

American Horticulturist



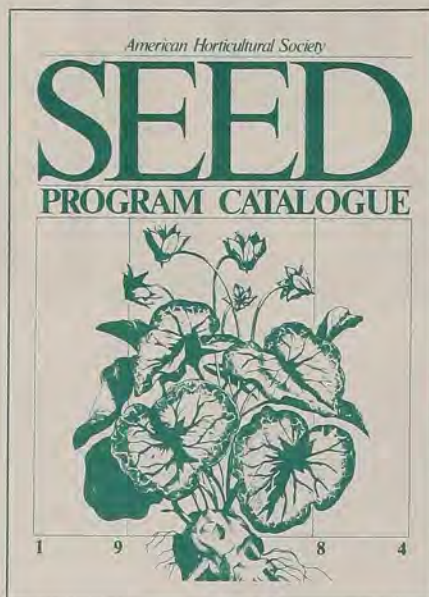
Paeonia mascula subsp. *mascula* is featured in one of many watercolors and illustrations of peonies now on exhibit at the American Museum of Natural History in New York City. The exhibition, "Peonies of Greece: Myth, Science and Art," tells the story of the peony and its botanical illustration in the West, with emphasis on the peonies of Greece. Highlighted are color lithographs of 12 wild Greek peonies, several of which have never been illustrated before. Also included are botanical illustrations by Fuchs, Mattioli, L'Obel, Clusius, Besler, Haller and Linnaeus. The exhibition, which runs until August 12, is sponsored by the Greek National Tourist Organization, Olympic Airways, FreeGate Inc. and the Goulandris Natural History Museum.

River Farm Notes

Our 1984 Seed Program came to an official end two months ago, and over 7,000 of you participated. For those of you who, for one reason or another, did not join in this year's fun, including those who became members after December 1983, you can look forward to an exciting 1985 program, which we will launch in January of next year. We are already working on next year's program, and I can tell you even now that we will have some wonderful items to spark your gardening imagination!

You might be surprised to learn that many of our Seed Program items are donated by your fellow members—plant lovers just like you who want to share special seed with special people.

It would take pages to list everyone who helped with this year's program, but allow me to give you a sampling. From Mrs. E. Emerson Evans of Massachusetts we received seed of Jack-in-the-pulpit and Japanese tree lilac; Dr. Richard Munson of Texas provided seed of persimmon and others; we received butterfly weed, blue beech and other seed from Mr. William Schwab of Michigan; Mr. Bill Netherby of California sent spores of the western sword fern; from Mr. Bob Eger of Florida we received seed of the Washington palm and cherry laurel; Mr. J. F. Facer of Colorado sent the much-desired yellow spider plant seed; Mr.



Sam Caldwell of Tennessee sent us Italian arum seed; and Mr. J. Leonard Mann of New Mexico provided seed of a very unusual blue Indian corn. And these are just a few of those we thank for their generosity and willingness to share.

You, too, can work with us in making our next Seed Program the best ever. It's fun, it's easy and it's very rewarding! Here's all you need to do:

1. Collect seed only of identified plants. A scientific name, common name(s) and a brief description of the plant(s) would be helpful.
2. Try to collect large quantities. (We will include small amounts in our program, but we prefer to use items in sufficient quantities to allow everyone a chance to try them.)
3. If the seed requires cleaning, any help that you can give us in cleaning it before sending it will be greatly appreciated.
4. Be sure the seed is completely dry before packaging and shipping.
5. We must receive all seed before November 1, 1984. The earlier you can send it, the better.
6. Send us a list of the items you will donate as soon as you can; you don't have to wait until you send the seed.
7. If you have experience germinating the seed you send, please let us know what method(s) you have found successful. If you know of any special requirements or treatments that could help Seed Program partici-

pants, pass on your knowledge!

Join us in this aspect of our Seed Program; you'll be very pleased you did!

And for those of you who were lucky enough to receive seed of one of our rarer items, especially those items in short supply, help us make that seed available to more of your fellow members. Harvest and return seed to us for use in 1985. Please help us to make this a happy program for all!

Thank you for your participation. I hope that you have enjoyed this special service as much as I have.

—Steve Davis

Scott Award Presented

Thomas H. Everett of the New York Botanical Garden has been chosen as the 1984 recipient of the Arthur Hoyt Scott Garden and Horticulture Award of Swarthmore College. The Scott Garden and Horticulture Award is given to an individual who has made an outstanding contribution to the science and art of gardening, and who has helped create and develop a wider interest in gardening. The Scott Award and the Liberty Hyde Bailey Medal, given by the American Horticultural Society, are the highest awards given in horticulture in this country.

Everett has worked at the New York Botanical Garden for over 30 years. During this period, he has assembled extensive collections of both hardy and greenhouse plants, and has designed and constructed the Thompson Memorial Rock Garden, considered one of the finest rock gardens in North America. As senior curator of education, he has organized and taught horticultural programs for adults, professionals, high school students and children.

Everett has also served as gardening consultant for newspapers and magazines, edited and written books on gardening, and contributed articles to numerous periodicals. In 1968 he began devoting his energies to writing the 10-volume *New York Botanical Garden Encyclopedia of Horticulture*, which was released in 1983.

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EDITOR, PUBLICATIONS DIRECTOR: Barbara W. Ellis
ART DIRECTOR: Rebecca K. McClimans. ASSOCIATE
EDITOR: Lynn M. Lynch. EDITORIAL ASSISTANT: Jane
Steffey.

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simple procedure that will take you only a few minutes, but it could mean a great deal to the Society, helping us reach our goals of promoting horticulture and serving gardeners in this country.

A list of companies with Matching Gift Programs follows. If your employer is not listed, please check with your personnel office. You may be able to double your giving power—and we will certainly appreciate it!

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Symposium Notes

The clinics and lectures at the 1984 Williamsburg Garden Symposium yielded a wealth of information for gardeners with all kinds of interests and from all parts of the country. Here are a few of the choice items from my notebook.

Herb expert Bertha Reppert provided gardeners with tips on how to use herbs to reduce salt consumption. She mixes equal amounts of salt and dried herbs to create herb salt, varying the herbs depending on what she has available and the dish involved. She creates herb mustard in much the same way, mixing leftover herbs with mustard to create dips, spreads, marinades and sauces. She uses both techniques to clean out her spice rack, emptying almost-finished bottles of this and that into the mixtures.

Reppert also provided an easy, basic potpourri recipe for individuals who have been frightened off by complex recipes. Mix one ounce of orrisroot fixative, one-half dram (bottle) of any potpourri oil such as sweet fern or rose oil, and one gallon of dry petals or other materials. Reppert includes dried orange peel, mulling spices, parsley, balsam fir needles (readily available at Christmas time in the form of wreaths), a wide variety of flower petals, and even cedar chips in her mixtures. Any materials must be chip dry; materials that are not completely dry are the most common cause of spoiled potpourri. Mix the oil, fixative and petals together, then seal them in a container for several weeks so the fragrances can marry.

Herbs and petals used in potpourri-making can be dried in a 120° to 150° oven. Spread them on a cookie sheet and dry for 20 minutes; if not done after that time, dry five minutes more. Oven-drying helps preserve both oil and color. Parsley will lose its color if air-dried slowly, so it should be dried in the oven. It can also be frozen and chopped before or after freezing.

Hardy water lilies, which are exceptionally heavy feeders, should be fed monthly from May through September. Each large tub of lilies requires four of the commonly avail-

able fertilizer tablets per feeding. Tropical water lilies, which are generally treated as annuals, should be fed until frost. Robert DeFeo, curator of the Aquatic Plant Collection at the U.S. National Arboretum, suggested making "spitballs" with newspaper wrapped around a small quantity of 10-10-10 fertilizer.

Gardeners who have tried to grow

dog-toothed violets, *Erythronium* sp., may have found that they produce leaves but no flowers. According to Viki Ferrenia, horticulturist at the New Canaan Nature Center in Connecticut, the bulbs have a tendency to move downward in the soil after planting, and they bury themselves so deeply that they will not flower. A layer of rocks, paving stones or logs under the planting will keep the bulbs closer to the surface. Be sure that the drainage is not impaired.

—Barbara W. Ellis

Rare "Lost" Orchid Found



Dendrobium alexandrae

An orchid shipped from New Guinea helped orchid experts at the Selby Botanical Gardens uncover an interesting story. The plant, one of a collection donated to the gardens several years ago, flowered into what appeared to be greenish-yellow-blossomed *Dendrobium spectabile*, with purple-black flecks and veins on the petals and sepals. However, Dr. John Atwood, director of the International Orchid Identification Center, noted that the flower's color and shape did not quite match those of *D. spectabile*.

"It is without doubt that one of the greatest tragedies to orchidology was the World War II destruction of the Berlin-Dahlem Herbarium, which housed the type specimens of Rudolf Schlechter," Atwood said. "Fortunately, Oakes Ames had photographed many of the Schlechter types before war erupted. Also, Schlechter often pro-

vided simple but recognizable and very diagnostic drawings of his newly described species."

Atwood was able to determine that Selby's so-called *D. spectabile* perfectly matched the description and illustration given by Schlechter in 1912 for a species he named *Dendrobium alexandrae*. The species, which Schlechter included in his *Die Orchideen von Deutsch-New Guinea*, has apparently been lost for 70 or 80 years. The species has such distinct coloration that it can be considered one of the "black orchids."

"Schlechter so considered its beauty to surpass that of *D. spectabile* that he named it after his wife Alexandra," said Atwood. "We hope," he added, "to see this exquisite, long-lost species more widely grown in the coming years—or is it currently widespread and masquerading under the name *Dendrobium spectabile*?"

Courtesy of Bob Wands/Selby Botanical Gardens

New Future for Lupine

British farmers may one day fill their fields with a new and beautiful crop—lupine. According to David Curry, chairman of the European Parliament's Agricultural Committee, "Plant breeders are nearing the point at which lupines begin to look like a commercial proposition for farmers."

Lupine would be grown as a seed crop; the seeds have a protein content of 35 to 40 percent. "This is higher than peas or beans," said Curry. Lupine seed also has a very small oil content, and, since lupine is a legume, it has the ability to fix nitrogen in the soil.

Lupine is already grown as a crop in Australia, Poland, the U.S.S.R. and, to a lesser extent, in South Africa, Italy and Germany.

—GC&HTJ, April 6, 1984

How Tall is That Tree?

You can calculate the height of a tree if you can measure the length of its shadow. First, measure the length of the tree's shadow. Then hold a yardstick upright near the tree in the sun and measure the length of the shadow cast by the yardstick. (All of the measurements should be in feet.) Use the following formula to calculate the height of the tree: $X = (3 \times A) \div B$, where X = the height of the tree, A = the length of the tree's shadow, and B = the length of the yardstick's shadow. (The formula works because the height of the tree divided by the height of the yardstick is in proportion to the height of the tree's shadow divided by the height of the yardstick's shadow, or $X \div 3 = A \div B$.)

—The Dawes Arboretum Newsletter, May 1984

Erratum

Due to a production error, the photo credits on page six of the June issue were omitted. All three photographs of *Kalmia latifolia* were taken by Pamela Harper.

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Auxin Treatments Increase Transplant Survival

Although species of trees that are difficult to transplant may have considerable ornamental value, they are often not readily available in the nursery trade. The poor transplant survival rates of species such as scarlet oak, *Quercus coccinea*, and black tupelo, *Nyssa sylvatica*, make them uneconomical for nurserymen to produce.

Ease of transplanting is directly related to the density of the root system and the rate of root regeneration. For example, difficult-to-transplant scarlet oak has a coarser root system than the more easily transplanted pin oak, *Q. palustris*. Also, the rate of root regeneration is slower in scarlet oak seedlings than in pin oak seedlings. Honey locust, *Gleditsia triacanthos*, is an easy-to-transplant but coarsely-rooted tree. Scientists need to study the dynamics of root regeneration in this species, and compare it to difficult-to-transplant trees such as scarlet oak, to discover why honey locust adapts to transplanting so easily.

The potential for root regeneration varies according to species, physiological and developmental stages of the plant, and environmental conditions. As a general rule, there is a fall and a spring peak in the natural pattern of root regeneration. The fall peak results almost exclusively from the elongation of existing roots, and the spring peak results from both the elongation of existing roots and the initiation and elongation of new roots. This natural cycle provides a physiological reason for transplanting difficult-to-transplant species in the spring: these coarsely-rooted species are left with few intact roots when transplanted and, if moved in the fall, would not initiate new roots until spring.

Species that are difficult to transplant commonly have a well-developed taproot. Although the roots are pruned during field production, the root systems of these trees remain coarsely branched. Difficult-to-transplant trees can be grown in containers, and when grown in this manner they will develop a more fibrous root system. However, all of the



seedlings' actively growing roots will be at the bottom of the container. When planted in the ground, the roots of these trees may end up several inches below the layer of soil where most of the nutrients are located. This problem can cause stunted growth if adequate nutrition is not provided.

Treating root systems of difficult-to-transplant species with auxins (natural plant growth hormones) in order to increase root regeneration is an alternative to container production, and is a proven method of increasing transplanting success. Auxin is most beneficial in stimulating root regeneration if applied in the spring, when the plant will naturally have its new-root-initiation peak.

Trees can be treated with auxin by simply soaking or dipping the root system in an auxin solution, although this method requires a large volume of solution. Black walnut, tulip tree and scarlet oak treated with indolebutyric acid (IBA) all exhibited increased root regeneration. The optimum concentration for a five-minute soak ranged from 1,000 to 3,000 parts per million. Concentrations above 3,000 parts per million, or a soaking period of longer than five minutes, inhibited root regeneration and shoot development.

Another means of stimulating root regeneration is to insert toothpicks that have been soaked in IBA overnight transversely through a root. This method has been effective in a number of species. Seedlings treated in this manner regenerate more roots than both untreated seedlings and seedlings treated with the soaking method. Year-old scarlet oak seedlings developed 19 times more roots than untreated seedlings and three times more roots than seedlings soaked in auxin solution. Also, the majority of the newly developed roots arose from the point where the toothpick was inserted. With natural root regeneration or auxin soaks, the majority of the new roots arise near the end of the root where it has been cut during the transplanting operation. The toothpick method allows the grower to cause roots to be initiated near the crown of a seedling rather than at the end of the roots.

Auxin-treated trees—especially those treated with the toothpick method—have a higher rate of survival than untreated trees. In addition to increasing transplant survival and root density, auxin treatment with either method has also consistently promoted shoot growth during the first year following treatment.

Gardeners who would like to experiment with auxin treatments will probably want to start with one of the rooting compounds that contain IBA as the active ingredient. Hormodin and Hormo Root powder are two brand names. (Use the strongest concentration available—Hormodin #3 and the strongest Hormo Root both contain .8 percent IBA.) These products should be available at most garden centers and nurseries, as well as from the major mail-order firms. IBA is quite expensive in pure form—approximately \$425 per 1.1-pound bag. It is available from E. C. Geiger, Box 285, Harleysville, PA 19438. Geiger also offers Hormodin and Hormo Root. There is a service charge of \$3.00 on all orders under \$30.00.

—Drs. D. K. Struve, R. D. Kelly and
B. C. Moser, *American Nurseryman*,
May 15, 1984

Beautiful & Useful: Our Native Plant Heritage

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Natural Pesticide May Control Fire Blight

A Cornell University scientist has discovered strains of bacteria that have the unusual ability to minimize the severity of fire blight, a bacterial disease deadly to pear and apple trees. The finding has paved the way for the development of a living microbial pesticide to combat this devastating disease that has been plaguing American fruit growers for more than two centuries.

Steven V. Beer, a specialist in tree-fruit diseases and an associate professor of plant pathology in the New York State College of Agriculture and Life Sciences at Cornell, isolated fire blight-suppressing bacterial strains from among the numerous microorganisms that thrive on orchard trees. These strains belong to the species *Erwinia herbicola*, which is closely related to the type of bacteria that causes fire blight. Harmless to the tree, yet detrimental to the disease-producing bacteria, these strains can greatly reduce the development of fire blight during the initial stage of infection that hits blossoms.

In orchard tests conducted over the past several years, Cornell researchers have identified a number of strains that are able to prevent blossom infection. These strains, says Beer, are as effective against fire blight as streptomycin, a bactericide used widely by growers to reduce the blossom infection by 80 to 90 percent. "Although these strains are not 100 percent effective in suppressing fire blight, they are good enough to stop the disease from killing the tree," Beer notes.

How these bacteria battle the disease-causing microorganisms remains a mystery. "They don't kill the disease-causing bacteria," Beer says. "We believe that strains of *E. herbicola* are highly competitive for nutrients needed by the pathogen; thus, the disease-causing bacteria starve to death."

One immediate challenge facing Cornell researchers is to identify the most effective strains. Once this is done, such bacteria may be made even more efficient through techniques of genetic engineering. Based

on the results of his work so far, Beer believes that the prospects for developing effective biological control agents for fire blight are highly encouraging.

Fire blight is a worldwide problem. First discovered in New York State more than 200 years ago, the disease has shown up since then in

other parts of the world. The bacterial disease flares up sporadically from year to year and from one orchard to another.

Because young trees are more vulnerable, young pear trees and dwarf apple trees (now being planted to replace old, standard trees) are the main victims. Once trees are infected, growers have no recourse but to cut out diseased branches to prevent the infection from moving deeper into the trees. In severe cases, the disease can kill the tree in a single season.

New Source for Superabsorbents

The March 1982 *American Horticulturist* News Edition contained an article announcing the development of a new wonder product—the superabsorbent. That article summed up the importance of superabsorbents to gardeners and horticulturists as follows: "Superabsorbents are a new group of wonder products that deserve the attention of gardeners and horticulturists in all parts of the country. These starch-based absorbents are capable of storing several times their weight in water as a gel, holding it available for plants and at the same time actually increasing soil aeration and improving drainage. Their gardening applications, both indoors and out, are many: use them to store water at the root zone of newly planted sod; use them in a seed bed, where they will hold a layer of water next to the emerging seedlings; use them to improve the water-holding capacity of sandy soils; or mix them into potting soil and use them to store large quantities of available water for container-grown plants both indoors and out."

Individuals who would like to experiment with superabsorbents in their own gardens will be pleased to learn of a retail source. Industrial Services International, the manufacturer of Terra-Sorb, will sell the product in one-pound bags for \$9.95 per bag. To order a bag, send a check or money order to Industrial Services International, 4301 32nd Street West, Bradenton, FL 33507. To order a small sample of Terra-Sorb (informational brochure included), send \$1 plus a self-addressed,

stamped, business-size envelope to ISI at the above address.

Members interested in obtaining a copy of an article on superabsorbents that appeared in the January/February 1984 issue of *The Journal of International Agriculture-World Crops* may send a self-addressed, stamped, business-size envelope to Assistants to the Editor, American Horticultural Society, PO Box 0105, Mount Vernon, VA 22121.

New Geranium Disease

FloraScope reports the discovery of a new bacterial disease of geraniums. The disease, caused by the bacterium *Pseudomonas cichorii*, affects the leaves and blossoms; thus far, no stem infection has been observed. Afflicted plants have irregular-shaped, brown-to-black, dead areas on the leaves that appear water soaked. Some of the spots have tan centers bordered with a dark ring and an outer yellow halo. The disease can also cause leaf margins to cup and distort. When found on the flowers, it will cause them to turn black.

The disease can be found on both seed geraniums and geraniums produced from cuttings. Afflicted plants should be discarded, and every effort should be made to avoid spreading the disease from plant to plant. Splashing water and overhead irrigation can also spread the disease.

—*FloraScope*, January 1984

Plant Conservation Program



Pam Evans-Rothmsted, Experimental Station

A wild potato from Bolivia, *Solanum berthaultii*, protects itself from leaf-eating aphids by trapping the unsuspecting insects with its sticky hairs, then replicating the chemical signal used by aphids to warn one another of danger. Scientists believe these protective characteristics could eventually be cross-bred into domestic potato varieties. The discovery highlights the importance of wild plant communities to human survival, a major focus of the International Plants Conservation Program recently launched by World Wildlife Fund International.

The World Wildlife Fund International launched an International Plants Conservation Program on March 21, 1984. The campaign aims to raise funds for a four-million-dollar program developed by the International Union for the Conservation of Nature and Natural Resources (IUCN). In addition to World Wildlife Fund National Organizations, many other international organizations and dozens of botanic gardens around the world will be cooperating in the campaign.

Goals of the program include increasing public awareness, particularly by supporting the education programs of botanic gardens in the developing world; conserving plant genetic resources; identifying and

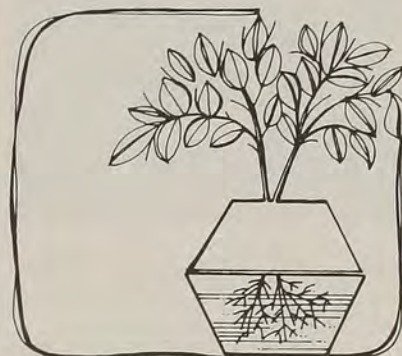
protecting wild plants of economic importance; initiating specific conservation measures in 24 nations with important and endangered flora; and expanding the IUCN's Conservation Monitoring Center into an international computerized data center on the distribution, status and known uses of endangered plants and plants of economic importance.

Experts estimate that before the middle of the next century, 40,000 of the known 250,000 flowering plant species could become extinct.

For more information on the World Wildlife Fund's Plants Campaign, write Neill R. Heath, Director of Media Relations, 1601 Connecticut Avenue, NW, Suite 800, Washington, DC 20009.

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Horticultural Explorations



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Visit 12 private gardens in England, one of the most avid gardening countries in the world. Tour British public gardens, including Wisley, Hidcote, Chester Zoo Garden, Ness, Cambridge and Arley Hall. Enjoy the cultural and historical sights of London. Highlights of the tour will be the Royal Horticultural Society's Great Autumn Show and the International Garden Festival.

NEW ZEALAND (Oct. 15-

Nov. 1) Enjoy the horticultural wonders of New Zealand at the peak of springtime. Visit lush public and private gardens, a rhododendron preserve and the Otari Plant Museum. Explore the Alpine peaks and fjords of Milford Sound and the thermal region of Rotorua. Trips to the famous cities of Auckland, Wellington and Christchurch are also planned.

AUTUMN IN THE ORIENT

(November 1-21) Visit private homes and gardens in Japan, as well as selected nurseries, public botanical and temple gardens, Mount Fuji and Nikko National Park. Enjoy a ride on the famous Bullet Train. We will also travel to the garden city of Singapore, famous for its orchids, and see the cultural attractions of Kyoto, Tokyo and Hong Kong.

For any of these programs, please write for your free brochure to the Education Department, American Horticultural Society, P.O. Box 0105, Mount Vernon, VA 22121. Or telephone (703) 768-5700.

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HELP WANTED

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Gardener's Dateline

JULY 6-8

Hardy Plant Society Study Weekend

Forest Hall, Western Forestry Center, Portland, Oregon. Information: Barbara Ashmun, 3314 NE 26th Ave., Portland, OR 97212, (503) 284-4897.

JULY 12-15

International Lily Show and Meeting

Saskatoon, Saskatchewan, Canada. Information: Dorothy Schaefer, Executive Secretary, North American Lily Society, Box 476, Waukegan, IA 50263, (515) 987-1371.

JULY 29-AUGUST 1

Plant Growth Regulator Society of America Eleventh Annual Meeting

Park Plaza Hotel, Boston, Massachusetts. Information: David J. Parrish, c/o Agronomy Dept., VPI, Blacksburg, VA 24061, (703) 961-6300.

AUGUST 3

Palm Society Biennial Meeting

San Francisco, California. Information: Paul A. Drummond, Box 368, Lawrence, KS 66044.

AUGUST 3-4

Marigold Society of America Annual Convention

Eastern Pennsylvania. Information: MSA National Headquarters, Box 112, New Britain, PA 18901.

AUGUST 5-7

Northern Nut Growers Association Annual Meeting

Cook College, New Brunswick, New Jersey. Information: Henry Hartmann, 58 Van Dyne Ave., Wayne, NJ 07470.

AUGUST 12-17

American Society of Plant Physiologists 60th Annual Meeting

University of California, Davis, California. Information: American Society of Plant Physiologists, Box 1688, Rockville, MD 20850.

AUGUST 18-26

Southern California Home and Garden Show

Anaheim Convention Center, Anaheim, California. Information: Southern Califor-

nia Home & Garden Show, 1784 W. Lincoln, Suite A, Anaheim, CA 92801, (714) 635-8330.

AUGUST 19-21

San Francisco County Fair Flower Show

Hall of Flowers, Golden Gate Park, 9th Ave. and Lincoln Way, San Francisco, California. Hours: 10 a.m.-6 p.m. Admission: \$2.50.

AUGUST 19-22

National Council for Therapy and Rehabilitation Through Horticulture 12th Annual Conference

National 4-H Center, Chevy Chase, Maryland. Information: NCTRH, 9041 Comprint Ct., Suite 103, Gaithersburg, MD 20877.

AUGUST 25

Ninth Annual Virginia Wine Festival

Middleburg, Virginia. Information: Treville Lawrence, Sr., PO Box P, The Plains, VA 22171, (703) 754-8564.

AUGUST 26

1984 Apogon Iris Auction

Middlesex Extension, Concord, Massachusetts. Information: Marty Schafer, 45 Elm St., Bedford, MA 01730, (617) 275-7723.

SEPTEMBER 5-20

AHS Tour of England

Information: Call or write the Society's Department of Education.

SEPTEMBER 7-9

Farallones Institute Rural Center Workshop: "Designing Your Edible Landscape."

Occidental, California. Information: Glen Price or Leanne Clement, Farallones Institute Rural Center, 15290 Coleman Valley Rd., Occidental, CA 95465, (707) 874-3060 or 874-2441.

SEPTEMBER 8

Red Rose Rent Day

The Conard Pyle Co., Jennersville, Pennsylvania. Hour: 10 a.m. Admission: Free. Information: The Conard-Pyle Co., West Grove, PA 19390, (215) 869-2426.

SEPTEMBER 12-15

American Rose Society National Convention

Pittsburgh Hilton, Gateway Center, Pittsburgh, Pennsylvania. Information: American Rose Society, Box 30,000 Shreveport, LA 71130, (318) 938-5402.



Plants Wanted

Members who are growing or who have access to any of the plants in this month's column are invited to help their fellow members locate seed, plants or cuttings of their "Plants Wanted" by writing directly to the addresses listed below.

Please send your "Plants Wanted" lists, including genus, species, common name and a brief description, to "Plants Wanted" in care of the Society. Please type or print neatly. We will publish them on a space-available basis.

- **Gnetum**, a genus of tropical plants. Most are shrubs; a few are grown for their edible fruit. Would like plants or seeds of any of the species. Thea Visbach, Greenhouse Technician, University of New Brunswick, Department of Biology, Bag Service Number 45111, Fredericton, NB, Canada E3B 6E1.

- **Adenium sp.**, four species of fleshy-stemmed shrubs and small trees native to tropical Africa. Require hot, dry conditions. *A. obesum*, commonly called desert rose, is listed by *Hortus Third* as cultivated. Mrs. L. R. Hansoti, Hansoti Nurseries, Hansoti Villa, Hansoti Lane, Ghatkopar, Bombay 400 086, India.

- **Agave neomexicana**, a spring-blooming agave from New Mexico. Foliage is gray to light green and borne in a flat-topped, compact, basal rosette. Kelvin Anderson, 13026 North 42nd Street, Omaha, NE 68112.

- **Cleome 'Orange Sparkler'**, an orange-flowered cultivar of *C. lutea*. Mrs. Hazel Whittenburg, 6430 Heintz Road, St. Louis, MO 63129.

- **Dahlia 'Souvenir de Gustave Doazon'**, also called 'Doazon'. Introduced in 1910, this cultivar was extremely popular during the early part of this century, and bears orange to scarlet flowers. Jack K. Vaughan, 3023 Farthing Street, Durham, NC 27704.

- **Lycoris africana**, commonly called golden hurricane lily or golden spider lily, also formerly *L. aurea* and *Amaryllis aurea*. Bears golden-yellow flowers in summer. Miss Anne Bruce Haldeman, 3613 Glenview Avenue, Glenview, KY 40025.

- **Passiflora amethystina**, a passionflower with deep blue, 2½-inch flowers that have a dark purple corona. Leaves are three-lobed.

- **Miconia calvescens** (sometimes listed as *M. magnifica*), a tropical shrub with large (to 2½ feet) leaves that are velvety green with ivory veins. **Deberaina smaragdina**, a shrub with four-inch, lanceolate, toothed leaves and deep green, primrose-like flowers. Thomas Fischer, 3740 North Magnolia Avenue, Chicago, IL 60613.

- **Pterocarya fraxinifolia**, Caucasian wingnut, a large, spreading tree bearing long, greenish catkins and winged fruit. From the Caucasus to Iran. Hardy in U.S.D.A. Zone 6. Joe Webb Peoples, Shipyard Road, Mid-

dle Haddam, CT 06456.

- **Dolichos lablab**, hyacinth bean, a woody climber with white or purple flowers. Grown as an ornamental or in the tropics for the edible pods. (Listed by Thompson and Morgan, but out of stock.) Mrs. Thomas B. Everest, 117 South Main Street, Yardley, PA 19067.

- **Dolichos lablab**, (see description above) is also requested by Ralph K. Soebbing, 9406 White Avenue, Brentwood, MO 63144.

- **Tamarix parviflora**, tamarisk or salt cedar, a shrub or small tree bearing racemes of rose-pink flowers in the spring. Sometimes sold as *T. tetrandra*. Plants preferred. Allen Lacy, 1511 Shore Road, Linwood, NJ 08221.

Begonia Update Published

Begonia enthusiasts will want to order a copy of The Thompsons' new publication, "Begonias: 1984 Update." The 60-page booklet is an addendum to *Begonias: The Complete Reference Guide*, The Thompsons' indispensable, 356-page guide to the fascinating begonia family. The "Update" contains information on 911 species and cultivars of *Begonia*; 610 are cultivars introduced since October 1981 and species introduced into cultivation during the same period. There are also 301 revised entries.

The species entries include the name of the author who first validly published the name, a brief description of the plant, and where and when the plant was first collected. The cultivar listings include the name of the cultivar, the origin (including parents, if the cultivar is of hybrid origin), and a brief description of the plant and blooming period, as well as the name of the person who originated the cultivar, the date registered, and the American Begonia Society registration number. The "Update" also includes a section in which the species and cultivars are listed by horticultural classification. A bibliography update, 22 black and

white photographs, and a useful introduction explaining how to use the "Update" are also included.

To order a copy of "Begonias: 1984 Update," send \$6.75, including postage and handling, to The Thompsons, P.O. Drawer P.P., Southampton, NY 11968.

Recycle Corks

Try using recycled wine corks in your orchid potting mix. Charles Marden Fitch (*American Orchid Society Bulletin*, November 1983) has found the corks to be very useful, both at the bottom of containers with pebbles for drainage, and when used to wedge loose plants into clay pots. (Thin plastic pots may crack under such stress.) The corks are also useful when holding individual roots in position, and they maintain the coarse, open potting medium that orchids prefer. Orchid roots will quickly attach themselves to wine corks. Gardeners who grow epiphytic plants other than orchids may also want to experiment with recycled wine corks in their potting mixes.

Root-Dwelling Fungi Aid Grass Growth

Scientists have found that a group of fungi called vesicular-arbuscular endomycorrhiza ("VA mycorrhiza" for short) has a unique symbiotic relationship with virtually all types of plants, including turfgrasses. These fungi, whose name means "fungi living within the root," have been known to scientists since the late 1800s, but little research has been done on their effects on turfgrasses.

A. Martin Petrovic, an assistant professor of turfgrass science at the New York State College of Agriculture and Life Sciences at Cornell, and graduate student James B. Frank discovered recently that VA mycorrhiza fungi are widespread in the roots of many types of lawn grasses. The presence of the fungi boosts the growth of the grasses, especially when the latter are grown in dry, poorly fertilized soil.

"All the turfgrass species examined are colonized heavily by this fungus, with levels ranging from a low of 58 percent to a high of 77 percent," Petrovic said. He also found that two widely used fungicides—Triadimefon and Benomyl—had little effect on the establishment of this fungus in grass roots.

According to Petrovic, the fungus in some way stimulates the growth of the grass dramatically. For example, 'Citation' perennial ryegrass, in which this fungus thrives, grew better by about 40 percent with the fungus than without, even when grown in research plots extremely low in phosphorus.

When the soil is high in phosphorus content, the growth becomes even more dramatic. "Apparently the fungus taps phosphorus and possibly other vital nutrients in the soil so efficiently that these nutrients are made readily available to the grass," Petrovic noted.

This fungus may also be effective in tapping moisture from soil, thus enabling the grass to do well even under serious drought conditions.

VA mycorrhiza fungi serve several important functions for plants, Petrovic explained: "Uptake of nutrients by a plant is enhanced because part

of this fungus can extend as much as three inches out into the soil from the root, thus acting as an extra root hair. This is true for nutrients like phosphorus, zinc, sulfur and copper. In some plants, an increase in drought tolerance has been associated with this fungus, which enables the plants to increase water uptake."

Plants colonized heavily by this fungus are also less susceptible to the invasion of many types of disease-causing microorganisms in the root zone.

Whether VA mycorrhiza has the same beneficial effects on turfgrasses has yet to be determined. However, the overall effect shows up in a significant boost in growth of the grasses tested at Cornell.

Several maintenance trends in recent years make the presence of this

fungus important. For instance, little phosphorus is being applied to turfgrasses today. In addition, sand, which is usually extremely low in phosphorus, is being added to golf course greens in a new maintenance practice called "sand top-dressing." Finally, little or no topsoil remains in many newly constructed residential developments, resulting in low-phosphorus soil for lawn establishment.

Petrovic suggested that new turfgrass varieties that are better adapted to the colonization of this fungus could be developed. In addition, strains of the fungus could be developed or selected that are more efficient than existing ones in boosting the growth of turfgrasses under drought and low-maintenance conditions.

Just how these fungi help grasses grow better remains a mystery. However, the Cornell finding raises the possibility that someday this organism may help homeowners keep their lawns greener and healthier under low-maintenance conditions.

Three New Plants Listed as Endangered

The U.S. Fish and Wildlife Service has added three plants to the list of Endangered and Threatened Species. Two of the species are found only on the rim of Diamond Head Crater on the island of Oahu, Hawaii. Both cuneate bidens, *Bidens cuneata*, and Diamond Head schiedea, *Schiedea adamantis*, are known only from a single, small population. Both species are now listed as Endangered.

According to the *Endangered Species Technical Bulletin*, both species "are members of genera that make excellent models for the study of evolution and adaptive radiation in insular floras. . . . Additionally, *Schiedea*, an endemic genus in the carnation family, has an unusual floral structure that makes its reproductive system one of particular botanical interest." For more information on these two species, see the January 1983 *American Horticulturist* News Edition.

The Florida torreyia, *Torreya taxifolia*, is also now listed as Endangered.

This tree, which is threatened primarily by a fungal disease, is a conifer with whorled branches and stiff, sharply pointed needles. The Florida torreyia is found in the Apalachicola River region of Florida and Georgia. For more information on this species, see the September 1983 *American Horticulturist* News Edition.

Members interested in obtaining a copy of the *Endangered Species Technical Bulletin* articles announcing these new listings may send a self-addressed, stamped, business-size envelope to Assistants to the Editor, American Horticultural Society, P.O. Box 0105, Mount Vernon, VA 22121.

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Garden Club of America Presents Awards

The Garden Club of America presented medals this spring recognizing the distinguished achievements of eight individuals and one garden club.

Mr. Steele Burden, a landscape architect from Baton Rouge, Louisiana, received the Medal for Historic Preservation. The Medal was presented in recognition of his contributions to Louisiana State University, whose campus he helped landscape, and for his landscape design talents, evident in the beautiful public and private gardens he designed in Baton Rouge. Mr. Burden also helped establish the Burden Research Plantation, which has become a haven for wildlife and a center for agricultural research. The plantation is also the home of the Rural Life Museum, which contains 15 authentic farm buildings and cabins saved from destruction.

Thomas Henry Dodd, Jr., president and general manager of Tom Dodd Nurseries, received the GCA Medal of Honor in recognition of his abilities as a naturalist, grower, plant distributor and hybridizer. Mr. Dodd has played an important role in growing and popularizing native shrubs and trees of the South and Southeast.

The Garden Club of Palm Beach was presented with a medal for outstanding civic achievement in recognition of the role it has played in beautifying the city of Palm Beach. The Garden Club planted the now-famous royal palms that line Royal Palm Way, and established the Four

Arts Garden, a living demonstration of how small spaces can be landscaped attractively. Currently, the club is involved in transforming six blocks of ocean-front public beach with plantings of salt- and drought-resistant plants.

Mrs. George Angus Garrett of Washington, D.C. was presented with the Achievement Medal in recognition of her help in establishing the U.S. National Arboretum, as well as for her service as chairman of the GCA National Capital Committee and a host of other achievements.

Miss Lucille Parker received a medal recognizing her special achievements in the field of botany. Miss Parker, a respected artist and botanist, is the author of *Mississippi Wildflowers*. This magnificent book contains reproductions of her paintings, as well as common and botanical names of plants and descriptions of these plants, including their habitats, growing conditions and the months during which they bloom.

Mrs. John W. S. Platt of Portland, Oregon was recognized for her outstanding achievements in garden design. At her home, Mrs. Platt has created an unusual and beautiful garden of horticultural merit that has been visited by garden-related groups from all over the country, including the American Horticultural Society, the California Horticultural Society, the American Rock Garden Society and the American Society of Landscape Architects.

The Garden Club of America also presented medals to Mr. Patrick F. Noonan, a former president of The Nature Conservancy, in recognition for his achievements in environmental protection; Mr. Russell E. Train, president of World Wildlife Fund-U.S., in recognition of his service to conservation; and to Mr. John Henry Dick, a noted naturalist, conservationist, ornithologist, lecturer, author, artist and illustrator, in recognition of his many books on birds and wildlife.

New Rose List Published

Rose enthusiasts will want to order a copy of the "Combined Rose List 1984," a 73-page booklet listing roses in commerce and cultivation, as well as sources for hard-to-find roses. The booklet was compiled by Beverly R. Dobson and is available for \$5.00 per copy (\$7.50 foreign), including postage and handling. A quarterly supplement to the list is also available for a subscription price of \$2.50 per year.

Beverly Dobson also publishes a newsletter for rose fanciers, *Bev Dobson's Rose Letter*. A one-year subscription (six issues) costs \$5.00 in the United States and Canada (foreign subscriptions \$7.50). Sample copies are available for \$1.00.

To order any of the above publications, write Beverly R. Dobson, 215 Harriman Road, Irvington, NY 10533.

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