

April 1987

American Horticulturist





Daylilies at a Discount

Big, Beautiful Plants That Have Everything but a Name

We don't run a discount operation, but this time we have a bargain. It's our Daylily Mixture, which we call 'The Unique 50.' The mix contains 50 different Daylilies that offer a wide range of colors, forms, and blooming times. They're recent hybridizer crosses, bought in bulk from a pal who breeds them, and their ancestry is as varied as one could ask. Colors range from the palest yellow to the deepest red, plus every nuance in between. Since each plant is unique, you will find some grand and glorious individuals that you can name after friends, an agreeable sort of compliment. Yes, there may be a clunker or two (after all, these are the plants the breeder didn't keep), and they can be discarded without regret.

Daylilies (properly *Hemerocallis*) are, of course, the most carefree and reliable of perennials. Give them a half day's sun and some well-drained soil and they will settle right in as cheerful and permanent neighbors, filling your view with color from late June until September. Daylilies are not afflicted by a single pest that we know of and shrug off winter temperatures to minus 30°F. In fact, they are as close to "no maintenance"

summer color as a gardener is likely to get, and their durability makes them ideal for naturalized plantings where steep slopes or poor soil proscribe more demanding ornamentals. In fact, Daylilies are the ideal way to turn wasteland into a wonderland, for less than a dollar per square foot.

If this sounds like your kind of proposition, please order 'The Unique 50,' #83080, which includes 50 plants, all blooming size, to be shipped in time for spring planting plus detailed cultural instructions. The price, \$75, is a fraction of the cost for 50 plants of named varieties, which we hope will encourage an appropriate degree of self-indulgence. Please add transportation charges of 10% east of the Mississippi, 15% west except 20% to Pacific Coast states and 30% to Alaska. To Ct. addresses, please add sales tax. For faster service, phone your order to (203) 496-9600 from 8 to 6 weekdays, 10 to 5 Saturdays. We need hardly mention that spring is at hand and that early orders lead to early flowers.

Sincerely,
Amos Pettingill

White Flower Farm

P L A N T S M E N

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Contents



The red and yellow blooms of American columbine, *Aquilegia canadensis*, decorate a stone wall running along Pidcock Creek in Bowman's Hill State Wildflower Preserve. To learn more about this preserve, which is located in Washington Crossing Historic Park on the banks of the Delaware River in Pennsylvania, turn to page 23. Photograph by Bruce Bonta.

| | |
|---|----|
| President's Page: Come to New York! by Everitt L. Miller | 2 |
| A "How-To" Guide: Growing Tuberous Begonias by Anthony DeBlasi | 4 |
| Strange Relatives: The Basella Family by Jane Steffey | 14 |
| Giverny Text and Photography by Margaret Parke | 17 |
| Bowman's Hill State Wildflower Preserve by Marcia Bonta | 23 |
| Hardy Palms Text by Alan Meerow Photography by Pamela Harper | 26 |
| Sources | 33 |
| The Design Page: Garden Illustrations by Margaret Hensel | 35 |
| Book Reviews by Barbara W. Ellis | 38 |
| Pronunciation Guide | 40 |
| Classifieds | 42 |

On the Cover: Images of lush flowers, shimmering water, and dancing water lilies abound in the work of Impressionist painter Claude Monet. At Monet's recently restored garden at Giverny, clumps of colorful perennials, such as these lupine, remind visitors that Monet was a passionate gardener as well as painter. For more on the remarkable garden that inspired some of the best-loved Impressionist paintings, turn to page 17. Photograph by Margaret Parke.

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Come to New York!

America is a nation of gardeners. According to the results of the annual National Gardening Survey, conducted annually by the Gallup organization for the National Gardening Association, gardening is the number one outdoor leisure activity in the United States. Over 30 million households throughout the country have some type of garden, and an additional 17 million families would garden if space were available.

American Horticultural Society members are leaders among this country's gardeners. Our members are fortunate to have the opportunity to participate in the Society's activities, designed to help them improve their gardening knowledge.

Once a year, Society members are invited to attend our Annual Meeting, which is held in a different part of the country each year. The most recent annual meeting was held in San Francisco, California. Participants in that exciting event had the opportunity to hear excellent educational programs on a variety of subjects. Speakers presented up-to-date information on numerous topics of horticultural interest, including edible landscaping, Oriental gardening, and plant conservation. Annual meetings also feature tours to private gardens and horticultural institutions. Participants in the San Francisco meeting visited Golden Gate Park, the California Academy of Sciences, and the Strybing Arboretum, to name three of the fascinating institutions scheduled. Perhaps the highlight of each annual meeting is the chance for Society members from all walks of life to meet and exchange ideas with fellow members about their common interest in gardening. The receptions, and especially the Awards Banquet, give our members a first-hand opportunity to meet outstanding horticulturists.

The Society's 42nd Annual Meeting this year will be held May 12 to 16 in New York City. The meeting headquarters will be at the Omni Park Central Hotel. A great deal of planning has gone into making this meeting one of the most outstanding the Society has ever held. Excellent educational programs and discussion groups on subjects such as community involvement in gardening, private gardening in the city, and indoor gardening have been scheduled. The speakers, all of whom are well known in their fields, promise to be outstanding. Tours are planned to both the Brooklyn Botanic Garden and the New York Botanical Garden. Other optional tours are planned for gardens on Long Island and gardens in and out of the city.

One of the highlights of the meeting will be the AHS National Achievement Award Dinner, which will honor the Rockefeller family for their generations of contributions to horticulture, garden design, restoration, and conservation. An illustrated lecture on gardens developed and maintained by the Rockefeller family will also be presented. This special banquet will be held in the New York Botanical Garden's Enid A. Haupt Conservatory on Friday evening. The presentation of the Society's other coveted annual awards will be held on Saturday evening.

I urge members to attend this meeting. Not only will you learn new things about horticulture, but you will have a chance to meet new and old friends. Together, we can cultivate a new awareness and better understanding of the role the American Horticultural Society continues to play in today's rapidly changing world.

Come to New York! I'll see you there.

—Everitt L. Miller
President

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Growing Tuberous Begonias



Tuberous begonias come in a host of colors—from intense scarlet to palest pink, to white. Camellia-flowered tuberous begonias, shown above, are perennial favorites, but there are many other flower forms from which to choose.

It is hard to imagine flowers like roses and camellias emerging, in just three months, from an earthy brown object that could pass for some forest litter you'd pick up and toss in a pond. Yet just such a magic act is performed by tuberous begonias, from June to September.

A bed or a planter full of well-grown tuberous begonias quickens the pulse and makes you reach for the camera. These plants are indeed generous with their summer magic, whether used as a ribbon of

soft pastels edging a woodland walk or as a frosty-white pool around a garden bench. An ethereal salmon-pink or brilliant coral exhibit can be striking in a special niche, as can a gold-and-orange planter display along the east sill of a porch, or a ruby-red cascade from a basket perched near your hammock. In fact, you can exploit the many colors of tuberous begonias in just about any bright or shady setting imaginable.

According to *Hortus Third*, tuberous

begonias—called *Begonia* × *tuberhybrida* or, preferably, *Begonia tuberhybrida* hybrids—are a group of cultivars developed by breeding several Andean species, including *B. boliviensis*, *B. clarkei*, *B. davissii*, and *B. rosiflora*. Botanists divide these hybrids into 13 groups, which are based on the characteristics of the flowers.

Besides the ever-popular camellia and rose types of tuberous begonias (which are grouped into the Camellia, Ruffled Camellia, and Rosebud Groups), there are



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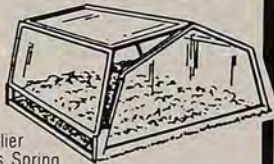
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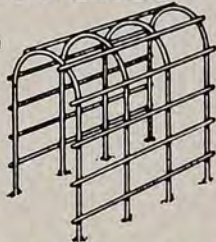
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A "HOW-TO" GUIDE



Anthony DeBlasi

To prevent breakage in high wind, use a wide loop of thick, soft yarn to tie the heavy top of a tuberous begonia to a stake.

some that are perfect for hanging baskets. The Pendula Group begonias (sometimes listed as *B. × lloydii pendula*), for example, have a bushy, cascading habit and bear blossoms that are smaller than those of the standard upright types, but more numerous. There are also some cultivars of tuberous begonias with fringed petals, packed tightly like those of carnations, which are appropriately classified in the Carnation Group. In contrast, the petals of bearded begonias are puckered here and there into bizarre tufts. Also distinctive are the single cup-shaped blooms of the hollyhock begonias (Marginata Group), which are borne on slender, erect stems. Sometimes listed as *B. crispa marginata*, these cultivars display large single blossoms with fringed and ruffled petal edges, often in a contrasting color. There is also a group of cultivars whose blooms resemble trumpet daffodils (Narcissiflora Group), though I haven't seen these offered lately.

Success with any plant hinges on the attention given to its preferences for light, soil, water, nutrients, and temperature. Meeting the requirements of tuberous begonias is not difficult. However, since these plants are not quite as forgiving as, say, geraniums, neglect of any element of culture is likely to result in dropping buds, stunted or scorched leaves, or inferior blooms, if and when they do open.

As for light, suitable exposures include bright shade, dappled shade, early-morn-

ing sun, and late-afternoon sun. These plants should not be exposed to any direct sunshine between about 9:00 a.m. and 6:00 p.m.

Tuberous begonias need soil that is spongy and perfectly drained. The ideal mixture is two-thirds leaf mold, forest humus, shredded fir bark, or sphagnum peat moss (in order of preference) and one-third sand or sandy loam. Alternatives include soilless mixtures such as Pro-Mix; two parts peat moss to one part compost or rich loam, with sand or perlite added for drainage; or potting soil with extra humus and perlite or sand.

If you want to plant tuberous begonias in an outside bed, dig out the top 10 inches of soil and fill the planting space with the recommended soil mix. The finished bed should be a couple of inches higher than the surrounding level. Water thoroughly several days before planting.

Tuberous begonias grow well in containers, too. Choose a pot at least 10 inches wide and six to 10 inches deep. Avoid any window box or similar planter that is narrower than eight inches or shallower than six inches. The container should be long enough to allow 15-inch spacing between plants. In the ground, there should be a minimum of 18 inches between plants.

Tuberous begonias can be grown indoors if your house is cool, damp, and bright in summer. However, this type of begonia is not a house plant. I have seen specimens grown indoors, on windowsills, that are ghosts of what they could be if they were outdoors.

If the plants are growing well, feed every two weeks with a liquid plant food; if not, correct the conditions, and don't feed until normal growth resumes. Use an all-purpose soluble fertilizer with an analysis of 18-18-18 or 20-20-20 or 14-16-15. (Fish emulsion, with an analysis of 5-1-1, shouldn't work, but it does!)

Tuberous begonias detest high temperatures. Natives of tropical highlands, they prefer a cool, moist climate. They grow to perfection in the British Isles. On this continent, they are at their best in coastal areas and in the North where summer temperatures remain cool. The quality of their growth is diminished where night temperatures are constantly above 60° F and day temperatures are constantly above 80° F.

Crowding and stagnant air invite rot. Keep the plants and soil surface clear of debris. Pick off fading flowers by pinching or cutting the succulent flower stem just

AHS 42nd Annual Meeting

MAY 13-16, 1987
NEW YORK CITY



Gardening in the city—penthouses, townhouses, community gardens and parks—will be the focus of the 42nd Annual Meeting of the American Horticultural Society. Enjoy special tours of the New York Botanical Garden, the Brooklyn Botanic Garden, Wave Hill Gardens, the gardens of the Cloisters Museum and the PepsiCo Sculpture Gardens. Take an in-depth look at the work of Olmsted with a special emphasis on New York's Central Park. Learn about the exciting work in the development of community gardens. There's something to interest any gardener or plant lover at heart. Plan to meet us in New York for "Parks, Penthouses and Windowsills: Gardening in the City!"

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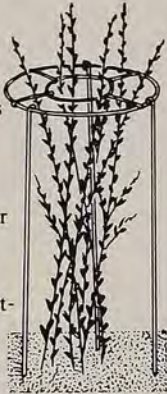
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ABOVE LEFT: Participants in the upcoming Annual Meeting in New York City will enjoy an elegant reception in the breathtaking Enid A. Haupt Conservatory at the New York Botanical Garden. Photograph by Allen Rokach, courtesy of the New York Botanical Garden. ABOVE RIGHT: Sidewalks in Manhattan's colorful flower district are lined with flowers and plants. Photograph by Barbara W. Ellis.

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A "HOW-TO" GUIDE

below the blossom, allowing the rest of the stalk to fall off naturally. This method avoids creating open "wounds" along the life lines of the plant and thus prevents infection. (It is not necessary to remove the single female blossoms that flank the showier double male blossoms, except for cosmetic reasons.) Discolored, dead, or damaged leaves should be clipped in a similar manner. Stems, which are composed almost completely of water, can be tall and heavy by midsummer and are likely to snap in a stiff breeze. To prevent the stem from breaking, stake the plant when it is five or six inches high. Use a strong, stout stake, and be sure to insert it at least three inches away from the base of the stem to avoid damaging the tuber. Avoid using string or twine, which can cut fleshy stems. Instead, use strips of old rag or similar wide, soft material to attach the plant to the stake. Make the loops loose to allow for expansion of the stem.

Do not cultivate around tuberous begonias. These plants produce a network of fine roots at or near the surface of the soil that should not be poked. Pull out any weeds that grow near the plants.

After the first light frosts damage the foliage, dig up the plants, with the soil still clinging to the roots. Set them in a dry, cool, frost-free spot, such as a shed. Carefully remove the tops of the plants when they have dried and shriveled, brushing the soil off the tuber. If the tuber is still not dry, keep it exposed awhile longer. A tuber that has grown in a pot may be dried in the same pot, then removed. Store dry tubers all winter in a paper bag in a cool, dry, frost-proof place.

In February, any tubers that don't show pink buds should be moved to a warm, dark place. When sprouts appear—but no later than March—set tubers, hollow (concave) side up, on two inches of moist peat moss or coarse sphagnum moss, four inches apart. Any convenient shallow container with holes in the bottom for drainage will do. Sprinkle enough sphagnum moss over the tubers to barely cover them. Keep the medium moist by sprinkling the surface when it dries. Keep tubers in a warm (60°-70° F), bright place. When growth is well under way, water slightly more often between surface dryings. When the shoots are about four inches high, the tubers are ready to be carefully lifted and planted in pots, boxes, planters, or beds—provided that the danger of frost has passed. Set plants with the tips of the leaves facing in



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A "HOW-TO" GUIDE

the direction you want most of the flowers to face. Tubers should be about one inch below the surface. Do not mound any soil against the stalk.

Tuberous begonias can also be grown from seed. However, the dust-like seeds require patient handling. In January or February, sow the seeds on the surface of a moistened, sterile, seed-starting medium (milled sphagnum moss is excellent). Keep them moist, warm (75° F), dark (for example, covered with paper), and in a place with good air circulation. You may need a lens to see them sprout—about the sixth or seventh day. At the first signs of life, expose the seed flat to bright light, but keep it out of direct sunlight. Keep the surface from drying out by spraying with a fine mist. When the seedlings are big enough to handle, transplant them one inch apart in flats. Keep them in a warm, bright, protected spot. When they crowd each other, transplant again to two inches apart, and feed them with liquid plant food at bi-weekly intervals. When they are crowded again, they are ready to be planted where they are to bloom. The whole process can take five or six months. For faster, more certain results, choose cultivars from a group of hybrids like Non-Stop or Clips, both of which bloom in four months from sowing.

The soil and light requirements described above are easily settled at the outset. Other matters such as feeding, staking, storing, and starting are also straightforward. But two factors—climatic conditions and water—are critical to success with tuberous begonias.

If your area is windy, you can provide a windbreak, such as a hedge or fence. If it's too dry, you can splash water around in the morning of a sunny day. But if you live in a hot, dry climate, you had better give up trying to grow tuberous begonias, unless you have a greenhouse and can provide 14 hours of light during an artificial winter cycle. (In this case, you would store tubers in a cool place in the summer and start them in the fall.) Even in a greenhouse, these begonias perform marginally. (You could try keeping one in an east window, during the winter, with a 60-watt light bulb burning four feet above it, between 4:00 p.m. and 9:00 p.m.) Tuberous begonias are cyclic in nature and are lovely while in bloom, but will only perform well if they have been allowed to go dormant in winter. The ideal growing cycle is seven to eight months.

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Proper watering is crucial to the plants' performance. They must be checked *each day*. Be careful not to overwater in dull or rainy weather. You can water more liberally if the weather is warm, sunny, or windy. The ideal to strive for is moist soil that is slightly dry between waterings. (If you have an affinity for plants like African violets, then watering should be second nature.) Water the plants *before* they are completely dry. Conversely, don't keep the soil dripping wet; wet plants invite rot. When the soil surface looks dry, push your finger an inch or so into the soil. If the medium is moist below the surface, water lightly; if it's dry, water thoroughly. Plants that are either too dry or too wet show their distress by dropping buds. If possible, water in the morning, to avoid letting plants go through the night wet.

Tuberous begonias are rarely bothered by pests and diseases. In spring, if you see larvae nibbling at the tender growth tips, squash them. In summer, if you have slugs or earwigs, use bait to control them.

The newer strains of tuberous begonias are resistant to powdery mildew. Adequate spacing of plants, free air circulation, removal of fallen petals and leafstalks, and morning watering (to keep plants dry through the night) all help prevent mildew. If mildew should appear, treat the infected areas with a fungicide.

If, in spite of your efforts, flowers are consistently disappointing—small, single, or semi-double—or plants are stubby, lanky, or otherwise unappealing, chances are you have an inferior tuber. Most tuberous begonias on the market are raised from seed gathered from high-quality strains. Occasionally, however, a grubby offspring filters through the supply of tubers. Just discard any that don't measure up. You may, of course, purchase tubers propagated vegetatively from topnotch cultivars, but these are considerably more expensive.

Unfortunately, tuberous begonias do not respond to the same relatively carefree culture as do dahlias, gladiolas, and other garden favorites. But give these summer-blooming "bulbs" what they want, and they will mushroom into the most dazzling shapes and colors imaginable. ☼

—Anthony DeBlasi

Anthony DeBlasi is a free-lance writer and photographer living in West Newfield, Maine. His last article for *American Horticulturist*, "A Most Unusual Plant," appeared in the December 1986 issue.



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The Basella Family

The Basellaceae is a small family of four genera and only a few species, some of which are useful as vegetables and ornamentals. All basella family members are tropical, herbaceous, twining vines that need a trellis or some support in order to climb. Without support, their leaves and stems trail along the ground. The rootstock is often tuberous. Other features common to all of these species include fleshy leaves that are borne alternately on long climbing stems, and small, insignificant flowers. The calyx and petals of the flowers are persistent and cling to the fleshy, berry-like fruit.

Basella is a genus of five variable species grown in warm countries as potherbs. The cultivated kinds are so similar that botanists consider them to be a single species—*Basella alba*. Commonly known as Malabar spinach, Malabar nightshade, or Indian spinach, *B. alba* is probably native to Africa and Southeast Asia. (*Basella* is the native Malabar name for the plant.) This herb is now distributed throughout the tropics. Its cultivar, 'Rubra', which is sometimes listed as a species, bears stems, petioles, and flowers with a reddish tinge. The small flowers remain closed on thick-stalked spikes that measure two to eight inches long. The spikes of the black, berry-like fruits are similar to those of pokeweed (*Phytolacca*).

Basella, which branches and grows rapidly to a length of several feet, is often cultivated in this country as an annual ornamental vine for screening porches or fences and walls. In temperate regions, this succulent plant can be grown as an annual, warm-weather substitute for spinach. The leaves of basella have a mild flavor and are rich in vitamin A and C, as well as calcium and iron. And, if given support on which to climb, basella plants will produce clean, grit-free leaves (in contrast to spinach) throughout the summer and autumn. Although usually cooked, the leaves are edible raw. They are sold as greens in the markets of Hawaii, and are applied as poultices in parts of the Orient. In addition, red juice is extracted as a dye for jelly, for rouge, and, in China, for official seals



Red-stemmed Malabar spinach, *Basella alba* 'Rubra'. Courtesy of Park Seed, Greenwood, SC

as a substitute for safflower juice.

Anrederas are the ornamental vines of the basella family. There are several species, all of which are native to tropical America. (*Anredera* was formerly classified as *Boussingaultia*, in honor of J. B. Boussingault, a noted French agricultural chemist who lived from 1802 to 1887.) The species are grown as ornamentals out-of-doors in warm regions; elsewhere, they are grown under glass.

Andredera cordifolia, Madeira vine or mignonette vine, is the most familiar species. (*A. cordifolia* is sometimes misidentified as *A. baselloides*, a species that is probably not in cultivation.) Native from Paraguay to southern Brazil and northern Argentina, Madeira vine is widely cultivated in the tropics as a covering for arbors and walls. This rapidly growing, tuberous-rooted, perennial twiner may climb to 20 feet in a season. It is not root-hardy in the

north, but with some winter cover, the roots will survive up to USDA Zone 6. This species is said to have escaped from cultivation, and grows wild in some parts of Florida and Texas.

A. cordifolia produces no fruit. It is propagated by bulbils that form in the axils of the lustrous, evergreen leaves. The plant looks somewhat like basella, but has wavier, thinner leaves and more slender flower spikes. In addition, the fragrant flowers, which are white when they open and finally turn black, are smaller and more abundant than those of basella. (It is the blooms that gave rise to the name mignonette vine.)

Frost-resistant ulluco was among the many valuable root crops and tubers that were overlooked by the Spanish in their early explorations of the New World. *Ulluco* is the Andean word from which the botanical name *Ullucus tuberosus* is derived. The potato-like tubers of this sprawling or climbing perennial are staples of the time-honored diet of the Andean people. Tiny yellowish or greenish blooms are followed by egg-shaped, berry-like fruit. *U. tuberosus* is the only species in its genus.

The underground tubers of ulluco vary from pea-size to the size of a pigeon egg. They are rose-violet in color. Cultivated varieties are white, yellow, rose, red, or reddish in color. Small tubers are also produced in leaf axils. Native Andean villagers can be seen bartering the freshly harvested tubers for fruit or other produce in the markets of their towns. Scientists are studying the properties of ulluco to determine the potential for wider use of this plant.

The basella family provides not only a satisfying and nutritious alternative to spinach, but also a tropical flowering vine that serves as an attractive wall covering in warm climates. And as for one family member whose potato-like tubers are edible, the full economic and dietary benefits have yet to be tapped. ♣

—Jane Steffey

Jane Steffey is an editorial advisor and a frequent contributor to *American Horticulturist*.



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Giverny

TEXT AND PHOTOGRAPHY
BY MARGARET PARKE

From the time he was a boy in Le Havre, France, Claude Monet had always been drawn to the valley of the Seine River with its evanescent light. In 1883, after living and painting in various cities along the river's banks, the 42-year-old artist moved to Giverny, about 50 miles northwest of Paris. Shortly after his arrival, Monet wrote, "I am filled with delight. Giverny is a splendid spot for me." He was to spend the next 44 years there, painting and gardening so passionately that it is hard to say where one left off and the other began.

Monet, then a widower with two sons, was accompanied to Giverny by his future wife, Alice Hoschedé, and her brood of six. (Alice had been abandoned by her husband, Ernest Hoschedé, a flamboyant businessman and art collector, after he went bankrupt.) The entire clan settled into a nondescript 19th-century farmhouse in a section of Giverny known as the *Pressoir*, or "cider press." The walled property included an orchard and a vegetable garden. Clipped box hedges and a few scraggly looking spruce, cypress, and yews flanked a wide central path.

Monet established his studio in a barn attached to the western end of the house. He then immediately set about digging up the clipped box, moving mounds of earth, and shifting plants. He installed paths and planted his favorite flowers—both for visual enjoyment and to cut and use as models for his paintings when the weather was inclement. Gradually, all the trees, with the exception of two yews along the main allée, were removed.

During the early years at Giverny, Monet worked in the garden during the day,

Claude Monet's paintings of his water garden are well known among art lovers. Today, visitors can enjoy the lush flower borders and shimmering water that inspired the great French Impressionist painter.

and the children watered in the evenings. Extra help was hired only for special projects. Later, as Monet became more prosperous and famous as a painter, and as the garden expanded, he took on a head gardener, M. Breuil, and five assistants. But his preoccupation with the garden never waned. Early each morning, dressed in rough tweeds, sturdy boots, and a soft-crowned hat with a wide brim, he would stroll along the paths, preparing the day's instructions. Sometimes he would argue heatedly with Breuil, who wanted plenty of space between plants and more pruning; Monet cared more for density and color relationships. Together they planned the garden for an uninterrupted succession of flowers from spring through autumn. Orchids, strelitzias, Korean chrysanthemums, and African water lilies were grown in the hothouse to brighten the winter months. The artist wanted to make sure that he would have a year-round supply of fresh cut flowers to serve as live models for his paintings.

About 10 years after moving to Giverny, Monet bought a swampy plot of land across the small road—the "chemin du Roy"—and railroad track that bordered his estate. After extensive negotiations with village officials, he was permitted to divert the waters of the Epte, a tributary of the Seine, to create a lily pond on his property. (To reach the pond, one passed through the wrought iron gate at the end of the Grand Allée and crossed over the road and railroad track.) As the years passed, Monet came to depend on the water garden more and more to provide motifs for his work.

When he was in his seventies, Monet was persuaded by his friend Georges Clemenceau, then Prime Minister of France, to paint a monumental work centering on the water lilies. For this project Monet had a special studio built next to his house so that he could work indoors on the huge



ABOVE: Monet spent hours seated beneath the rose bower at the edge of his water garden, studying the light falling on the water and water lilies. He used the small boat, which has been restored, to row out into the pond to paint. RIGHT: Brilliant lupine and other perennials abound at Giverny.

canvases. (The studio's skylight ceiling was 49 feet high.) Over the next 13 years, despite illness and near-blindness from cataracts, he devoted his energies to working on the paintings. In one famous photo, Monet can be seen sitting under a rose bower near the edge of the lily pond, studying the swirling upside-down reflections in the water so that he could capture "the soul of the dance of his water garden." The result of his many years of work is "Décoration des Nymphéas," a series of 19 panels, each 6½ feet high to 20 feet wide. Monet donated the Nymphéas to the French Government as his legacy to France, but died in 1926, before they could be installed.

Monet's step-daughter and daughter-in-law, Blanche de Hoschedé-Monet, tended the family homestead until her death in 1947. For the next 30 years, the garden and buildings were neglected. Monet's son and heir, Michel, had little interest in gardens, and left the property to the French Government in 1966.

When restoration work was begun in 1976, the two-story pink stucco house and outbuildings were in shambles. The gardens were not only weedy, but had also been damaged by a bomb that had exploded near the greenhouses during World War II. Monet's cherished lily pond was stagnant and overgrown, and the Epte was polluted from factory run-off upstream.

Gerald Van der Kemp, former Conservator of Versailles, was appointed director of the restoration by the Académie des

Beaux-Arts of the French Government. Van der Kemp consulted old garden plans found in the debris of the greenhouse. He also met with M. André Deviller, who had often visited Giverny as a young man to discuss the garden with the artist. In addition, Van der Kemp relied on the memories and research of Monet's great-nephew, M. Jean-Marie Toulgouat, an artist who now lives in the village of Giverny with his wife.

A staff of six gardeners, headed by M. Gilbert Vahé, removed the rubble and unearthed the original paths; restored the metal arches, trellises, and latticework; rebuilt the greenhouses; and brought tons of new soil, compost, and manure into the gardens to counteract the soil's chalkiness. Muskrats ravishing the water lilies and plantings along the bank of the pond presented an unexpected problem to the gardeners, who finally drained the pond and lined the banks with metal sheeting—an effective but expensive solution. (Water lilies are still wrapped in wire mesh before they are planted, to prevent them from being eaten.) In order to cut costs, all annuals used to fill the extensive two-acre garden were propagated—and still are—in the newly restored greenhouses. Seedlings are transplanted to both a service area of the garden and several growing fields in the village.

The house and studios were given a fresh coat of paint, and the apple-green shutters and wrought iron railings were restored. Furnishings were selected to give visitors an idea what the inside of the house prob-

ably looked like when Monet lived there, including details such as flowers on the mantelpiece and shiny copper pots hanging in the kitchen.

In 1980, after four years and \$2.5 million, the restoration of the house and gardens was complete, and the Musée Claude Monet was opened to the public. Now, seven years later, the gardens have had time to mature to their full glory, and visitors familiar with Monet's work have a unique opportunity to step into the "original" work of art.

The Musée Claude Monet has proved to be a successful restoration. Not only has it recaptured the historic niche in which Monet lived and worked, it has revived the spirit of the place as well. Today, visitors stroll the garden paths with a sense that the artist is still in residence.

In early June, Giverny is vibrantly fresh and awash in a sea of color, textures, and fragrance. Roses—shrubs, standards, climbers—are everywhere, clambering with clematis up green-painted tripods, arches, and trellises on house and studios, and draping fences and walls. Although the plants in the garden are not labeled, I recognized a few old favorites: deep pink 'Paul Neyron'; white, heady-scented 'Blanche Moreau'; silky, perfumed, rose-pink 'Baroness Rothschild'; and two that are frequently seen in American gardens today, 'Queen Elizabeth' and 'Robin Hood'. One of Monet's favorites, the single yellow rose, 'Mermaid', was resuscitated after being struck down by the harsh winter of 1985, and once again climbs the trellis outside the bedroom window.

The garden known as the Clos Normand stretches out from the back of the house. Its main axis passes from the back porch through the 10-foot-wide, sloping Grand Allée, which leads toward the water garden across Monet's old "chemin du Roy." On either side of the Grand Allée, straight paths crisscross each other at right angles to form rectangular planting beds. This basic, somewhat formal design was typical of many French gardens of the time. However, Monet preferred a more natural garden, so flowers were planted—then as now—to billow freely over the edges of the beds, softening the effect.

From the wall at the far end of the garden, the stucco house glows pink through the exuberant spectacle of the Clos Normand's lush flower beds. The plantings are flooded with bright colors juxtaposed in monochrome masses, the hallmark of Monet's impressionistic style both in the garden and on canvas. There are irises (mostly the blue ones favored by Monet), voluptuous peonies, and flaming poppies, as well





as old-fashioned annuals and perennials—wild geraniums, *Aubrieta*, *Lunaria*, lupines, foxglove, columbines, dame's-rocket, and many others—in dazzling masses, clusters, and cascades. The changing light plays upon the garden, backlighting a poppy with its head in the sky or softening and blurring the masses of millefleur roses on the arches along the Grand Allée, no doubt as it did when Monet tried to capture the soul of his garden on canvas.

Near the water lily studio at the eastern boundary of the Clos Normand, white turkeys strut in a poultry yard behind a rose-entwined wire fence, a reminder of the farmyard heritage of the property. Across from the yard is a picturesque, bulb-strewn lawn enclosed by an espaliered apple fence and bordered with gray-leaved herbs. Near the house, in front of the porch where Monet and his family would lunch on summer days, is a clump of cherry trees given to the artist by Japanese guests. In spring, they sprinkle their blossoms over two circular planting beds filled with tulips, English daisies, and forget-me-nots, all of which are replaced later in the season with geraniums and begonias ringed by dianthus.

The second of Monet's gardens, the water garden, is now separated from the Clos Normand by a busy highway, which replaced the old road. Visitors no longer enter the water garden from the Grand Allée; instead, they must walk through a short tunnel that passes under the road and connects the two gardens. Emerging from the tunnel, visitors find themselves in the middle of a serene landscape, said to have been inspired by the Japanese woodblock prints that Monet collected. The road is hidden by a vine-clad fence, and the contemplative mood is a dramatic change from the colorful gaiety of the Clos Normand. A path follows the winding stream to a wisteria-festooned Japanese footbridge, which arches over a water lily pond (now fed by an artesian well) of flickering light and color. Willow trees bend toward the pond, rippling the water with leafy fingers. A small bamboo "forest" rustles at the foot of a majestic copper beech, the only red-leaved tree that Monet would permit in this part of the garden. (Sadly, Van der Kemp said that the bamboo planting was being decimated by souvenir-seekers who were snipping the shoots. A low-voltage wire fence has been installed around the bamboo and has been an effective deterrent so far.)

While color is the dominant feature in the Clos Normand, this element is more subtle and complex in the reflected light of the water garden. Textures are also bolder. Ferns, hydrangeas, and giant cow parsnips line the banks, punctuated here



LEFT: Brightly colored tulips decorate the beds outside the pink stucco house. ABOVE LEFT: A cluster of lush, scarlet poppies wait to be painted. ABOVE RIGHT: Rhododendrons and azaleas line the banks of the pond.

and there with the strong vertical lines of agapanthus and lilies. The rose bower, with its bench where Monet often sat, still rests near the water's edge. From late spring through summer, yellow, white, purple, pink, and lavender water lilies hold their bowls of flowers above glossy leaves.

According to Liz Murray, a horticulturist from Pebble Beach, California, who has worked at Giverny, Monet used his painterly eye to alter the perspective of the water garden. By sharpening the curve of the pond, planning meandering paths, and planting clumps of ornamental grasses, trees, rhododendrons, and azaleas, Monet created the illusion that the two-acre garden is larger than it really is.

Monet's two gardens have been designed to provide a succession of blooms from spring through fall. Although they are kept as historically authentic as possible, it has been necessary to make some planting substitutions, since many of Monet's favorite plants are now unobtainable. However, modern cultivars are used with discretion, and careful attention is paid to color compositions. Such modern irises as 'Siva Siva', 'Zantha', 'Golden Delight', 'Study in Black', and 'Night Owl' now grow alongside old and new blues, including 'Blue Chiffon', 'Crystal Blue', 'Sapphire Hills', and 'Blue Brilliant Cadeau'.

Each year, before planting the bulbs, gardeners at Giverny pull out the annuals, add compost and manure, and turn the beds over. They then steam the soil to control weeds and prevent diseases. The following spring, wallflowers, forget-me-nots, pansies, and violas are brought in from the growing fields and planted to bloom along

with the bulbs. Later, in mid-June, thousands of annuals are transplanted from four-inch pots to the garden beds. Summer brings a display of astilbes, everlastings, impatiens, cornflowers, delphiniums, bellflowers, santolinas, wormwood, and phlox.

Because the beds are packed so fully, hand-watering is impossible; overhead sprinklers are used for both watering and fertilizing. Gardeners prune and spray the plants on Mondays, when the property is closed to the public. (For information on visiting Giverny, see "Sources" on page 37.) From time to time, the weather takes its toll; 200 rose bushes were lost during the severe winter of 1984-1985 and had to be replaced.

Besides the gardens, visitors can explore the area across the road, where the bosky hills that border the village of Giverny rise on the north. There, next to the parking lot, is a new greenhouse and a complex of buildings that will house visiting art students from different countries.

Visitors should not overlook a tour of the house, with its tiled kitchen, yellow-painted dining room, cleaned and restored Japanese prints, and upstairs bedrooms. From the window, one can look out over the whole resplendent garden with its sparkling palette of colors, a scene that brings to mind Monet's comment: "I perhaps owe becoming a painter to flowers." ❁

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Elizabeth Boccard



Courtesy Bowman's Hill State Wildflower Preserve

Bowman's Hill State Wildflower Preserve

BY MARCIA BONTA

Most people who visit Washington Crossing Historic Park in Pennsylvania are history buffs, intent on seeing the place where George Washington embarked when he crossed the Delaware River into New Jersey that bitter Christmas night in 1776.

Wild plant enthusiasts, though, come to the park for a different reason. From late March until early October they visit Bowman's Hill State Wildflower Preserve, which, since 1934, has specialized in the preservation and conservation of Pennsylvania's native plants. This 100-acre preserve, located within Washington Crossing Historic Park, consists of woods, meadows, ponds, bogs, and barrens. Today, approximately 1,500 herbaceous plants grow along its 26 short trails, which are, in part, planted and maintained by garden club members from the nearby Philadelphia area.

Following the advice of the preserve's botanist, Janet Urban, my husband and I

visited this quiet refuge on a weekday morning in early May. We stopped first at the Preserve Building to pick up a map of the area as well as a list of the plants that bloom in May and where they are found on the preserve. Posted on the bulletin board outside the building is a more precise update of what is currently in bloom and exactly where—measured in feet—the plants can be found along the trails. If, for instance, you arrive in mid-April and want to see celandine poppies (*Stylophorum diphyllum*) in flower, the list will tell you that they grow 250 feet from the beginning of the Marsh Marigold Trail on the right-hand side. Then, following the foot markings on the trail, you can easily find the unlabeled celandine poppies.

The only labeled plants are grown in the small garden around the Preserve Building, which the staff plans to expand. On that May morning we discovered many beautiful labeled wildflowers there, including

several we were not familiar with. One of the loveliest and most intriguing was double bloodroot, *Sanguinaria canadensis* 'Flore Pleno', which Ralph Reitz, the Chief Propagator, explained is an aberration that does occasionally occur in nature. Canby's mountain-lover (*Paxistima canbyi*), a rare prostrate shrub, was also labeled, as were the attractive blue creeping phlox (*Phlox stolonifera*), nodding trillium (*Trillium cernuum*), great Solomon's-seal (*Polygonatum commutatum*), shooting-star (*Dodecatheon meadia*), and crested iris (*Iris cristata*). The latter is an example of a wildflower growing in the preserve that is not native to Pennsylvania. (This partic-

LEFT: Naturalist Pauline Simmons talks to a group of children about the wildflowers at the Bowman's Hill State Wildflower Preserve in Pennsylvania. ABOVE: A clump of *Trillium grandiflorum* growing in the gardens around the Preserve Building provides a hint of what the Preserve has in store for visitors.

RIGHT: Twin-leaf coneflower and summer phlox coexist happily near one of the trails at Bowman's Hill State Wildflower Preserve. FAR RIGHT: American columbine, *Aquilegia canadensis*, clings to a stone wall beside Pidcock Creek.

Courtesy Bowman's Hill State Wildflower Preserve



ular species grows in Indiana, southern Ohio, Maryland, and further south.) Although the preserve is primarily a showcase for Pennsylvania native plants, other non-native wildflower favorites of garden club volunteers are also occasionally planted along the trails.

After studying the labeled plants, we set out with Peterson and McKenny's *A Field Guide to Wildflowers*, along with the preserve's "Blooming Guide List for May," and with those aids we were able to identify most of the plants we saw. Any specific questions we had were referred to Jim Avens, who works on the grounds and has a missionary zeal when it comes to supplying information about the plants. In fact, we felt a rare camaraderie with all the people at Bowman's Hill State Wildflower Preserve—visitors, employees, and garden club volunteers alike. A love of plants seems to generate such a feeling of well-being that everyone speaks to everyone else about what they are seeing. At the preserve, the good will of the people, the bright beauty of the day, and the continual serenade of woodland birds so wove a spell about us that we spent seven leisurely hours there, delighted to see—so easily—more species of wildflowers than we could find during a week's exploration of Pennsylvania's natural places.

The delicate red and gold columbines (*Aquilegia canadensis*) grew in the stone wall beside Pidcock Creek, and the fiddleheads of Christmas ferns unfurled along the Wherry Fern Trail, in company with the drooping or midland trillium (*Trillium flexipes*) of the midwestern woodlands and the deep blue blossoms of spring larkspur (*Delphinium tricorne*). The moist Marsh

Marigold Trail was still bright yellow with celandine poppies and swamp buttercups (*Ranunculus septentrionalis*), and low-growing shrub yellow-root (*Xanthorhiza simplicissima*) was covered with small, drooping, brownish-purple flowers. The hooded flowers of skunk cabbage (*Symplocarpus foetidus*) had appeared back in March, but the lush and skunky-smelling leaves were quite prominent. Unfortunately, one of my favorites, yellow lady's-slipper (*Cypripedium calceolus*), was not yet in bloom, but the blue or woodland phlox (*Phlox divaricata*) was almost as striking in appearance.

Along one of the loveliest trails, Bluebell Trail, we saw redbud or Judas tree (*Cercis canadensis*), a very common native tree highly prized as an ornamental for its haze of purple-pink blossoms. Planted nearby were specimens of a white-blossomed redbud cultivar. The trail, which circles through rich bottomland beside the creek, was undoubtedly named for the profusion of Virginia bluebells (*Mertensia virginica*) that thrive in such a habitat. Mixed in with them at the time of our visit were three species of bellwort (*Uvularia* spp.), which bears delicate, drooping yellow blossoms. We identified large-flowered bellwort (*U. grandiflora*), perfoliate bellwort (*U. perfoliata*), and sessile bellwort (*U. sessilifolia*). Later, in June, the Bluebell Trail is the only place where broad-leaved waterleaf (*Hydrophyllum canadense*) grows in the preserve.

A short distance from the Bluebell Trail we explored the small sphagnum bog, with its leatherleaf shrubs (*Chamaedaphne calyculata*), swamp pinks (*Helonias bullata*), pitcher plants (*Sarracenia purpurea*), and

starflowers (*Trientalis borealis*). We then turned our attention to the pond rimmed with enormous royal ferns and the large, green leaves of American white hellebore (*Veratrum viride*). Back in 1950, the pond received the Garden Club of America's Founder's Fund Award, and it still has plenty of ambiance.

Not all the trails we followed feature showy flowers, however. The Wherry Fern Trail (named for Philadelphia botanist Edgar Wherry, who was instrumental in developing the preserve) highlights the preserve's interest in wild ferns. Another section, called Penns Woods, was the first reforestation program in Pennsylvania, and has nine acres of tended woodlands where hundreds of Pennsylvania's native trees and shrubs grow.

Another specialty of Bowman's Hill State Wildflower Preserve is medicinal plants. Clusters of the pale yellow-green flowers of ginseng (*Panax quinquefolius*), which wild food expert Euell Gibbons called "more precious than gold," can be seen along the Medicinal Trail in midsummer. Although ginseng used to be abundant throughout its range from Quebec to Manitoba and southward in the mountains to Alabama and Arkansas, its prized, man-shaped roots have been over-collected for sale at \$300 to \$400 an ounce in the Orient, where it is valued as an aphrodisiac.

Wild sarsaparilla (*Aralia nudicaulis*), another member of the ginseng family, looks much like ginseng, with its compound leaf of three to five leaflets. But unlike ginseng, whose flower stem is connected to its leaf stem, wild sarsaparilla has separate stems for both its leaf and its flower. (Sarsaparilla roots were once popular in flavoring soft drinks.) It, too, grows along the Medicinal Trail, and blooms in late May, along with goldenseal (*Hydrastis canadensis*) and the lovely native puttyroot orchid (*Aplectrum hyemale*), with its stalk of crinkly-lipped, yellowish, greenish, or whitish flowers.

Probably the most interesting plants at the preserve are those that are rare or endangered, and have been successfully propagated for horticultural use. One example, the lovely evergreen box huckleberry shrub (*Gaylussacia brachycera*), is called the oldest plant in the world. It multiplies by underground rhizomes, all of which emanate from a single plant. Back in 1920, botanists discovered one colony in Pennsylvania that was estimated to be 13,000 years old.

The spreading globeflower (*Trollius laxus*) is one of the plants listed as endangered in Pennsylvania because of habitat

destruction. The pale golden blossoms closely resemble those of the deep yellow marsh marigold (*Caltha palustris*). But unlike the latter, which bears kidney-shaped leaves, the spreading globeflower has buttercup-like, toothed leaves that surround the upright stem. Also, marsh marigolds grow in any wet area, while spreading globeflowers require wet, alkaline meadows, which are rare in Pennsylvania and the other states—New Jersey, Connecticut, and New York—where there are still known populations. At Bowman's Hill State Wildflower Preserve, spreading globeflowers are grown in pots, since the staff has not been able to build a proper habitat for the plants yet. This means of propagation may be the plant's best hope for survival, because all the proper habitats, at least in Pennsylvania, are in private hands and are used for livestock pasture.

Another endangered plant in Pennsylvania that the preserve cultivates is Can-

by's mountain-lover (*Paxistima canbyi*), a ground-cover shrub propagated successfully by the Delaware Valley College of Science and Agriculture. Like ginseng, it has a relatively small range in the south-central Appalachian Mountains region, where it grows in rocky, well-drained upland woods.

Of course, employees of the preserve do not go out into the woods and dig up the plants they want. Instead, they depend on several outside sources—commercial nurseries, the Ornamental Horticulture Department of the Delaware Valley College of Science and Agriculture, and the International Seed Exchange—to supply them with new plants. As members of the Exchange, they give as well as receive seed. Thus, much of the initial plant work is done under glass before most of the plants are transplanted into the proper environment at the preserve.

Chief Propagator Reitz is especially in-

terested in promoting native grasses as ornamentals. One of his favorites, prairie dropseed (*Sporobolus heterolepis*), is also endangered in Pennsylvania. This attractive disjunct species is found only on rare serpentine barrens in the state, although in the Midwest it is far more common in a wide variety of habitats. A tall perennial, it bears long, narrow leaves that are often rolled and grow in conspicuous tufts—a perfect backdrop, Reitz maintains, for butterfly weed (*Asclepias tuberosa*), any of the wild blazing-stars (*Liatris* spp.), and wild lupine (*Lupinus perennis*).

Pennsylvania has many disjunct species, that is, plants that are abundant in areas far from the state and then appear in isolated, restricted habitats such as remnant prairies, or serpentine and shale barrens. The dense blazing-star (*Liatris spicata*), which blooms in large masses on the mid-western prairies, appears again in several remnant prairies in western Pennsylvania. It blooms in August at the preserve. Blue-eyed Mary (*Collinsia verna*), another showy prairie species, can be found only in the southwestern corner of the state, and can also be seen at the preserve in late April.

Because Pennsylvania has a wide diversity of plant species, the work at Bowman's Hill State Wildflower Preserve is never done. Prairie species are encroaching on the state's western border, while many northern species reach their southernmost limit on Lake Erie's shores. The preserve still has many such plants (and habitats) it must add to its collection. Some are common, like the deep-woods speckled wood lily (*Clintonia umbellulata*); others are extremely rare, like Kalm's lobelia (*Lobelia kalmii*), which prefers the same alkaline soil as does spreading globeflower.

The volunteers, employees, and visitors will all tell you that the preserve is beautiful precisely because it is constantly evolving. They say that even if you visited once a week throughout the season, you would still see different plants in bloom. (For information on visiting Bowman's Hill State Wildflower Preserve, see "Sources" on page 37.) Bowman's Hill State Wildflower Preserve is an aesthetic as well as an educational experience—one that bears repeating as often as possible in order to gain a greater appreciation for what the natural world of plants has to offer gardeners. ●

Marcia Bonta, a weekly columnist for the *Altoona Mirror*, has written for the *Conservationist*, *Bird Watcher's Digest*, and *Pennsylvania Heritage*. Her last article for *American Horticulturist*, "John Bartram and His Garden," appeared in the December 1985 issue.



Bruce Bonta

HARDY

PALMS

When the winter's first snow turns sooty gray, could anything be more tantalizing than a picture of azure-blue waters, glistening sands and coconut palms swaying in the breeze? In the popular imagination, no plant conjures up visions of tropical paradises as does the majestic palm tree.

TEXT BY ALAN MEEROW
PHOTOGRAPHY BY
PAMELA HARPER

Indeed, as landscape plants, palms are most at home in the tropics. Yet several species from this diverse family (Palmae) can withstand considerable frost. These stalwarts of the palm clan can survive with little or no injury in areas where winter temperatures reach as low as 18° to 20° F—roughly, the warmest portions of USDA Zone 8. (Gardeners in marginal areas should bear in mind that microclimates may allow more freedom than a hardiness map might indicate).

Two genera of hardy palms that are native to North America and are found at the northernmost boundary of palms' range in the Western Hemisphere are *Sabal*, the cabbage palm or palmetto, and *Serenoa*, the saw palmetto.

Sabal palmetto, the cabbage palm, is found from the Carolina coast south, through all of Florida. The growing point, or "palm heart," of this species was harvested by early Floridians and cooked as "swamp cabbage." Of the 20-odd species in the genus, this is probably the hardiest; cabbage palms can withstand temperatures into the low teens within their native range.

S. palmetto is extremely variable in size, fruit character and habit. It is a costapalmate-leaved palm, meaning that the petiole extends like a rib into the fan-shaped leaf blade. Each leaf is from three to six feet long and is held on six- to nine-foot petioles. The leaves are green to blue-green in color. The segments are divided about one-third of the distance to the leaf base, and are split at their apex. The rib extension of the petiole is markedly curved and gives the leaf a twisted appearance. In south Florida, cabbage palms may reach 90 feet in height; in cultivation and at the northern end of their range, they average 20 feet. The leaf bases generally persist for many years, forming a distinctive crisscross pattern. (Like everything else about this palm, this characteristic varies from plant to

plant.) In Florida, various native ferns colonize these "boots," and other tropical plants (for example, *Hoya*, *Epiphyllum* and various gesneriads) can be established in them, creating a novel effect. The small fruits are dark brown and shiny. The species eventually forms a dense, globular head.

S. palmetto is extremely adaptable to soil type, but responds well to rich soil and ample fertilization. In the landscape, it is most effective grouped in small groves of several plants for accent.

Sabal minor, the dwarf palmetto, is native from Georgia to Florida and west to Texas. It is somewhat less hardy than the cabbage palm, and its leaves are not costapalmate like those of the latter. This species lacks a visible trunk; instead, it grows from a subterranean stem. However, individual specimens have been known to produce six-foot trunks that eventually shed their leaf bases. These eccentric individuals also produce slightly costapalmate leaves, though the rib penetrates only a few inches into the blade. Generally, the leaf is no more than three feet in diameter and has 15 to 20 segments, each of which is cut two-thirds of the way to the petiole. The fruit is dark brown or black.

The dwarf palmetto is more shade-tolerant than the cabbage palm, and frequently grows beneath the canopy of hardwood forests. In general, fresh seed of palmettos germinates within two months, which is remarkably fast for a palm. Once the seedlings appear, however, the speed of growth slows considerably.

A common sight in our southeastern coastal plain states, from southernmost South Carolina to Florida, is *Serenoa repens*, the saw palmetto. This species is often found growing beneath a canopy of slash pines, forming a dense ground cover, particularly where fire has frequently swept

A commercial grove of date palms, *Phoenix dactylifera*, growing in Death Valley.





across the pinelands. Often cursed by farmers and homeowners alike, the saw palmetto provides a home for rattlesnakes, and is a heavenly source of honey. A single plant spreads prodigiously, eventually forming huge colonies.

S. repens is hardy to well below 20° F; its subterranean growing point makes it impervious to cold and virtually impossible to eradicate except by bulldozer and chain. Mature specimens are difficult to transplant because of the extensive underground root system. Residents within the domain of this species are best advised to learn to appreciate it.

As an impenetrable hedge, *S. repens* is unbeatable. It grows from a branching, underground trunk, although on occasion it will form upright or leaning aerial stems that can grow up to 10 feet in height. The slender leaf stem is finely toothed, and the base is covered with a fine, fibrous material. The palmate leaf is deeply cut almost to the base, and the stiff segments—as many as two dozen—grow wide apart and upright. The two-foot leaves vary in color from green to blue-green; the best of the latter forms are sold as “blue saw palmetto.” The branched inflorescence, which grows to three feet, is packed with small, creamy-white flowers that attract large numbers of bees. Their fragrance is a distinctive feature of the pinelands in summer. The fruit is black or blue.

Another hardy North American native palm is *Rhapidophyllum hystrix*, the needle or porcupine palm. Considered by many to be the continent’s finest palm, it is among the rarest of our indigenous plants. Its distribution in the wild—from South Carolina to Florida and Mississippi—is quite local, and only at rare way stations can it be considered abundant.

This dwarf, spreading fan palm has an erect or creeping trunk that is usually no more than three feet long. Dark leaf base fibers cover the short trunk, from which radiates a mass of long, sharp, black spines. The palmate leaf, which is deeply divided, is dark green and shiny above, and silvery-gray below. The palm’s rarity may be due to the fact that the plant hides its ripe fruit amid the spines, a habit that often causes the fruit to decay before it is dispersed.

R. hystrix should be better known in the nursery trade. It makes an excellent hedge

plant, often producing tight clumps, and is hardy to at least 10° F. (*Hortus Third* indicates it is probably hardy in Zone 7.) The species prefers low-lying areas and fertile soil. Although wild specimens transplant well, this practice is not recommended unless existing plants are threatened by development.

Perhaps the most widely seen hardy palm in the United States is *Washingtonia filifera*, the petticoat palm or California fan palm. California’s only indigenous palm, it is found near desert springs in southern California and neighboring Arizona. The common name is derived from the effect created by the enormous shag of old leaves, which hang downward, adhering to the gray trunk for many years. If not removed, they can eventually cover the entire three-foot-wide trunk, which can attain a height of 50 feet. When the leaves finally let go, they often present a hazard to passers-by.

The gray-green palmate leaves of *W. filifera* are at least six feet wide at maturity, and are covered with many long threads. The petiole is green and marginally armed with teeth. The petticoat palm is hardy to at least 20° F, and is grown in both the southwestern and Gulf states. *Washingtonia* is used most commonly in avenue plantings in both California and Florida.

The date palms (*Phoenix* spp.) comprise

about 10 to 20 species of Old World plants. The species hybridize readily, and some of the “species” offered by nurseries are probably not what they are advertised to be. All members of the genus are pinnate-leaved palms whose distinctive lower leaflets are modified into long spines.

The most familiar of the date palms is *P. dactylifera*, which produces the date of commerce. This species will experience leaf kill at 20° F, but has been known to survive temperatures as low as 4° to 10° F. It fruits indifferently except in areas with dry summers. In northernmost zones, it may even fail to flower. Since date palms are dioecious (meaning there are separate male and female plants), both sexes are necessary to produce dates. Successful pollination usually involves shinnying up a female palm and dusting the flowers with pollen collected from the male. (This difficult maneuver is one of the reasons dates are so expensive at the supermarket.) In any event, for ornamental purposes alone, *P. dactylifera* is not the best that the genus has to offer.

Liberty Hyde Bailey called *Phoenix canariensis* “the gem of the genus.” Commonly called the Canary Island date palm, this species has a stout trunk to which the leaf bases adhere for many years. It will grow as high as 50 to 60 feet and spread



LEFT: *Sabal minor*, which is hardy to Zone 8, growing with *Gelsemium sempervirens* at Brookgreen Gardens near Charleston, South Carolina. RIGHT: *Phoenix canariensis*, commonly called Canary Island date palm, is an excellent choice for a large pot plant in northern areas.

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AH

HARDY PALMS

out almost as far. It tends to grow slowly at first, but once a trunk forms, its rate of development increases greatly. Its short petioles are spiny, and the leaves, which sport several hundred pairs of light green leaflets, can be as long as 20 feet. Few specimens grown in this country will achieve such dimensions, however.

P. canariensis is hardy to at least 20° F, and makes an excellent container plant for many years. Female plants produce copious one-inch orange fruits in large clusters. (The taste of these fruits leaves something to be desired.) This species performs best in moist, rich soils, and can be effectively used as a lawn specimen.

Date palms germinate quickly and easily from fresh seed. The plants can also be propagated from suckers that appear on the lower trunk. Because there are so many hybrids, it is best to consult a reliable nursery before selecting a specimen for your particular area.

Trachycarpus fortunei, the Chinese windmill palm, is one of a genus of about four species that are native to China, Japan and the Himalayas. In their natural habitat, these species have been known to survive a winter snow cover at times. *T. fortunei* is the most widely planted, and the hardiest of them all. In fact, it may well be the hardiest palm available in cultivation. Its single, slender trunk rises to about 30 feet (much less in cultivation) and is covered for many years with a distinctive mat of dark brown leaf base fibers. The toothed petiole is about two feet long and is also clothed at the base with these hairs. The palmate leaf, which grows to three feet in diameter, is fan-shaped. The leaf segments, which are cut almost to the base, are dark green above and glaucous-green below. The half-inch-long, three-lobed fruit is blue when ripe.

The Chinese windmill palm is found in gardens as far north as Oregon and North Carolina. It will reliably withstand temperatures as low as 10° F and probably even lower. It is a fast-growing palm and responds well to irrigation and fertilization. Occasionally, it is found in nurseries under the name *Chamaerops excelsa* or *C. fortunei*.

The true genus *Chamaerops* is composed of but a single species, *C. humilis*, the European fan palm. Europe's only native palm, it is not only hardy (it has survived 6° F), but also highly variable in form. Single-trunked and multiple-trunked specimens are available, and the color of the

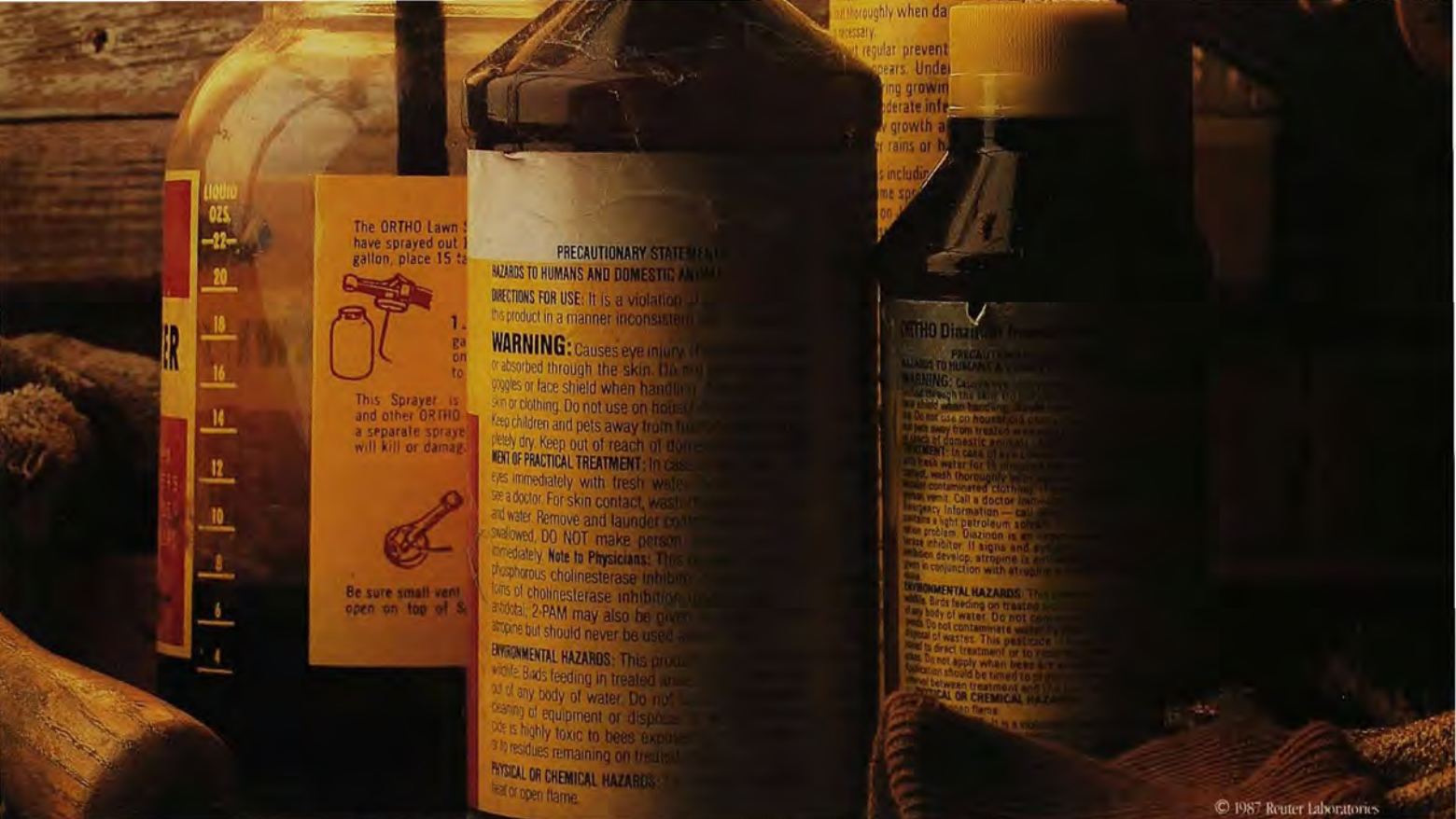
palmate leaf varies from green to almost blue. Typically, this palm is clump-forming and bushy, and grows as high as 20 feet. The sword-shaped segments, deeply cut and firm, are held on long, spiny petioles. The leaf bases persist on the trunk. The only drawback of *C. humilis* is its slow rate of growth, which decreases in proportion to the amount of winter cold it must withstand.

A hardy palm with edible fruit is *Butia capitata*, the pindo palm. This pinnate-leaved native of southern Brazil and neighboring countries can withstand temperatures as low as 15° F. It is grown throughout California and as far north as the Carolinas. The stout, slow-growing trunk attains a height of 10 to 20 feet and is attractively patterned with old leaf stubs. The strongly arching, gray-green leaves are several feet long. The yellow-to-red fruit has a flavor like that of pineapple and banana rolled into one.

The record lows of the 1981-82 winter provided a sharp test of some of the palms described above. For instance, specimens of *Trachycarpus fortunei* in Augusta, Georgia, were damaged and lost all their leaves, but recovered the following spring. In protected sites in Tennessee, some succumbed entirely, while others revived with warmer weather. Our native needle palm suffered leaf damage in Georgia, but perked up in winter's aftermath.

Gardeners in marginal areas can grow their palms in containers and treat them as indoor-outdoor plants. (Grow them in any good potting soil amended by one third with coarse sand.) When winter threatens in earnest, the plants can be moved to a frost-free location. Keep in mind, however, that a container plant is considerably more susceptible to cold damage than the same plant planted directly in the ground.

When using palms in the open landscape, you should also keep microclimates in mind. Avoid low-lying places that might become pockets for cold-air drainage. A planting site near a south-facing wall can provide a life-saving margin of a few degrees. A good example of microclimatic variation is found on the campus of the University of Florida in Gainesville, where a courtyard that is walled in on three sides by three-story buildings provides protection for such displaced exotics as queen palm (*Arecastrum romanzoffianum*), Senegal date palm (*Phoenix reclinata*) and even avocados—all plants that are normally restricted to central or south Florida.



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HARDY PALMS

Although a cold-damaged palm is not a pretty sight, it should be left alone until warm weather returns. Even burned and blackened leaves can help to insulate the irreplaceable "palm heart" and protect it from further harm. When emerging leaves appear in spring, injured foliage can be removed. A regular fertilization program throughout the subsequent growth period will aid the plant's rapid recovery.

Palms are generally easy to grow outdoors. As a rule, all mature plants require full sun to thrive. Young plants, however, benefit from light shade. One solution to this problem is to maintain your palm as a container plant for the first few years, then transplant it to a sunny location.

Notable palm pests include various scales, the palm aphid and the palm-leaf skeletonizer. Contact insecticides have proven effective in combatting these pests. Infestations can also be controlled by removing old, unsightly leaves. Magnesium deficiency can be a problem, particularly in sandy, alkaline soils. Severe cases cause a condition called "frizzle-top," which causes new leaves to appear stunted and deformed. Soil application of Epsom salts (magnesium sulfate) is an effective remedy.

In recent years, lethal yellowing disease of palms has caused increasing concern, particularly in south Florida, where old plantings of coconut palms have literally been decimated. The disease—still poorly understood—is caused by a mycoplasma, an organism related to bacteria, and is carried by a species of leafhopper. In the early stages of infection, the foliage of the plant yellows. Eventually, the plant dies. Unfortunately, the only remedy for an infected palm is swift removal from the landscape. The disease has recently spread to southern Texas, although cooler weather may inhibit its northerly progress. Among the hardy palms susceptible to this disease are *Phoenix canariensis*, *P. dactylifera* and *Trachycarpus fortunei*.

Before selecting or planting hardy palms, be sure to talk with your local Extension Agent. A wrong choice of species, site or treatment could easily result in needless expense and disappointment.

As bold and distinctive accent plants, hardy palms can greatly enrich the landscape. More importantly, these exotic tropical plants can be a refreshing and welcome sight on a chilly winter's day. ☉

Alan Meerow recently completed his Ph.D. in horticultural taxonomy at the University of Florida in Gainesville.

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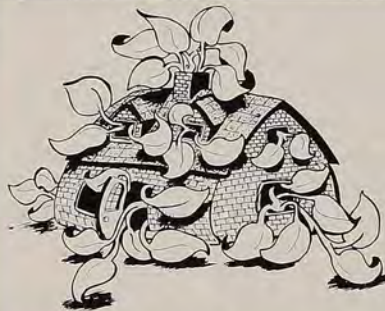
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Sources

BOWMAN'S HILL STATE WILDFLOWER PRESERVE

Information on Bowman's Hill State Wildflower Preserve may be obtained by writing or calling Washington Crossing Historic Park, Washington Crossing, PA 18977, (215) 862-2924. The preserve is open daily from 8:00 a.m. to sunset. The Preserve Building is open Monday through Saturday, 9:00 a.m. to 5:00 p.m., and on Sundays from noon until 5:00 p.m. There is no charge for admission. Guided tours are available for groups by pre-arrangement. Write or call the Preserve for details.

The Preserve is located on River Road, PA Route 32, two miles south of New Hope, Pennsylvania. From Philadelphia, follow Interstate 95 north, 29 miles from the Center City area. Get off at the last exit in Pennsylvania (Morrisville, Yardley, Washington Crossing). Turn left on Legislative Route 09151. Drive five miles through the village of Taylorsville to the intersection with PA Route 32. After 2.3 miles on Route 32, turn left into Bowman's Hill State Wildflower Preserve. (Ignore the entrance to Bowman's Hill Tower 1/2 mile before Wildflower Preserve.)

HARDY PALMS

Gardeners interested in the cultivation of palms will want to join the Palm Society, which publishes a journal devoted to the study of these fascinating plants. Annual dues are \$15.00. For information on memberships, write The Palm Society, Box 368, Lawrence, KS 66044.

Hardy Palms are available from the following mail-order nurseries.

Seed:

The Banana Tree, Dept. AH, 715 Northampton St., Easton, PA 18042. Send 50¢ or stamps for catalogue.

International Seed Supplies, Dept. AH, P.O. Box 538, Nowra. 2541, N.S.W. Australia. Catalogue free.

Plants:

Louisiana Nursery, Dept. AH, Route 7, Box 43, Opelousas, LA 70570. Catalogue \$3.50.

Endangered Species, Dept. AH, P.O. Box 1830, Tustin, CA 92681. Catalogue subscription \$5.00.




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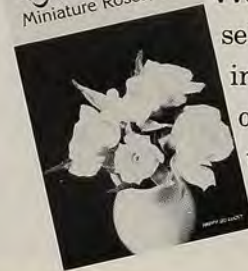
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W. Atlee Burpee Co., Dept. AH, Warminster, PA 18974, catalogue free.

Kartuz Greenhouses, Inc., Dept. AH, 1408 Sunset Drive, Vista, CA 92083, catalogue \$1.00.

Logee's Greenhouses, Dept. AH, 55 North Street, Danielson, CT 06239, catalogue \$3.00.

Park Seed Company, Dept. AH, P.O. Box 31, Greenwood, SC 29647, catalogue free.

The Plant Kingdom, Dept. AH, Box 7273, Lincoln Acres, CA 92047, catalogue \$1.00.

John Scheepers, Inc., 6 Wall Street, New York, NY 10005, catalogue free.

Stokes Seeds Inc., Dept. AH, 1407 Stokes Building, Buffalo, NY 14240, catalogue free.

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GIVERNY

Ideally, before visiting Giverny, you should go to the Orangerie in the Tuileries in Paris to see the mural-size *Les Nymphéas*. Then you can visit the *Jeu de Paume* at the opposite corner of the Tuileries to see more paintings by Monet. (These are scheduled to be moved to the new Musée d'Orsay, so check first.) Also, two miles up the Seine, at 2 rue Louis Boilly, is the Musée Marmottan. This museum contains Monet's private art collection, bequeathed to the government by Monet's son Michel. The paintings provide a glimpse of the unique sensibility of the artist, and will enrich your visit to Giverny.

The Museum at Giverny is open daily

from 10:00 a.m. to 12:00 noon and 2:00 p.m. to 6:00 p.m., from April 1 through October 31. The gardens are open all day from 10:00 a.m. to 6:00 p.m. Both the gardens and the museum are closed Mondays. The address of the Musée Claude Monet is Claude Monet Museum, Giverny, 27620 GASNY, France, (telephone: 16.32.51.28.21). For a photocopy of a brochure on Giverny, which includes a map, send \$1.00 to Assistant-to-the-Editor, American Horticultural Society.

THE BASELLA FAMILY

Seed for *Basella alba*, commonly called Malabar spinach, can be purchased from the following mail order companies.

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Seeds Blum, Dept. AH, Idaho City Stage, Boise, ID 83707, catalogue \$2.00.

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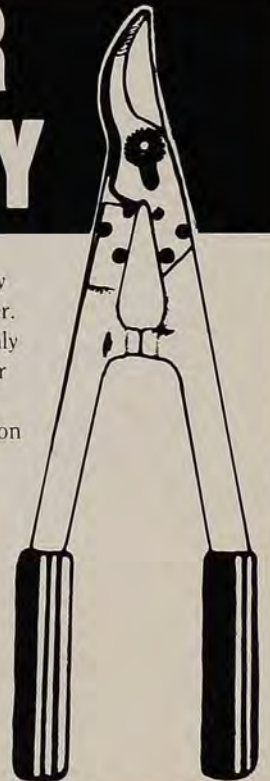
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Garden Illustrations

If asked to choose your three favorite herbaceous perennials, which would they be? The choice would undoubtedly be difficult. Some perennials might be considered favorites for their rarity or spectacular bloom, such as 'Blackmore and Langdon' delphiniums and *Phlox paniculata* 'Dodo Hanbury Forbes', which bears mammoth flower heads. Or your choices might include such sterling plants as *Baptisia australis*, peonies, and *Dictamnus albus*, with their reliable blooms, long-lasting foliage, and low maintenance requirements.

I asked myself the same question, and not one of my choices was rare, particularly beautiful, or the kind of horticultural challenge that assures a feeling of great accomplishment when the plant survives. Instead, my favorite perennials are common, reliable, and among the most useful and easily grown for a wide range of garden settings.

I first became aware of the potential of *Stachys byzantina* (formerly *S. lanata*), commonly called lamb's-ears, in the garden of the late Countess Munster. Her borders at Bampton Manor in Gloucestershire were considered by the English gardening cognoscenti to be among the best in England. As with any truly creative gardener, Countess Munster was aware that the value of a plant is not solely in its flower and foliage but also in how and where it is used. Her borders, which were placed in line with the steeple of the local church so that it could be seen through them, were begun with large clumps of *Stachys byzantina* on either side. When viewed from the house, the silver-gray stalks were a wonderfully understated repetition of the church's steeple. By this simple device, she incorporated the church and the surrounding tree line into her garden, in a kind of English adaptation of the Japanese technique of "borrowed scenery."

Stachys byzantina is also used with flair in the White Garden at Sissinghurst, in combination with a light green hosta, white lupine, *Iris sibirica*, and the gray-leaved foliage of various artemisias and white lilies. It is not so much the highly-



Stachys byzantina makes an effective companion for hostas, white lupine and iris in the White Garden at Sissinghurst.

touted *Stachys byzantina* 'Silver Carpet' (a non-flowering form) as it is the vertical flower stalks that are important in the composition.

Despite the plant's usefulness, it has become stylish to dislike the flower stalks of *Stachys byzantina*. True, they will never have the translucent delicacy of *Campanula persicifolia* 'Telham Beauty', but that is like comparing apples and oranges. When

the bloom stalks of *Stachys* are coming on, they are fuzzy, white, and fresh. Once they have bloomed, they remain in peak condition for about three weeks.

In my opinion, most gardeners expect too much of this plant. They leave the bloom stalks till they get dried and faded, then wonder why they have grown tired of them. I have found that if the flower stalks are cut off just a bit past their peak, they don't

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THE DESIGN PAGE

get a chance to get dull, and the silvery leaves seem to hold up better and remain a strong feature for the rest of the growing season.

Those gardeners who still may not be sold on *Stachys* should know that no less an expert than Gertrude Jekyll also found it valuable in her gardening endeavors. In *Colour Schemes for the Flower Garden*,

Another plant useful for softening edges is *Alchemilla vulgaris*, or lady's-mantle.

she advocates the use of this plant as an informal edging in some of her beds, and describes it as "one of the most useful of plants for grey effects." In her purple border, she mixed *Stachys* with lavender, *Gypsophila*, and edging patches of catmint (*Nepeta mussinii*), "a plant that can hardly be overpraised."

Jekyll's description of *Nepeta* in her border and its maintenance is concise and evocative, and should entice any curious gardener to try it. Like *Stachys*, this plant, by itself, will never rival a delphinium, and will be left in the dust by even the most modest shrub rose. But *Nepeta* is eminently useful and, for that reason, is right up there on my list of favorite plants.

Nepeta mussinii grows from 15 to 18 inches high and bears neat, small-leaved foliage. In late spring and early summer, a sprawling mass of flower spikes in varying shades of blue appears. While many catalogues still state that *Nepeta* will bloom all summer, such statements are optimistic or unrealistic. The most successful approach to prolonging the blooms seems to be a thorough shearing of at least half of the flower stalk. This method encourages a second, though less spectacular, bloom. Like *Stachys*, *Nepeta* prefers a well-drained soil that is a bit on the dry side, though it will also thrive in the average border.

Selected forms and hybrids include *N. mussinii* 'Blue Wonder', which has a more compact and uniform growth, and grows 12 to 15 inches high; *N. × faassenii*, a sterile hybrid that does not self-sow and is often confused with and sold for *N. mussinii*; and *N. mussinii* 'Six Hills Giant'.

Certainly the most popular use of *Nepeta* in all its forms is as an edging. *Nepeta*

can be planted in continuous lines as an edging for rose gardens, herbaceous borders, and terraces, and as an underplanting for shrub and climbing roses. It blooms with many roses and is a reliable complement to a wide range of rose colors, from deep scarlet to pink and salmon. Only with white roses is *Nepeta* not effective. It is also pleasing with *Iris* in just about any color (except for those lurid purple-pinks) and *Geranium endressii* 'Wargrave's Pink'. And *Nepeta* is just the thing for softening the hard edge of steps or the top of a wall, where it can billow over.

Another plant useful for softening edges is *Alchemilla vulgaris*, or lady's-mantle. In England, it is a rare garden that doesn't have its share, or more, of this plant. In the British Isles, where the weather tends to be a bit moister than in most of the United States, it self-seeds in cracks in terraces, in between stones in walls, and just about anywhere it can get a foothold, in full sun or partial shade. If allowed to have its way, *A. vulgaris* not only softens edges of a terrace but can envelop an entire path or terrace. Still, it is not so much invasive as it is enthusiastic. Unlike goutweed (*Aegopodium podagraria*) and other such menaces, its roots will not infiltrate an area, and if the faded flower heads are removed, it cannot self-sow.

In my New England garden, the soil is usually reasonably moist, so *A. vulgaris* thrives in full sun. In the Midwest, where soil bakes solid about midsummer, some gardeners I know grow it in partially shady areas and enrich the soil with humus and locally available manure.

Like *Stachys* and *Nepeta*, *Alchemilla* is an excellent linking plant. Surprisingly, its chartreuse flowers combine well with everything from *Delphinium* to evergreen shrubs. When its rather brief bloom has passed, its flower stalks tend to flop all over the place, particularly after a heavy rain. Then, sometime in midsummer, it can be grabbed by the handful and cut right back to the new leaves that form at the crown. These round, gray-green leaves are folded like miniature fans and, when open, have a velvety surface where dew and light rain settle in pearl-like drops. Even when *A. vulgaris* is not in bloom, its foliage makes it worth having around all season. ♀

—Margaret Hensel

Margaret Hensel, a landscape designer and consultant, lives in the Berkshires in western Massachusetts.



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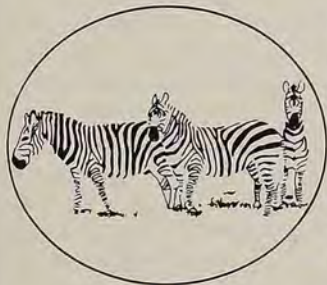


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Book Reviews

The National Trust: A Book of Gardening.

Penelope Hobhouse. Little, Brown and Company. Boston, Massachusetts. 1986. 256 pages; hardcover \$29.95. AHS member price, \$26.95.

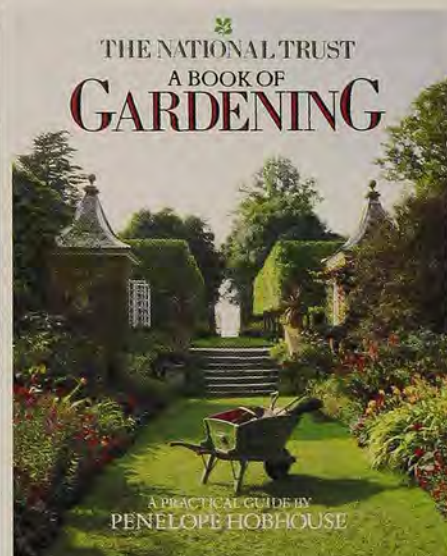
Great Britain's National Trust manages some of the world's most beautiful gardens. Sissinghurst, Stourhead, Wakehurst Place, and Hidcote Manor are perhaps some of the best-known of the Trust properties, but all of the Trust gardens have been looked to for inspiration by gardeners the world over. Many books have described these gardens, but Penelope Hobhouse (author of *Color in Your Garden* and the individual responsible for the upkeep of the National Trust garden at Tintinhull House in Somerset, England) has taken a different approach. This is a book about how the principles of gardening are applied in the National Trust gardens.

In addition to drawing from her own experience, Hobhouse has interviewed head gardeners at a variety of Trust gardens, and presented their knowledge and experience in a text that is intended to help bridge the gap between the theory of garden design and its practice. The book includes detailed drawings of borders, plant lists, and maintenance programs, as well as tips and comments from many head gardeners about the gardens themselves.

The book is divided into chapters on a variety of specific topics. "The Garden Framework," for example, includes sections on "Structural Planting," which deals with hedges, avenues, pleaching, arbors, and tree tunnels; "Planting in Patterns," discusses topiary, knots and mazes, and parterres. The chapter entitled "Garden Features" covers borders, rose gardens, herb gardens, and water. There are also chapters on garden walls and informal planting. The final chapter, "Practical Maintenance," includes sections on lawn care, machinery and equipment, soil sterilization, winter protection, and compost.

The National Trust's *A Book of Gardening* is beautifully illustrated with color photographs. An index and maps locating the gardens are also included.

In addition to being a valuable bridge between the theory and practice of gar-



dening, *A Book of Gardening* would be an excellent text to read before or after visiting Trust properties. It would certainly give visitors an appreciation for the work that goes into these beautiful gardens.

Acetaria: A Discourse of Sallets.

John Evelyn. Still Point Press. Dallas, Texas. 1985. 149 pages; hardcover \$200.00. AHS member price, \$180.00.

This unique book will appeal to bibliophiles and garden history buffs. *Acetaria*, initially published in 1699, is the first book written in English on the subject of salads. This new edition is a fine quality, limited-edition printing of 300 copies. (The books were printed by letterpress on French mold-made paper. The 6½- by 9½-inch books are hand bound with quarter-morocco leather and tips, a leather spine label, and sides decorated with a pattern based on an 18th-century German gilt paper.)

Author John Evelyn is perhaps best known for the diaries that he kept all of his adult life, which have been an invaluable aid to historians studying daily life in the 1600's. Evelyn, who was an early environmentalist as well as an avid gardener, published several books, including a discourse on forest trees and a gardener's calendar. *Acetaria: A Discourse of Sallets* represents 40 years of collecting information on growing and harvesting salad plants. The majority of the text is devoted

to discussions of the use and characteristics of over 70 salad plants. General gardening information and an appendix containing various recipes are also included. This book presents a fascinating look at the gardening and culinary trends of times past.

The Scented Room.

Barbara Milo Obrbach. Clarkson N. Potter, Inc. New York, New York. 1986. 132 pages, hardcover, \$17.95. AHS member price, \$13.45.

Potpourris, herb wreaths, dried flowers, and pomanders have experienced renewed popularity in recent years, and the growing interest has been reflected in an ever-growing number of publications and businesses devoted to herbal products. *The Scented Room* contains information on making and using a wide variety of herbal products. In addition to providing recipes for potpourris, sachets, scented pillows, pomanders, lavender bottles, and a variety of other scents, the author has included chapters on growing and gathering flowers, wreath-making, and making dried flower arrangements. Perhaps the most important feature of this book is the lovely photographs, which serve as an excellent indication of how these projects can be presented.

The author is owner of a home-furnishing store in New York City, and has been creating herbal products for 10 years.

Orchids from Curtis's Botanical Magazine.

Samuel Sprunger, Editor. Cambridge University Press. New York, New York. 1986. 525 pages, hardcover, \$150.00. AHS member price, \$117.75.

Since its first publication in 1787, *Curtis's Botanical Magazine* has been known for its lavish, hand-colored illustrations of plants. The magazine has long been known for the quality and the accuracy of its plant portraits. From 1787 until 1948, illustrations of nearly 1,200 species of orchids appeared in Curtis's, and all of these—1,176 to be exact—appear in this lavish book. The illustrations take up the vast majority of space, but updated nomenclatural information is also included. (The text that originally accompanied the illustrations when they were first published has not been included.) This is primarily a book for orchid fanciers and for individuals interested in botanical illustration. 🍀

—Barbara W. Ellis

Barbara W. Ellis is Publications Director for the American Horticultural Society.

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Pronunciation Guide

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ee-go-POE-dee-um poe-dah-GRARE-ee-ah

Alchemilla vulgaris
al-keh-MILL-ah vul-GAIR-iss

Andredera baselloides
an-DRAY-der-ah bass-el-oh-EYE-deez

A. cordifolia
a. core-dih-FOE-lee-ah

Aplectrum hyemale
ah-PLECK-trum hy-eh-MAL-ee

Aquilegia canadensis
ak-qui-LEE-jee-ah can-ah-DEN-sis

Aralia nudicaulis
ah-RAIL-yah nu-di-KAUL-iss

Arecastrum romanzoffianum
are-ee-CAST-rum
row-man-zoff-ee-AY-num

Asclepias tuberosa
ass-KLEE-pee-us too-bur-OH-sah

Aubrieta aw-BREE-shah

Baptisia australis
bap-TEE-zee-ah aw-STRAIL-iss

Basella alba bass-EL-ah AL-bah

Begonia boliviensis
be-GOAN-yah bow-lih-vee-EN-sis

B. clarkei b. CLARK-eye

B. crispa marginata
b. CRIS-pah mar-jin-AY-tah

B. davisii b. dah-VIS-ee-eye

B. × lloydii pendula
b. LOY-dee-eye PEN-dew-lah

B. rosiflora b. rose-ih-FLOR-ah

B. × tuberhybrida b. too-ber-HI-brid-ah

Boussingaultia bows-sin-GAUL-tee-ah

Butia capitata
BOO-tee-ah cap-ih-TAY-tah

Caltha palustris KAL-thah pah-LUSS-tris

Campanula persicifolia
kam-PAN-yew-lah per-sis-ih-FOE-lee-ah

Cercis canadensis SIR-sis can-ah-DEN-sis

Chamaedaphne calyculata
kam-ee-DAF-nee kal-ee-kul-AY-tah

Chamaerops excelsa
KAM-er-ops ex-SELL-sah

C. fortunei c. for-TUNE-ee-eye

C. humilis c. hue-MILL-us

Clintonia umbellulata
klin-TOE-nee-ah um-bell-you-LAY-tah

Collinsia verna kol-LIN-see-ah VER-nah

Cypripedium calceolus
sip-rih-PEE-dee-um kal-see-OH-lus

Delphinium tricorne
del-FIN-ee-um try-CORE-nee

Dictamnus albus dick-TAM-nus AL-bus

Dodecatheon meadia
doe-dee-KATH-ee-on me-dee-ah

Epiphyllum ep-ih-FILL-um

Gaylussacia brachycera
gay-lew-SACK-ee-ah brack-ih-SER-ah

Geranium endressii
jer-AY-nee-um en-DRESS-ee-eye

Helonias bullata
hell-OWN-ee-us bull-AY-tah

Hoya HOY-ah

Hydrastis canadensis
hi-DRASS-tiss can-ah-DEN-sis

Hydrophyllum canadense
hi-drow-FILL-um can-ah-DEN-see

Iris cristata EYE-riss kris-TAY-tah

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Mertensia virginica
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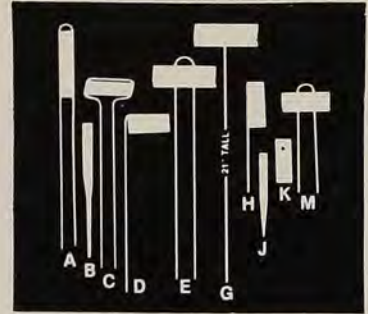
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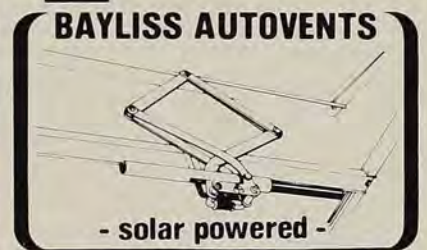
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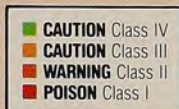
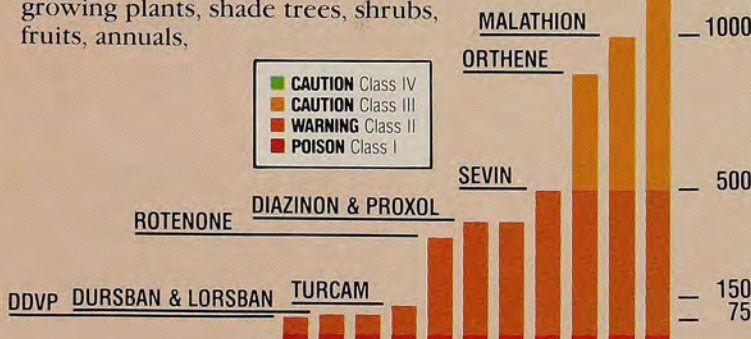
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