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A Gray Look at the Future of Water

Worried about what pesticides and insecticides are doing to the nation's water supply? You don't even know what worry is until you've heard some of Richard Gray's data and predictions.

Gray is the founder of the Freshwater Biological Institute at the University of Minnesota and of the Freshwater Foundation in Minnetonka, Minnesota. In a talk at the American Horticultural Society's Annual Meeting last July, he reminded the audience that while 71 percent of the earth's surface is covered with water, most of it is unusable. Ninety-seven percent of it is salt water, and of the remainder, two-thirds is frozen into ice caps, ice floes, or glaciers. "Of the rest, most is not where you need it or it's contaminated somehow," Gray said.

It's a rather miraculous substance, he noted. When you lick your finger to turn the page of a book, water is a sticky substance that increases friction. But when you spray it on a

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© Tom Brownold

A Look at the Future of Gray Water

One way for gardeners to do something about the planet's dwindling quantity of water is to irrigate with gray water—water that they have already used for other purposes.

Californians, forced to ration by droughts of recent years, are looking at gray water more seriously than the rest of us. Santa Barbara County recently became the first county to allow plumbing that would divert gray water for irrigation. Other jurisdictions ban such hook-ups because of potential health hazards.

"What they're afraid of," says Robert Kourik, a Santa Rosa resident who has written a 26-page booklet on the topic, "is that you'll have a house guest with hepatitis who will cut himself shaving." But gray water is generally safe to use on ornamental plants if you follow a few simple rules, he says: go back to basics in your cleaning products and avoid those with a lot of fancy additives; avoid chlorine and products containing boron, whose toxic effects

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1990 Annual Meeting Program Enclosed!

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Plants as Filters

Wetlands, in addition to preventing erosion and providing habitats for fish and wildlife, help clean the water that passes through them. Now, Mississippi researchers are using native wetlands plants to clean up water that has been sullied by dairy cattle.

Small shallow ponds, or cells, populated with any of five wetlands plants receive wastewater from lagoons that drain the dairy barn, milking parlor, and other facilities of the Coastal Plain Branch Experiment Station at Newton.

There are two lagoons. The smaller is populated with anaerobic bacteria, which are active in the absence of free oxygen. They begin breaking down the wastes in the runoff water. The larger lagoon partly encircles the first; in it, aerobic bacteria, which work in the presence of free oxygen, continue the process, but do not break down all the pollutants.

Water from either or both of these lagoons drains into the cells, which are planted with pickerel weed (*Pontederia cordata*), bullrush (*Scirpus validus*), arrowhead (*Sagittaria latifolia*), maiden cane (*Panicum hemitomon*), cattail (*Typha latifolia*), and canna (*Canna flaccida*). The researchers want to determine which lagoon, and which plant, is the most effective at cleaning up the water. The plants produce organisms that decrease the oxygen

depletion of the wastewater. One cell will be kept free of any plants or weeds so that any effects of sun, soil, and air can be factored in.

The scientists involved, who are with the Mississippi Agricultural and Forestry Experiment Station and the Soil Conservation Service, believe that this approach will not only help to improve the quality of surface water but should also help purify water entering underground aquifers. About 80 percent of the water Americans use comes from such aquifers.



The price of pesticides: dead fish in Chesapeake Bay, Maryland.

Steve Delaney/Environmental Protection Agency

Not All Pesticides Are Equally Evil

Those who depend on pesticides to help them earn a living protest that the media have exaggerated the dangers of pesticides. When it comes to their potential impact on ground water, there are a number of characteristics that can make them more or less harmful, notes a recent article in *Grower Talks*. These include:

- ◆How much of the pesticide attaches to soil and how much remains in water. To prevent ground water contamination, the pesticide should attach to the soil.
- ◆How readily the pesticide evaporates. The less likely it is to evaporate, the more likely it is to contaminate the soil.
- ◆The pesticide's chemical charge. A negatively charged substance is less likely to attach to the soil and therefore more likely to move into water systems.
- ◆How persistent the pesticide is. The most desirable pesticides will break down quickly in water, sunlight, or soil.

A Pill for Pests

One way of protecting ground water from pesticides may be to encapsulate them in cornstarch or synthetic polymers. Walter G. Knisel, a scientist with the Agricultural Research Service of the U.S. Department of Agriculture, used a computer simulation model to show that when pesticides were released gradually through openings in such casings, much less of the pesticide was applied to the same amount of ground than when the chemicals were applied with sprayers. Two manufacturers are working toward making the USDA invention available to gardeners.

child's slide, it reduces friction. It's the only compound that's a gas, a liquid, and a solid under everyday conditions.

Gardeners may pay for dirt, but no one pays for water—yet. "You pay for its distribution, but you can go almost anywhere and scoop up a bucket of water and take it home with you," Gray pointed out. But as we all know—and forget from time to time—we can live without food much longer than we can live without water. "Water is life itself. It's not only cheaper than dirt; it's priceless," said Gray.

Someday, whether in two years or twenty or longer, we will pay for water, he predicted. "Sooner or later water will have to be given its proper value, and when that happens, the energy crisis we went through in the last half of the 1970s will pale in comparison in its impact."

Gray and his staff at the Freshwater Institute have pulled together some estimates of the impact on our lives should we ever have to pay a penny a gallon for water. That's not much, considering that we pay \$2 a gallon for milk, about \$20 a gallon for wine, and \$80 for a fine whiskey.

- ◆ It takes 3,000 gallons to produce and deliver one pound of beef. Therefore, paying a penny a gallon for water would raise the cost of a pound of beef by \$30.

- ◆ One egg, now only a dime or less, would increase in cost by 40 cents.

- ◆ A pound of raw cotton would cost \$13 more.

- ◆ A Christmas dinner for eight with all the trimmings consumes 42,000 gallons of water, enough to fill an olympic-sized swimming pool. (Perhaps Aunt Maude will help pay her share of the extra \$420 instead of baking a pumpkin pie.)

- ◆ A farmer will have to pay \$90 to deliver the water needed to grow \$1 of alfalfa.

- ◆ It takes about 30,000 gallons of water to make a ton of steel; it may be more crucial to the industry than iron ore.

Gray reported that in Israel, crops are watered with drip irrigation and computers tally the amount of water consumed, so that their water use is about 98 percent efficient. Israelis do this not just because they're conscious of water being in short supply, but also because it's expensive.

Here in the United States, we transport water for hundreds of miles in open troughs where it's subject to evaporation. We use spray irrigation "which tosses water out helter skelter," said Gray. Industry contaminates our ground water: The Iowa Geologic

American irrigation systems transport water through open systems where it can easily evaporate.



Courtesy Westlands Water District

Survey found that herbicides and pesticides in an increasing number of places had decomposed so little that they could be identified by brand name. "We so overload the system that Mother Nature doesn't have a chance to do her work."

One company turned to him for advice after it was found that they had polluted 150,000 acres, 300 feet deep, "with a witches brew of 60 to 70 chemicals."

No Cavities— and No Roses

Horticulturists have observed for years that the fluoride added by many cities to public water supplies can injure greenhouse crops, house plants, and cut flowers, even when the concentration is as low as one part per million (ppm).

In 1987, the maximum concentration allowed by the federal government was raised to four ppm. Virginia Lohr and Caroline Pearson-Mims of the Department of Horticulture and Landscape Architecture at Washington State University wondered what effect such high concentrations would have on plants.

The researchers placed seven rose cultivars in water containing four ppm of fluoride, and found that all but one cultivar were injured, compared to a control group of cut roses placed in a preservative solution that did not contain fluoride.

This was caused, they wrote in *Greenhouse Grower*, by a reduction in water uptake. The vase life of two of the cultivars was reduced as much as 40 percent. The roses opened more slowly, failed to open altogether, or

Gray left it to audience members to choose how to address these concerns: as individual gardeners who irrigate more conservatively and use chemicals more sparingly; as consumers who boycott irresponsible manufacturers; as citizens who can change policies through their elected officials. But he urged them not to be passive. "If the whole thing goes down the tube, at least we can look at ourselves in the mirror and say, 'At least we tried.'"

developed bent necks. The margins of the petals were discolored, damaged, or dead; in some cases the entire flower was discolored. They advised gardeners or those who buy cut flowers to use deionized or distilled water.

Elliott Norman, a grower at the U.S. Botanic Garden in Washington, D.C., said a simple solution would be to let treated water stand for two days or ideally, five days. Some bottled waters may contain too much calcium for some plants, and even the time-honored rain barrel may become "a veritable stew of pollutants" as a result of run-off from a gardener's roof.

Norman said fluoride damage was first noticed on such house plants as spider plants and dracaenas, whose tips will turn brown from too much fluoride. In some of these cases, the answer is less watering. "They don't require as much water as people think they do," Norman said. But with the government's increased fluoride allowance, other plants may also begin showing a response to this stress, and large-scale growers will have to pay to deionize their water supplies. "We anticipate it getting worse and we're going to act accordingly," said Norman, "but we may not know all the effects for some years."

Continued from page 1

quickly appear as brown margins on foliage; and try to cut back on cleansers by using more elbow grease "instead of spray cans that can clean the whole room at 20 paces."

Kourik said he's sold about 4,000 copies of his book, and gardeners report that their ornamental plants are doing as well or better than before. He said gray water also can be soaked into the base of fruit trees or tall plants like corn, cucumbers, or pole beans; it should not be used on low-growing vegetables or root crops.

Kourik's book describes four different ways to alter your plumbing to capture gray water. In jurisdictions where such retrofitting is illegal, "no registered contractor will do it, but you can do it easily yourself with a hacksaw and some glue," said Kourik, a self-admitted "gray water criminal." The systems involve some type of barrel to act as a temporary buffer ("the water is never stored for any length of time; it starts smelling too funky," the author says) and a basket of hardware cloth to filter out hair and lint, which can be dumped in your compost.

Another tack is taken by a San Mateo engineer and gardener, who offers a device he calls the Garden Saviour. It's attached to your cold water spigot to create suction in an ordinary garden hose. Then one end of the hose is dipped into your bath or laundry water, and the other snaked out of a window to your garden or temporary holding device. Most solids and soap scum remain behind, says the inventor, who asks not to be identified by name so potential buyers won't call him at home.

Kourik calls the \$19.95 device an overly expensive way to create a suction; the Garden Saviour's inventor notes that many people don't feel comfortable retrofitting their plumbing as long as it is illegal. "I offer a money-back guarantee, and about five percent want their money back, usually because it doesn't fit their spigot."

Professional groundskeepers in the West are also taking a hard look at used water. In an article in the October *Grounds Maintenance* magazine, Ali Harivandi of the University of California Cooperative Extension at Hayward examines the pros and cons of using treated sewage water. He notes that such water is likely to contain the same chemicals as fertilizer—nitrogen, phosphorus, and potassium—but that excessive amounts of nitrogen can pollute ground water. When used on heavier soils, effluent water can contribute to an accumulation of salts and heavy metals. Gray water may also raise

soil pH; frequent soil testing is a must. But in spite of potential hazards, Harivandi predicts that reclaimed water will be in great demand in the future for turf and other nonfood uses.

Effluent water differs from gray water in that it has usually been through two or three stages of treatment that removes pathogens and pollutants. On the other hand, homeowners have the advantage of knowing what their water was used for and what it might contain. Still, it's advisable to dilute used water, and/or alternate its use with fresh water.

"Gray Water Use in the Landscape" by Robert Kourik is available for \$6 from Edible Publications, Box 1841, Santa Rosa, CA 95402. The Garden Saviour is \$19.95 postpaid; write to Garden Saviour, P.O. Box 6897, San Mateo, CA 94403. AHS does not endorse products, but we like to hear from members who have found that a product or procedure has made gardening easier or more productive.

Gray Goes Orange

Orlando, Florida, wastewater is being used to irrigate central Florida's citrus trees. Under the Water Conserv II/Southwest Orange County Water Reclamation Project, 50 million gallons a day will be treated and piped to growers. At peak times, reports *American Nurseryman*, 75 million gallons could be distributed to 15,000 acres. Drs. Larry R. Parsons and Robert C. Koo of the University of Florida's Institute of Food and Agricultural Sciences are assessing the effect of the reclaimed water.

Need to Irrigate? Let 'er Drip

Two North Carolina horticulturists got more than they bargained for when they compared trees grown with drip irrigation to the same species irrigated by overhead sprinklers.

Richard E. Bir, an extension horticulture specialist at North Carolina State University in Fletcher, and Dr. Vincent Bonaminio, head of the horticulture department at Mayland Community College in Spruce Pine, conducted a three-year comparison of the two systems after a 1983 pilot study in which a drip system used 78 percent less water than overhead watering.

They reasoned that such savings would make drip irrigation a good investment if plants grew as well as they did with overhead irrigation. They looked at each system's effects on river birch, littleleaf linden, and two types of dogwood. Not only did the trunks of all the trees become thicker with drip irrigation, but the dogwoods grew 15 to 18 inches taller and averaged nine to 17 more buds per tree.

The explanation, they found, was that the drip system trees had developed a much better root system. The river birch roots were 28.4 percent heavier than with overhead irrigation, the linden's 49.6 percent heavier, and the dogwood's 137 percent heavier.

Bir said they have since gotten even more dramatic results by applying fertilizer through the drip line, rather than on the surface of the soil. "It's really not surprising," he said. "You can use far less fertilizer since you're applying it right into the root zone."



The price of the pleasure: oil from boats coats the harbor in Bellingham Bay, Washington.

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Gardener's Q&A

Spring is here and gardening time is near. Don't forget, we are only a phone call away with assistance, advice, and solutions!

Q: Now that it is spring and my shrubs are blooming, I know I should be thinking about pruning but I can never remember exactly when to prune or which branches to prune. Can you give me some guidelines?

L. D., Covington, Tennessee

A: A good rule of thumb for pruning is to prune right after the shrub has bloomed, whether this is in the spring, summer, or fall. This way you won't have to worry about whether you are cutting new wood or old wood, or accidentally cutting off future flower buds. Pruning after flowering will remove old flower buds and spent canes, and reserve energy for new buds.

Q: I never know when to fertilize my azaleas: before, during, or after they bloom?

S. C., Morgantown, West Virginia

A: Azaleas should be fertilized after they have bloomed, usually at the end of May or the beginning of June. Fertilize with a 12-8-8 combination. This will nourish the plant sufficiently to produce buds for the next season. Some people also fertilize their azaleas in the winter (November or December) with a 10-20-20 combination for rejuvenation or to prevent bloom shatter. (If you have a soil high in clay, use a fertilizer with a smaller percentage of phosphorus.)

Q: In looking through the nursery catalogs, I noticed a white-flowering forsythia. Is this a new cultivar of the common forsythia?

M. N., Gaithersburg, Maryland

A: The "white forsythia" is not a true forsythia but a Korean member of the olive family. Known as *Abeliophyllum distichum*, this deciduous shrub is hardy to Zone 5 and grows up to five feet tall. Its shape and texture is similar to the forsythia and its small white flowers appear before the leaves at the same time the true forsythia is blooming. Because of their light-colored flowers and lack of leaves, they are best planted in front of a dark background or an evergreen shrub.

Q: Now that winter is over I'm ready to clean out my fireplace. Can I distribute these ashes in my garden? What effect will they have on my plants?

C. M., West Orange, New Jersey

A: Wood ashes can be scattered over the garden to provide potassium and combat acidity. Wood ashes contain no nitrogen, 1 to 2 percent phosphate, and 4 to 10 percent potassium. However, this is true only if the ashes are coming directly from the fireplace or wood stove or have been stored in a closed container. If they are stored where they are exposed to the elements, rain and snow may leach the nutrients and decrease their acid-reducing effect. Wood ashes have the same effect on soil as limestone, but because they are so light and fluffy it takes more of them to increase the pH by the same amount. Ashes are great for vegetable gardens. Obviously, one should avoid using them around acid-loving plants such as azaleas and rhododendrons.

Seven Ways to Pamper Roses

Now is the time to start thinking about new ways to feed and please your roses. While there are as many approaches to rose care as there are roses, here are some tips that should make for healthier plants and happier gardeners:

◆ Remember that rose roots need to breathe. Loosen the soil with a pitchfork to let the compost and organic materials sift downward.

◆ Always water well the night before fertilizing or spraying to prevent burned roots and leaves. Do not spray when the temperature is above 80° to 85° F. In very hot weather, fungicide spraying should be done in the early evening. Combining a foliar fertilizer with a fungicide both boosts growth and protects against fungal disease. Never add more fungicide or insecticide than the instructions call for.

◆ Fish meal is an excellent all-around fertilizer as well as a soil conditioner. Soak the soil, scratch a cup of fish meal into the soil at the perimeter of the bush, and water again.

◆ For a great summer pick-up: soak a dozen cups of alfalfa pellets in a 30-gallon garbage can of water for two or three days and then pour one gallon of this solution around each bush. Alfalfa contains triantanolins, a great enzyme booster for roses.

◆ Take care not to overfeed miniature roses. Dilute the fertilizer even more than required.

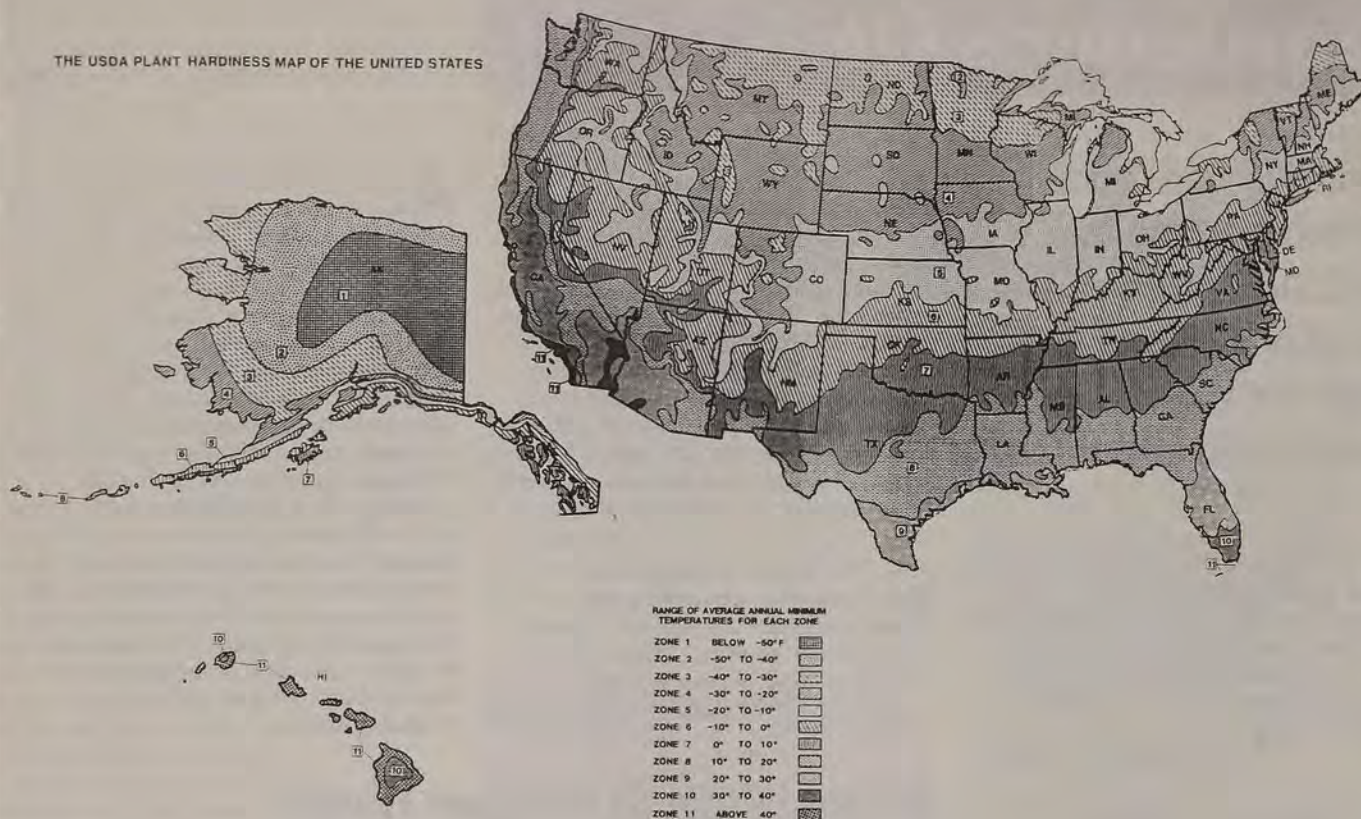
◆ Use a water wand to wash the foliage every so often. Spray both sides of the leaves to remove spray residue and spider mites. This won't increase the risk of fungal diseases if you do it in the morning.

◆ Write down what you have done to your roses throughout the season, and, if it works, keep doing it!

Attention Rose Enthusiasts!

The 1990 edition of the *Handbook for Selecting Roses* is now available from the American Rose Society. This pocket-size handbook lists over 1,000 commercially available roses in alphabetical order. Each rose is given a horticultural classification, color class code, and the numerical rating based on the opinions of American Rose Society members. Also included is the list of top-rated roses for each classification, organized by color. To obtain your copy, send a self-addressed stamped (45 cents) envelope to: The American Rose Society, P.O. Box 30,000, Shreveport, LA 71130 or call (318) 938-5402 for further information.

THE USDA PLANT HARDINESS MAP OF THE UNITED STATES



USDA Unveils New Plant Hardiness Map

The long-awaited revised plant hardiness map from the U.S. Department of Agriculture was unveiled February 22 at the National Arboretum in Washington, D.C.

This is the first update in 25 years of the zone map on which gardeners base many of their decisions about selection and care of plants. Among the changes is a new almost frost-free Zone 11, which appears on the southern tip of Florida, in southern California, all of Hawaii except its mountains, most of the coastline of the Yucatan and southern Baja peninsula, and the Gulf of Mexico.

Computer technology has allowed the amassing of millions of bits of data, to a degree impossible when the last maps were prepared in the 1960s. This wealth of new information has caused the boundaries of the zones to form much more undulating patterns, and has pinpointed "pools" of microclimates.

The impetus for the new map stemmed from inconsistencies between the old USDA maps and gardeners' experiences with plant hardiness. When the Garden Writers Association of America asked the

National Arboretum for a new map, its director, Dr. Marc Cathey, got behind the project.

"All gardeners make mistakes in selecting hardy plants for their own landscapes," said Cathey. "I remember how disappointed I was when I moved to Maryland to find that the holly selections from my North Carolina garden didn't perform well in our new garden. Both areas were rated by the old USDA Plant Hardiness Map as being in Zone 7."

After several years of trying to recreate his North Carolina successes in Maryland, Cathey concluded that the weather had changed since data were gathered for the old maps. His observations were reinforced as he traveled around the United States as president of the American Horticultural Society from 1974 to 1978, and as director of the arboretum. "It became obvious that we needed a new map based on more and better distributed weather stations in Canada, the United States, and Mexico."

Although data were initially gathered from 14,500 government stations in those three countries, only about 8,000 could both be identified by latitude and longitude, and provide an average low

temperature that was based on at least 10 years of data. Only data from those stations were used in the map.

The map was prepared for the USDA under the supervision of Mark L. Kramer of Meteorological Evaluation Services in Amityville, New York. "The new map confirms what cold damage to orange groves in Florida and eucalyptus in California has been telling us: there have been marked changes in hardiness zones in many of the states and provinces of the three countries since the 1960 maps," said Kramer.

However, while it's clear that the weather has changed, that does not confirm that the climate is changing, he noted. Weather is day-to-day, month-to-month, year-to-year conditions, while climate represents the long-term—at least 30 years, Kramer explained. The map shows regional changes to cooler weather in the Southeast and other regions. But many cities are warmer, due to heat-retentive high-rise buildings, cement walks, and asphalt roads, Kramer added. "The map doesn't foretell the future, but it does tell you whether a plant is likely to survive winters in a given region."

Making a Difference

Sowing Seeds in the Mind

Like underprivileged youngsters in other cities across the country, children who attend underfunded public schools in New York City receive instruction in the basics, but miss out on many experiences that can enhance personal development and introduce wide-ranging career options.

Enter "Apple Seed," an intensive enrichment program developed by the Horticultural Society of New York. The Apple Seed program—which resulted in part from the society's experiences with school children at the New York Flower Show—provides an instructor who introduces horticulture on-site in the classroom through discussions, audio-visual presentations, and textbooks. Instructors hope to spark the children's imagination by serving as role models and resources. For example, interested students may study germination and plant growth, then grow their own plants and watch their development.

The zone ratings are intended to indicate excellent to satisfactory adaptability of plants. Many plants may survive in warmer or colder zones, but survival does not necessarily equate with satisfactory performance.

"The gardener still has to reckon with microclimates in his or her own garden," noted Cathey. "White walls reflect heat, and northern exposures increase wind chill. But isn't that what makes gardening an endless fascination for us all? With the most up-to-date information in the world, each of us still has to go out there and help our plants to make it happen just as it should: perfectly every time!"

The new map appears as end papers in The National Arboretum Book of Outstanding Garden Plants by Jacqueline Heriteau, published by Simon and Schuster. More information on the book, which will be available through the AHS Book Program, will appear in the April American Horticulturist. The Government Printing Office will eventually distribute a four-foot-square color version of the new map, which will divide each zone into A and B areas with a five-degree difference in average low temperatures.

The project concludes with an interclass competition in which an award is given for the most outstanding plant or project. Recent winners will be displayed at the Apple Seed Exhibit during the New York Flower Show. Not only do the youngsters learn about a subject that may later become a hobby or a career, but educators have found that the horticulture program has improved reading, math, and writing skills.

The New York Flower Show is March 2-11. For more information on the Apple Seed project or the New York Flower Show contact: The Horticultural Society of New York, 128 West 58th Street, New York, NY 10019, (212) 757-0915.

Philadelphia: Greener Still

Philadelphia Green, through which the Pennsylvania Horticultural Society has been helping to green-up low- and moderate-income neighborhoods since 1974, has an ambitious agenda for the 1990s.

- Through its Lotscape program, it plans to beautify some 1,000 vacant lots over the next few seasons. This fall, with funding from the city's Department of Licenses and Inspections and with the help of the Philadelphia Anti-Graffiti Network, it installed fences, planted small trees and low-maintenance shrubs on about 100 lots, most of them in north Philadelphia.

- Over the next four years, it will plant some 3,000 trees at gateways, along commercial strips, and on residential streets. Organizers of the program, funded by the William Penn Foundation, estimate that Philadelphia currently has about half the number of trees it could support, and that many of these are in ill health for natural or environmental reasons. Also targeted at north Philadelphia, the program calls for educational workshops with neighborhood groups throughout the city.

- In the coming year, Philadelphia Green will continue its West Philadelphia Project, in which it will design and plant gardens intended to meet the specific needs of three different communities. In one of the gardens, at 49th and Aspen Streets, residents chose from among several designs developed by students, and have constructed an arbor and 14 raised beds in geometric configurations.

A Show That Doesn't End

This is the season of garden shows, which inspire us, entertain us, and offer reassurance that spring is on the way. A show that keeps on giving to its community when all the displays are knocked down is the San Francisco Landscape Garden Show. Sponsored by the Friends of Recreation and Parks in association with *The San Francisco Chronicle*, its primary purpose is to raise money for exceptional but unbudgeted projects of the parks department. Projects funded by proceeds from the show's first four years include an irrigation system for the Rose Garden at Golden Gate Park, plants and equipment for the park department nursery, a performing arts series at city recreation centers, a teen coordinator for the recreation program, and support for the park's reforestation efforts.

The San Francisco Landscape Garden Show is April 25-29. For more information contact Dick Turner, McLaren Lodge, Golden Gate Park, San Francisco, CA 94117, (415) 221-1310.

New Source List

If you've ever called the American Horticultural Society's Gardener's Information Service to ask where to find a particular plant, chances are the information we gave you came from the *Andersen Horticultural Library's Source List of Plants and Seeds*. Now the University of Minnesota library has published an updated version of *The Source List*. It provides sources for more than 40,000 plants from some 400 mail-order wholesale and retail seed and nursery firms throughout the United States and Canada—twice as many as its first edition. The sources were all taken from Fall 1988 to Spring 1989 catalogs.

Send a check or money order for \$29.95 postpaid to: University of Minnesota, Andersen Horticultural Library, Minnesota Landscape Arboretum, 3675 Arboretum Drive, P.O. Box 39, Chanhassen, MN 55317 or call (612) 443-2440 for more information.

Miraculous Textile Mulch: A Fabric-ation?

About a decade ago, landscapers concluded that the materials being used for diaper linings, upholstery, and underlay in road construction made a perfect mulch. The concept had potential: just lay down the fabric, poke a hole, plant a tree, and voila! no weeds. Unlike plastic, the fabrics allowed rain to seep through and soil to breathe. Eventually, the practical limits of landscape fabric were recognized: just like other mulches, it brings distinct benefits and a number of headaches. And among the many commercial brands available to home gardeners, not all are alike.

Almost all landscape fabrics, also known as geotextiles, are made of polypropylene, a petroleum byproduct of polymer, although a few are made of polyester and some are not really fabrics but polyethylene films similar to plastic. Fabrics differ in tensile and tear strength, puncture resistance, porosity, weight, size, color, and ease of handling. Landscape fabrics are usually sold in rolls of varying lengths and can be either black, gray, white, or dark green. Strips of fabric are laid down, side by side, and then cut along the edges to fit the contours of the bed.



Photos by Bonnie Appleton

Fabrics must be tightly pinned around plants so there are no bare spots where weeds might grow.

There are two different procedures that can be used when placing the fabric around plants, and each has its drawbacks. In the first, a herbicide is applied, the fabric is laid down, pegged with sod pins, and cut with a razor where each plant will go. The flaps are pulled back, a hole is dug, amendments added, plants planted, and the flaps pulled back into position.

The second method involves planting first and then laying down the fabric. In this method, holes or x's must be cut to fit over each plant. The first method has the disadvantage of excess soil on the fabric; the second poses the difficulty of preplanning and prefitting the holes.

Once the fabric is laid, it must be covered with a layer of organic mulch. Even if it weren't desirable for aesthetic reasons, it is necessary to

slow decomposition of the fabrics; the chemical composition of most makes them ultra-sensitive to sunlight. Even those that have been UV-stabilized for longer wear will eventually break down.

This may be the main reason that landscape fabric is a failure for many gardeners. "People are not properly managing the mulch on top," said Dr. Bonnie Appleton, extension nursery specialist at the Hampton Roads Agricultural Experiment Station in Virginia. "They cannot put four to six inches of mulch on top because weed seeds will germinate and grow in it," although this depth is what many manufacturers' directions recommend. Appleton suggests applying only one inch of organic material, spread evenly over the fabric. Any displaced by garden maintenance, children, or pets must be replaced immediately.

But in spite of using the best quality fabric and carefully managing the organic overlay, some weeds will still appear in this layer. Their seeds can be carried in by wind, irrigation water, animals, or they may be present in the mulch itself. Any weeds that germinate in the mulch must be pulled immediately. If left to grow, they could anchor into the fabric, causing tears as they are pulled out.

Nor do fabrics always mean an end to perennial weeds, said Appleton. Some, such as nutsedge and Bermuda grass, are determined to grow through anything. Although herbicides are applied to the soil before the fabric is laid



Weeds should be pulled when they are small (top). If left until they root into the fabric, they will rip up fabric when they are pulled (left).

down, these persistent weed seeds can still germinate and grow up through the fabric and mulch. Pulling these mature weeds can tear the fabric.

And it's not cheap to landscape with fabric. A survey by Appleton and Jeffrey F. Derr, weed specialist at the Hampton Roads Agricultural Experiment Station, puts the cost of fabric and mulch between \$2.66 and \$3.36 per square yard. This doesn't include labor. Given all its drawbacks, are there any arguments for landscaping with fabric?

Fabrics are best considered for large planting areas, such as tree and shrub beds, rows, and walkways, where plantings will not be changed frequently. While more expensive than black plastic, they do allow for water and gaseous exchange and they do block a majority of weeds, especially annuals. They can also insulate the ground and minimize temperature fluctuations.

Landscape fabric is not cost-effective for vegetable plots and flowering borders, where there are many small plants. Not only are there more holes in the fabric initially, so that weeds have more places to get started, but every time a new vegetable or annual is added or a perennial is moved, a new x must be cut into the fabric. In this case, black plastic might be the best alternative.

When considering purchase of a fabric, compare the many brands on the market. Many companies are happy to send you a free swatch and literature describing the properties and advantages of their product. If you plan to use fabric on a new home or for a large area, contact your local nursery or landscaper for advice on professional installation. Although there are still no dream mulches, fabrics can be an improvement over traditional methods and can be worth the investment in longterm landscapes.

—Peggy Lytton

Fabric Sources

The following landscape fabrics are available from the manufacturer or through nurseries, gardening shops, and hardware stores.

Typar

Reemay
Industrial Road
P.O. Box 511
Old Hickory, TN 37138
(800) 321-6271

Earth Blanket

K. I. M. International
1862 Enterprise Drive
Norcross, GA 30093
(800) 554-1183

Weed Barrier

Pro 5 Weed Barrier (commercial)
DeWitt Co.
R.R. 3, Box 338
Sikeston, MO 63801
(800) 888-9669

WEEDBLOCK

WEEDBLOCK 6+ (commercial)
Easy Gardener
P.O. Box 21025
Waco, TX 76702
(800) 327-9462

Weed Stopper

Duon (commercial)
Blunk's Wholesale Supply Co., Inc.
3145 West Columbus Avenue
Chicago, IL 60652
(800) 992-0550

Earth Felt

Polyfelt
200 Miller Sellers Drive
Evergreen, AL 36407
(800) 225-4547

Weed-X

Miracle Mulch
Econo Mulch
Weed Proof
Dalen Products
11110 Gilbert Drive
Knoxville, TN 37932
(615) 966-3256

Weed Gard

Eaton Brothers
3530 Lakeview Road
Hamburg, NY 14075
(800) 433-3244

Magic Mat

Agri-Tex
88 Rose Hill Avenue
Danbury, CT 06810
(800) 243-0989

Block Out

American Agrifabrics, Inc.
1122 Cambridge Square, Suite D
Alpharetta, GA 30201
(404) 664-7820

Weed Stop

WeathaShade, Inc.
3000 West Orange Avenue
Apopka, FL 32703
(800) 325-8790

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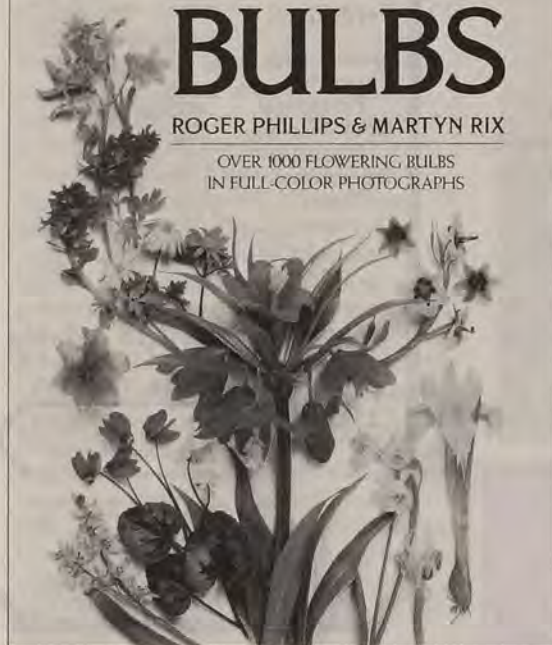
Gardener's Bookshelf

THE RANDOM HOUSE BOOK OF

BULBS

ROGER PHILLIPS & MARTYN RIX

OVER 1000 FLOWERING BULBS
IN FULL-COLOR PHOTOGRAPHS



The Random House Book of Bulbs

Like *Book of Roses* and *Book of Shrubs*, its predecessors in the Random House gardening series by Roger Phillips and Martyn Rix, this book's strong point is its

Simon and Schuster's Guide to Bulbs

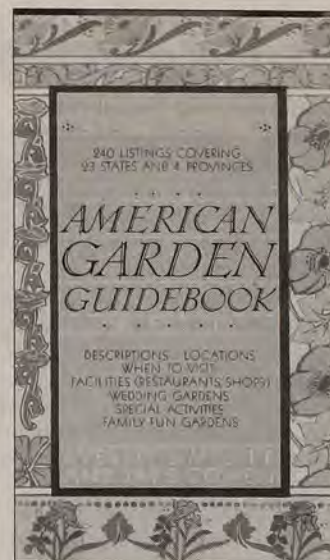
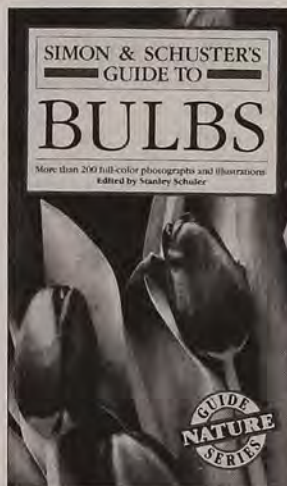
Another in Simon and Schuster's Nature Guide Series, the *Guide to Bulbs* follows their books on plants and flowers, garden flowers, trees, cacti and succulents, house plants, roses, shrubs and vines, and orchids. This guide contains much of the same information included in the Random House volume, but is oriented more toward the gardener than the naturalist. The introductory chapter includes sections on cultivation, propagation, and pests and diseases, but also includes a section on growing bulbs indoors and provides lists of bulbs suitable for naturalizing; spring, summer, and autumn flowering; rock gardens; and cut flowers. Bulb descriptions and color photos showing close-ups of the blooms appear two per page in alphabetical order by botanical name. Each listing contains information on family, origin, zone, appearance, flowering period, cultivation, propagation, and care. Easy reference symbols indicate flowering season, light (sun, partial shade, shade), and uses (beds and borders, rock garden, pot plant, cut flowers, aquatic plant, climber). The book also contains an extensive glossary, a bibliography, and an index that includes both botanical and common names. Originally published in Italy under the title *Tutto Bulbi*. By Rossella Rossi. U.S. Editor, Stanley Schuler. Simon and Schuster, New York, New York. 1989. 256 pages. Color photographs, line drawings. Publisher's price: softcover, \$11.95. AHS member price: \$9.95.

—M. B. W.

beautiful and informative color photographs. Reminiscent of botanical plates, photos show the plant from roots and bulbs to blooms. Most of the plants were photographed in their native habitats. The six-page introduction touches on conservation and collecting (cautioning against wild collection), cultivation, propagation, and pests and diseases. Bulbs are organized by season—close-up photos are dated—and indexed by botanical name. Information given for each plant includes plant origins, habitats, history, and a sentence on growing requirements. An appendix lists general and specialized bulb books, floras, journals, articles, American and British bulb societies, and bulb suppliers and nurseries in the United States, Britain, Europe, New Zealand, and Australia. A glossary is also included.

Originally published in Great Britain. By Roger Phillips and Martyn Rix. Random House, Inc., New York, New York. 1989. 255 pages. Color photographs. Publisher's price: softcover, \$21.95. AHS member price: \$18.50.

—Mary Beth Wiesner



The American Garden Guidebook West

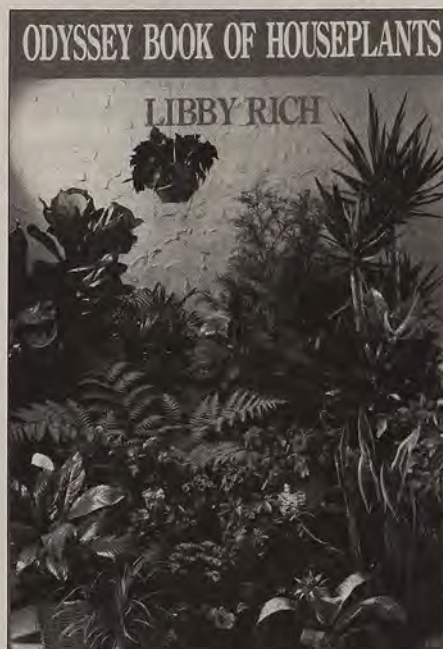
The long-anticipated companion to *The American Garden Guidebook East* was well worth the wait. This "traveler's guide to extraordinary beauty along the beaten path" describes 240 gardens, parks, and arboreta in 23 states and four provinces from the Mississippi River to Hawaii. Like its Eastern counterpart, the book is arranged alphabetically by state. Within each state, gardens are divided into "Don't Miss" and "Excellent" categories. Each listing includes detailed information about the garden's collections and highlights, special events, hours of operation, admission fees, location, other gardens of interest nearby, and a telephone number.

The authors lead us on a fascinating journey through garden history: from the Beehive-Lion Houses in Salt Lake City, home of the Navajo rose, which, according to legend, "was potted in a teapot while being carted across the plains from Illinois," to the Carla Garden, a garden-in-the-round at the Bayou Bend Garden in Houston, Texas, which was created in 1962 when Hurricane Carla left a clearing in the existing garden. An appendix lists—again alphabetically by state—138 gardens with special provisions for family entertainment; 174 free gardens; 94 gardens that allow wedding ceremonies; and 135 gardens noted for their winter displays. Whether you live west of the Mississippi or plan to visit, *The American Garden Guidebook West* will be indispensable. By Everitt L. Miller and Jay S. Cohen. M. Evans & Company, Inc., New York, New York. 1989. 294 pages. Publisher's price: softcover, \$9.95. AHS member price: \$8.45.

—M. B. W.

Odyssey Book of Houseplants

Libby Rich draws on her 14 years of experience as owner of Plant Odyssey, a store and greenhouse in Birmingham, Alabama, to provide 29 pages of clear-cut introductory information on light, water, fertilizer, propagation, insects and pests, diseases, soil, repotting, containers, temperature, humidity, air-conditioning, cleaning, dish gardens, and vacation time. Line drawings illustrate the specifics described in the text. The rest of the book contains detailed descriptions of over 120 plants suitable for growing indoors. From African violets to zebras (*Aphelandra squarrosa*), Rich has found a house plant for every environment. Each description is accompanied by a line drawing of the plant. Lists of plants for hanging baskets and for various light



levels will be helpful for choosing just the right plant for the available conditions. Rich holds strong opinions on indoor gardening, pesticides, plant selection, and collecting plants from the wild (she feels those who collect wild-grown cacti "should be impaled on the victims of their malicious behavior"). Her candor will be helpful for those unable to choose between a China doll ("...you are just asking for trouble") and a firecracker plant ("...a welcome addition to any plant collection"). This is a good book for anyone who has found themselves with a potted plant and wondered what to do with it. By Libby Rich. Illustrated by S. Meleia von Wälsung. Plant Odyssey Press, Birmingham, Alabama. 1989. 238 pages. Line drawings. Publisher's price: softcover, \$19.95. AHS member price: \$16.95. —M. B. W.

Landscaping with Container Plants

In his own relaxed and informal manner, Jim Wilson relates his experiences with container plants and encourages readers to explore this exciting realm of gardening. Wilson describes the many different kinds of containers and how they can be used effectively on the patio, deck, rooftop, or in the garden itself. He covers how all types of plants—including the more exotic citrus trees, berry plants, and edible flowers—fare in containers. The last section gets down to the finer points of year-round maintenance, fertilizing, watering, planting, and protection from the elements. One especially interesting chapter relates experiences and advice of other gardeners and horticulturists throughout the nation. Although Wilson does not list sources (most of the plants he names can be found through local nurseries), he does mention Barbara



Barton's invaluable *Gardening by Mail* as a source for specialty plants. By Jim Wilson. Houghton Mifflin Company, Boston, Massachusetts. 1990. 158 pages. Color photographs. Publisher's price: hardcover, \$35.00. AHS member price: \$29.75. —Peggy Lytton

Need a Book List?

You can obtain a list of all the books currently offered at a discount to AHS members by mailing a self-addressed, stamped envelope to: Book List, AHS, 7931 East Boulevard Drive, Alexandria, VA 22308.

On that list you will find earlier books in the Simon and Schuster

Nature Guide Series (*Plants and Flowers*, *Garden Flowers*, *Trees*, *Cacti and Succulents*, *House Plants*, *Roses*, *Shrubs and Vines*, and *Orchids*) which are \$9.95 each plus postage; the earlier Roger Phillips-Martyn Rix books (*Roses and Shrubs*) are \$16.95 each plus postage.

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- ☐ **ODYSSEY BOOK OF HOUSEPLANTS** \$16.95
ODY677
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Members' Forum

Music to Our Ears

Just a note to tell you how much I like the "new" *American Horticulturist*. More than ever before, the publications are clean, crisp, eminently readable, informative, stylish! What more can I say—I like them.

Congratulations to the editorial staff and to Frank Robinson, your executive director. The style of the publications speaks of a new, vibrant force blowing from River Farm to the membership. I know that it is the work of a few that provides the inspiration to (and for) everyone else. Keep up the good work!

Paul Rogers
Charlton, Massachusetts

Hearing such kind words is made even nicer by the fact that the words come from a top-notch garden educator and radio show host. We're proud of the fact that we've been able to expand the News Edition and include more gardening tips, research, and environmental information. But we don't want to stop there. We want to hear from more members about what they want to read.

Where, Oh Where...

In regard to your recent changes: Nice look! But I have a suggestion for the "Gardener's Dateline" Section. Please highlight the location first or last. I find it annoying to either search for the location first (to find if it's in my locale) or to become intrigued and then find it's on the other side of the country.

Yvonne Savio
Davis, California

This has been bothering us, as well. We have received a number of requests to expand "Gardener's Dateline" to include more items, but we felt that in doing so, we should also regionalize the listings. We have made an effort to do so this month (see page 16). Let us know if this helps.

A Good Read

Members who are interested in China and its flora should try to obtain *Roy Lancaster Travels in China—A Plantsman's Paradise*. This is an important book for both professional and amateur gardeners, whether they plan to visit China or not. You can curl up with it and read it with great pleasure and turn to it as a reference

book. The botanical information is not only reliable but useful in our own gardens, since the author emphasizes ornamental plants, and the writing style is readable and delightful.

As a student at the Hillier Arboretum in Hampshire, England, I was associated with Roy Lancaster and was fortunate enough to learn from his unbounded knowledge and contagious enthusiasm. He is an inspiring person and one of England's best plantsmen, and his writing makes this book hard to put down. Roy has an ability to make his subjects come to life; it is as though he is there talking to you about his expeditions.

The bulk of the book is devoted to various areas to which he has traveled to see the flora. He includes information on China's botanic gardens as well as its urban trees and shrubs, and weaves in other elements to give a sense of place. There are useful indexes of plants, people, and places. The color photographs are superb and naturally the botanical accuracy is unquestioned. The book is available for \$69.60 from Antique Collectors' Club, Ltd.; 5 Church Street; Woodbridge, Suffolk, IP12 1DS, England.

Holly Harmar Shimizu
Washington, DC

Holly Shimizu is public programs specialist at the United States Botanic Garden. We would like more input from members about their favorite books. If they are current U.S. books, we'll make sure they're included in the AHS Book Program.

Opuntia from Seed

In response to Leonard Corbett-Grant's letter in January's "Members' Forum," I have been growing and collecting seed from various *Opuntia* spp. here in Virginia for several years and have found the following method to be the most convenient.

Make sure you are familiar with the species from which you plan to collect seed; the fruits of *Opuntia* vary in color when ripe. They can be yellow, orange, light or dark red, purple, or any of several shades in between.

Harvest fruit when fully ripe, slicing it in half lengthwise and putting several layers of these in a bucket. (Do not use a galvanized bucket; this will interfere with the fruit's fermentation process.) Remember to wear gloves, since the fruit of most species is armed with spines. Fill to within two or three

inches of the top using warm—not cold, not hot—water, and set the bucket inside in a warm spot away from any drafts or direct sun. Cover with newspaper to keep bugs out and odor in. (The odor of fermentation is unmistakable and quite unpleasant.) In seven to ten days, you should find bubbles on the surface, signaling the start of fermentation. If not, try moving the bucket to a warmer location.

Two to three weeks after fermentation begins, you should find that the seed has separated from the pulp and sunk to the bottom. If not, replace the cover and check again in a week. Once the seed separates, carefully pour off the water containing the pulp. You may have to rinse the seeds several times to remove all the pulp. Pour the seeds and remaining water into any suitably sized sieve or strainer and rinse out any mucilaginous substance as best you can. Don't worry about removing it all; it makes handling the seed more difficult but has no effect on germination.

Spread seeds out to dry in a bright, well-ventilated place. As they dry they will lighten in color to brown, buff, tan, or even off-white, depending on species. Avoid drying them on newspaper or paper towels; they will be almost impossible to remove. If you use brown paper grocery bags, you can remove them just by flexing the paper.

The seeds store best if stored dry in an airtight container and refrigerated. I have found little if any difference in germination percentages between this method and separating seeds from the fruit immediately after harvest.

John Adkins
Aroda, Virginia

*As you indicate, there is more than one way to skin an *Opuntia* fruit, and it sounds like you have tried several. Thanks for your response to Mr. Corbett-Grant's request for information on seed-gathering. That's what this column is all about: members helping other members.*

Correction

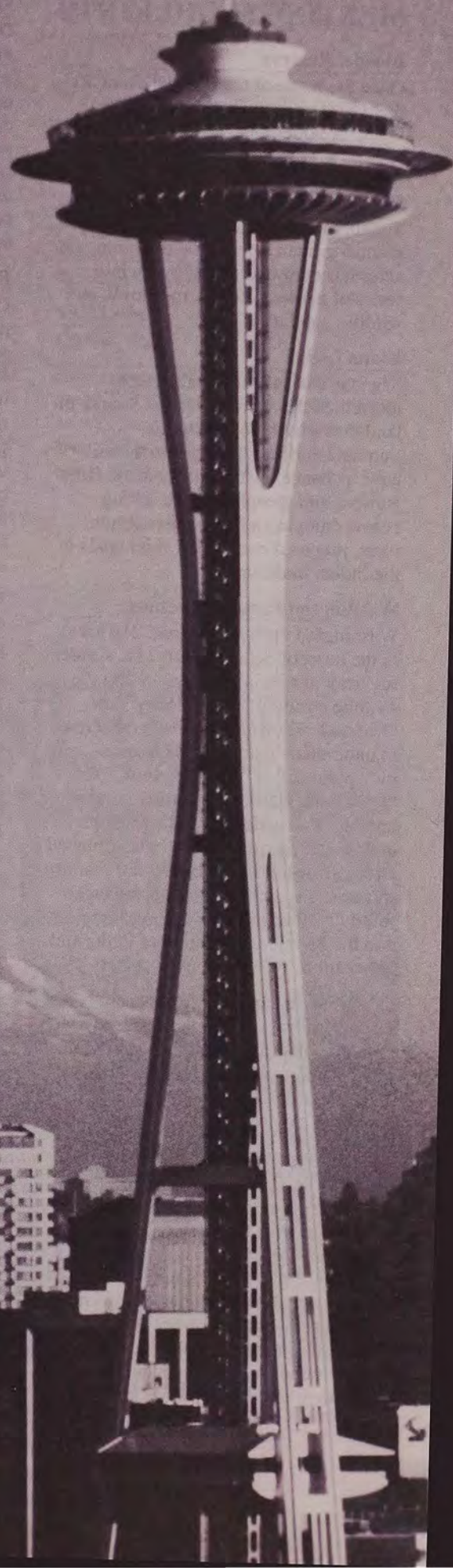
Fairchild Tropical Garden of Miami, Florida, was incorrectly listed among contributors to our annual Seed Program in the January catalog. Contributors were identified by a number in brackets at the end of each plant description.

AHS

45th ANNUAL MEETING



SEATTLE, WASHINGTON
JUNE 19-22, 1990



MEETING HIGHLIGHTS

Bloedel Reserve

Once the home of the Bloedel Family, this 150-acre reserve on Bainbridge Island provides an opportunity for visitors to enjoy nature through quiet walks in gardens and woodlands. Blessed by the mild climate of Puget Sound, the reserve contains 84 acres of second-growth forests; the remaining 66 acres has evolved over 35 years into a series of gardens, ponds, meadows, and wildlife habitats.

Kiana Lodge

Kiana is a beautiful private lodge located on the shores of Puget Sound, on land that once belonged to the Suquamish tribe. AHS members will have a chance to stroll the colorful floral gardens and greenhouselike setting before enjoying a Northwest salmon roast, prepared over green alder coals in the Indian tradition.

Washington Park Arboretum

Washington Park Arboretum, 210 acres in the heart of Seattle, features a wonderful array of special sites, including the ¾-mile strolling "Azalea Way"; the "Rhododendron Glen" of several acres in naturalistic plantings; the scenic viewpoint called "The Overlook"; the "Woodland Garden" featuring ponds and many varieties of Japanese maples; and the "Waterfront Trail." The Olmsted Brothers designed the Boulevard that traverses the Arboretum. It is managed jointly by the University of Washington and the Seattle Department of Parks and Recreation.

Our visit will highlight the Japanese Garden, a 3½-acre garden designed in 1960 by Juki Iida. The garden represents a compressed world of mountains, forests, lakes, rivers, tablelands, and a village, each with a quiet message of its own.

Mrs. Pendleton Miller Garden

Betty Miller's personal garden is a four-acre collection of rare exotic plants, perhaps the most diverse collection in a private garden of its size, set in unusual and beautiful combinations. Variety and harmony challenge and treat the visitor, under a cathedral canopy of Northwest forest trees, with stunning views of Puget Sound. A garden you will long remember.

Freeway Park

Often described as an "urban oasis," Freeway Park offers Seattle residents a respite from the downtown traffic and noise. This six-acre park built over the city's busiest highway features lush plantings and a cliffside cascading waterfall. Freeway Park is a magnificent and enjoyable example of creative solutions to urban horticultural and environmental problems.

Rhododendron Species Foundation

Created in 1964 as a center for the preservation, distribution, and display of species (not hybrid) rhododendrons, the Rhododendron Species Foundation is an internationally recognized leader in rhododendron conservation. The 24-acre garden features over 2,200 different varieties in a woodland setting with companion plantings. In addition, there is a stunning Alpine Garden, Pond Garden, Study Garden, and the Vertrees collection of Japanese maples.

Weyerhaeuser Pacific Rim Bonsai Collection

Established in 1989 by the Weyerhaeuser Company, this collection includes more than 50 masterpiece bonsai from five of the Pacific Rim countries. All the major bonsai styles are represented in an innovative and beautiful one-acre display garden.

Lakewold

Located on a beautiful 10-acre site overlooking Gravelly Lake (just south of Tacoma), the Lakewold Gardens are among the most unique in the Pacific Northwest. Opened to the public in 1989 through the gift of Mrs. Corydon Wagner, the gardens are a showcase of unusual and extraordinary horticultural treasures.

Center For Urban Horticulture

The Center for Urban Horticulture at the University of Washington is the first and largest program in the world devoted to studying plants in cities. The Center, founded in 1980, has a threefold mission—scientific research, graduate and undergraduate education, and public outreach—which is carried out in its 55-acre urban horticultural campus, including the Douglas Conservatory, the Miller Horticultural Library, and the Hyde Hortorium.

PROGRAM

TUESDAY, JUNE 19, 1990:

12:00 - 5:00 p.m.

REGISTRATION at the AHS Meeting Headquarters, Stouffer-Madison Hotel, 515 Madison Street, Seattle, WA

Horticultural Exhibits and Sales

2:00 - 4:00 p.m.

AHS Board of Directors meeting

5:00 - 7:00 p.m.

Welcome cocktail party for all registrants at the Stouffer-Madison Hotel, generously sponsored by the Northwest Horticultural Society

6:30 p.m.

President's Council dinner

WEDNESDAY, JUNE 20, 1990:

7:00 - 8:30 a.m.

Continental breakfast with today's speakers

Registration

Horticultural Exhibits and Sales

8:45 a.m.

Opening of the 45th Annual Meeting

Welcome by Carolyn Marsh Lindsay, AHS President

Greetings by The Honorable Daniel Evans, former U.S. Senator and Governor of Washington

Plenary Session

9:30 - 10:00 a.m.

"What Are We Doing Here?"
Steve Lorton, Northwest editor,
Sunset Magazine

10:10 - 10:40 a.m.

"The Olmsted Influence in the Pacific Northwest"
Catherine J. Johnson, vice chair,
National Association for Olmsted Parks

10:50 - 11:20 a.m.

"Freeway Park, Seattle's Urban Horticultural Heart"
Holly Miller, superintendent,
Seattle Department of Parks and Recreation

11:30 - 12:00 a.m.**"The Delicate Garden"**

The first classical Chinese-designed and -built garden in the United States, now under construction in Seattle.

James C. Dawson, Dawson, Hoshide, Williams Architects & Planners

Joe C. Wai, Joe C. Wai Architect

12:00 - 1:15 p.m.

Luncheon at the hotel

1:45 p.m.

Bus departs Stouffer-Madison for ferry

3:00 - 6:00 p.m.

Garden Tour

Our afternoon tour begins with a ferry ride to Bainbridge Island where we'll visit The Bloedel Reserve.

6:30 - 8:30 p.m.

Salmon Roast at Kiana Lodge

9:10 p.m.

Ferry returns to Seattle

10:00 p.m.

Arrival at Stouffer-Madison

THURSDAY, JUNE 21, 1990

7:00 - 8:30 a.m.

Continental breakfast with today's speakers

Registration

Horticultural Exhibits and Sales

8:45 a.m.

Greetings

9:00 - 9:30 a.m.

"Rhododendrons in the Northwest"

Ken Gambrill, designer and consultant, British Gardens

9:30 - 10:00 a.m.

"Painting with Perennials"

Ann Lovejoy, contributing editor, *Horticulture* magazine and author of *The Border in Bloom*

10:15 a.m.

Garden Tours

Buses depart Stouffer-Madison for tours. Take a "NORTH" bus on either Thursday or Friday; take a "SOUTH" bus on the alternate day. Box lunch will be provided on all tours.

• "NORTH" bus: We will visit The Betty Miller Garden, Freeway Park, Washington Park Arboretum (including Japanese Garden), and the Center for Urban Horticulture.

• "SOUTH" bus: We will visit Lakewold (garden of Mrs. Corydon Wagner) in Tacoma, the Rhododendron Species Foundation, and the Weyerhaeuser Bonsai Exhibit.

4:30 p.m.

Buses return to the Stouffer-Madison.

EVENING

On your own

FRIDAY, JUNE 22, 1990

7:00 - 8:30 a.m.

Continental breakfast with today's speakers

Registration

Horticultural Exhibits and Sales

8:45 a.m.

Greetings

9:00 - 9:30 a.m.

"Choice Alpines in the Pacific Northwest—in the Wild and in Cultivation"

Steve Doonan and Phil Pearson, Grandridge Nursery (Issaquah, WA)

9:30 - 10:00 a.m.

"Trees and Shrubs in Northwest Gardens"

Daniel Hinkley, Edmonds Community College

10:15 a.m.

Garden Tours

Buses depart Stouffer-Madison for tours. We'll break into the same groups as on Thursday and take the alternate tour ("NORTH" or "SOUTH"). Box lunch will be provided.



You'll find farm produce, fresh local seafood, arts and crafts, restaurants, cafes, and street musicians within walking distance of the Stouffer-Madison Hotel at the Pike Place Market.

4:30 p.m.

Buses return to the Stouffer-Madison

7:00 p.m.

President's Reception

8:00 - 10:30 p.m.

AHS 1990 Awards Banquet



1990 AWARD RECIPIENTS:

National Achievement:

The du Pont Family

Liberty Hyde Bailey:

Dr. Marion T. Hall

G. B. Gunlogson:

Mr. Harry Butler

Catherine H. Sweeney:

Mrs. Corydon Wagner

Frances Jones Poetker:

Mrs. Georgia Vance

Commercial Award (Company):

Molbak's Nursery

Commercial Award (Individual):

Mr. Paul Hawken

Horticultural Communication:

Dr. J. C. Raulston

Horticultural Writing:

Mr. Steven Lorton

Meritorious Service:

Mr. J. Judson Brooks

Local Horticulture:

Mrs. Pendleton Miller

Scientific:

Dr. John Nash Ott

Urban Beautification (Institution):

Portland Garden Club

Urban Beautification (Individual):

Mrs. Lindsay C. Smith

Post-Meeting Optional Tours

Saturday, June 23, 1990

Join us after the meeting for one of two very special tours.

1. Molbak's: Production Greenhouses and Retail Nursery. Take a behind-the-scenes tour of this unique computer-operated greenhouse that produces over 2,000 varieties of excellent plants. Our visit will include a guided tour of Molbak's Retail Nursery.

2. Locks/Fish Ladders and Carl S. English Gardens: Our tour will take us to see boats travelling through the locks, and salmon "running" up the ladder to their freshwater spawning grounds. Includes a leisurely tour of the beautifully landscaped Carl S. English gardens.

Call AHS at 1-800-777-7931 for more information.

REGISTRATION FORM

AHS 45th Annual Meeting, June 19-22, 1990, Seattle, Washington

Space is Limited! Please Register Before May 31, 1990!!!

Name _____ Member # _____

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Full Registration	Member	(Non-member)	#	Total
June 19 - 22	\$335	(\$375)	_____	\$ _____

Day Registration				
Wednesday, June 20	\$125	(\$135)	_____	\$ _____
Thursday, June 21	\$100	(\$115)	_____	\$ _____
Friday, June 22	\$125	(\$135)	_____	\$ _____

Optional Tours, Saturday June 23				
a. Molbak's	\$ 40	(\$ 50)	_____	\$ _____
b. Locks/Fish Ladders & Carl English Gardens	\$ 30	(\$ 40)	_____	\$ _____

Donation: Optional (\$250 or more denotes "Meeting Sponsor") \$ _____

Total Enclosed \$ _____

Special Services Required:

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Return this form with your payment to: AHS, 7931 East Boulevard Drive, Alexandria, Va 22308. For information, (800) 777-7931.

REGISTRATION FEE: Full registration fee covers all daily programs, registration materials, continental breakfasts, box lunches, cocktail reception, entrance fees, grounds transportation, and President's Reception and 1990 Awards Banquet. Not included are hotel, airfare, personal items, and meals not specified.

CANCELLATIONS: A full refund, less \$50 for booking expenses, will be made if written cancellation is received by May 31, 1990. No refunds will be made after May 31, 1990.

OFFICIAL AIRLINE: Northwest Airlines is the official carrier for the 1990 Annual Meeting in Seattle. By special agreement, AHS members receive 40% off Northwest's published regular economy round-trip fares, or 5% off the lowest discounted coach fares when traveling to and from the 1990 Meeting. Make your reservations with Northwest by calling toll-free, (800) 328-1111 (8 a.m. - 8 p.m., Central time, Mon-Fri). You must mention the AHS reference code of 16380 to obtain the discounts. (Some restrictions apply.)

HOTEL: Our headquarters hotel is the Stouffer-Madison Hotel at 515 Madison Street, Seattle, WA 98104. Rates are \$114 single and \$124 double occupancy, plus 14.1% city tax. You must make your room reservation directly with the hotel by mail or by phone, (206) 583-0300. You must mention the American Horticultural Society and make your reservation by May 19, 1990 in order to guarantee the convention rate. (A limited number of lower-priced rooms are available at alternate hotels. Call AHS for information.)

A Vine You'll Grow to Luff

Chances are you've never thought about growing your own bath sponges. But if you can grow cucumbers or melons, you can also grow luffas.

Luffas (*Luffa aegyptiaca*) belong to the cucumber family and are relatives of melons, gourds, squashes, and pumpkins. Luffas, like cucumbers, are vigorous growing vines with attractive yellow flowers. The fruit is smooth, green, and reaches 12 to 18 inches long. As many as 25 fruits are produced on a single vine.

It is in this fruit that one finds the "sponge." In the interior of the fruit is a netlike, fibrous skeleton. When it is damp, it is pliable but, at the same time, tough enough to remove dirt. Because of its long-wearing qualities, it can be rinsed clean and used over and over again.

How to Grow Luffas

Growing luffas is similar to growing cucumbers, gourds, and melons. Luffas are cold-sensitive; the seed should be sown when the ground is warm and frost danger is past. Luffas need a sunny location and soil that is rich with humus. Plant three or four seeds to a hill, a half-inch deep, and space the hills four to six feet apart. Be patient; seeds are slow to sprout.

If you live in a short growing season area, you can sow seeds indoors in pots. The potting mixture should have plenty of peat moss. Once moved outdoors, plants should have a daily watering until they have become established.

For best results, plants should be trained to grow on a trellis or wire fence so that the fruit does not touch the ground. Luffas need ample moisture during their growing period. Feed with fish emulsion or a good liquid fertilizer. To get high quality fruits, remove all the first flowers that appear and remove fruit that is poorly formed or diseased.

Uses of Luffas

To make sponges, luffas should be allowed to ripen on the vine. Remove the luffas when they are ripe and the skin is yellow. Place the ripened fruit in buckets of running water for a few days until the outer wall starts to disintegrate. Remove the walls, seeds, and pulp and lay the sponge out to dry in the sun. Those who prefer whiter sponges should soak the sponge in a diluted solution of hydrogen peroxide.



Courtesy W. Atlee Burpee Co.

Luffas have been used for bath sponges for centuries. They increase blood circulation, produce a mild glow, and have been credited for relieving rheumatism and arthritis symptoms. More than any other type of sponge, they have an extensive internal surface that enables them to hold a considerable amount of water. They can be used for washing delicate glasses and dishes or, as the Navy has been doing, vigorously rubbing down painted surfaces. Their compact network of fibers creates a resiliency that makes them useful as shock absorbers, filters, slipper soles, table mats, pillow stuffing, sandals, baskets, and even toys for children. Small pieces of luffa are also good for scraping vegetables clean.

If harvested while small and green, luffas are a surprisingly tender vegetable that is delicious when cooked like okra in soups or

stews. They can also be cooked like a summer squash. In Japan, the young fruit is cut and eaten dried; Malaysians eat the young leaves. Oil from luffa seeds is mild-flavored and used for cooking or salads.

Sources for luffa seed include: Nichols Garden Nursery, Inc., 1190 North Pacific Highway, Albany, OR 97321; W. Atlee Burpee Co., 300 Park Avenue, Warminster, PA 18974; and Park Seed Co., Cokesbury Rd., Greenwood, SC 29647.

Information for this article was originally compiled by Nick Nichols of Nichols Garden Nursery in Albany, New York. It was recently printed in The Gourd, published by the American Gourd Society. For more information on the society, write them at P.O. Box 274, Mount Gilead, OH 43338, or call (419) 946-3302.

The Return of the Killer Fungus

Gypsy moth caterpillars found themselves starring in a real-life horror tale last year when a long-forgotten fungus turned the pests into "mummies" by devouring their insides. The strange occurrence was first noted in Connecticut and then reported by six other Northeastern states.

Researchers at the Agricultural Research Service (ARS) finally tracked down the source of the mysterious fungus. *Entomophaga maimaiga* was imported from Japan 80 years ago in an attempt to control the destructive caterpillars. In 1910 and 1911 the fungus was field-tested near Boston, but

apparently disappeared without a trace. ARS tried the procedure again in 1984, releasing the fungus in New York's Allegheny State Park and Virginia's Shenandoah National Park, with the same result. But apparently the "old" fungus had been slowly spreading in New England for the last 78 years until it bloomed in last spring's unusually cool and rainy weather.

Richard A. Humber of the ARS Plant Protection Research office in Ithaca, New York, said the fungus could become a powerful biological control agent if it has indeed adapted to the North American climate.

Regional Notes

A Friendship Garden

The National Council of State Garden Clubs has begun a two-year project that will establish a Friendship Garden at the U.S. National Arboretum in Washington, D.C. Designed by James van Sweden of the landscape design firm of Oehme, van Sweden & Associates, the garden covers one-and-a-half acres and will include eight benches representing the eight National Council regions. The garden will contain an irrigation system along with trees, shrubs, annuals, and perennials. It will be dedicated in 1991.

For the Birds

Also on the drawing board at the National Arboretum is the Carl W. Buchheister National Bird Garden. Buchheister was the first director of the highly successful Audubon Camp of Maine and president of the National Audubon Society from 1959 to 1967. While serving on the National Arboretum Advisory Council, he proposed a demonstration garden that would teach visitors how to incorporate bird habitats into their gardens.

The first phase of the project is to begin this year. The 20-acre site was designed by Ian Tyndall of HOH Associates, Inc., in Alexandria, Virginia in four parts, each linked with a walkway. The Entry Sequence will take visitors from the parking lot through a geometric parterre of plants favored by birds for food or nesting. Up in the Tree House, a gazebo-like structure, visitors can preview the garden through printed material. Next, they will perch on a low stone wall to view Birds on Stage, a collection of bird houses, bird feeders, a pond, and an arc of brush piles to provide shelter.

The next stop is the Ranch House, which will be surrounded by different types of gardens, each with specific bird-attracting plants and landscapes. Features include the Bird Bath Court, which serves as a reminder to gardeners of birds' need for water.

Next, visitors can take either a long, circuitous path past the pond habitat and Washington Youth Garden or a short, direct route through the Butterfly Meadow, which will be mowed into the shape of a butterfly and planted to attract both butterflies and birds. At the end of that trail they will reach the Woodland, where they will see birds in a natural wooded lot.

New Gardens in Dallas

Two new permanent gardens at the Dallas Arboretum and Botanical Garden will have their debut during the arboretum's spring festival March 10-April 15.

The Jonsson Color Garden, donated by the family of former Dallas Mayor J. Erik Jonsson, will feature the Chinese Huang Azalea Collection, the first time that these azaleas have been seen in full bloom in a public garden.

Seasonal color beds, flowering trees, and fall foliage will provide year-round interest. Special soil preparation and irrigation techniques will allow the arboretum to display acid-loving plants rarely seen in Dallas's alkaline soils.

Other features of the Jonsson garden will include limestone columns, a walkway of exposed green marble aggregate concrete, and a comprehensive information system.

In contrast to the sunny Jonsson garden will be the Palmer Fern Dell, where more than 30 types of ferns and

other shade-loving plants will be displayed. The air will be kept humid through a concealed fog system.

Historic Hot Spots

A survey of readers of *Historic Preservation*, in which they were asked about their favorite historic spots to visit, turned up the names of several famous and less famous gardens. They included Filoli in Woodside, California; Liberty Hall in Frankfort, Kentucky; Vizcaya in Miami, Florida; Dumbarton Oaks in Washington, D.C.; Eleutherian Mills in Wilmington, Delaware; Sonnenberg Gardens in Canandaigua, New York; Longwood Gardens in Kennett Square, Pennsylvania; Rosedown, in St. Francisville, Louisiana; Biltmore House, in Asheville, North Carolina; Colonial Williamsburg in Williamsburg, Virginia, and Burbank Home and Gardens in Santa Rosa, California.

Wait, Don't Whack

Botanical gardens in Florida and Texas had only minor losses from the frigid pre-Christmas weather that made mush of oranges and other crops.

Charlene Johnson of Bok Tower Gardens in Lake Wales, Florida, said the garden learned a hard lesson from cold snaps in 1977 and 1983 and removed most of its tender plants. Weather previous to the hard freeze was cool and wet, so plants were in a semi-dormant state. Tender herbaceous plants were frozen to the ground, but appear to have live roots, and the winter annuals had not yet been set out. But cold winds played havoc with palms in both states, wiped out any vegetables that were in the ground, and froze buds on many unprotected trees and shrubs, gardeners reported.

The Midwest and mid-Atlantic also had several days of cruel weather. Chip Tynan of the Missouri Botanical Garden said their evergreens were seared by 48 hours of below-zero temperatures combined with clear skies and high winds. Some were killed outright; on others, damage is so slight they could be pruned by "running your hands through them." The damage was made worse by two consecutive dry summers, he said, but perennials will benefit from having been covered by six inches of fluffy snow at the time.

Donna Matthews, AHS horticulturist, said River Farm could lose up to half of its roses, even though most of them still look green. "When it begins to warm up, the damaged ones will turn black and split," she said. Azaleas will probably have smaller-than-usual flowers, but again, only when summer heat strikes will she know for sure which stems or tips have been killed.

In areas where temperatures dipped to minus 20° F and lower, many spring bloomers such as forsythia and dogwood may flower late or not at all. Judicious pruning can often save even plants killed back to the ground, but only time will tell which plants were hurt or how extensive the damage is. If you remove plants or prune in spring, you may sacrifice a salvageable plant and leave one that's kaput.

A good garden book can give you guidance about your plants' cold hardiness, but factors other than temperature come into play: wind chill, the length of the cold spell, and microclimates. Horticulturists in every region agreed: the best approach will be one of wait-and-see.

Celebrate Our Planet

"It's not just the kids. It's lawyers, doctors, scientists, mothers. Maybe this is one area where the generation gap doesn't exist. We're all working toward the same goal. We're earth housekeepers."

—Ora Citron, student demonstrator
Earth Day 1970

Before April 22, 1970, many Americans were barely aware of the environmental challenges we face. That first Earth Day marked the largest organized demonstration in the nation's history and launched two decades of environmental action. More than 20 million people participated in activities ranging from nature walks to direct action against major polluters. Conceived by Sen. Gaylord Nelson of Wisconsin and coordinated by Denis Hayes, a student at Harvard Law School, Earth Day 1970 is credited with tremendous results: establishment of the Environmental Protection Agency; passage of the Clean Water Act and the Clean Air Act; halting development of the supersonic transport and the military's use of mutagenic defoliants in Southeast Asia; and defeat of seven of the "dirty dozen" Congressmen with poor records on environmental issues.

But there is still much to be accomplished. Today, global warming, acid rain, ozone holes, rainforest destruction, expanding deserts, and toxic wastes threaten our planet. Some of those involved with the first Earth Day concluded that it's time for another.

The demonstrations planned for April 22, 1990—again by Denis Hayes, now on leave from a California law firm, with public issue organizer Christina L. Desser serving as executive director—are intended to show global citizen concern for the environment. Although demonstrations will take place around the world, decisions about how to participate will be made at the local, regional, and national levels. Activities will include parades, conferences, fairs, and teach-ins. People will be urged to wear green clothing to show solidarity in their concern for the planet. Each Earth Day participant will be encouraged to plant at least one tree and care for it until it can survive on its own.

It is hoped that Earth Day 1990 will usher in a "decade of the environment" that will involve a broad cross section of society. Goals for this decade include:



Earth Day isn't just kids, but the next generation plays a big role. Here, children clean up a stream in Greenland.

- ◆ A worldwide ban on chlorofluorocarbons within five years. Chlorofluorocarbons, which come primarily from refrigerants, destroy the ozone layer and contribute to global warming.

- ◆ Reduction in carbon dioxide emissions through higher standards for automobile fuel efficiency and the adoption of a transportation system not powered by fossil fuels.

- ◆ Preservation of temperate and tropical old-growth forests.

- ◆ A ban on packaging that is neither recyclable nor biodegradable and the implementation of strong, effective recycling programs in every community.

- ◆ Increased protection for endangered species and habitats.

- ◆ A powerful international agency with authority to safeguard the atmosphere, the oceans, and other global commons from international threats.

- ◆ A new sense of responsibility for the protection of the planet by individuals, communities, and nations.

Earth Day 1990 is backed by a huge coalition of loosely affiliated organizations. Every city, neighborhood, and school has its own organizers with their own issues and agendas. To get involved or find out more, contact: Earth Day 1990, P.O. Box ZZ, Stanford University, CA 94305, (415) 321-1990.

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Gardener's Dateline

Northeast

♦ **Mar. 2-11. New York Flower Show.** Pier 92, 52nd St. and 12th Ave., New York, NY. Information: (212) 757-0915.

♦ **Mar. 8-9. The 10th Annual Symposium: Successful Education Programs in Cultural Institutions: The NYBG Model.** New York Botanical Garden, Bronx, New York. Information: (212) 220-8720.

♦ **Mar. 9-11. Preview of Spring Flower Show.** Presented by the Green Fingers Garden Club. Parish Hall, Christ Church, 254 East Putnam Ave., Greenwich, Connecticut. Information: Liz Ferretti (203) 629-1406.

♦ **Mar. 10-18. New England Flower Show.** Bayside Exposition Center, Boston, MA, (617) 536-9280.

♦ **Mar. 11-18. Philadelphia Flower Show.** The Philadelphia Civic Center, 34th St. and Civic Center Blvd., Philadelphia, PA, (215) 625-8250.

♦ **Mar. 14. IPM Conference: Issues and Frontiers for the Horticulturist.** Swarthmore College, Swarthmore, Pennsylvania. Information: Erica Glasener (215) 328-8025.

♦ **Mar. 23-25. Wildwood Third Annual Capital District Garden Show.** New Scotland Avenue Armory, Albany, New York. Information: Kathleen A. Lein (518) 783-3421.

♦ **Apr. 27-May 13. The 12th Annual House and Garden Tours.** Coordinated by Friends of Independence National Historical Park, Philadelphia, Pennsylvania. Information: POH, 313 Walnut St., Philadelphia, PA 19106, (215) 928-1188.

Mid-Atlantic

♦ **Mar. 7-11. Washington Flower and Garden Show.** Washington Convention Center, New York Ave. and 9th St., NW, Washington, DC. Information: (703) 569-7141.

♦ **Apr. 5-8. The Rites of Spring exhibition and sale.** Maryland State Fairgrounds, 4H Building, Timonium, Maryland. Information: (301) 554-2662.

♦ **Apr. 11-12. Garden Club of Virginia Daffodil Show.** Tanglewood Holiday Inn, 4368 Starkey Rd., Roanoke, Virginia. Information: Mrs. Frank T. Ellett, 3752 Brandon Ave., SW, Roanoke, VA 24018.

♦ **Apr. 21-May 6. 1990 Maryland House and Garden Pilgrimage.** Sponsored by six Maryland organizations to raise funds for historic preservation. Information: (301) 821-6933.

♦ **Apr. 22-23. Historic House and Garden Week 1990.** The Fauquier and Loudoun Garden Club. Information: Mrs. Richard K. Irish, "Raya", RFD 2, Box 172-A, Marshall, VA 22115.

April at AHS

AHS and the Colonial Williamsburg Foundation will cosponsor the 44th Annual Williamsburg Garden Symposium April 1-4. Gardening experts Rachel Snyder, Frederick McGourty, Rosalind Creasy, and others will address "Vintage Plants and Contemporary Gardens." The Williamsburg Symposium is America's oldest and most renowned seminar for both amateur and professional gardeners. For more information and a registration packet, write Symposium Registrar, Box C, Williamsburg, VA 23187, or call (804) 220-7255.

We'll also host three special events at River Farm in April. The Holly and Ivy Craft Show will be held April 6 and 7 from 11 a.m. to 4 p.m. The show and sale is sponsored by a local craft guild.

On April 14, two distinguished speakers will be offering gardening tips: Patricia Hammer of Longwood Gardens will speak on ivy and topiary and Brent Heath of The Daffodil Mart will talk about daffodils. There will be demonstrations of flower arrangements that use daffodils.

April 23-29 is Historic Virginia Garden Week. River Farm will celebrate with an open house and a tree planting ceremony among other activities. Call (703) 768-5700 or (800) 777-7931 for more information about these special events.

♦ **May 5. Annual Sale of Herb Plants.** National Arboretum, Bladensburg Rd. and New York Ave., NE, Washington, D.C. Potomac Unit of the Herb Society of America. Information: Jo Sellers (703) 451-7037.

♦ **May 6. Second Annual "Gardeners In Their Gardens" tour.** Virginia Beach, Virginia. Sponsored by the Norfolk Botanical Garden Society. Information: (804) 481-6656 or (804) 481-4777.

Southeast

♦ **Mar. 1-4. The 45th Miami International Orchid Show.** Coconut Grove Exhibition Center, 3360 Pan American Dr., Miami, Florida. Information: South Florida Orchid Society, 6940 SW 111th Place, Miami, FL 33173 or call (305) 274-3741.

♦ **Mar. 24-25. The 11th Annual Spring Garden Show.** New Orleans Botanical Garden, City Park Entrance on Victory Ave., next to Storyland. Information: Nannette Simmons and Severn Doughty (504) 486-4054.

♦ **Apr. 6-8. Springtime in Winter Park.** Annual Spring Show by the Central Florida Orchid Society. Winter Park Mall, 400 N. Orlando Ave., Winter Park, Florida. Information: Ann Mann, Central Florida Orchid Society, 9045 Ron-Den Lane, Windermere, FL 34786, (407) 876-2625.

♦ **Apr. 26-29. The 11th Annual Menninger Sunbelt Tree Conference.** Holiday Inn at Sabal Park, Tampa, Florida. Information: MSTC, P.O. Box 6524, Clearwater, FL 34618, (813) 446-3356.

♦ **Mar. 29, Apr. 5, Apr. 12, Apr. 19. 1990 Glorious Gardens.** Charleston, South Carolina. Information: Festival of Houses and Gardens, 51 Meeting St., Charleston, SC 29401, (803) 722-3405.

North Central

♦ **Saturdays March 3-31. Programs on garden design, plant selection and care.** Detroit, Cincinnati, St. Louis, Indianapolis, Columbus. Information: Ken Miller Horticultural Consultants (314) 821-5138.

♦ **Apr. 4-6. The National Symposium for Stand Establishment in Horticultural Crops.** Minneapolis-St. Paul Airport Hilton. Information: Cathie Bergum, Extension Special Programs, 405 Coffey Hall, University of Minnesota, St. Paul, MN 55108, (800) 367-5363 or (612) 625-2722.

South Central

♦ **Mar. 10-11. Southwest Region Orchid Growers Association 58th Meeting and Orchid Festival.** Hosted by Heart O' Texas Orchid Society. Palmer Auditorium, Austin, Texas. Information: Sol Steinberg, 7646 Parkview Circle, Austin, TX 78731, (512) 346-5335.

♦ **Mar. 10-April 15. Dallas Blooms.** Dallas Arboretum and Botanical Garden, 8617 Garland Road, Dallas, Texas. Information: (214) 327-8263.

♦ **Mar. 31-Apr. 1. Spring Time! It's Magic!** Uptown Garden Club Spring Bulb Show. Albuquerque Garden Center, 10120 Lomas, NE, Albuquerque, New Mexico. Information: Ellen or Lynn (505) 296-6020.

♦ **Throughout April. Wildflower Tours.** Prairie Edge Museum, Eagle Lake, Texas. Information: (409) 234-5567.

West Coast

♦ **Mar. 11. Lecture and Demonstration: Ferns.** John Myers. South Coast Botanic Garden, Palos Verdes Peninsula, California. Information: LuAnn Munns (818) 446-8251.

♦ **Mar. 16-18. Wildflower Photography Lecture and Workshop.** Led by John D. Smithers, photographer for the National Wildflower Research Center. Rancho Santa Ana Botanic Garden, Claremont, California. Information: (714) 625-8767.

♦ **Mar. 24-Apr. 22. Spring Festival of Flowers.** Descanso Gardens. La Canada Flintridge, California. Information: LuAnn Munns (818) 446-8251.

♦ **Apr. 5. "New" Old Roses.** Slide lecture on David Austin's "English Roses," a new group of roses hybridized in England. The Huntington, 1151 Oxford Rd., San Marino, California. Information: Catherine Babcock (818) 405-2147.

♦ **Apr. 25-29. San Francisco Landscape Garden Show.** Piers 2 and 3, Fort Mason, San Francisco. Information: Dick Turner, Director,



Courtesy Wayside Gardens

'Belle Story' and 'English Garden' are just two of the "new" old roses introduced this spring by English hybridizer David Austin. The Huntington in San Marino, California, is sponsoring a lecture on the Austin roses April 5.

San Francisco Landscape Garden Show, McLaren Lodge, Golden Gate Park, San Francisco, CA 94117, (415) 221-1310.

♦ **May 3. Lecture on Mediterranean Gardens.** Shirley Kerins. The Huntington, San Marino, California. Information: Catherine Babcock (818) 405-2147.

International

♦ **Mar.30-Apr. 1. The 11th Annual Conference and Trade Show of the**

Hydroponic Society of America. Hotel Vancouver, British Columbia, Canada. Information: Gene Brisbon, P.O. Box 56067, Concord, CA 94524, (415) 682-4193.

♦ **May 8-11. International Symposium "The Authentic Garden."** Organized by the Hortus Botanicus of the Leiden University, The Netherlands. Information: Leids Congress Bureau, P.O. Box 16065, 2301 GB Leiden, The Netherlands. Tel. (0)71 - 275299, Tlx. 39427 burul nl, Fax. (0)71 - 226478.



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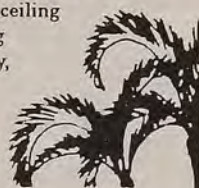
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'Heritage' Birch Wins Styer Award

A focal point of a winning winter garden is a tree with beautiful bark. A potential candidate is the 'Heritage' birch, one of the winners of the 1990 Styer Award of Garden Merit, presented by the Pennsylvania Horticultural Society. Like many cultivars, it has a long history.

More than 20 years ago, Illinois nurseryman Earl Cully was so taken with a birch tree he saw growing in a St. Louis suburb that he made the 50-mile trip two more times to catch the owner at home and ask for a cutting.

The tree had the pale bark of a paper birch (*Betula papyrifera*) but in other ways looked more like a river birch (*Betula nigra*). He thought it might be a hybrid. After some 10 years of research, he determined that it was a river birch, but a genetically superior one. In April 1979, he received a patent for this cultivar, which, to underscore its background as an American native, he named 'Heritage' under a registered trademark.

Cully said that while the tree has been available in the trade for some time, he wants the gardening public to be more aware of it. "It's a catch-22: nurseries won't offer it if the public isn't asking for it." For the first few years, there was not enough cutting wood available for production and many wholesalers were having trouble rooting the tree. But those problems have been solved, according to Cully, and there are now 30 licensed growers in the United States and one in England.

Michael Dirr of the Department of Horticulture at the University of Georgia, who has evaluated the tree for 10 years, says of 'Heritage': "Without equivocation it is the most heat-tolerant of all cultivated birches." It is resistant to the bronze birch borer, and to leaf spot, which left the cultivar unscathed while defoliating about a third of the nearby species during hot, wet summer weather in Athens, Georgia.

It tolerated temperatures above 100° F for many days in a row, and evaluations in Northern states found it would tolerate temperatures at least as low as minus 40° F, according to Dirr. It will withstand moist soils, and will also thrive on upland sites.

'Heritage' grows faster than the species, to about 50 feet with a full, relatively dense canopy with slightly pendulous branches. In fall, depending on weather conditions, leaves will turn



Michael Dirr

'Heritage' birch bark is salmon and white.

a butter yellow. But the feature of the tree that gardeners can appreciate most at this time of year is its bark. Dirr calls it "creamy-white, often suffused with salmon frosting." More shades of salmon and white appear as the bark continues to peel and exfoliate.

The Pennsylvania Horticultural Society's Styer Award of Garden Merit is considered one of the most prestigious awards given to plants. Other winners given the award for 1990, on the basis of being worthy of wider use, are *Cornus sericea* 'Silver and Gold', a yellow-stemmed dogwood with white-variegated leaves; *Daphne caucasica*, which has delicately scented blooms in spring and again in September; *Fothergilla gardenii* 'Blue Mist', a restrained dwarf with handsome blue-green foliage; *Hydrangea macrophylla* 'Blue Billow', a hardy hydrangea from Korea that produces large quantities of flat-topped flowers; and *Stewartia pseudocamellia* var. *koreana*, which offers white flowers in mid-summer, orange-to-red fall foliage, and beige and white exfoliating bark for winter interest. All of the plants are described in greater detail in the January/February 1990 edition of the society's magazine, *Green Scene*.

A source list for Styer Award winners can be obtained by sending a stamped, self-addressed, business-sized envelope to Styer Award, Pennsylvania Horticultural Society, 325 Walnut Street, Philadelphia, PA 19106.

44th Williamsburg GARDEN SYMPOSIUM

April 1-4, 1990

The American Horticultural Society and the Colonial Williamsburg Foundation invite you to come to Williamsburg for the annual Garden Symposium, America's oldest and most prestigious gathering of garden enthusiasts.

This will be a fabulous opportunity to explore what's old and what's new in America's gardens. An array of renowned speakers will discuss the theme, "Vintage Plants and Contemporary Gardens." The Garden Symposium will entertain some of the newest ideas in American gardening, including the increasingly popular practice of using "old-fashioned" or "heritage" plants in today's gardens. Surprisingly, these antique flower and vegetable cultivars are found in gardens everywhere.

Through slide lectures, presentations, tours, exhibits, and clinics, practical ideas about updating gardens as well as innovative garden designs will be offered. In addition to the extensive group of speakers, there will be gardeners' clinics, special presentations, and an assortment of exhibitions and activities. "Garden Magic in the Magic City" is the theme for this year's featured city, Birmingham, Alabama.

Speakers in order of appearance are:

Rachel Snyder, garden writer and editor emeritus, *Flower and Garden* magazine: "Long Vistas from the Garden Path"

Elsa Bakalar, lecturer and garden designer: "Old Fashioned Flowers for Modern Gardens"

Frederick McGourty, author, nurseryman, and garden designer: "A Modern Old-Fashioned Garden"

John Alex Floyd Jr., *Southern Living* magazine: "Garden Magic in the Magic City—Birmingham"

Rosalind Creasy, author, lecturer, and designer of culinary gardens: "Heritage Vegetables and New American Cuisine"

William T. Flemer III, author, nurseryman, and horticulturist: "A New Look at Old and New Trees"



Virginia Bissell, Lula Rose Blackwell, Beverley White Dunn: "Elegance in Flowers: Flower Arranging Birmingham Style"

Henry Marc Cathey, director, U.S. National Arboretum: "The New USDA Plant Hardiness Map of North America"

John C. Austin, senior curator and curator of ceramics and glass, Colonial Williamsburg: "Did They Really Use These as Flowerpots? Eighteenth-Century Flower Containers"

Bonnie Lee Appleton, horticulturist, Cooperative Extension Service: "Making Old Gardens New"

David M. Lilly, retired chairman of the board, the Toro Company: "Welcome Spaces: User Friendly Gardens for Public Spaces"

Come to Williamsburg this spring for a new look at America's rich garden heritage and an opportunity for

insightful discussions with America's leading garden authorities.

For a registration folder, please mail the coupon below to Symposium Registrar, Box C, Williamsburg, VA 23187, or call 1-804-220-7255.

Williamsburg Garden Symposium

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Box C
Williamsburg, VA 23187

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AHS Bulletin Board

Landscape Masters

NEW YORK—Fletcher Steele was a great plantsman and architect; he may not have been a great engineer, Steve McMahon told those attending an AHS symposium here in January on Steele and his contemporary “masters of design.” McMahon is buildings and grounds superintendent in the Stockbridge Management Unit for the Trustees of Reservation. In the process of restoring Naumkeag, the former Choate family summer estate in Massachusetts, he and his crew had to remove about 40 tree peonies before they could rebuild the deteriorating stone terraces Steele had designed. Somewhat less daunting tasks called for replacing the decorative ropes in the Afternoon Garden and removing and replacing the overgrown “Globe Locusts” Steele had planted on the South Lawn.

Robin Karson, a contributing editor of *Garden Design* magazine and author of a biography of Steele, explored three stages of the landscape architect's career beginning with the period between 1915 and 1926 when he created traditional designs with strong axial relationships. Between 1926 and 1940 Steele began to take an interest in invention and designed his best works including the most famous, The Blue Steps at Naumkeag. During 1946 to 1963 his work was uneven and marked by rapid shifts in taste.

A look at Warren Manning's work at Stan Hywet Hall in Akron, Ohio, was offered by Susan Child, president of Child Associates, Inc., a landscape architecture firm in Cambridge, Massachusetts. Manning trained in the office of Frederick Law Olmsted, and like Olmsted, derived his landscapes from English tradition. Fletcher Steele, in turn, was an apprentice to Manning.

Ellen Biddle Shipman, who designed Longue Vue Gardens in New Orleans during the early 1930s, was one of several creative women landscape architects practicing the profession during Steele's era. Daniel W. Krall, an assistant professor in the Landscape Architecture Program at Cornell University, noted that Shipman was also an excellent plantswoman. Entering the landscape architecture field in her early 40s after a failed marriage, Shipman was trained by Charles Adams Platt. With her all-female staff, she not

only designed estate grounds and gardens but also oversaw the design of architectural and interior projects.

Danish-born Jens Jensen began his career as a gardener in the Chicago parks in the late 1880s. Darrel Morrison, dean of the University of Georgia's School of Environmental Design, described Jensen's use of native plants and the feeling of mystery in his designs.

Diane Kostial McGuire, a principal in the landscape architecture firm of Diane



The Afternoon Garden at Naumkeag (circa 1930) designed by Fletcher Steele.

Kostial McGuire/Barbara Harrison Watson, explored the life and work of Beatrix Jones Farrand. Farrand's approach to her work was horticultural and English, and she always referred to herself as a “Landscape Gardener.”

The symposium was held in conjunction with an exhibit on “The Gardens of Fletcher Steele” that features over 100 images of Steele's work and includes photographs and drawings, garden furniture designed by Steele, and a mobile by Alexander Calder designed for a Steele garden in Rochester, New York. “The Gardens of Fletcher Steele” exhibit is on view at the PaineWebber Art Gallery, 1285 Avenue of the Americas, New York City, Monday through Friday, 8 a.m. to 6 p.m. until March 30. Admission is free.

Japanese Gardening Symposium March 10

A symposium on “The Life of the Japanese Garden: Its Traditions, Symbolism, and Evolution” will be held from 9 a.m. to 4:30 p.m. March 10 at the Japan Society in New York City. The event is being co-sponsored by AHS and the Japan Society, an educational and cultural organization that promotes the exchange of ideas between Americans and Japanese.

Scheduled presentations include:

♦ **“Sacred Space.”** Stephen Morrell, curator of the Japanese Stroll Garden in Mill Neck, New York, will relate the philosophy and culture of Japanese gardens and the spiritual meanings of gardens as based on Shinto and Buddhist traditions.

♦ **“Journeys in a Japanese Garden.”** Julie Moir Messervy, a landscape architect trained in Kyoto, Japan, will discuss symbolic design elements—paths, rocks, water, and structures—and their function as an integrated whole.

♦ **“Japanese Plants—Historic and Contemporary.”** John Creech, retired director of the U.S. National Arboretum and plant explorer in Japan for the U.S. Department of Agriculture, will summarize the history of horticulture in Japan and the use of Japanese species in the garden.

♦ **“Princely Gardens and Daimyo Estates.”** Bruce Coats, assistant professor of art history at Scripps College in Claremont, California, will explore stroll and recreation gardens, which originated in feudal times.

♦ **“Japanese Traditions: American Gardens.”** Osamu Shimizu, a landscape architect trained in Japan, Europe, and the United States, will describe the design process of residential and public gardens, and the integration of Japanese principles in American garden heritage.

For more information or to register for the symposium, write Japan Society Symposium, American Horticultural Society, 7931 East Boulevard Drive, Alexandria, VA 22308 or call (703) 768-5700 or (800) 777-7931. For more information on the Japan Society, write: Japan Society, 333 East 47th Street, New York, NY 10017.

Photo by Paul Weber/Fletcher Steele Collection SUNY CESF, Syracuse, New York

Appeal Underway

Early December marked the beginning of AHS's Second Annual Appeal. Donated funds are used to bring members more up-to-date horticultural information by expanding publications and communications and enhancing our horticultural library; to broaden our annual seed and plant exchange; to further our educational goals by providing internships and sponsoring lectures and seminars; to develop River Farm to its fullest potential as a National Center for Horticulture and a

historical legacy to be enjoyed by the public. At press time we had received \$52,948 from 294 members and friends, an average gift of \$180. The annual fund drive will end in June. For more information or to make a contribution write: Second

Annual Appeal, American Horticultural Society, 7931 East Boulevard Drive, Alexandria, VA 22308, or call (703) 768-5700 or (800) 777-7931.

A complete list of Annual Fund donors will be published this summer.

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Contributors to our Seed Program and First Annual Appeal were listed in previous issues.

Board Nominees

The American Horticultural Society is seeking suggestions from its members for nominees to its Board of Directors. Board members serve three-year terms. New members' terms will begin at the Annual Meeting in Seattle, June 19-22. Please provide the following information on the nominee and on yourself, so that we can contact you for more information:

Nominee

Name _____
Street _____
City _____
State _____ Zip _____
Horticultural achievement or interest: _____

Please attach a copy of your candidate's resumé.

Nominator

Name _____
Street _____
City _____
State _____ Zip _____

We must receive this information by March 30, 1990.

Send to: Jean Verity Woodhull, Chair, AHS Nominating Committee, 7931 East Boulevard Drive, Alexandria, VA 22308.

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Travel/Study Trips for the AHS Gardener

March 28-April 8, 1990

Botanical Paradise of Costa Rica

Stops include the National Museum of Costa Rica; Claude Hope's Linda Vista; Monteverde Cloud Forest Reserve, where you can see a volcano and rare, exotic birds; and Corcovado National Park. Program coordinator is Atlanta Botanical Garden's Ann L. Crammond.

Leonard Haertter Travel Company, 7922 Bonhomme Ave., St. Louis, MO 63105, (800) 942-6666

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HELP WANTED

We at the American Horticultural Society are often asked to refer individuals for significant horticultural positions around the country. We are not in a position to offer full placement services to candidates or employers. However, as a service to our members, both individuals and employers alike, we would be very glad to receive resumes and cover letters of individuals seeking job changes and employers seeking candidates. All responsibility for checking references and determining the appropriateness of both position and candidate rests with the individuals. AHS's participation in this activity is only to serve as a connecting point for members of the Society. Inquiries and informational material should be sent to: Horticultural Employment, American Horticultural Society, 7931 East Boulevard Dr., Alexandria, VA 22308.

HERBS

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Illegal Posies with Intent to Smell

If you are avid about indoor gardening, lighting systems, and hydroponics, watch out! The DEA may soon be knocking on your door. In an effort to crack down on marijuana growers, Drug Enforcement Administration officials this fall arrested over 100 people and raided garden supply retail stores in 46 states. Although it is perfectly legal for these stores to sell supplies such as lighting, watering systems, fertilizers, and hydroponic equipment, the DEA believes that their customers may be marijuana growers who use the equipment to grow the illegal crop indoors.

The DEA estimates that domestic production accounts for 25 percent of the marijuana available in the United States, most of it high-potency sinsemilla. In recent years, an increase in aerial surveillance has pushed many marijuana operations indoors. Federal drug czar William Bennett intends to fight back through operation Green Merchant, aimed at finding and arresting the indoor growers and distributors.

To locate the growers, officials contacted horticultural supply stores that advertise in either *High Times* or *Sinsemilla Tips*, magazines that cater to marijuana users. Federal agents entered 22 of these businesses and shut down eight or nine. Business

documents, shipping records, and customer mailing lists were seized in the hope that they would lead agents to customers who bought marijuana-growing equipment.

Although some of these raids have lead to legitimate arrests, many innocent gardeners are being harrassed and assumed guilty for having so much as a light stand. Last summer, Joseph Huberman, a member of the American Orchid Society, bought a light meter from a mail order company that, unbeknownst to him, advertised in *High Times*. The light meter was defective and had to be returned twice, so UPS records showed he had received three shipments from the dealer. He also had installed an air conditioning unit, so his utility bills had gone up. Agents looked at this combination of records and got a consent search to pay Huberman a visit. In just five minutes they realized that Huberman grew cattleyas and not cannabis.

"They were polite and they handled themselves discreetly," Huberman said, but he is angry that they could monitor his life by perusing his mail and utility bills. "I'm also angry with myself for not giving them more trouble [in entering my house]. They flashed a badge and showed a consent search, but I felt that if I objected there

would be trouble. I think it is important that legitimate growers stand up and object to this kind of activity because it destroys all of our freedom as well as our access to the high technology equipment that enhances our business and hobbies."

Not surprisingly, representatives of the groups that back liberalizing marijuana laws scoffed at the crackdown. Doug McVay, projects coordinator of National Organization for the Reform of Marijuana Laws, said that "a lot of garden clubs around the country will be shocked. This is just a publicity stunt."

Despite the criticism, drug officials can point to more than 20,000 marijuana plants discovered through Green Merchant, which, according to John Sutton, Chief of the Cannabis Investigation Section in Washington, D.C., will be an ongoing operation. There have been more arrests since the first 100 were announced last fall; a recent raid on one home in Alaska netted over 2,000 plants. Although Sutton was not at liberty to discuss the investigative techniques of the operation, he indicated that the DEA will continue to keep close tabs on those particular horticultural companies and their customers.

Those who think grass belongs in a lawn are advised: Know your dealer.



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