticultural Society continues to lead a national horticultural and educational movement to promote more gardening programs and experiences for today's youth.

The program has been developed to be of interest to educators of children and youth from preschool through high school, horticulturists, community program youth educators, landscape designers, environmental educators, and anyone who wants to learn about starting or improving gardening programs for children in schools and community programs, and to meet others who are doing so.

Joyce St. Germaine, executive director of the Montessori Foundation, attended last year's symposium, and proposed this year's meeting to other Montessori officials. "As adults, we know that our love of gardening often began with childhood experiences," she said. "We also know that children today have far less, if any, ongoing opportunity to discover, master, and enjoy the art and science of gardening. It is a symptom of a larger trend that, over the past generation, increasingly keeps children at a distance from nature. Due to changing family trends, increased land development, and our fear of the more threatening elements of society, our children spend more and more time almost imprisoned in our houses, schools, shopping centers, and artificial playgrounds. Even though justified by the best of intentions, we have created formidable barriers between today's youth and the natural world." We can't and shouldn't return to a

more pastoral society, she says, but we do have the responsibility to create more opportunities for youth to have meaningful interaction with the natural world. Gardening experiences provide youth with this critical interaction as well as excellent hands-on educational opportunities.

A Call to Arms

Last year George Ball Jr., Immediate Past Chairman of AHS and chairman of W. Atlee Burpee & Company, issued a "Horticultural Call to Arms" to the over 550 people from around the country attending the first AHS children's gardening symposium. He called on AHS members and others to use their horticultural skills and knowledge to teach children about plants and gardening. "In gardens, children learn to care, to be patient, to persist, and to experience both success and failure. In time children's maintenance of plants might give them insight into the care that will be required in their relationships with others. Our children will build a beautiful world only if they themselves experience the beauty and mystery of life; they will realize it exists not only within them, but also beyond them—they need only to sow a seed to see this beauty and feel part of it."

His challenge has had a ripple effect throughout the country. Hundreds of educators and other concerned adults have contacted AHS to ask how they can

begin gardens and garden programs for children in their schools and communities. Many symposium attendees have already started to build those gardens, which we will be describing in the *American Horticulturist* magazine's "Planting the Future" department.

The Montessori Foundation has enthusiastically responded to the AHS challenge. The Montessori education tradition, stressing hands-on and interdisciplinary approaches, provides a solid foundation upon which to launch a national movement within public and private education that is dedicated to bringing children, plants, and gardens together in exciting new ways.

At the August symposium, educators and youth leaders will learn to create, use, and view gardens as a practical, yet dynamic way to enhance and restore children's relationship with nature.

Symposium Events

Through keynote addresses, workshops, and exhibits, participants will learn and share information about:

- ♦ Using the garden as a living classroom for interdisciplinary and outdoor learning for youth in grades K through 12.

- ♦ Teaching science and environmental education through gardening.

- ♦ Designing school and community gardens for youth. *Continued on page 20*

Symposium *Continued from page 19*

♦ Building collaborative relationships between schools, public gardens, businesses, and community groups.

♦ Fund-raising and financing youth gardening programs.

In addition to keynote addresses and workshops, participants will have the opportunity to see 12 children's gardens and engage in some hands-on gardening lessons at River Farm, the historic headquarters of AHS overlooking the Potomac River in Alexandria, Virginia. Each garden demonstrates creative and practical ideas for school gardens and/or back-yard fun gardens.

The gardens include the "Children's Discovery Pond" and "Dinosaur Garden" so popular with visitors to AHS children's gardens in 1993, and a "Bat Garden," one of two new gardens being planned for the '94 symposium (see page 21).

The day at River Farm will include

hands-on gardening lessons and demonstrations of how to lead outdoor nature study with children. Participants can choose from such topics as soil preparation, including how to double dig a garden bed; composting; worm bins and vermiculture; indoor and outdoor seed germination techniques; herb gardening; garbage bag gardens; flower arranging and nature crafts; and wildlife habitat gardening. The day will close with a picnic lunch.

Keynote Topics

♦ **George C. Ball Jr., "Burpee Goes to School."** Ball is chairman of W. Atlee Burpee & Company, the sponsor of the 1993 AHS Children's Gardening Symposium, and Immediate Past Chairman of AHS. He will speak about how his company is working with educators and schools to help children become excited about and involved in gardening. Ball has personally initiated and sponsored garden-

ing programs for youth in urban and inner-city areas nationwide.

♦ **Louise Chawla, "Out of the Garden and Into the World: Preparing Children to Care for the Earth."** Chawla will present an overview of psychological research on how children develop affection for nature and a sense of earth stewardship. Using this research as a guide, she will address ways that teachers and parents can provide children with meaningful experiences with nature through gardening. Chawla, who began her career as a Montessori teacher, now teaches at Whitney Young College at Kentucky State University. Chawla also is the associate editor of the journal *Children's Environments*.

♦ **Ward Cheney, "Forming School- and Community-Supported Gardening Programs for Youth."** Cheney, director of the Drumlin Farms Food Project in Lincoln, Massachusetts, will address the increasing interest in and enthusiasm for community-

PROGRAM AGENDA

Thursday, August 4

Noon - 6 p.m.	Exhibitors set up
5 - 7:30 p.m.	Early registration
6 - 8 p.m.	Exhibits open
6 - 8 p.m.	Welcoming reception: Meet keynote speakers

Friday, August 5

7:30 - 8:30 a.m.	Continental breakfast
7:30 - 8:30 a.m.	Registration
8:45 - 9 a.m.	Welcome: Tim Seldin
9 - 10 a.m.	Keynote Address: Louise Chawla "Out of the Garden and Into the World: Preparing Children to Care for the Earth"
10 - 10:15 a.m.	Break
10:15 - 11:15 a.m.	Keynote Address: David Kahn "How Children Cultivate Gardens and Gardens Cultivate Children"
11:15 - 11:30 a.m.	Break
11:30 - 12:30 p.m.	Workshops
12:30 - 1:30 p.m.	Box Lunch/Exhibits
1:30 - 2:30 p.m.	Keynote Address: Bill Lucas "Grounds for Change: The British Example"
2:30 - 2:45 p.m.	Break
2:45 - 3:45 p.m.	New Idea Forums: Short presentations of new ideas, problem-solving tips, programs, plant suggestions, and cooperative ventures
3:45 - 4 p.m.	Break
4 - 5 p.m.	Workshops
5 - 6:30 p.m.	Exhibits/Free time
6:30 p.m.	Chesapeake Bay crab fest and square dance

Saturday, August 6

7:30 - 8:15 a.m.	Continental breakfast
8:15 - 8:30 a.m.	Welcome: Maureen Heffernan
8:30 - 9:30 a.m.	Keynote Address: Sharon Lovejoy "Sunflower Houses and Hollyhock Days: Garden Discoveries for Children of All Ages"
9:30 - 10 a.m.	Keynote Address: George C. Ball Jr. "Burpee Goes to School"
10:00 - 10:30 a.m.	Keynote Address: Frances Rosiak "Money for the Asking: Funding Your School Gardening Program"
10:30 - 11 a.m.	Break and exhibits
11 - 12:30 p.m.	Workshops
12:30 - 1:30 p.m.	Box lunch
1:30 - 2:30 p.m.	Keynote Address: Ward Cheney "Forming School and Community-Supported Gardening Programs"
2:30 - 3:30 p.m.	New Idea Forums
3:30 - 4 p.m.	Break
4 - 5:30 p.m.	Workshops
5:30 p.m.	Dinner on your own

Sunday, August 7

7:30 - 8:30 a.m.	Continental breakfast
9:30 - 1:45 p.m.	A day at River Farm

Participants will spend a day on AHS's beautiful 26-acre estate that overlooks the Potomac River, taking part in hands-on workshops and demonstrations of gardening, composting, worm bins, soil preparation, seed germination methods, wildlife habitat gardening, butterfly gardening, nature study with children, flower arranging, and garden crafts. Participants will enjoy a picnic lunch and tour 12 children's gardens.

1:45 p.m.	Buses leave River Farm to return to Doubletree Conference Center
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supported horticulture. He will describe how his program operates and how teachers, parents, and community youth workers can start programs in their schools and communities. Drumlin Farms is part of a larger environmental education program sponsored by the Massachusetts Audubon Society.

◆ David Kahn, "How Children Cultivate Gardens and Gardens Cultivate Children." Kahn is executive director of the North American Montessori Teachers' Association and author of many publications used in public and private Montessori programs throughout the world. He will speak about how outdoor experiences enrich the development of children from preschool through adolescence, as well as giving them opportunities for interdisciplinary learning in languages, arts, and the natural sciences.

◆ Sharon Lovejoy, "Sunflower Houses and Hollyhock Days: Gardening Discoveries for Children of All Ages." Lovejoy is the author and illustrator of *Sunflower Houses: Garden Discoveries for Children of All Ages* and *Hollyhock Days: Garden Adventures for the Young at Heart*. Owner of Heart's Ease, a garden center in California, Lovejoy has lectured at botanic gardens, arboreta, museums, and other educational institutions, and has been a naturalist for the Smithsonian Institution. Lovejoy's presentation will feature garden designs, craft, and story ideas to get children interested in gardening.

◆ Bill Lucas, "Grounds for Change: The British Example." Director of England's Learning Through Landscapes Program (LTL) and the author of 15 books on education and the environment, Lucas will address the importance of outdoor school environments. LTL has helped hundreds of schools transform under-used and barren landscapes into environments of beauty and educational diversity. Lucas believes the grounds of every school, from inner city to rural, should be transformed into habitats for plants, wildlife, and children.

◆ Frances R. Rosiak, "Money for the Asking: Funding Your School Gardening Program." Rosiak, a teacher and gardening coordinator at Belle Valley Elementary School in Erie, Pennsylvania, will share her experiences and insights regarding funding, implementing, and integrating a gardening program into an existing elementary school curriculum. Rosiak presented this topic in a concurrent workshop at last year's AHS children's gardening symposium. According to the symposium evaluations, it was one of the most useful and interesting of all of the workshops.

AHS HAS A BAT ATTITUDE!

Among the children's gardens that participants in the AHS-Montessori symposium will get to see at our River Farm headquarters will be a bat garden developed this spring in collaboration with Heidi Hughes, education coordinator of the American Bat Conservation Society (ABCS), and Ken Duffy, a northern Virginia landscape architect and president of Geoscape Landscape, Inc.

Why a bat garden? The mission of ABCS is both to protect bats, many of which are endangered, and to educate people about these interesting and beneficial flying mammals. Contrary to Hollywood vampire movies, bats do not attack humans. In fact, says the ABCS, bats pose less danger of disease to humans than cats do; only one half of one percent contract rabies. Nor will those who occasionally nest in homes chew, gnaw, or destroy wood. Gardeners should welcome bats into their gardens because they eat thousands of night-flying insects, including mosquitos, flying ants, and plant pests. In the tropics, many night-blooming plants depend on them for pollination.

"I am looking forward to showing American gardeners the importance of developing a bat attitude" says Hughes, who will lead a workshop on bats and bat gardening for symposium participants when they visit River Farm August 7. She will be bringing several furry little friends who recently appeared with her on "NBC Nightly News." "They're very photogenic," she says, "and comfortable with their mission—stealing the hearts and minds of the as-yet-to-be converted."

The new children's garden, which is being installed in mid-May, will feature American native plants, night-scented flowers, herbs, and flowering vines. And it will serve as a haven for creatures other than bats. Duffy designed it as a living model of a dynamic outdoor living laboratory with worm bins, bird houses, a compost pile, and a rock and brush pile to offer a refuge for small animals.

Officials of W. Atlee Burpee & Company were inspired by this project to develop a Bat Garden Seed Collection, which they released on Earth Day of this year. These are not bat-pollinated plants, but plants with pale colors or evening fragrance to enhance prime bat-watching hours. The collection includes a selection of nine different seeds for plants that are tall, medium-height (under 30 inches), and short (under 18 inches). Aspiring bat gardeners will receive seeds for *Nicotiana* 'Peacepipe', moonflower vine, *Salvia* 'Lady in Red', four-o'clock, cornflower 'Blueboy', spearmint, *Phlox* 'Dwarf Beauty', stock, and campion (catchfly).

AHS members and friends are welcome to tour the childrens gardens during our normal hours of 8:30 a.m. to 5 p.m. Monday through Friday. The Burpee Bat Garden Seed Collection is \$15 plus \$1.50 for shipping and handling. Maryland residents should add 75 cents for sales tax. For more information on how bats can help gardeners or to order the Burpee Bat Garden Seed Collection contact the American Bat Conservation Society, P.O. Box 1393, Rockville, MD 20849, (301) 309-6610, Fax (301) 424-3938.

Registration

If received before July 1, 1994, registration is \$275. After July 1, registration is \$325. This fee includes welcome reception, all lectures and workshops, transportation to River Farm, garden tours, and all breakfasts and lunches August 5 through 7, and Friday night's crab feast and square dance. Registration does not include lodging.

Lodging is at the Doubletree Hotel and Conference Center in Arlington, Virginia, a modern facility with all the amenities you'll need to get the most out of your visit to the Washington, D.C., area. It offers free shuttle service to and from National Airport and the Metro System. Facilities are

handicapped accessible. The special conference rate is \$72 per room (single or double) per night. Reservations must be made directly with the hotel by calling (800) 222-TREE.

To receive a registration brochure with complete symposium information, please call AHS at (800) 777-7931 or write: AHS, 1994 Symposium, 7931 East Boulevard Drive, Alexandria, VA 22308-1300.

Note: Interest in the 1993 symposium exceeded space limitations. The symposium was completely sold out weeks before the event. Please register early to confirm a place at this year's event.

The 'Wendy House' Returns

Among the children's gardens that will be replanted at River Farm for the 1994 season will be the "Wendy House" garden designed by British garden designer and author Penelope Hobhouse.

Hobhouse agreed to design a garden for the project last year while in Alexandria, Virginia, for an American Horticultural Society-sponsored lecture, and she and her associate Simon Johnson have packed a charming little fairy tale into a space measuring only 12 by 15 feet.

The design is centered around the Wendy House itself, a little willow playhouse hand-made by the craftsmen of the English Basket and Hurdle Centre in Somerset, England. The center donated the Wendy House, along with several willow trellises and hurdle fencing, to the River Farm project. The center is situated in the heart of the Somerset Levels, where willow has grown naturally in the surrounding moors since the sea retreated more than 6,000 years ago. Its artisans carry on skills perfected in the Bronze Age of fashioning the pliable "withies" into hurdles and baskets.

In its brochures, the center emphasizes that manufacturing willow products doesn't require destroying mature woodlands, since willow is an annually renewable crop. It is also an ecologically friendly one, growing in the moors' rich, peaty soil without fertilizers or pesticides.

Willow hurdles are probably the oldest form of garden fencing; wicker fragments, unearthed at Glastonbury Lake Village, have been dated at around 3500 B.C. They are an ideal wind-barrier for plants, since they filter rather than block stiff breezes.

American children playing in the Wendy House must be familiar with Wendy Darling from the story of Peter Pan. But they seem to have re-named it the "Three Little Pigs" house because the it reminds them of the stick home in that classic children's story. It's not unusual to hear children huffing and puffing and threatening siblings or classmates that they'll "blow the house down if you don't come out!"

In front and in back of the house, Hobhouse's garden design calls for tall sunflowers, whose golden yellow heads contrast beautifully with the brown of the willow house. Around the sides are billow-



ing clouds of pale yellow *Coreopsis* 'Moonbeam' with lacy light green foliage.

Growing up the willow trellises that form an entry tunnel to the playhouse door is a delightful tangle of hyacinth beans with their pale purple flowers, dark magenta stems, and long leathery purple seed pods. Two of last summer's interns, Hayley Leinfelder and Sandy Flowers, added more old-fashioned charm to the garden by planting blue morning glories that grew up and over the trellises and sunflower stalks and flung themselves around the house. One wide-eyed little girl touring the garden last summer pronounced them "really glorious."

The front and back yards of this garden are home to several geese and a hedgehog. They are the creations of 27-year-old English sculptor Serena de la Hey, who captures the motion and spirit of the animals with strips of willows that she hand-cuts in the Somerset area. "Willow is beautiful to use, so versatile, flexible, and ideal for conveying the idea of movement," she says. And her sculptures do appear to come to life; the twist and bend of the geese's necks are exactly right and the little hedgehog is hard at work digging for a snack.

De la Hey, who, like the English Basket and Hurdle Centre, donated her creations to the garden, also makes larger-than-life human figures that are hauntingly mythic and a little disturbing—fleshier Giacometti sculptures done in willow. She has exhibited at the Chelsea Flower Show and is working on specially commissioned sculptures for various public arts organizations. The Hobhouse garden as well as the 11 other designs in the River Farm children's garden area will be seen by participants in the national symposium "Out of the Classroom and Into the Garden" when they visit River Farm August 7 (see page 20).

—Maureen Heffernan
Education Coordinator

The English Basket and Hurdle Centre does ship to the United States. For a catalog write the English Basket and Hurdle Centre, Curload, Stoke St. Gregory, Taunton, Somerset, United Kingdom. TA3 6JD, phone 0823-698418, or Fax 0823 698859.

Contact Serena de la Hey by writing to Sculpture, Orchard Cottage, South Barrow, Yeovil, Somerset, United Kingdom, BA22 7LF, or phone 0963 40625.

NEW RELEASES

The New Small Garden

Peter Loewer

Softcover. Retail price: \$19.95. AHS price: \$17.95.

Book code: STE 501

Garden expert Peter Loewer offers gardeners a way to turn their dreams into full-flowering reality even in limited space. This book has plans and plants needed to design a garden in a small area. Guidelines are given for selecting the best plants for a host of gardens, such as a dwarf conifer garden, a moss garden for shade, and trough, tub, and pot gardens. 1994. 192 pages.

Taylor's Guide to Shade Gardening

Edited by Frances Tenenbaum

Softcover. Retail price: \$18.95. AHS price: \$17.

Book code: HOU 502

This is a comprehensive guide featuring more than 350 of the best trees, shrubs, annuals, perennials, bulbs, ground covers, vines, ferns, and grasses for shade. Each plant is illustrated with a color photo, plus there is a section with expert advice on coping with pests and diseases of shade gardens. 1994. 501 pages.

NOTE: Check your July 1993 catalog for other Taylor Guides.

Water Gardens

Jacqueline Heriteau

and Charles B. Thomas

Hardcover. Retail price: \$35. AHS price: \$31.50.

Book code: HOU 503

Everything you need to know to create your own water garden is in this gorgeous book. Part one covers site planning, containers, pumps, filters, pond installation, and maintenance. Part two is an illustrated encyclopedia of 200 of the best plants for gardens in all areas of the country. Also included are the best fish, snails, and other helpers to keep the pond pristine. 1994. 230 pages.

The Border Book

Anna Pavord

Hardcover. Retail price: \$29.95. AHS price: \$26.75.

Book code: HOU 504

Filled with inspiring ideas for both the novice and the experienced gardener, *The Border Book* features 75 planting designs that cover all possible landscaping styles and situations. Each design is illustrated with superb color artwork. There is also a photo gallery of all plants used in the designs and clear, practical advice on how to re-

create the design and maintain it. 1994. 160 pages

The Organic Garden Book

Geoff Hamilton

Softcover. Retail price: \$14.95. AHS price: \$13.25.

Book code: HOU 506

This manual sets out effective strategies for working with, rather than against, nature. Illustrated in full color showing exactly how to use a comprehensive range of chemical-free techniques, it helps gardeners to create an outdoor environment that is safe for children, pets, and wildlife. The emphasis is on growing better-tasting fruits and vegetables the natural way and cultivating healthy plants in healthy soil. 1994. 288 pages.

Gardening by Mail

Barbara J. Barton

Softcover. Retail price: \$18.95. AHS price: \$17.

Book code: HOU 509

Updated and revised, this fourth edition is an annotated directory of sources for everything a gardener might want or need to purchase through the mail. It lists more than 1,000 nurseries and seed companies, indexed by plant speciality and location, plus garden supply companies. You'll find plant and horticultural societies, indexed by special interest, as well as horticultural and gardening magazines. 1994. 365 pages.

The Undaunted Garden

Lauren Springer

Hardcover. Retail price: \$29.95. AHS price: \$26.75.

Book code: FUL 504

Lauren Springer describes both the art and the science of growing a beautiful year-round garden in harsh conditions such as extreme temperatures, drought, wind, hail, and alkaline soil. Her innovative ideas about plant selection and artful gardening tips are

intended for the genuine garden enthusiast—the "thinking gardener" who seeks both harmony and beauty while grubbing around in the dirt. 1994. 256 pages.

The Indoor Garden Book

John Brookes

Softcover. Retail price: \$14.95. AHS price: \$13.45.

Book code: HOU 505

Here is a complete guide to beautifying the home with a stylish variety of flowers and plants. This book shows how to display plants and dried flowers with the flair of a professional decorator. 1994. 288 pages.

Landscaping With Herbs

Jim Wilson

Hardcover. Retail price: \$35. AHS price: \$31.50.

Book code: HOU 507

Once again, Jim Wilson combines inspiration with specific and practical instructions. A chapter on herb culture covers all aspects of planting and maintaining an herb garden. Another covers harvesting and preserving herbs for use in cooking and crafts. Also included is an encyclopedia of 100 of the most beautiful herbs for the ornamental garden. 1994. 240 pages.

Landscaping With Container Plants

Jim Wilson

Softcover. Retail price: \$21.95. AHS price: \$19.75.

Book code: HOU 508

Containers lift landscape design off the ground and onto decks, patios, terraces, balconies, and rooftops, making gardening available to everyone. Growing plants in containers may be no harder or easier than growing them in the ground, but it is entirely different. Jim Wilson discusses soils, fertilizers, and a wide range of plants especially suited for container growing. 1994. 288 pages.

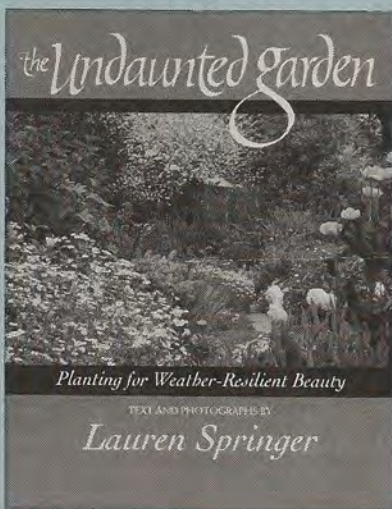
A Journal in Thyme

Eric Grissell

Hardcover. Retail price: \$24.95. AHS price: \$22.25.

Book code: TIM 508

In this second book of gardening essays, Eric Grissell presents vignettes documenting a year's cycle in the life of a gardener and his garden. Grissell's gardening year includes floods and pestilence; trips to nurseries, botanical gardens and shows; new books and inspiration; and the inevitable misplacement of new tools. In short, the reader is invited into the world of a dedicated gardener (one with a delightful sense of humor), a world reflected in the microcosm of his garden. 1994. 332 pages.



The Four Season Landscape

Susan A. Roth

Hardcover. Retail price: \$26.95. AHS price: \$24.25.
Book code: ROD 505

Now you can create a garden that looks good every month of the year. Featuring easy, effective design techniques and stunning photos of great plants and plant combinations, this book makes landscaping fun. It's an information-packed guide to choosing plants that add color to the landscape through all seasons. 1994. 345 pages.

The Gardener's Guide to Growing Hardy Geraniums

Trevor Bath and Joy Jones

Hardcover. Retail price: \$29.95. AHS price: \$24.25.
Book code: TIM 507

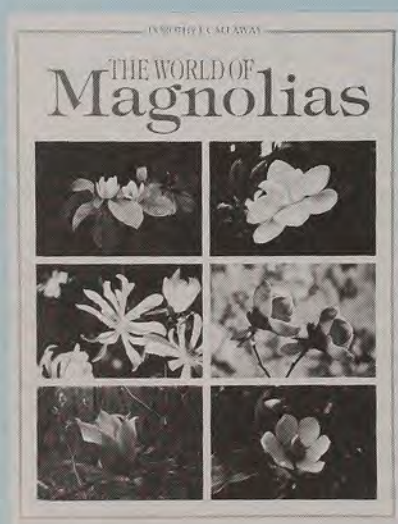
Hardy geraniums are an undeniable asset in the garden. Not only do they produce flowers that bloom for an extended period in a variety of colors, they also have varied growing habits, ensuring their suitability for almost any garden. This book offers everything the gardener needs to know about how to grow and propagate these lovely plants. 1994. 160 pages.

The World of Magnolias

Dorothy Callaway

Hardcover. Retail price: \$44.95. AHS price: \$40.45.
Book code: TIM 506

Magnolias have a well-deserved reputation as aristocrats among landscape plants. In this book Dorothy Callaway provides an up-to-date, encyclopedic reference to all known species and the most complete listing of cultivars yet published. With more than 140 color photos, she documents magnolia history, culture, biology, taxonomy, propagation, breeding, and hybridizers. This is a reference of value to both professionals and laypeople. 1994. 320 pages.



The Garden Tourist

Lois G. Rosenfeld

Softcover. Retail price: \$11.95. AHS price: \$10.50.
Book code: GTP 501

This is your guide to a full year of garden events throughout North America and around the world. The information is organized geographically, with separate sections for major flower shows and international travel. No matter where your travels take you, your garden itinerary is here. 1994. 169 pages.

The Herb Garden Month by Month

Barbara Segall

Hardcover. Retail price: \$24.95. AHS price: \$22.25.
Book code: TRA 510

This is a beautifully illustrated guide to creating and maintaining aromatic, culinary, and decorative herb gardens that gardeners will refer to again and again. Each monthly chapter provides an introduction to the herb garden at that time of year, a checklist of seasonal tasks with instructions, profiles of plants, and a detailed practical project. 1994. 144 pages.

Jane Parker's New Flower Arranging

Jane Parker

Hardcover. Retail price: \$24.95. AHS price: \$22.25.
Book code: TRA 511

Jane Parker reveals the secrets of her elegant craft in this beautiful book, photographed by Peter Williams. Parker presents a stunning array of ideas for arranging fresh flowers beautifully and naturally in designs ranging from simple bouquets to elegant arrangements. She also provides gift and holiday ideas. 1994. 128 pages.

OTHER TITLES

Down the Garden Path

Beverley Nichols

Softcover. Retail price: \$19.95. AHS price: \$16.75.
Book code: ANT 007

This gardening classic has been reissued to delight a new generation of readers with the joys of horticulture. Beverley Nichols (1898-1983) entertained many readers with his vast writings, but it is for this volume that he is best remembered. First issued in 1932, it became a best seller. This is not a gardening manual of practical tips but rather a series of meditations on the soul of the garden. 1983. 290 pages.

Just the Facts

Editors of Gardenway Publishing

Softcover. Retail price: \$16.95. AHS price: \$15.25.
Book code: GAR 502

Dozens of charts with thousands of answers on topics from growing seeds, spacing, insects and disease, mulches, natural fertilizers, and frost dates to pruning times and how-tos, container plants, bulbs, and more. This easy-to-use reference is packed with important tables, charts, and lists that make it a valuable tool for all gardeners. 1993. 218 pages.

Rodale's Illustrated Encyclopedia of Perennials

C. Colston Burrell and Ellen Phillips

Hardcover. Retail price: \$27.95. AHS price: \$25.
Book code: GAR 512

Bursting with hundreds of color photos . . . brimming with plot plans, plant lists, foolproof techniques . . . blooming with 50 years of gardening expertise and green-thumb "how-to," this is one of the more exciting gardening books to come along in many a season. Armed with the knowledge in this book, it's easy to free yourself from the frustration of trial-and-error gardening. 1993. 544 pages.

Random House Book of Perennials Volumes 1 & 2

Roger Phillips

Softcover. Retail price: \$50. AHS price: \$45.
Book code: GAR 513

These two handbooks, organized by seasonal flowering periods, feature over 3,000 color photos as well as practical advice on selection, planting, and cultivation. Over 5,000 of the world's favorite flowering plants are depicted with details of their origins, optimal growing environments, and hardiness. An outstanding reference on perennials. 1992. 492 pages.

Courtyards to Country Gardens

Todd A. Steadman

Hardcover. Retail price: \$40. AHS price: \$30.
Book code: SL 503

The techniques outlined in this book are essential for successfully customizing the garden. It begins with a step-by-step system for creating a lasting foundation—the garden master plan. Following that are stylish solutions for design challenges such as decks, patios, and driveways. Then there is a section devoted to garden accents. There is also a garden resource guide listing dozens of suppliers for those hard-to-find finishing touches. Lavish color photos make this an inspiring book. 1992. 192 pages.

The Hillier Colour Dictionary of Trees and Shrubs

Compiled by Hillier Nurseries

Hardcover. Retail price: \$39.95. AHS price: \$35.95.

Book code: TRA 090

This easy-to-use color reference guide, now revised and updated, lists over 2,500 of the most useful woody plants for today's gardener. It provides concise descriptions and cultural notes for trees and shrubs, conifers and climbers, enabling the gardener to identify a vast array of plants quickly and accurately. Complete with advice on pruning, a glossary of botanical terms, and a comprehensive guide to choosing trees and shrubs for specific purposes, this invaluable reference book is the ideal companion when selecting new plants or identifying those already in the garden. 1993. 272 pages.

The Garden Sourcebook

Caroline Boisset and Fayal Greene

Hardcover. Retail price: \$40. AHS price: \$34.

Book code: CRO 010

Comprehensive, practical, and exhaustively illustrated, this is a valuable resource for all aspects of gardening. From the first steps of assessing the site to choosing your garden style and structural framework, to selecting plants best suited to site and style, this book will guide you to the best choices. 1993. 360 pages.

REFERENCE

Manual of Herbaceous Ornamental Plants

Steven M. Still

Hardcover. Retail price: \$48.80. AHS price: \$43.50.

Book code: STI 509

This new fourth edition includes 384 color photos and is a "must have" reference volume. It was the first guide to herbaceous plants to be organized so that the student of plants as well as the consumer could find easy reference to such information as morphology, growth habit, season of bloom, propagation, diseases and insects, hardiness, and suggestions for plants in specific sites. The book provides both scientific and common name indexes. 1994. 814 pages.

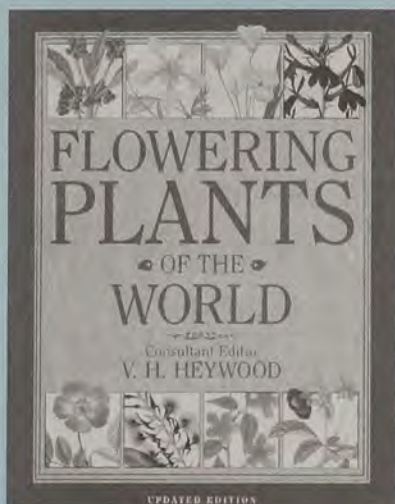
Flowering Plants of the World

Edited by V. H. Heywood

Hardcover. Retail price: \$45. AHS price: \$40.

Book code: OXF 510

Flowering Plants of the World is an



essential reference on angiosperms. Taxonomically arranged and generously illustrated, it includes entries on more than 300 plant families. The information on each family consists of a concise and readable account of the distribution, diagnostic features, classification, and economic uses of its members. This book will appeal to all plant lovers from professional botanists to amateur gardeners. Providing a wealth of information, it is at once useful to the specialist and fascinating to the general reader. 1993. 336 pages.

Wyman's Gardening Encyclopedia

Donald Wyman

Hardcover. Retail price: \$55. AHS price: \$46.75.

Book code: MAC 666

Updated and expanded, *Wyman's Gardening Encyclopedia* contains a wealth of information on planning, planting, and maintaining any kind of garden. Its more than 1,200 pages, 10,000 articles, 206 drawings, and over 100 photographs make it one of the most comprehensive one-volume gardening sourcebooks on the market today. 1,221 pages.

Manual of Woody Landscape Plants

Michael A. Dirr

Hardcover. Retail price: \$45.80. AHS price: \$38.95.

Book code: STI 001

The fourth edition has been revised and updated with 200 new species and over 500 new cultivars, each described and evaluated and usually accompanied by a line drawing and identifying characteristics. You'll find information on common and botanical names, hardiness zones, habit, growth rate, texture, bark color, leaf color, flowers, fruit, culture, disease and insects, landscape value, cultivars, propagation, related species,

and native habitat. *Manual of Woody Landscape Plants* is one of the most widely used reference works in classrooms and in the field. 1,007 pages.

The Photographic Manual of Woody Landscape Plants

Michael A. Dirr

Hardcover. Retail price: \$29.80. AHS price: \$24.95.

Book code: STI 002

With over 1,200 black-and-white photographs, this book is a valuable reference text for horticulturists, landscape architects, nurserymen, or anyone interested in plants. Plants are listed in alphabetical order by scientific name, and are indexed by both scientific and common names for ready reference. This manual makes an excellent supplement to *Manual of Woody Landscape Plants*, also by Michael A. Dirr. 378 pages.

The Reference Manual of Woody Plant Propagation

Michael A. Dirr and Charles W. Heuser Jr.

Softcover. Retail price: \$31.95. AHS price: \$26.95.

Book code: TIM 537

An indispensable guide and reference to the propagation of 1,100 woody species and cultivars. Encyclopedic information on propagation practices is easily referenced in an alphabetical listing of plant names. Each listing includes proven techniques for cutting, sowing seed, grafting, and tissue culture propagation. 239 pages.

North American Horticulture: A Reference Guide, Second Edition

Edited by Thomas M. Barrett

Hardcover. Retail price: \$75. AHS price: \$65.

Book code: MAC 123

Compiled by the American Horticultural Society, the completely revised and expanded *North American Horticulture* is the most comprehensive directory of U.S. and Canadian horticulture. Thousands of organizations and programs are described. Included are 28 categories, among them: conservation organizations, international registration authorities, national governmental programs, horticulture education programs, botanical gardens, arboreta, conservatories and other public gardens, plant societies, and community gardens. 427 pages.

Herbaceous Perennial Plants

Allan Armitage

Hardcover. Retail price: \$37.95. AHS price: \$32.25.

Book code: TIM 007

This comprehensive guide combines

Books listed in our catalogs are available as long as they are in print. If you need a book that is not listed, call and we will do our best to find it for you. For international orders, please add appropriate postage. There will be no catalog in the July issue.

Daytime Phone: _____



REGIONAL HAPPENINGS

Editor's note: *Save this events listing!* Due to the special issue that will be appearing in July, there will be no "Regional Happenings" department that month. Information on July and August events that we were able to obtain prior to our May deadline are listed in this month's column.

Mid-Atlantic

♦ **May 7. Herbal Festival.** Sponsored by the Potomac Unit of the Herb Society of America and the Friends of the National Arboretum. U.S. National Arboretum, Washington, D.C. Information: Patricia Johnsen, (703) 978-6485 or Bernice Pivarnik, (703) 978-5585.

♦ **May 7. Herb Fair and Sale.** Oatlands Plantation, Leesburg, Virginia. Information: (703) 777-3174.

♦ **May 7-8. Garden Fair.** Orland E. White Arboretum, Boyce, Virginia. Information: (703) 837-1458.

♦ **May 12-13. Landscape Design Problems and Their Solutions.** Third Annual Gillette Forum. Lewis Ginter Botanical Garden, Richmond, Virginia. Information: (804) 262-9887.

♦ **May 14. The 66th Annual Georgetown Garden Tour.** Georgetown, Washington, D.C. Information: (202) 333-4953 or (202) 333-3649.

♦ **May 19. Annual Rose Garden Tea.** Woodlawn Plantation, Mount Vernon, Virginia. Information: (703) 780-4000.

♦ **May 20-22. Cacti and Succulent Show and Sale.** U.S. National Arboretum, Washington, D.C. Information: (202) 475-4815.

♦ **May 21-22. Middleburg Garden Tour.** Middleburg, Virginia. Information: (703) 787-9483.

♦ **July 13. Tour of Kenilworth Aquatic Gardens.** Washington, D.C. Information: (202) 426-6905.

♦ **Aug. 5-7. International Youth Gardening Symposium.** "Out of the Classroom and Into the Garden." Sponsored by the American Horticultural Society and the

Montessori Foundation. Arlington, Virginia. Information: (800) 777-7931.

North Central

♦ **June 5. Iris Garden Tour.** Olbrich Botanical Gardens, Madison, Wisconsin. Information: (608) 246-4551.

♦ **June 5-7. Tree City USA National Conference.** Arbor Day Farm, Lied Conference Center, Nebraska City, Nebraska. Information: National Arbor Day Foundation, (402) 474-5655.

♦ **June 10-Sept. 18. Summer Floral Blooms.** Eden Park-Krohn Conservatory, Cincinnati, Ohio. Information: (513) 352-4080.

♦ **June 16-19. Annual Rose Festival.** Dubuque Arboretum and Botanical Gardens, Dubuque, Iowa. Information: (319) 556-2100.

♦ **June 18-26. Annual Rose Festival.** Boerner Botanical Gardens, Hales Corner, Wisconsin. Information: (414) 529-1870.

♦ **July 9-13. International Floriculture Industry Short Course and Trade Show.** Cincinnati, Ohio. Information: (614) 487-1117.

♦ **July 15-17. American Conifer Society Central Regional Annual Meeting.** Rich's Foxwillow Pines, Woodstock, Illinois. Information: Charlene Harris, (313) 665-8171.

♦ **July 16-24. Henry Shaw Cactus Society Show.** Missouri Botanical Garden, St. Louis, Missouri. Information: (314) 577-5100.

♦ **Aug. 11-13. The 10th Annual Herb Symposium.** Minnesota Landscape Arboretum, Chanhassen, Minnesota. Information: (612) 443-2460.

♦ **Aug. 14. "Sundae in the Park." Open House.** Olbrich Botanical Gardens, Madison, Wisconsin. Information: (608) 246-4551.

♦ **Aug. 25-Sept. 5. Minnesota State Fair Flower Show.** Horticultural Building, State Fair Grounds, St. Paul, Minnesota. Information: (800) 676-6747.

Northeast

♦ **May 7-8. Wildflower and Native Plant Sale.** Brandywine River Museum, Chadds Ford, Pennsylvania. Information: (215)

459-1900 or Fax, (215) 388-1197.

♦ **May 12. The 55th Annual Herb Sale.** Sponsored by the Philadelphia Unit of the Herb Society of America. Bryce Douglas Farm, Kimbertown, Pennsylvania. Information: (215) 664-2738.

♦ **May 14. The 33rd Annual Gardener's Market.** Montgomery Pinetum, Cos Cob, Connecticut. Information: (203) 869-9242.

♦ **May 14. Spring Fling.** Tyler Arboretum, Media, Pennsylvania. Information: (610) 876-2649.

♦ **May 15. Alpine and Rock Garden Plants.** Lecture. Tower Hill Botanic Garden, Boylston, Massachusetts. Information: (508) 869-6111.

♦ **May 18. Private Gardens of Greenwich, Connecticut.** Tour. Departing from the Horticultural Society of New York, New York City. Information: (212) 757-0915.

♦ **May 21-24. Southport Garden Festival.** Southport, Connecticut. Information: (203) 259-3685.

♦ **May 22. Five Kilometer Run and Garden Walk.** Winterthur Museum, Winterthur, Delaware. Information: (302) 888-4600 or (800) 448-3883.

♦ **May 28-Sept. 9. Festival of Fountains.** Garden display. Longwood Gardens, Kennett Square, Pennsylvania. Information: (800) 737-5500 or (610) 388-6741.

♦ **June 1-Sept. 14. The Ageless Art of Dyeing—Colors From Nature.** Exhibit and Lecture Series. Rodef Shalom Biblical Botanical Garden, Pittsburgh, Pennsylvania. Information: (412) 621-6566.

♦ **June 3-4. Great Performances, a Flower Show.** Quick Center for the Arts, Fairfield University, Fairfield, Connecticut. Information: (203) 259-0217.

♦ **June 5. Philadelphia Rose Show.** Morris Arboretum, Philadelphia, Pennsylvania. Information: (215) 247-5777.

♦ **June 11. Second Annual Hudson Opera House Garden Tour.** Hudson, New York. Information: Stephanie Brown, (518) 822-9426 or Laurence Sombke, (518) 851-5521.



♦ **June 12. Rose Show.** Sponsored by the Long Island Rose Society. Planting Fields Arboretum, Oyster Bay, New York. Information: (516) 922-9200.

♦ **June 25. City Gardens—Country Flowers.** Tour. Newport, Rhode Island. Information: (401) 846-7495.

♦ **June 25-26. The Secret Gardens of Milford, Pennsylvania.** Tour. Information: (717) 491-2773.

♦ **July 13. Community Green Thumb Flower Show.** Nantucket Garden Club, Nantucket, Massachusetts. Information: (508) 228-6879.

♦ **July 14. Children's Garden Party.** Green Animals Topiary Gardens, Portsmouth, Rhode Island. Information: (401) 847-1000.

♦ **July 16. Hidden Treasures of the Berkshires.** House and garden tour. Stockbridge, Massachusetts. Information: (413) 298-3089.

♦ **July 16. House and Garden Tour.** Sponsored by Lenox Garden Club, Great Barrington, Massachusetts. Information: (413) 229-8848.

♦ **July 20-22. Greenhouse Systems: Automation, Culture, and Environment.** New Brunswick, New Jersey. Information: (607) 255-7654.

♦ **Aug. 1-31. Hummingbird Tours.** Leaming's Run Gardens, Swanton, New Jersey. Information: (609) 884-2736.

♦ **Aug. 5-7. Natural Organic Farmers Association Summer Conference.** Hampshire College, Amherst, Massachusetts. Information: (508) 355-2853.

♦ **Aug. 6-7. Summer Festival and Flower Show.** Berkshire Botanical Garden, Stockbridge, Massachusetts. Information: (413) 298-3926.

♦ **Aug. 6-7. Summer Garden Weekend.** Old Sturbridge Village, Sturbridge, Massachusetts. Information: (508) 347-3362.

Northwest

♦ **May 1-15. Spring Celebration.** Berry Botanic Garden, Portland, Oregon. Information: (503) 636-4112.

♦ **May 14-15. Plant Sale.** Washington Park Arboretum, Center for Urban Horticulture, University of Washington, Seattle, Washington. Information: (206) 726-1954.

♦ **May 15. Wildflower Festival.** Mount Pisgah Arboretum, Eugene, Oregon. Information: (503) 747-3817.

♦ **May 20-21. Annual Herb Festival.** Pomeroy Living History Farm, Yacolt, Washington. Information: (206) 686-3537.

♦ **July 31. Snohomish Garden Club Tour.** Snohomish, Washington. Information: (206) 568-6737.

♦ **Aug. 7. Arboretum Tree-Art Exhibit.** Hoyt Arboretum, Portland, Oregon. Information: (503) 228-8733.

South Central

♦ **May 8. Mother's Day Iris Show.** Amarillo Garden Center, Amarillo, Texas. Information: (806) 352-6513.

♦ **June 11. Wildflower Field Trip.** Botanica, the Wichita Gardens, Wichita, Kansas. Information: (316) 264-0448.

Southeast

♦ **May 6-7. Potpourri Workshops.** Callaway Gardens, Pine Mountain, Georgia. Information: Callaway Gardens Education Department, (706) 663-5153.

♦ **May 7-8. The 11th Annual Gardens for Connoisseurs Tour.** Atlanta, Georgia. Information: Carol M. Flammer, (404) 876-5859.

♦ **May 18-20. Color Magic '94.** Conference. Sponsored by the Florida Nurserymen and Growers Association. Walt Disney World, Orlando, Florida. Information: (407) 345-8137.

♦ **June 2-3. North Carolina Master Gardener Association Annual Conference.** Greensboro, North Carolina. Information: Karen Neill, (910) 375-5876.

♦ **June 24-26. South Carolina Festival of Flowers.** Greenwood, South Carolina. Information: (803) 223-8411.

♦ **June 27, July 24, Aug. 22. Candlelight Tour of the Japanese Garden of Tranquility.** Memphis Botanic Garden, Memphis, Tennessee. Information: (901) 685-1566.

♦ **Aug. 5-7. Wild Herb Weekend.** Presented by the North Carolina Herb Association. Information: J. M. Davis, 2016 Fanning Bridge Road, Fletcher, NC 28732.

♦ **Aug. 27. Herb Festival.** Duke Homestead Historic Site, Durham, North Carolina. Information: Edna Lovelace Gaston, (919) 477-5498.

THE SWEETGRASS BASKET CASE

In the low country of coastal South Carolina, seaside development is diminishing a native perennial grass, and in doing so, jeopardizing the future of an important folk art.

Once the site of a great colonial rice empire, today coastal South Carolina is home to many African-Americans directly descended from antebellum slaves who worked on the plantations. Many were artisans who were "recruited" in Africa for their special skills and sold at premium prices. Some modern-day Carolinians have maintained the link with their ancestors through the craft of sweetgrass basket making. Rather than weave the baskets, the "basket sewers," as they call themselves, coil blades of sweetgrass and stitch them together with fibers from the fronds of palmetto, South Carolina's state tree. Once considered just practical, durable containers, the sweetgrass baskets are now prized as works of folk art, selling for \$100 or more. About 300 families still make sweetgrass baskets their full- or part-time vocation, and their basket stands are a common sight along the streets in and around Charleston.

Taxonomically known as *Muhlenbergia filipes*, sweetgrass is commonly called pink muhlenbergia or pink muhly for its pinkish plume; some botanists contend that it is a variety of *M. capillaris*. It grows in sandy dunes on beaches and coastal islands from North Carolina to Texas.

These days basket makers are having a tough time collecting the sweetgrass needed for their trade. Much of the sweetgrass population has disappeared either beneath developers' bulldozers or into the fenced-off enclaves of upscale communities and resorts.

To replenish the sweetgrass no longer available to the basket makers, Clemson University's Coastal Research and Education Center planted an acre of sweetgrass in June 1993 on James Island, near Charleston. Horticulturist Robert Dufault collected the seedlings from sweetgrass stands on Georgia's St. Simon Island. "We planted right in the middle of a serious drought and heat wave, and we didn't have an irrigation system," Dufault recalls, "so the survival of the plants was wholly dependent on Mother Nature." So far, only two percent of the plants have been lost. The first planting won't be ready for harvest until the summer of 1995, but the center is following it with another one-acre planting this spring, this time from seed grown in its own greenhouses. But the center won't be able to plant and cultivate the 40 to 50 acres Dufault estimates will be needed to supply the basket makers. Fortunately, others are helping out, such as the petroleum giant Amoco, which recently planted sweetgrass on some vacant land along the Cooper River.

Southwest

♦ **May 7. Annual Herb Fair.** Tucson Botanical Gardens, Tucson, Arizona. Information: (602) 326-9686.

♦ **May 14-Sept. 11. Landscape as Metaphor: Visions of America in the Late 20th Century.** Exhibit. Denver Art Museum, Denver, Colorado. Information: (303) 640-2793.

♦ **June 18. Annual Plant Sale and Horticultural Fair.** The Arboretum at Flagstaff, Flagstaff, Arizona. Information: (602) 774-1441.

West Coast

♦ **May 6. Geology and Botany of the Sedgwick Ranch.** Tour. Santa Ynez, California. Information: (805) 682-4726.

♦ **May 7-8. Geranium Festival.** Descanso Gardens, La Canada-Flintridge, California. Information: (213) 681-2201.

♦ **May 15. The 20th Annual Benefit Plant Sale.** The Huntington, San Marino, California. Information: (818) 405-2141.

♦ **May 18-21. Citizens Protecting America's Parks: Joining Forces for the Future.** National Parks and Conservation Association Conference. San Francisco, California. Information: (202) 223-6722, ext. 221.

♦ **May 22. Epiphyllum Show.** Los Angeles State and County Arboretum, Arcadia, California. Information: (818) 821-3222.

♦ **May 28-29. Geranium Show and Sale.** South Coast Botanic Garden, Palos Verde Peninsula, California. Information: (310) 544-6815.

♦ **June 3-5. The Future of California Floristics and Systematics.** Jepson Herbarium, University of California-Berkeley. Information: Susan D'Alcamo (510) 643-7008.

♦ **June 11-12. Herb Fair.** Fullerton Arboretum, Fullerton, California. Information: (714) 773-3579.

♦ **June 15-19. The 11th World Bromeliad Conference.** Mission Valley, San Diego, California. Information: Joyce Brehm, (619) 277-1030.

♦ **June 22-26. Lompoc Flower Festival.** Lompoc, California. Information: (805) 735-8511.

♦ **July 22. Midsummer Night's Gleam.** Nighttime Tour. Foster Botanical Garden, Honolulu, Hawaii. Information: (808) 537-1708.

♦ **Aug. 1-31. Heaths and Heathers.** Exhibit. Mendocino Coast Botanical Gardens, Fort Bragg, California. Information: (707) 964-4352.

♦ **Aug. 20-21. South Coast Dahlia Society Show.** South Coast Botanic Garden, Palos Verde Peninsula, California. Information: (213) 544-1948.

THE WANING OF THE WYE

The historic Wye Oak's rings may be numbered, according to officials from Maryland's Department of Natural Resources. One of the country's best-known trees, the giant Wye Oak on Maryland's Eastern Shore has not produced a crop of acorns since 1991, when it dropped an unprecedented 15,000. Because the tree had been seedless for five years prior to that, foresters see it as a sign that the aged oak may be winding down.

Botanists believe that such bumper crops of seed are often the last gasp of a senescent plant, a genetic strategy for ensuring reproduction. To aid the oak's success, the Maryland Department of Natural Resources's Forest Service is selling seedlings from the 1991 harvest of acorns and using the revenue to fund its state nursery operations. So far, more than 7,000 have been sold in less than two months. Prior crops netted sales of less than 3,000 for an entire year. Says Mike Grant, marketing executive for the project: "The whole nation has embraced the children of the Wye."

But Grant warns against sounding a death knell for the mighty Wye. "At this point, not even the most expert experts can be sure."

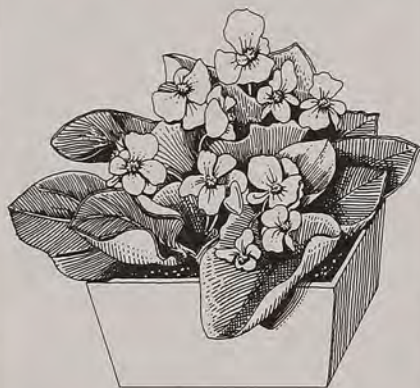
More than 450 years old, the Wye Oak is one of most widely recognized trees in the United States. Often mentioned in historical and travel writings, it takes its name from the small village of Wye Mills, Maryland, that has grown up around it. With a height of 80 feet, a crown of 103 feet, and a circumference of 31 feet, it is the largest-known specimen of *Quercus alba* and has been the reigning white oak in the National Register of Big Trees since 1945.

The sporadic acorn harvests are only one of many recent indications that the Wye Oak is on the wane. Over the years three large branches have fallen off; the last, in 1985, was estimated to weigh 35 tons. Among the elaborate apparatus shoring up the tree are a protective fence, concrete fillings, three lightning rods, and a couple of miles of steel cable. Part of the base of the tree is hollow and a square steel plate at the base of the bole allows foresters to look inside for rot and infestations.

Wye seedlings are still available but will soon be too big for shipping, although buyers may pick them up. Most seedlings are over a year old and between 10 and 18 inches tall. For orders and further information, call (410) 859-7730 or (800) TREESMD.



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TOURS

THE ORLANDE E. WHITE ARBORETUM, State Arboretum of Virginia and home of the most diverse collection of woody plants in the southeastern United States, will host some of the Old Dominion's finest specialty nurseries May 7 and 8 at the 1994 Garden Fair. Event features include free gardening programs for children and adults, free guided tours and an enticing array of native and exotic plants for sale. The arboretum is on U.S. 50 in the Shenandoah Valley, approximately 60 miles west of Washington. Information: (703) 837-1458 or (703) 837-1758.

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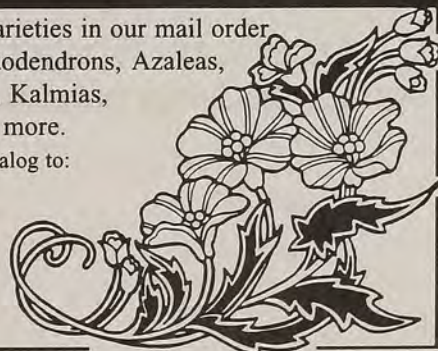
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KILLS BUGS' APPETITES DEAD

Just as some youngsters (and at least one ex-president) refuse to eat their broccoli, insects find certain plant species similarly repugnant. Researchers hope to identify the chemicals responsible and use them to create safer means of pest controls.

"We are not simply looking for plants that repel insects," says Sylwester Chyb, a research associate in the Pennsylvania State University's department of entomology. The goal, according to Chyb, is "to identify the compounds in specific plants that stimulate or inhibit feeding in specific insects." Chyb is working with James Frazier, head of the department, to locate the chemicals that turn insect taste receptors on and off.

Researchers have found that the common sunflower (*Helianthus annuus*), for example, deters feeding by the western corn rootworm. An extract from *Canna generalis* proved to be extremely distasteful to the tobacco hornworm, and University of Maryland professor Frank Hanson is working to isolate the active component.

Once researchers discover the molecule that affects insect taste receptors, they might be able to genetically engineer plants to either deter or attract specific pests. This information could also be used to manufacture safe, nontoxic chemicals that could be sprayed or dusted on plants to make them unappetizing.

WEED WARS

Gardeners who are too environment-conscious to bomb weeds with chemicals and bone-tired from fighting the enemy with implements designed during the Bronze Age can now take heart. A recent edition of the *B.U.G.S. Flyer*, a publication from Biological Urban Gardening Services of Citrus Heights, California, surveys the latest in weeding weaponry.

♦ **Weed Wrench.** For *mano a mano* combat, home gardeners can get up-close and personal with the Weed Wrench. This little number has steel jaws and a lever-action that can uproot shrubs and small trees up to 2½ inches in diameter. The Weed Wrench is available in four sizes from New Tribe, 5517 Riverbanks Road, Grants Pass, OR 97527, (503) 476-9492.

♦ **Hot water weeder.** Peace-loving New Zealanders may have banned nuclear-armed ships and submarines from their ports, but that didn't prevent them from developing the Waipuna System, an alternative weeding device. In use since 1989, the system delivers 212 degree water at up to 250 pounds

per square inch. Steamed plants quickly become discolored and die, but makers stress that doused areas soon cool and present no threat to operators. Information: George Hunter, c/o BIRC, P.O. Box 7414, Berkeley, CA 94707, (510) 524-2567.

♦ **Infrared weeder.** Developed in the Netherlands and currently deployed in several countries, Weedmaster 50 can be front- or rear-mounted on a tractor. The anti-plant weapon uses infrared radiant energy to eliminate a 20-inch swath of weeds, perfect for clearing the shoulders of paved roads. Information: Williams Association for Alternatives to Herbicides and Pesticides, P.O. Box 356, Williams, OR 97544, (503) 846-6625.

UMMM! SMELLS TASTY

It appears that aphids may respond to a plant's odor in deciding where to land. If so, scientists may eventually be able to use that information to keep the pests from spreading deadly viruses.

Wilant van Giessen, a researcher at the U.S. Vegetable Laboratory in Charleston, South Carolina, measured electrophysiological responses in the antennae of pea aphids and found that they are especially responsive to alcohols and aldehydes that produce green leaf odors—the ones that produce the scent of cut grass. "We developed a model system, a more mathematical approach to quantifying these responses, and we will now have to look for responses to very specific odors," he says.

The research team is focusing on what coaxes a winged aphid to move from plant to plant because it is this behavior that spreads disease. Van Giessen says that when pesticides are used against aphids in a sublethal dose, the insects move around more and cause more damage. An alarm pheromone thought promising several years ago is having the same effect.

The electrophysiological response alone, notes van Giessen, "really doesn't tell you too much about attraction or avoidance." His team will next conduct behavioral studies, and van Giessen will go from measuring response in the antennae to single-cell studies of the aphid brain. "The brain of the Colorado potato beetle has been studied since the late 60s," he says. "This is a little more difficult because the aphid is soft-bodied" and thus more difficult to handle.

How would the aphid-plagued gardener or grower take advantage of an aphid's scent preferences? An attractive odor could be combined with a pyrethroid to kill the insects, or a way might be found to mask a plant's odor so that aphids don't recognize the host plant.



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