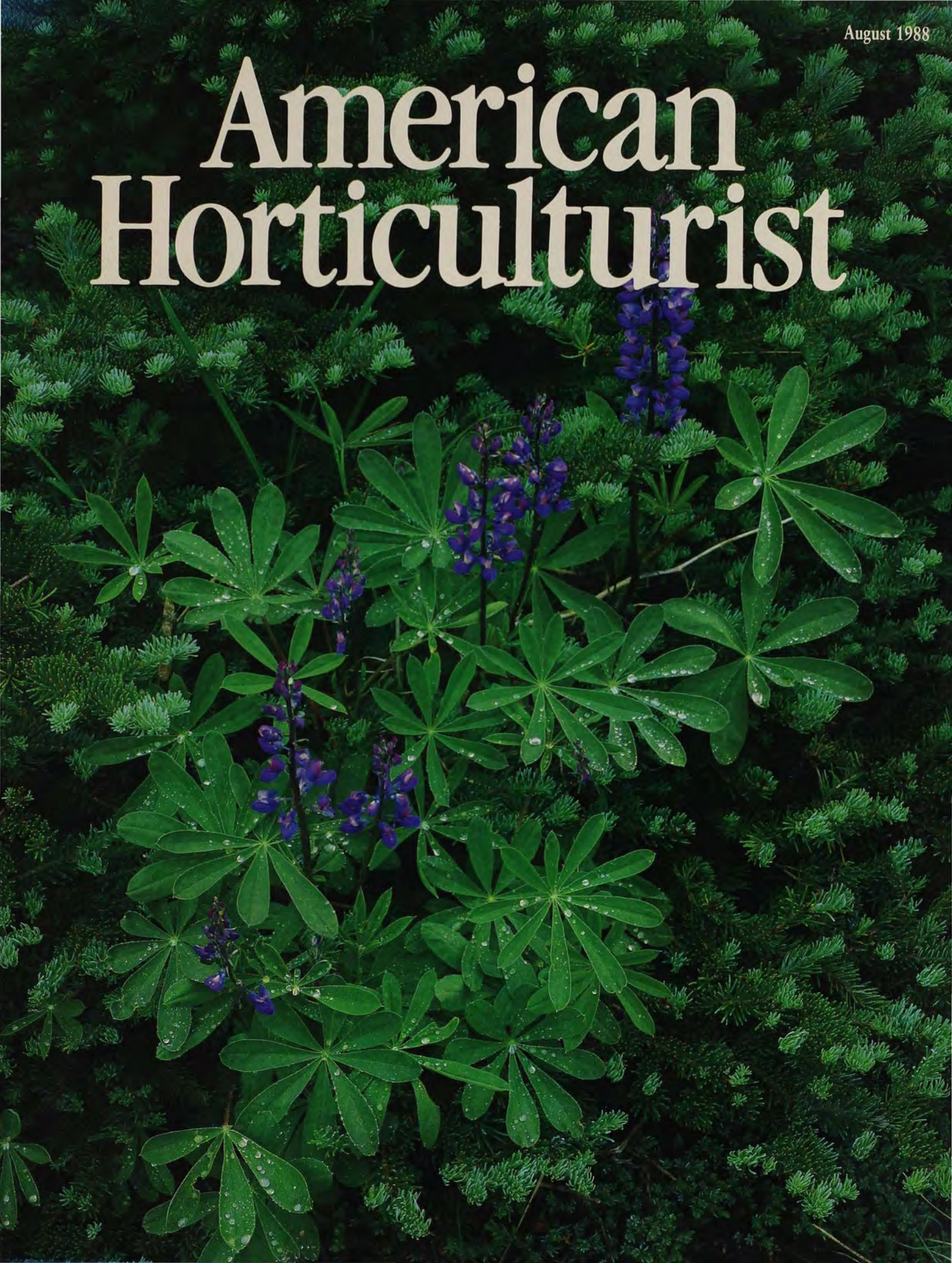


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American Horticulturist





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Left: Here on New Zealand's remote Titoki Point, Gordon Collier, author and plantsman, works in his bog garden amidst a sea of lush, water-loving plants. New Zealand's gardens are unique in their combinations of unusual natives with plants from the world over. Join a tour through this verdant country's finest private gardens by turning to page 14.

On the Cover: The brilliant blue blossoms and glossy green leaves of August-blooming lupines are seen in their native site high in Washington's Olympic Mountains. They are also represented among the many wildflowers displayed with breathtaking clarity in a new book, *Wildflowers Across America*, reviewed on page 42. Photograph by Pat O'Hara.

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Nurturing a Tradition

One of the greatest traditions of gardeners is sharing. They are notably generous: exchanging plants, information, the first corn or tomato, and the best way to foil rabbits! Great gardeners have long had an enormous influence on new gardeners and on younger gardeners. Stories are legion about young persons whose lives have been directed by a generous gardening friend. Great gardeners, in turn, always point to an older friend as the mentor who focused their lives.

The questionnaires gathered at the recent Annual Meeting in Atlanta support the fact that gardeners came, first of all, to associate with fellow gardeners; the location, speakers, and educational sessions were secondary—much to my surprise. We all want to learn from real-life experiences to enrich our book-learning!

My mother-in-law, the late Mary Hunter Marsh of Wilmington, Delaware, loved children and new gardeners. She contributed to their growth by nourishing their early interest in gardening and the plant world. She never arrived at our house without a plant for each grandchild, plus a trowel to get it planted. One of her favorite young gardeners is Bill Frederick, who became a trustee of Longwood Gardens, a noted author and speaker, and an acclaimed garden architect.

And so, gardening friends, let's all keep this tradition alive and flourishing. A membership in the American Horticultural Society may establish the bond that inspires a younger gardener—perhaps your own son or daughter, a neighborhood child, or your grandchild.

Carolyn Marsh Lindsay

The Great Escape: AHS Travel for 1988-89

October 2-8, 1988 New England Autumn Display

Visit the great houses, gardens, and museums of New England as we follow the breathtaking foliage trail from Stockbridge, Massachusetts to Shelburne, Vermont.

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March 22-29, 1989 Pacific Coast Gardens

Travel from San Diego to San Francisco on this horticultural visit to botanical and private gardens of California, with excursions to the Hearst castle and the San Miguel Mission.

For further information contact Liz Smith, AHS Special Events, (703) 768-5700.



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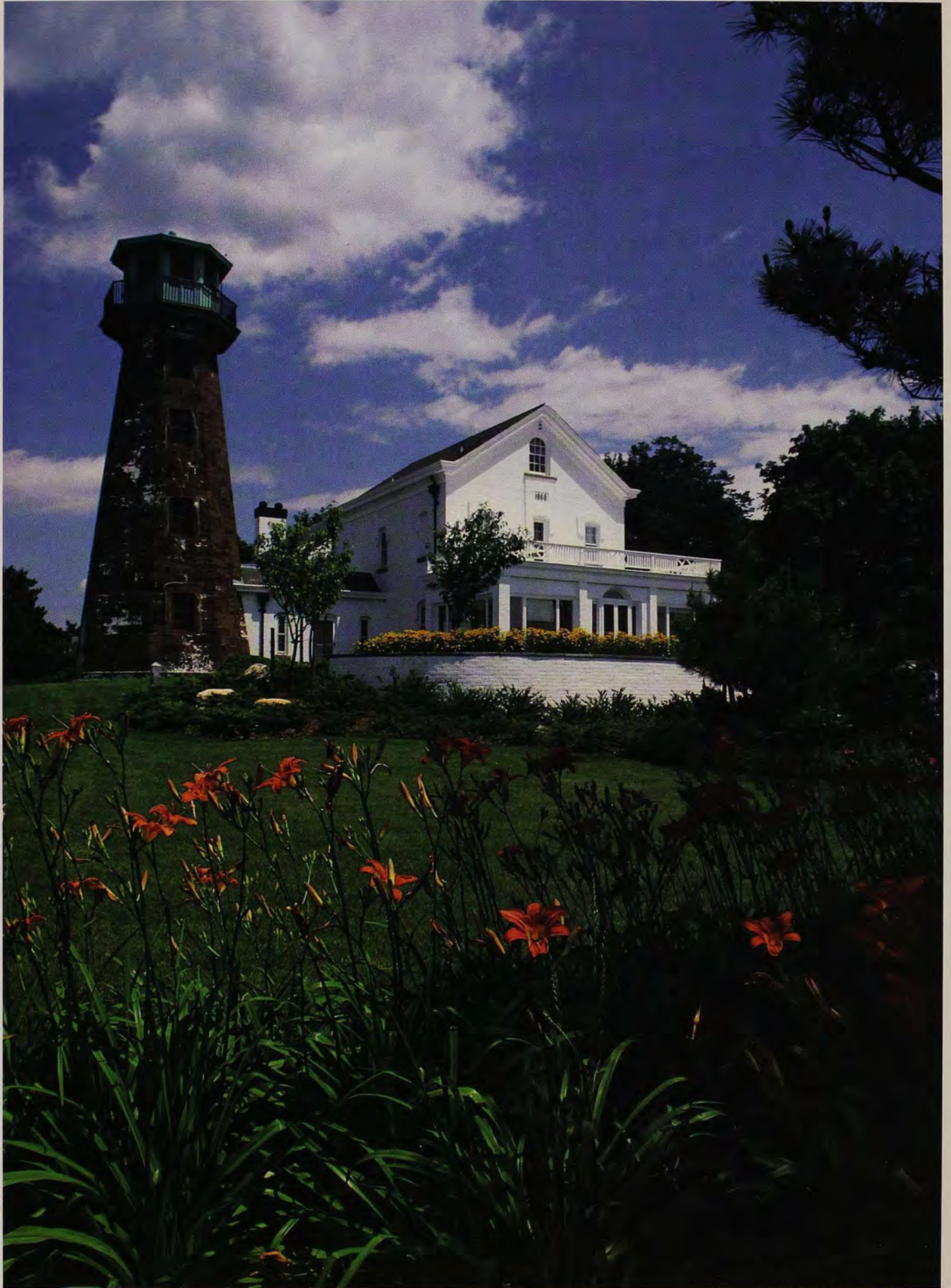
Soviet Union will include the botanical gardens of Moscow, Kiev, and Leningrad, as well as the alpine plants of the Teberda Nature Preserves on the northern slopes of the Caucasus. Leader of the tour will be Erastus Corning III, fluent in Russian and a specialist in travel to the U.S.S.R. The group will be accompanied by a botanical expert familiar with the flora of the U.S.S.R.

Corning Tours, Box 431, Albany, NY 12201 (518) 463-2160

October 7-14, 1989 Cruising the Hudson River

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Photos courtesy of the National Landscape Association

Enhancing the View



LEFT: This uninterrupted view from shore to house is enlivened by a white wall and colorful annuals. ABOVE: Upper-level decking enhances the scene below. Note how the two trees frame the walkway.

All too often, the homeowner thinks a landscape design for a new home or the renovation of an older, overgrown landscape is a simple exercise in two dimensions. But a landscape is *not* two-dimensional; it is more than the proper selection of plants, their correct spacing on paper, and the execution of the plan. When designing a landscape, it is important to look beyond the plants themselves and consider how plantings can be used to create and enhance the view of the house from the grounds, as well as the view of nearby natural features from inside the house or from the garden.

Emphasizing a Water View

You may be fortunate enough to have a natural feature, such as a body of water

or a valley, within view of your home and garden. If you do, take full advantage of it.

A rather sizeable lakefront property, designed and landscaped by a nursery in Tennessee, is an example of a functional and pleasing landscape, creating areas for entertainment and recreation while taking advantage of the natural features of the site and its views. A deck cantilevered from the second level of the back of the house, which faces the lake, was planned to be the new center of family outdoor activity. Although the height of the deck automatically increased the view, several other steps were taken to gain even more from the site's natural beauty. First, two old spruce trees that were blocking the view were removed and replaced with other trees that

were set further to each side of the line of sight. The result was a framing of the view.

The vertical lines of the trees used for framing repeat the verticals of the nearby wooded area. This results in a strong feeling of unity—a concept important in any landscape design—by allowing the newly planted trees to flow into their surroundings.

This technique does not mean that the use of specimen trees as accents or focal points is not an important function of landscape design. Even when a specimen is chosen for some aspect of its beauty, such as its shape, flowers, or fall color, it must not be a distraction but should appear as part of the overall design, with the eye moving to it and beyond to the other landscape features.

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THE DESIGN PAGE

On the lake side of the house there is a sunning platform and dock made of the same type of wood as the deck—again to achieve unity—and it is defined by stone, which is also repeated in other areas of the landscape. The platform, because of its design, blends into the view rather than being dominant when viewing the lake from the house. Conversely, the view of the house, framed with the same trees, is appealing to anyone arriving by boat.

All too often, decks and patios are completed before anyone gives a thought to how they will appear from the outside.

To hide the construction of the deck and the foundation of the house, latticework was added on all sides under the deck. This same latticework also forms a wall along a stone walkway which leads from the front of the house to the steps leading to the deck at the back. At the end of the walkway is a large mugo pine which obstructs the view of the lake from the path.

The narrowness of the path and the placement of the pine is critical to the design. There was surely room to create a wider path, but as you come to the end of the snug path, the result is an immediate opening up of the view of the lake. The designer's use of the element of surprise intensifies the contrast between small and vast and illustrates another important concept in creating a landscape.

At a Long Island location, several challenges arose when a nineteenth-century brick Colonial with a lighthouse adjacent to the residence was restored. The large property was surrounded by water on three sides. Although the view of Long Island Sound was breathtaking, it needed enhancement. The owner also wanted several distinct areas defined for family use.

A place for a bluestone terrace was carved out of the extensive lawn, and a retaining wall of white brick was installed to match the white house. Plantings, including space for annual color, were added on the top of the wall. Walking across the lawn from the house, one has a view of the water framed by trees, adding a dimension that

would have been lacking if only an unobstructed panorama of the water greeted the viewer. Walking beyond the terrace to the water's edge and looking back, the view of the house is strengthened by the white brick wall and the colorful annuals on top of it.

To improve the view from the house, plantings were added in selected spots along the water's edge. Pines, which tolerate the salt spray well, were used throughout for framing and for strength. This plan shows the impact of planting in masses separated by open areas rather than planting the entire perimeter of the property or leaving the area empty.

Enhancing by Restricting

Take a cue from the professionals regarding expansive views; most feel that by themselves they have low impact. In Miami, a twelfth-floor penthouse garden was purposely designed to have a restricted view by incorporating trees and overhead trellises for increased interest. The trellises also create shade from the hot sun, and the pines double as a screen from the salt spray.

An alternative to restricting a view is demonstrated in a Minnesota lakefront design where impact was increased by framing the lake, as seen from the deck, with several carefully-placed trees. A Boise, Idaho, home with a 180-degree view of mountains and valleys had a wide allée created. From the house, clusters of large trees on both sides of a long, narrow lawn obstruct the view to the side, thereby focusing eyes on the view ahead. Progression and flow of plants is another design concept put into use in this example.

Privacy

Many homeowners want privacy from the road, yet require that their own view of the surroundings not be blocked. A Long Island, New York, designer achieved this by constructing a decorative wall at the entrance to the driveway. It matched the style of the house and added interest while providing a screen from passersby. As a visitor enters the curved driveway, the view of the house is further hidden by a weeping white birch, selected pines, low junipers, and yuccas. But as the driver continues around, the full impact of the landscape comes into view. It is enhanced by a parking area of inlaid brick which further creates unity by being continued to the entrance of the house.

Before you select the location of a new



ABOVE: A gazebo serves as a focal point in this garden, enhancing the view from a distance and providing a place to relax and enjoy the garden.

RIGHT: Pine trees and massed low plantings add interest by restricting an extensive panorama of water.



patio, deck, or other outdoor-living area, take a walk around. Study the potential views from inside the house. It may be that you want to create your new outdoor area as a separate entity and don't care to view it from inside. If this is not possible, the addition of screening plantings may solve the problem. But if you desire the reverse, selective pruning of trees and shrubs may open up the view.

All too often, decks and patios are completed before anyone gives thought to how they will appear from the outside. Take a look from several outside angles. If a particular area affords a better view than another, work with it; if its location means a loss of privacy from the street, you will have to incorporate fencing or hedging.

On one property where there were two good views over the bluff above a river, the owners took advantage of both by laying out the patio at the far end of the property and adding a smaller section with benches at the point of closer viewing.

Placing the Pool

In New Haven, Connecticut, owners wanted a formal English garden and a swimming pool at the back of their house without intruding on the New England fall and winter views of the rest of their property. The approach taken was to make the pool a strong water feature in the garden, so it was edged in brick in the same color tones as the house and planted to pool's edge on two sides.

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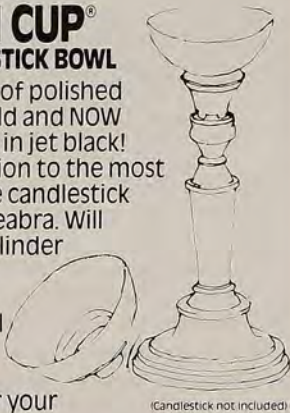
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THE DESIGN PAGE

The living room of the L-shaped house opens onto a terrace, a left turn leading down to the formal garden and pool. From the bedroom windows, the view looks directly onto the pool, the garden, and the countryside beyond. Low-growing hollies planted in front of the bedroom windows create interest between the pool and the house while not obstructing the view from the window to the garden.

For nearly two decades, the National Landscape Association, headquartered in Washington, D.C., has been honoring outstanding residential landscape projects designed and executed by professionals. This article describes several sites that were chosen for national recognition through the Association's Annual National Residential Landscape Award Program.

To comply with local zoning regulations, a four-foot "fence" of yews was added to define the perimeter of the formal garden; they are low enough not to block the view of the rest of the property. Soil was excavated so that the terrace and pool are several steps below the house. The eye can therefore see over the yew hedge and enjoy the view beyond.

Creating the View

Lucky are those building a new house who can locate the residence on the property in accordance with the best views and then add to it to enhance those views. A Raleigh, North Carolina, homeowner situated a house where a golf course and lake would be in view, yet the house would not be seen by the golfers on the fairway.

Several distinct areas were added to the property, including a deck, a pool, a trellised spa, and a dog run. The entire landscape follows the principle of contrast, with large, open areas next to tight, confined "rooms;" areas open to the sky next to areas with a lacy trellis overhead; high decks overlooking lower terraces. All of these are good techniques for creating and enhancing views.

Where no natural features exist, correct placement of plants and a garden accent will carry the eye to a focal point away from the viewing area, creating the illusion of distance. The element of surprise is important; it creates something to be seen. Achieve this with design elements such as

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the placement of paths and island beds.

Remember that straight lines may be the shortest distance between two points but not necessarily the most attractive when laying out walkways within your garden. Try a technique used by a Long Island designer. He laid out the path from the house to the pool with a unique alignment including a sudden bend, which causes one to stop and take in the view of the pool and cabana. Sometimes it is the unexpected that makes for a delightful experience.

Trellises or arbors covered with roses, wisteria, or bougainvillea can be used to limit the view, only to open up a magnificent vista at their end. When designing with views in mind, the idea of concealing and revealing is very effective.

Garden Accents

Don't be afraid to use some sort of showpiece that accents a view. For example, a sunken flower garden was added to a large, sprawling property in New Jersey. The garden was circular with a stately lawn in the center. From the house, the view of the garden directly in front, although in the distance, is charming throughout the seasons. The most deliberate—and delightful—part of the view, however, is the placement of a gazebo at the rear of the circle. It enhances the view of the garden from the house and also serves as a spot for closer viewing of the flower borders around it.

Views can be created and enhanced with the use of color. Where a sweeping panorama exists, which was the case at a home in Dallas, Texas, plantings were added in a monochromatic theme—in this case pink—with crape myrtles as the primary plant. Flowing beds and an expressive use of rocks added depth to the panorama and at the same time lent an open, spacious feeling, extending the color scheme. Planters and beds filled with bright annuals are also effective in drawing the eye to an area worth viewing.

Whether it is the removal or addition of plants, framing by a few or by masses of trees and shrubs, use of the element of surprise, use of color, or study of the line of sight, all these possibilities are worthy of being considered when your goal is to create the most effective landscape for your home.

—Ann Reilly

Ann Reilly is a freelance writer and photographer.

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Vitaceae, the Vine Family

Legend and myth, literature and history are replete with references to “the vine,” and without exception, the vine referred to is the grape. Botanically, the grape is a member of the Vine family (Vitaceae), which is celebrated primarily in one species, *Vitis vinifera*, the grape vine—age-old provider of wine and fruit. There are over fifty *Vitis* species—fruit-bearing, ornamental perennial vines climbing by tendrils—but *V. vinifera* is the one that has achieved the world’s acclaim.

The growing of grapes and the making of wine go back 6,000 years. Records of grape cultivation and wine-making appear on the tomb of Ptah-Hotep, who lived in Egypt in 4,000 B.C. At first, the grape vine was allowed to sprawl on the ground. Legend relates that the Egyptian deity, Osiris, taught men to train the vine to poles, to prune its superfluous foliage, and to ex-



The porcelain berry's dense clusters of fruit change gradually from pale lilac or green to turquoise.



Photos by Pamela Harper



PREVIOUS PAGE, LEFT: *Ampelopsis brevipedunculata*. RIGHT: The brilliant fall foliage of Virginia creeper (*Parthenocissus quinquefolia*) is frequently seen on the "ivy"-covered walls of American universities. THIS PAGE, ABOVE: *Vitis vinifera* 'Purpurea', a cultivar of the age-old European wine grape, has claret-red young leaves maturing to a dull purple. BELOW: Perhaps the most spectacular and vigorous of the ornamental grapes, *Vitis coignetiae* can soar into tree tops and cascade downward.

tract the juice of the grape. In a papyrus of 1,550 B.C., Osiris is depicted sitting in a shrine from whose roof hang clusters of grapes. Best known, though, as a personification of the vine and of the exhilaration produced by the fermented juice of the grape is the classical god, Bacchus. Pliny, the Roman author, wrote that from about 130 B.C. grape-growing flourished in the Roman empire. As the crops increased, efforts were made to induce the water-drinking Romans to drink wine. Wherever Roman merchants or soldiers went, Rome's wines became known.

In North America, after many unsuccessful attempts to cultivate European grapes, the colonists turned to wild American species, notably *Vitis labrusca*, which impressed them with its vigor. In the nineteenth century, selection and hybridization culminated in cultivated varieties, including the famous Concord grape. Other native American species used in hybrid-



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STRANGE RELATIVES

ization were *V. aestivalis*, pigeon grape, and *V. rotundifolia*, muscadine or scuppernong.

Today, *V. labrusca* is the most important of the American native species involved in the hybrids that are termed American cultivars—the mainstay of grape growing east of the Rocky Mountains. In California, and in some other western states, grapes are commercially produced for three end products—table grapes, raisins, and wine. Grapes grown for fruit are mainly hybrids of native species or hybrids of western European wine grapes. The vineyard grapes of California and western North America are derivatives of European wine grapes, *V. vinifera*; the muscadine grape, *V. rotundifolia*, is grown commercially in the southern states. Because of the great variation in winter hardiness and in susceptibility to certain devastating diseases, regionally adapted cultivars must be grown, and grape growers are referred to state agricultural extension services or agricultural experiment stations for current recommendations.

Among the numerous *Vitis* species other than the versatile, edible grape are several with ornamental qualities, especially colorful autumn foliage. The renowned plant explorer, E. H. Wilson, in his book *Aristocrats of the Garden* wrote: "Of climbing plants with handsome leaves no class exceeds in vigor and beauty the grapevines (*Vitis*), and their merits deserve recognition. Many beautiful species are natives of this country, but noblest of all is *V. coignetiae* from northern Japan. This vine has broad, heart-shaped leaves of enormous size and substance, dark green and netted above with a felt of brown hairs on the underside and in autumn they change to scarlet and crimson. . . . The fruit is jet black, globose and edible." This species is known as the Japanese crimson glory vine. Another equally hardy species, though less vigorous and with smaller leaves, is *V. amurensis* from eastern Siberia. From China comes *V. davidii*, which has prickly shoots and large, metallic-green, heart-shaped leaves, pale on the underside and changing in the autumn to scarlet and crimson—a vigorous vine with black edible fruit.

Twelve genera make up the Vine family, some of which are cultivated for their horticultural merit and are familiar as garden ornamentals and vining houseplants. Though it may seem strange to find them mentioned here as grape relatives, these vines do in fact exhibit the family char-

acteristics. They are vigorous perennial plants, climbing by tendrils; the tendrils are modified shoots that twine or may end in disks or suckers, enabling the plant to attach itself to a support; leaves are alternate and simple or compound; flowers are small and insignificant except in botanical classification; stems are swollen at the joints; the fruit is a berry. Among the relatives prominent in American landscapes are *Ampelopsis* and *Parthenocissus*.

Members of the *Ampelopsis* genus do not attach themselves by adherent pads; the vine must be given the support of a lattice or wire on which the forked tendrils can twine. These plants are esteemed for their foliage. E. H. Wilson wrote "in foliage the most delicate and attractive and in fruit among the most beautiful of all climbers is *Ampelopsis aconitifolia*. . . . This is a plant from North China with delicate, palmately compound leaves and fruit that turns from yellow to orange and later, to purple."

A native American *Ampelopsis* is the pepper vine, *A. arborea*. It has a bushy look, its tendrils being small or absent. It is native from Virginia south to Florida, Texas, and Mexico.

Ampelopsis brevipedunculata, the porcelain berry, comes from northeast Asia. It is a vigorous, tendril-climbing vine with simple, undivided, three-lobed leaves. Small, dense clusters of fruit change gradually from pale lilac or green to turquoise; each cluster may contain berries in all stages of ripeness. The cultivar 'Elegans' has leaves marbled green and white and, sometimes, pink.

Parthenocissus species climb by tendrils, often with disk-like tips or suckers. Leaves may be unlobed, palmately lobed, or compound. The fruit is black or blue-black. These species are remarkable for their brilliant autumn coloring. Best known is Virginia creeper or woodbine, *Parthenocissus quinquefolia*. It is a high-climbing, woody vine, attaching itself to any support with disk-tipped tendrils. Its compound leaves consist of five leaflets, dull green above and pale beneath. It is a hardy native vine, growing in the northeastern United States and as far south as Mexico.

In contrast, from China comes the vine known in America as Boston ivy. It is *P. tricuspidata*, another high climber with disk-tipped tendrils. Glossy leaves, which may be as much as eight inches across, are three-lobed, not compound. The fruit is blue-black. One much-used cultivar is 'Lowii', which sports purplish foliage when young;

its small leaves, one and one-half inches long, are its chief attraction.

The largest genus in the vine family is *Cissus*, a group of about 350 tropical or subtropical vines or shrubs, some of which are tendril-bearing. Their leaves may be either simple or palmately compound; the fruit is an inedible berry. Members of the genus *Cissus* were formerly thought to be types of grapes because their flowers and tendrils were so similar. The confusion persists in the common name, grape ivy.

Among the best small vines for indoor gardening are three *Cissus* species, also used as ground covers and lattice coverings in southern California:

- *C. rhombifolia*, grape ivy or Venezuela treebine, which bears long, hairy stems with forked tendrils. The leaves are trifoliate, with leaflets one to four inches long; the margins are coarsely serrate; the leaflets are glossy above, often with silky hairs beneath and on the petioles and young stems.

- *C. striata*, miniature grape ivy, a small evergreen from southern Chile and Brazil that will withstand occasional frost.

- *C. antarctica*, kangaroo vine, a woody climber from Australia whose glossy green leaves are simple, fleshy-leathery, entire and irregularly toothed.

Another interesting species is *C. discolor*, trailing begonia, rex begonia vine, or begonia cissus, an Indonesian species. Its common names are a clue to its leaf color or patterns. Its large, heart-shaped, simple leaves, four to seven inches long, are of striking coloration—velvety-green with silvery-white or pale pink blotches between the veins and deep crimson underneath. Climbing by delicate tendrils, it makes a handsome conservatory vine.

The genus *Rhoicissus*, a tendril-bearing evergreen vine, is native to tropical Africa and South Africa. Its leaves are simple or palmately compound. The difference between *Cissus* and *Rhoicissus* is that the flower parts of *Cissus* are arranged in fours and in *Rhoicissus* they are in fives.

The importance of the Vine family to our enjoyment of living is apparent from this brief review of its merits. Vines are treasured for their visual attractiveness, for the products they add to our eating and drinking pleasure, and, to the horticulturist, for their range of fascinating species in cultivation.

—Jane Steffey

Jane Steffey is an editorial advisor to *American Horticulturist*.

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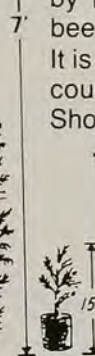
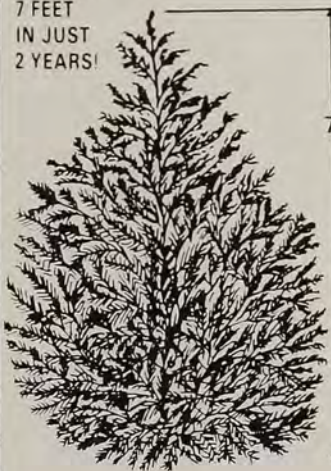


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Beneath the Long White Cloud

TEXT BY RUBY WEINBERG

PHOTOGRAPHY BY MARTIN R. WEINBERG

Imagine a garden in which Himalayan poppies encircle American mountain laurel, Japanese azaleas are massed beneath Australian gum trees, and South African everlastings cascade from a rock wall along with Swiss alpiners. In New Zealand such dramatic combinations of plants from a wide variety of habitats are a frequent sight. Because of the temperate climate, the Kiwis (as New Zealanders call themselves) are able to fill their gardens with international treasures, but in doing so, they may have neglected to appreciate the ornamental qualities of their own flora. Now, “preservation by cultivation” has become a national theme, and the addition of native plants to the home landscape has brought a distinctive look to New Zealand gardens.

At Pukeawa, Barbara and Brent Jury combine unusual plants from all over the world with New Zealand natives in a massive rock garden.

The Maoris (MAW-REES), Polynesians who were the first human beings to inhabit the Southern Pacific islands that now compose New Zealand, called it Aotearoa, usually translated to mean "land of the long white cloud." But beneath the long white clouds that one sees when arriving by plane, it is green. Over eighty percent of the country is a composition of green corrugated hills and rounded green mountains. The three main islands—North, South, and Stewart—all possess a climate similar to that of our Pacific Northwest, but it is the plentiful, annual rainfall that really accounts for the verdure that covers

most of the country. It is a green-thumber's paradise.

When my husband and I journeyed to New Zealand last year, we were especially interested in visiting private gardens that would demonstrate how the Kiwis are incorporating native plants, just as Americans are now discovering and utilizing their endemic flora. We were welcomed to quite a few such gardens because the warmth and hospitality of the Kiwis is an extraordinary and unforgettable experience.

In a western suburb of Auckland, called Titarangi, the home of Keith Thompson and his late wife, Jan, is on three acres of steep native bush. Their modern frame house was built entirely with their own hands. As farmers turned professional landscapers seventeen years ago, they both



were able to visualize the use of the precipitous drop below the house that was to become their garden. This was obviously a collector's garden, and in it natives play a starring role. *Pimelea* 'Bon Petite,' or rice flower, a demure low shrub, is enhanced by dwarf conifers for companions. The mirror plant (*Coprosma repens*) also grows here. It often sports variegated foliage; the tiny, polished leaves are reflective, thus its name. It is an easy-growing native broadleaf that is handsome in the autumn when it bears a profusion of red or purple fruit.

The Thompsons' property displays several shrubs that are favorites with Kiwis everywhere. Manuka (*Leptospermum scoparium*) in its white flowering form is a common bush plant. Since the leaves were used by early settlers for a strong drink, it



ABOVE LEFT: *Cotula* 'Yellow Buttons'. LEFT: Japanese maples and dwarf conifers complement New Zealand flax (*Phormium*) along the Sanders' drive. ABOVE: *Solanum wendlandii* climbs above *Erica*, *Duranta*, and *Cerastium* in Keith Thompson's patio garden.

is also called tea plant. When a red-flowered form was found, and then a pink, hybridists worked to produce double-flowered types, including *L. scoparium* 'Keatley' with larger blooms. Dwarf cultivars, such as 'Ruru' and 'Tui' are splendid additions to rock gardens.

Pittosporum tenuifolium 'Garnettii', with white-margined leaves, is a stunning broadleaf accent in this garden. Rosy flushes in the leaves blend well with the pink flowered perennials planted below it.

Pseudopanax \times *lessonii*, a species of native lancewood, is often used in variegated forms such as 'Gold Flash'. The nine-foot-tall shrub is quite handsome, as each green leaf is surrounded by gold markings. It is doing well here in a bog with *Primula helodoxa* at its feet.

About 100 miles south of Auckland, in the countryside near the famous Waitomo Cave, live Pete and May Sanders, retired dairy farmers. Seven years ago they built a new home on their remaining 132 acres, then began to enlarge on the garden which they had started thirty-five years ago. It contains fine specimens of camellias, rhododendrons, and roses, all of which flourish in this frost-free area. But the Sanders

also use many natives, and the combinations are altogether striking. A brick wall is topped by a gnarled and ancient pink manuka surrounded by dark red roses. May had grown the roses from seed and was so surprised at the vivid color that friends named them "May's Mistake." New Zealand's native flax (*Phormium tenax*) is here in several different forms. The long stalks of the curious bronze flowers were in bloom during our visit, and for a brief moment, native birds called tuis sipped nectar from the blooms.

One of the most celebrated native shrubs, the kaka beak (*Clianthus puniceus*) is also in the Sanders' garden. Its red flowers are exquisitely intricate and were named after the beak of the *kaka*, a parrot.

Tree daisies are an unusual sight, but New Zealand has many of them. *Olearia cheesemannii*, topped by white daisy clusters, is one represented in the Sanders' borders.

Not far away, outside the village of Otirohanga, Elizabeth and Graham Robertson work a 500-acre sheep and cattle farm. Their English-style home and one-acre garden sit in a valley below their hillside farm. It is a dreamy setting where Eliza-





ABOVE: Red-flowering *Alonsoa* and *Lampranthus* set off the felted leaves of *Pachystegia insignis* in the Jurys' garden. RIGHT: A group of perennials in the same garden.

New Zealanders have come to realize that endemic plants usually establish quicker with less attention to water, fertilizer, and mulches than is required for exotics. After all, they were there first.

beth, a floral artist, has laid out a charming garden of perennials, roses, and small trees. Soft colors are carefully blended; roses climb into trees, a gazebo is centered around yellow and blue cottage flowers, and a dovecote and its birds emphasize the white plantings. In one area are Chatham Island forget-me-nots (*Myosotidium hortensia*) with large green leaves that form a splendid ground cover. Not every gardener here is successful with this beautiful plant. An unusual use of another native is the low trimmed hedge of one of the silvery-leaved *Celmisia* or mountain daisy. Placed on a rock wall, it divides an area of low alpiners.

Proceeding south to New Plymouth, one of the country's larger cities, is the winding Mt. Messenger Road, which suddenly opens upon the Tasman Sea. In the distance, snow-capped Mt. Egmont appears, a sign that one is entering the Taranaki region. A highly fertile black loam was produced by this long-extinct volcano. This, and the high rainfall of Taranaki, account for the fact that it is a leading cheese and dairy center, renowned as well for its superb gardens.

One of the first gardens that we visited here was Pukeawa, the home and nursery of Barbara and Brent Jury. Their extensive plantings contain rarities from all over the world, many displayed in a massive rock garden. Flowering natives were among them.

The poor knight's lily (*Xeronema callistemon*) had almost finished blooming when we examined its long, red, bottle-brush flowers. The plant was discovered in 1924 on an island off New Zealand's Northland. It requires a great deal of patience to grow as it takes about ten years to set flower buds.

The Jurys also grow several kinds of *Hebe*, which are usually under four feet tall. New Zealand has at least one hundred species. Most, including the whipcords with scale-like leaves, are excellent bloomers. At Pukeawa, *Hebe elliptica*, with violet flowers, contrasts nicely with a rare, yellow-leaved boxwood. Near it, sprawling on a rock, is a *Helichrysum* with gray foliage and small yellow daisies. New Zealand has several species of this alpine, but at the moment, many gardeners are growing a cultivar of a South African species, *Helichrysum petiolatum* 'Limelight'. Some species of *Helichrysum* are used as attractive house plants in the United States.

The fat buds of the New Zealand Marlborough rock daisy (*Pachystegia insignis*) had not yet unfolded when we came upon them in the Jurys' garden. But this in no way distracted from their beauty—glorious, thick green leaves with margins and central vein etched in white, plus a felty indumentum on the undersides. The Jurys use this composite as a foil against such



red flowers as the ice plant (*Lampranthus*) and mask flower (*Alonsoa*). The latter, with pretty red blooms, is from Peru. In another area, New Zealand's famous pin-cushion, *Cotula* 'Yellow Buttons', provides a rich touch of color.

In the suburbs outside of New Plymouth, Les Taylor works on his second garden with its beautiful view of Mt. Egmont. The first, in nearby Stratford, is owned by cousins who frequently consult with Taylor about maintenance. Taylor's horticultural expertise is extensive, and on a rock-walled hillside leading to a swampy valley with streams and bog plants are an incredible number of fine ornamentals.

In one area, a formal swimming pool is hedged with six-foot-tall evergreens. They are a species of the *Corokia*, admirably

suited to this use because of their tight, dense foliage. Spring flowers are yellow. *Corokia cotoneaster*, or the wire-netting bush, is another twiggy species and is now available in U.S. west coast nurseries. Taylor's garden also contains *Astelia*. The strap-like clumps of this lily relative are sometimes epiphytic, that is, it can grow on trees. Its panicles of small, yellow flowers are oddly decorative.

Taylor has planted a few native conifers which are still exhibiting juvenile growth. Most are slow-growing and look entirely different from mature specimens. The rimu (*Dacrydium cupressinum*) is one of them and has long, graceful branches. The kauri (*Agathis australis*) has a tall, cylindrical trunk that sloughs off lower branches as its crown reaches enormous heights. It is



the country's most precious endemic tree, cherished for both its fine timber and useful resin.

The native *Pratia angulata* is a charming ground cover on Taylor's hillside. Its leaves look like an American partridgeberry, but the profuse white flower, with a distinctive split between two narrow petals, is entirely different. *Pratia* bears small purple fruit in the autumn.

The looping drive around Mt. Egmont continues into Stratford where Shirley and Rob Chapman-Taylor live and tend the two-acre garden built by their cousin, Les.



ABOVE LEFT: The kaka beak, *Clianthus puniceus*. LEFT: Gordon Collier working in his bog garden under *Dicksonia fibrosa*, a native tree fern. ABOVE: Yellow *Primula helodoxa* growing beside Les Taylor's garden pool.

"Rosanagh," with its charming old pioneer house, is a cultivated woodland of camellias, rhododendrons, and magnificent roses. A large, pink-flowered manuka was in full bloom during our visit, but the kowhai (*Sophora tetraptera*) had already shed its yellow blooms. The five-petaled golden pea-flower has become New Zealand's national symbol. A few gardeners are growing its dwarf form, *Sophora* 'Otari Gnome'.

Driving on serpentine roads, some of them metal (gravel), we visited the McConichies in Ohakune. Their rock plantings are so extensive that they spill out into the adjoining roadway, and this is only a part of their garden. The house sits high above a winding drive of cobblestones; a rock wall curves along one side and a rolling lawn edges the other. Like welcoming sentinels, three tall, pencil-thin conifers almost appear to tip their caps. They are an Australian cultivar of *Chamaecyparis* called 'Swain's Gold'.

Among the many New Zealand alpinines are *Hebe*, *Celmisia*, and *Raoulia*. The latter, also called "vegetable sheep" because farmers sometimes mistake them at a distance for grazing animals, make unusual white and silvery mats.

Remote Titoki Point is a 5,000-acre property in central North Island. The Collier family raises sheep on these green hills, but Gordon, head of the family, is also a master landscape designer, plantsman, and author of many horticultural articles. Rare plants are his specialty; choice selections from his garden are propagated and sold in his small nursery.

Gordon's seven-acre hillside garden is a gallery of beautifully furnished rooms reached by climbing up or down a series of totara (*Podocarpus totara*) steps. Choice trees, shrubs, and perennials are used everywhere in delightful combinations. A bog at the deepest level is viewed from several bridges and is the home of water plants. Woodland plants, especially trilliums, hostas, and rhododendron, are Gordon's favorites, but he also uses native plants in abundance. Among the bog-loving plants is a good collection of *Gunnera*. Although most species have huge leaves, these natives are small, with interesting fruit. The garden has many kinds of New Zealand flax and another plant with gray, felted leaves called *Senecio greyi*. An entire bank is covered with *Arthropodium cirrhatum*, New Zealand's rengarenga or rock lily. The long-stemmed white flowers bring color





ABOVE: Ivy geranium and bougainvillea brighten a corner of Florence Redstone's garden. RIGHT: The subtle textures and colors of conifers create a serene setting in the Hammonds' garden.

to this area where the clay soil is especially heavy. Above the dense plantings are the tree ferns, *Dicksonia fibrosa*, with shaggy, fibrous trunks.

In the town of Marton, the Hammond family has used this same native conifer in a most unusual way. Their well-designed garden contains a hedge of the golden totara, *P. totara* 'Aurea'. Pruned to a height of ten feet, it is hard to believe that these plants could become forest trees.

Florence Redstone's home in Gisborne overlooks Poverty Bay on North Island's west coast. Captain Cook, the mariner who first charted these islands, called it "poverty" when much needed supplies were refused his ship's crew by the hostile Maoris. The area is still poor in rainfall, but this is not obvious in Mrs. Redstone's garden. Her secret is mulch. A mix of sheep "dags," sawdust, and seaweed is frequently procured and used on every garden bed to increase the moisture-holding capacity of the soil. It is quite a task for this elderly woman, but the result is luxurious with tropical plantings.

Shortly before leaving New Zealand we visited Joel Fowell's garden, a first prize

winner in an Auckland competition. It contains many giant specimens of tropical plants such as begonias and streptocarpus. According to Fowell, the soil here is completely lacking in fertility, but his application of mushroom compost, rotted horse manure, lime, and straw, mixed with peat, produces superb results.

In Fowell's rear garden, I noted that touch of whimsy for which the Kiwis are famous. He grows the native pigeonwood tree, *Hedycarya*, and within its branches he has placed a bird feeder with provisions for a flock of white, fan-tail pigeons. The birds look quite at home in this setting.

As in the United States, New Zealanders have been slow to appreciate the beauty of their native flora. But as the cost of labor increases and help in maintaining complex plantings becomes more and more a problem, the Kiwis have come to realize that endemic plants usually establish quicker, with less attention to water, fertilizer, and mulches than is required for exotics. After all, they were there first. We are all learning that with native plants a garden becomes an interesting symbol of one's country and a source of pride to be shared with all who come to visit.

Ruby Weinberg is a frequent contributor to *American Horticulturist*.







THE

BY HIRAM G. LAREW

NEEM TREE

I was on a tight schedule in Miami; my mission was to track down one of the five neem trees I knew grew at Fairchild Tropical Garden. The fruits of the tree had occupied much of my time for more than a year, yet I knew the leaves only from brittle herbarium specimens and the trees from black and white photos. The gate attendant at the Garden directed my friends and me to the neems in their collection, and as we drove up to one of the trees on the bank of a small pond there was no outward sign of the remarkable. It was just a large tree, slightly chlorotic and not particularly shapely, but as the people of India have known for centuries, it is noble in its potential.

from the commonplace to the miraculous, the presence of religious awe toward the neem is not surprising. Hindus consider the tree sacred; each New Year they eat the leaves and bathe in neem-steeped water to cleanse the body and soul. Inhaling the smoke of burning neem leaves is thought to drive out evil spirits.

Native to India, the tree has been exported to several other parts of the world, including many developing countries. Recently, three international conferences have been held to highlight the uses, benefits, and economies of growing neem for shade, fuel, feed, and sprays in Third World villages. The National Academy of Sciences calls neem “potentially one of the most valuable of all arid-zone trees” because it can grow quickly in nutrient-poor soils. Added benefits are that the leaves can be used as mulch or fodder and the seed pulp as fertilizer or livestock feed. Trees can be grown from freshly harvested seed or from cuttings, and prefer well-drained soils and full sun.

For all of its attributes, neem might have remained unappreciated in the West had it not been for the discovery of a surprising property of its seeds. A 1962 article by the Indian scientists Pradhan, Jotwani, and Rai in the journal *Indian Farming* reported that a very dilute solution of neem seed extract repelled desert locusts from feeding on sprayed plants. Word spread, for anything useful against locusts is newsworthy. It was thought that perhaps neem seeds could be used as a locally-grown, -collected, and -processed insecticide that would decrease the dependence of developing countries on more expensive and toxic synthetic insecticides.

Reports began to appear, particularly from India, suggesting activity against a wide range of insects. Chemists became interested. Drs. Nakanishi, Broughton, and

The neem tree, *Azadirachta indica*, is a member of the Mahogany family and is revered in India for uses that range from lamp oil to livestock feed. Extracts of the bark, leaves, and seeds have been used there for years in personal hygiene products such as soap, hair tonic, toothpowder, shampoo, and mouthwash. Infusions or poultices made from its bark, roots, or leaves have been prescribed for ailments as diverse as tuberculosis, snakebite, warts, and diabetes. Simply sitting under a neem tree is deemed healthful due to its cleansing vapors. With a list of attributes that range

LEFT: Indians eat the leaves of neem to welcome the New Year. INSET: Neem seeds, here being harvested in West Africa, exhibit a surprising number of agricultural uses.



Photos by Hiram G. Larew

ABOVE: A neem seedling. Relatively little is known about neem culture.
ABOVE RIGHT: The fruit of the ancient neem.

Morgan, as well as several other chemists from around the world, began to isolate and identify a particularly active insecticidal component of the seed extract which they named azadirachtin. The structure of azadirachtin was described by Dr. Kraus of the *Institute für Chemie der Universität Hohenheim* in Stuttgart in 1985, and with the description came the hope that one day scientists might be able to laboratory-synthesize the material. So far, however, we remain dependent on the tree to manufacture this complex compound.

The most recent tally of insects, mites, and nematodes that are repelled or killed by neem seed extract was made in 1979 by Dr. David Warthen of the U.S. Department of Agriculture's Agricultural Research Service. By that time, sixty-one types of insects ranging from the Japanese beetle to the house fly, aphids, and the tobacco caterpillar had been studied and found to be repelled by neem seed extract. Just as important, scientists also observed a disruption in the way that many neem-fed insects developed. The extract either killed the insects outright, as in the case of some aphids, or caused a more delayed death due to interference with the insect's hormone system, as in the case of gypsy moths. These neem seed-treated insects were unable to moult properly. Dr. Warthen's summary, a popular publication that he has shared with over 2,000 scientists, has not been updated, but a conservative estimate is that at least as many species of insects, mites, and nematodes as he tested have been tested in the years since 1979 and found to be sensitive to the seed extract.

In 1971, Drs. Gill and Lewis from The Imperial College in London reported that the toxin in neem seed extract, if used as a root dip or drench, would be taken up by the treated plant and impart insecticidal properties to foliage normally eaten by insects. The same scientists provided evidence that bean seeds soaked in neem seed extract germinated to toxic seedlings. The possible uses of neem as an insecticide were at least doubled by this report, for the results meant that the extract could be used not only as a foliage spray but also as a systemic soil drench and perhaps even as a seedling protectant, and thus might be active against insects that feed inside plants.

A decade later, a team on which I serve at the U.S. Department of Agriculture in Beltsville, Maryland, decided to test neem seed extract, both as a spray and as a drench, against the leafmining fly, *Liriomyza tri-*



folii, a new and formidable insect that was receiving worldwide attention among flower and vegetable growers. Resistant to many of the synthetic insecticides applied against it, this insect (a close relative of the columbine and holly leafminers) seemed an appropriate one to use as a model for testing neem outside the laboratory in the real world of a commercial greenhouse. A chrysanthemum grower near Baltimore who had a leafminer problem allowed us to spray, drench, and sample plants through a crop cycle, from rooted cutting to blooming cut flower. We knew that the extract had little immediate effect on leafminers and caused no rapid “knockdown” of the adult flies. In fact, because of neem’s slower activity, other entomologists had mistakenly reported that the extract was not useful for leafminer control. We found, however, that even though there was a delay of up to ten days between applications and leafminer death, the amount of kill was as great as with a potent synthetic insecticide that we tested along with neem. Our results in the greenhouse were similar to those

we obtained later when we used the extract outdoors at a commercial nursery against the birch leafminer, a tiny wasp that damages ornamental birches throughout the Northeast. Our work has demonstrated that the extract performs well under conditions and settings representative of those in which a commercial neem product would be used.

Such a product may be in the offing. Robert Larson, president of a small wood import company in Wisconsin, became interested in producing a commercial neem seed insecticide in 1982. Throwing time and resources behind the effort, he has been able to formulate and patent a neem insecticide which has been approved by the U.S. Environmental Protection Agency for use on non-food crops. The insecticide should be on the market in the near future. A host of other companies are making similar efforts.

With such a myriad of possibilities now the focus of enthusiastic attention, the neem tree should long ago have been dissected, classified, and studied inside and out. But

such is not the case. We still have a great deal to learn about how to culture the tree so that growth, fruiting, and the production of azadirachtin are optimized. No germ plasm improvement has been attempted even though we know that useful variation occurs in wild plantings; neem is thus another example of plants that should be protected in the wild. We are at the crucial point where all we know is promising, but what we don’t know seems formidable. We know little about propagative methods, about seed handling for extraction, or about the logistics of mass seed production.

It is an important challenge in today’s agriculture generally, and horticulture specifically, to identify useful, safe, and effective ways of keeping pests in check. Neem is no panacea, but it is certainly a refreshingly new (the Indians would say “old”) option. We should not ignore it.

Dr. Hiram G. Larew is an AAAS Fellow in the Bureau of Science and Technology, Office of Agriculture, U.S. Agency for International Development, Washington, D.C.

'A Healthy and Innocent Amusement'

Shortly after the beginning of the nineteenth century, Thomas Jefferson, a man whose talents and interests included horticulture, was elected president of the United States. In a bold gesture during his administration, Jefferson authorized the Louisiana Purchase and commissioned Meriwether Lewis and George Rogers Clark to lead a cross-country expedition to explore the new territory. They gathered extensive information, and they also gathered plants that were later added to eastern botanical collections, propagated, and made widely available. Lewis and Clark's pioneering travels were part of a tradition extending back to William Bartram that would later include explorers such as Thomas Nuttall, whose collecting enriched the nascent Harvard Botanical Garden in Cambridge, Massachusetts. Within a few years these plants were finding their way into the flower beds and borders of gardens throughout the settled areas of the young nation.

As horticulture became a business, New England gardeners who had traditionally saved seed and exchanged it with their neighbors soon had new sources. Plants were grown and the seed collected and marketed; Shaker communities, for in-



America's love of gardening grew right along with the new nation in the early 1800s

BY CAROLINE SLOAT

stance, began to grow and package seed which their peddlers distributed to country stores. No longer did the wealthy, who were able to import trees, plants, and seed from Europe, have a monopoly on exotic plants and elaborate gardens.

By 1833, travelers were beginning to note a new sensibility that was transforming dooryard gardens and pleasure grounds. One author said that "there has of late been manifested in this country an increasing taste for the cultivation of ornamental plants and fruits. The taste . . . seems to pervade all classes. . . . It has been well remarked that 'where flowers are seen in the windows and about the dwellings, even the most humble, the inmates are seldom without some pretensions to refinement and taste.' This is a healthy and innocent amusement and particularly fitted for the occupation of females." Heman Bourne, author of *The Florist's Manual* published in Boston in 1833, considered this new interest important enough to produce a botanical publication that would simplify the Linnaean system by reducing the de-

ABOVE: Globe amaranth, as pictured in *The Florist's Manual*, still sparkles in gardens and dried arrangements at Old Sturbridge Village. RIGHT: Women dressed in period costumes carry on the traditions of the 1830s.

ABOVE: Art photographed by Henry E. Peach
RIGHT: Photo by Robert S. Arnold





pendence on Latin and Greek names for plants.

Also important in the world of agriculture and horticulture in the second quarter of the nineteenth century was the Vermont lawyer and newspaper editor, Thomas Green Fessenden. During the summer of 1822, he moved to Boston to become the first editor of the *New England Farmer* and other publications under the aegis of the Seed Store and Agricultural Warehouse. Under the ownership of Thomas Shepard, then George Newell and Joseph Russell, and finally Joseph Breck, this garden center published and sold seed catalogs, horticultural publications, and tools for farmers and gardeners, and was instrumental in the founding of the Massachusetts Horticultural Society. Fessenden's contribution was his ability to bring together information from both the garden classics and new writings. He took part in a lively correspondence with gardeners and farmers around New England and the nation and printed their letters in his newspaper. Thus the newspaper and the books that he produced are a compendium of contemporary information on horticulture, intended to provide guidance for hundreds of readers.

With such a rich and varied legacy from the gardening world of New England in 1830 as well as from art and literature of the period, Old Sturbridge Village today brings early nineteenth-century horticulture to life. Flower and vegetable gardens are planted to conform with each of the six residences in the re-created community. Each house is furnished to show how a family of a certain size, wealth, and age would have lived. Horticultural literature of the early nineteenth century is analyzed to discover some of the choices these early homeowners might have had in their landscaping. Many observers, including the historian Jeremy Belknap, noted the role women then played in gardening. Belknap wrote in 1812 that the "gardens in the country towns are chiefly left to the management of women, the men contenting themselves with fencing and digging them." Thus the gardens in the museum village are cared for by women dressed in costumes of the period who receive special training in the history and the gardening techniques appropriate to the garden that each tends. As a part of their work, they make an effort to find early plant varieties through research and with the assistance of amateur and professional societies ded-



icated to historical horticulture.

The Salem Towne House garden and the Fitch House garden show quite different approaches to gardening in that era. The garden at the Towne House is old-fashioned, even for 1830. It is a parterre enclosed by a hedge of Japanese quince. Walks encircle the garden for viewing the round center bed, four pattern beds, and adjacent rectangular cutting beds. The path leads through the grape arbor and into the summerhouse to enjoy the view of the pond and covered bridge below.

Connecticut poet Lydia Huntley Sigourney described a garden with beds intersected by walks leading to a summerhouse in a nostalgic reminiscence of eighteenth-century Connecticut life. Possibly she had helped each fall when her father, the gardener for a family named Lathrop, planted "the guard of tulips" which came up in the spring in uniforms of "buff streaked with vermilion and pure white mantled with a blush of carmine."

The springtime tulip plantings in the Towne House garden are based on research sources which include a series of watercolor illustrations in Bourne's book and descriptions in others, many of which, like Fessenden's *New American Gardener* (1834), described the 'tulipomania' of mid-



LEFT: The Towne House Garden's quiet, orderly look harks back to an even earlier time. TOP: Morning glory (*Ipomoea purpurea*) twines up the arbor in a circular bed at Fitch House. BELOW: The fragrant four-o'clock (*Mirabilis jalapa*), once whimsically known as the marvel-of-Peru, shimmers in the midsummer sun.

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'A HEALTHY AND INNOCENT AMUSEMENT'

seventeenth century Holland. At that time, Fessenden noted "some splendid varieties were sold for enormous sums of money; one of which, called the *viceroi*, brought ten thousand dollars."

In June, the focus of color shifts to the pattern beds. A santolina border frames the succession of plants. Included are candytuft (*Iberis sempervirens*), gas plant (*Dictamnus albus*), pinks (*Dianthus plumarius*, *D. caryophyllus*, and *D. deltoides*), and the shrublike false indigo (*Baptisia australis*). This display will give way in the height of summer to annuals which have been brought forward in a hotbed then transplanted into both the center bed and into the pattern beds. Marigolds and amaranths dominate the August garden, with other plants adding to the variety of color, foliage, and fragrance sought in early nineteenth-century gardens. African and French marigolds (*Tagetes erecta* and *T. patula*) were described by Joseph Breck in 1851. He considered the French marigold with its "rich velvety brown and yellow, one of the old-fashioned flowers," and commended the "large, double varieties" of the African marigold, noting that the colors ranged "from a pale citron yellow to a deep orange," providing color "from July to frost."

Amaranths were, in Breck's view, the "old favorite of the flower garden." Joseph's coat (*Amaranthus tricolor*) was described by Gerard, who hailed the "sundry mixture of colours that nature has bestowed in her greatest jolitie upon this floure." In the center bed, ringed with fragrant, low-growing sweet alyssum (*Lobularia maritima*) are the dramatic blood-like pendant spikes of love-lies-bleeding (*Amaranthus caudatus*) and globe amaranths (*Gomphrena globosa*), a symbol of immortality. Bourne pointed out a confusion that remains today—globe amaranths' resemblance to clover, except for their "several varieties of white, purple, speckled with gold and variegated."

This garden filled with old-fashioned plants also has dahlias, although they have only a resemblance to the old varieties. The Village's search for varieties with a documented history before 1840 is a project that has yet to meet with success. Joseph Breck described the dahlia in 1833 as "a grand object of admiration," informing his readers that the plant had been named after Dahl, a Swedish botanist who had been a pupil of Linnaeus.

When Joseph Breck looked back on hor-

ticulture at mid-century, he noted how fast fashions in flowers had changed. "Old age is a crime and aged flowers are mercilessly consigned to the poor-house," he wrote. "If we look to an old garden catalogue, we can but wonder how the flower garden was decorated by our fathers, for we find little besides races now known only by name. Marigolds and Candytufts, Daisies and Dittany . . . Tricolors and Marvels of Peru, Sunflowers and Sweet-sultans, pride

" . . . gardens in the country towns are chiefly left to the management of women . . . "

Jeremy Belknap, 1812

of the 18th-century, ye have all fallen victims to the flickering meteor called taste and are now to be found in . . . remote country gardens. . . The Amaranths are a race peculiarly suited for rich autumnal decoration, quick-growing, vary sized and long enduring . . . but they are abandoned for the sake of Petunias and Chrysanthemums." But not at Old Sturbridge Village, where the clock is turned back to the time when they were in style.

Before Breck became the proprietor of the Seed Store and Agricultural Warehouse he had raised flower seed for it and authored a short book. *The Young Florist, or Conversations About Flowers* provides a view of a gardener's year through a series of dialogues between two siblings, Henry and Margaret. Breck was promoting the idea that tending a flower garden was a valuable educational activity for young children. The garden suggested by Breck was attempted by Old Sturbridge Village at the Fitch House, but it has been somewhat curtailed because of space limitations and in recognition of the fact that this ideal garden would have been beyond the means of many rural New Englanders of the time.

The garden that Breck suggested would have been colorful and amusing. He showed his young readers how to create continuous color from April through frost, while providing information about the growing characteristics of perennials, biennials, and annuals. He includes bits of history of different plants, underscoring their place of

origin and their introduction into the garden to provide a sense of the contribution of the United States to world horticulture. "We will have a fine collection of American plants," wrote Breck, speaking as young Henry and reflecting the drive which must have fired Messrs. Lewis, Clark, Bartram, or Nuttall. "We will at our leisure search the woods, meadows and fields for flowers and plants to decorate our little patch."

When tulips and daffodils bloom in the center circle of the Fitch family's garden, the rustic arbor of white birch is lashed into place and seeds of climbing plants are planted at its base. Coltsfoot (*Tussilago farfara*) grows in the outer border. This plant was recommended by Lydia Maria Child in *The American Frugal Housewife* (1828) as an essential ingredient in a syrup for an "inveterate cough." Such linking of household advice with garden instruction fulfills the spirit of Breck's philosophy about gardens and the kind of family most likely to cultivate one.

Sweet violets, ox-eye daisies (*Chrysanthemum leucanthemum*), and cranesbill (*Geranium maculatum*), descendants from those in the wild, provide color while the perennials are still in leaf. The white-painted shingle stakes, which Breck called "number sticks," mark the plantings of annual seed. Calliopsis (*Coreopsis tinctoria*), now self-sown in the bed, provides a feathery touch in July and a reminder of Nuttall's explorations of the prairies of the Midwest; clarkia (*Clarkia pulchella*) was advertised in Breck's Seed Store catalog in 1838 as a product of the 1802 western expedition.

Old Sturbridge Village, a living history museum that re-creates a New England town of the 1830s, covers over 200 acres with more than 40 restored buildings where people in historical dress demonstrate the life, work, and community celebrations of early nineteenth-century New Englanders.

Open year-round, summer hours are 9:00 a.m. to 5:00 p.m. through October 30. Admission is charged.

Old Sturbridge Village is located on Route 20 West in Sturbridge, Massachusetts, near Exit 9 of the Massachusetts Turnpike and Exit 2 of Interstate 84. For information, call (508) 347-3362.

By midsummer the center bed provides color to a height of three to six feet, creating the cone-shaped profile recommended by Breck. Twining up the arbor are scarlet runner bean (*Phaseolus coccineus*), morning glory (*Ipomoea purpurea*), and sweet pea (*Lathyrus odoratus*).

The four o'clock (*Mirabilis jalapa*) is no longer treated as an annual, but following Breck's advice "its large tuberous roots (are) taken up and preserved during the winter like the Dahlia (to) flower perennially." Louise Chandler Moulton thought that when four o'clocks were in the garden, they "seem to have been selected with an eye to good behavior . . . regular in their hours as an old maid's tea-drinking." This underscores Breck's recommendation of plants that bloom at different times of the day, such as the morning glory and the evening-flowering four o'clock, also known as the marvel-of-Peru.

Breck also suggested the importance of fragrant plants, including mignonette (*Reseda odorata*) and four o'clock as among those that draw dragon flies and moths. Curious plants were also a category that Breck recommended for children's special interest. A search among collectors has yielded the snail plant (*Medicago scutellata*), but the Village researchers are still looking for the hedgehog plant (*M. intertexta*) and the caterpillar plant (*M. circinnata*). Martynia (*Proboscidea louisianica*) is also known as the unicorn plant for its seed pod which can be sliced and pickled, a recipe provided by Mrs. Child in *The American Frugal Housewife*. Love-in-a-puff, also known as the balloon vine (*Cardiospermum halicacabum*), and the sensitive plant (*Mimosa pudica*) which folds up its leaves when touched also add their touch of whimsy.

Through exploring the literature of nineteenth-century gardens, Old Sturbridge Village has found many examples of how the educational value of these gardens was presented to the readers of the 1830s. The museum's effort to bring this whole era to life helps us understand what it was like to live in New England during the first fifty years of the new republic. It shows that New Englanders believed, as Thomas Fessenden once wrote, that "horticulture, as it respects ornamental gardening, is the most healthy, and to some, the most pleasing employment in life."

Caroline Sloat is director of publications for Old Sturbridge Village.

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On Keeping a Garden Notebook

Until I started gardening four years ago, it had never occurred to me that anyone would want to keep a notebook about the plants on one's property. But I moved into a house at that time, which led to enlarging my copy of the survey and sketching in the trees and shrubs. My mother gave me some white irises from her garden in Connecticut, which I added to my diagram, and when I made a note of the date they bloomed my garden notebook had begun! Since then there have been many new copies of the survey, and my record of those years has expanded beyond a three-ring notebook with two pockets.

In my notebook I have also accumulated material from catalogs, my friends, and from second-hand gardening books. It's wonderful to discover in these old books how many gardeners surround us. Elizabeth Lawrence, who gardened in Charlotte, North Carolina, says in *The Little Bulbs* (1957) "Gardening, reading about gardening, and writing about gardening are all one, no one can garden alone." So, as I continued my notebook, ideas from these authors are side-by-side with those from my neighbors, mixed with entries about my family's comings and goings, descriptions of the weather, and what garden work I have done. There are snapshots and lists, sketches, and even filled-in-but-never-mailed nursery forms. It seems that instead of a garden plan, I need a notebook plan.

I suspect that many gardeners keep some sort of book. While all gardening books are structured on the seasons, often divided by months or special subjects, my favorites also include entries on specific dates. Mabel Osgood Wright's *The Garden of a Commuter's Wife, Recorded by the Gardener* (1901) had this entry:

October 19 after a Northeasterly storm. Evan stayed at home today so that it should be a festival for me, even if the storm howled, and he has drawn me a plan for developing, not altering, the wild garden, so that everything we add may be of ac-



Books from the collection of Ferris Cook

count, while I have revised my seed and plant lists; and though there is fair-day garden work for a month yet, we cannot always have a November like the last. Now it is the sowing time in the book garden, which we intend more than ever to plant with perennials. Blessed gardens of flowers and of books! Is there any phase of a woman's life, either of joy or of sorrow, when you will not strengthen and comfort her?

I like knowing what Evan and the Gardener did on October 19th.

My own attempts at a daily entry have been thwarted several times by zealous over-recording. After my second gardening year, when I was trying to make notes of every blooming thing and its possible combination with everything else, I ended with an exceptionally long and repetitive list of flowers. Richardson Wright, gardening in Silvermine, Connecticut, had another solution. In *The Gardener's Bed-Book* (1929) he writes:

November 4. FIRST BLOOMING. Another tabulation I made at the end of the garden year is the list of first bloomings. These are set down day by day as they appear and now go in a big set of columns that cover, so far, the first bloomings for ten years. Whereas annuals fluctuate according to the time they were first sown, there is very little fluctuation in the perennials' dates. When one of the natives tells me that the weather ain't what it used to be when he was a boy, I listen politely and think my own thoughts, for these tables show that it really changes very little. A deviation either toward earliness or lateness may be marked in one year, but over a decade they about strike an average.

This kind of list would make a valuable section in my notebook. However, a later piece of advice from Richardson's *Another Gardener's Bed-Book* (1933) goes beyond my needs:

January 13. In your garden notebook make a list of those people you met at parties this winter and to whom you glibly promised to send plants in the spring.

For me, there is great appeal in daily advice as it always translates into a manageable amount of work for any one day. Mrs. Francis King, who gardened for a time in Alma, Michigan, wrote many books on gardening including *The Flower Garden Day by Day* (1927), a slim book with every left-hand page left blank for "Notes." She made entries on the keeping of a garden notebook:

January 25. There is a world of study in the subject of times of bloom of flowers

in the small garden. Make a simple table of this to-day for your own use. There is another in the study of color; yet another in the forms and habits of plants. Yet this need not discourage the gardener. The knowledge comes with the work, and if mistakes are made, there is always next year.

March 2. The first injunction for every month of the year should really be this: keep a garden notebook. If this has not been started in January, with records of what has been done towards the garden if not in it, then this is the time to buy the book and make the first entries. An expense account can be kept, too, in such a book.

August 13. Keep a notebook close at hand during this month, especially, and to-day use the pencil freely with regard to notes of color arrangement of flowers, both as it is and as it should be. It may be a good plan to have a page or two now divided into two columns, one headed "Bad" and the other "Good." Here will be food for winter thought.

There's magic in a date. Whenever you refer to a notebook you have the pleasure of looking up the current date to see if you've done anything resembling the recommended chore. Helena Rutherford Ely in *A Woman's Hardy Garden* (1903) captions the black-and-white photographs: "Peonies—June sixth," "Planting on the edge of the lawn—August second," "Poppies growing in rows—July fourteenth." She writes about the garden book from Meadowburn Farm, "70 miles from New York," quotes from her own notebook, and advises her readers:

If a scrap-book be kept, in which everything of interest pertaining to the garden can be pasted or written, it will be found a great help. In this way items about fertilizers, insecticides, special treatment of plants, with copies of lists ordered, can be preserved, and also, most interesting of all, notes of when the different plants bloom each year.

I also found in her book the following, entered under October 18, 1901:

Today, though ice has formed three times, I have filled nineteen vases with flowers. They are Phlox, Larkspur, Monkshood, Salvia, Nasturtium, Roses, Mignonette, and Chrysanthemums.

Are there still people who can fill nineteen vases of flowers from their garden?

Richardson Wright has some more serious thoughts on "Garden Records" in *The Practical Book of Outdoor Flowers* (1924):

If a game is worth playing at all it is worth keeping a score, and the gardener keeps his score card—keeps it perhaps longer than the golfer, because it grows in service and value as the years pass. An ordinary ledger in which Sunday notes are written has served our purpose better than the more fancy books designed for this pleasant pastime. In this we keep a record of the work that has been accomplished, expenditures, the date of the first flowering of each kind, any observations on the idiosyncracies of plants that come to our notice, the weather, temperature, and such items that will be of interest in further group planting, and also we include the remarks of visiting garden friends!

In addition to these we keep a set of garden cards, made early in the spring when the seed and plant order is sent in. My stenographer takes largish filing cards and fills in the following items when the flower is one that we haven't tried before:

Botanical Name:	Planted:
Common Name:	Where:
Type:	Season of Bloom:
Color:	Culture:
Height:	Pests:
	Protection:

On the other side are kept such data as the first blooming and its actions in the environment in which we place it. The information is culled from experience, from garden books, conversations with other gardeners and items picked up here and

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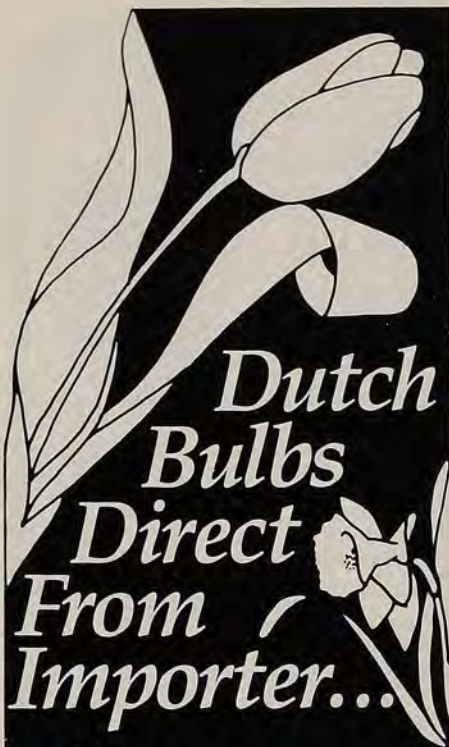
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GARDENER'S POTPOURRI

there in the horticulture press. These cards are kept in a tickler. The date of first blooming becomes a valuable and interesting record as the years pass.

I find these suggestions helpful, although index cards remind me of cooking, for which I have no patience. Besides, in *The Gardener's Day Book* (1938) Mr. Wright seemed to have later thoughts about his own suggestions:

On these still and sunny days come many ideas which it is not—as it is so often—too late to carry out.

October 24. GARDENING EFFICIENCY. *If you are one of those very orderly and systematic persons, I suppose you will keep your garden records on cards. While I admire efficiency, only with tongue in cheek could I praise the introduction of efficient office methods into gardening. Terribly efficient people usually possess a minimum of imagination and are all too often impolite and overbearing. . . . All such information we should learn beforehand and keep it close by so that it can be readily consulted. But whatever system you adopt for collecting and collating this information, don't become a slave to it.*

Louise Beebe Wilder, who gardened "one hour from New York City," told how she separated the practical from the whimsical in her book, *My Garden* (1916). She says:

A 'Day Book,' kept in connection with the garden and nursery, will be found an invaluable aid to memory. Mine is rather a stout ledger, in which is kept a record of all plants and seeds purchased and from whom, and all expenses connected with the garden. Note is made of all experiments under way, of all new flowers under observation. Careful note is made of changes to be made at a convenient season. Memory is short in the garden, the beauty of one season blots out the mistakes of the last, and one may easily forget the pink Sweet William growing beside the flaming Oriental Poppies and discords of a like nature, if one does not 'put it down.'

Another book, which we call the 'Country Miscellany,' is kept, and is probably

more interesting than useful. It is the repository for all sorts of facts and fancies concerning gardens, plants, and country matters generally. Old recipes for home-made remedies, perfumes, wines, and cordials; local superstitions regarding plants and their uses, quotations from the flower-loving poets, accounts of gardens visited, quaint flower names and much more.

Both books are well thumbed and smeared with soil; between the pages lie sprigs of Thyme and the long sweet leaves of Costmary, and both bear witness to being in constant use. They are the records of many years of joyful, health-giving work, and each year adds to their value, as it does to my love for this beautiful and beloved craft.

When I start redesigning my notebook I will keep the diary for reminiscence—the family gathering at Thanksgiving in the ice storm, the stray cat that the neighbors thought came by UFO, the toad living under the dianthus—but in a section separate from the notes I make for the survival of my clematis. I plan to make two lists of new plants: the first will detail those I order with the acknowledgement, prices, and pertinent guarantee information; the other will identify the plants given to me, as they evoke the warmest recollections of my friends. With just these few changes in my notebook, I can turn back to the garden and reading. As Mrs. Francis King wrote in *From a New Garden* (1928): "Blessed be September, for then come still and sunny days when one can sit in the garden to enjoy it: when plans can most reasonably be made for next year's garden improvement, garden beauty. In such days come many ideas which it is not—as it is so often—too late to carry out. Now the notebook with its many spring and summer pencillings should be taken into the garden and quietly consulted and considered: a pad and pencil for suggestions of changes of position, for orders, for general charting of the places of plants, must accompany the note-book. It has been my own habit, on such sweet quiet days as September always has to offer, to take a light wicker chair and table to a little spot in our place known as the rose-garden—a very secluded place—and then to let no one know where I was, so that the necessary thinking and writing might be done without interruption."

—Ferris Cook

Ferris Cook is an artist who also enjoys gardening.

Sources

Beneath the Long White Cloud

The following seed companies supply seed of New Zealand natives.

Peter Dow and Company, P.O. Box 696, Gisborne, New Zealand (ask for the U.S. edition).

International Seed Supplies, P.O. Box 538, Nowra, N.S.W., Australia 2541, catalog \$3.00.

Southern Seeds, The Vicarage, Sheffield, Canterbury, New Zealand 8173, catalog \$2.00.

Thompson & Morgan, P.O. Box 1308, Jackson, NJ 08527, catalog free.

The Neem Tree

Seed of *Azadirachta indica* is available from the following company.

The Banana Tree, 715 Northhampton St., Easton, PA 18042, catalog \$.75.

Neem insecticide will be available from: Vikwood Botanicals, Inc., 1817 North 5th St., P.O. Box 1414, Sheboygan, WI 53082.

A Healthy and Innocent Amusement

Old Sturbridge Village obtains some of their seed from the following sources.

Thomas Jefferson Center for Historic Plants, Monticello, P.O. Box 316, Charlottesville, VA 22902.

The Thomas Jefferson Center for Historic Plants, an educational institution affiliated with Monticello, works to collect and preserve old, hard-to-find varieties of annuals, perennials, bulbs, fruits, and vegetables. To be put on the mailing list and receive their annual seed list, send a legal-size, stamped, self-addressed envelope.

The following companies offer seed of a wide range of plants, some of which are appropriate for historic gardens.

W. Atlee Burpee Company, 300 Park Ave., Warminster, PA 18974, catalog free.

Park Seed Company, Inc., P.O. Box 46, Greenwood, SC 29648-0046, catalog free.

Richter's, P.O. Box 26, Goodwood, ON, Canada, LOC 1A0, catalog \$2.50.

Seeds Blum, Idaho City Stage, Boise, ID 83706, catalog \$2.00.

Stokes Seed Company, P.O. Box 548, Buffalo, NY 14240, catalog free.

Thompson & Morgan, P.O. Box 1308, Jackson, NJ 08527, catalog free.

Vermont Bean Seed Company, Garden Lane, Fair Haven, VT 05743, catalog free.

The Vine Family

Tropical genera of the vine family (*Cissus* and *Rhoicissus*) are available from the following greenhouses.

Glasshouse Works Greenhouses, P.O. Box 97, 10 Church St., Stewart, OH 45778-0097, catalog \$1.50.

Logee's Greenhouses, 55 North St., Danielson, CT 06239, catalog \$3.00.

Hardy genera (*Ampelopsis* and *Parthenocissus*) are offered by the following nurseries.

Bluebird Nursery, Inc., 515 Linden St., Clarkson, NE 68629.

Carroll Gardens, P.O. Box 310, 444 East Main St., Westminster, MD 21157, catalog \$2.00.

Forest Farm, 990 Tethrow Rd., Williams, OR 97544-9599, catalog \$2.00.

Greer Gardens, 1280 Goodpasture Island Rd., Eugene, OR 97401-1794, catalog \$2.00.

Woodlanders, Inc., 1128 Colleton Ave., Aiken, SC 29801, catalog free with two first-class stamps and self-addressed legal-size envelope.

Gardening on a Manhattan Rooftop

Andre Viette Farm and Nursery, Route 1, Box 16, Fishersville, VA 22939, catalog \$2.00.

Bluestone Perennials, 7211 Middle Ridge Rd., Madison, OH 44057, catalog free.

Busse Gardens, Route 2, Box 238, Cokato, MN 55321, catalog \$2.00.

Carroll Gardens, P.O. Box 310, 444 East Main St., Westminster, MD 21157, catalog \$2.00.

Lamb Nurseries, E. 101 Sharp Ave., Spokane, WA 99202, catalog \$2.00.

Wayside Gardens, P.O. Box 1, Hodges, SC 29695-0001, catalog \$2.00.

WE-DU Nurseries, Route 5, Box 724, Marion, NC 28752, catalog \$1.00.

White Flower Farm, Route 63, Litchfield, CT 06759-0050, catalog \$5.00.

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Gardening on a Manhattan Rooftop

On a rooftop in the loft district of Chelsea in New York City, a hardy, colorful, old-fashioned garden thrives, even though hemmed in by taller buildings and limited to only a patch of sky. Cultivated for over a decade and now in its third five-year plan, this once barren plane of tarpaper has become an oasis in the midst of harsh urban surroundings. From sun-loving lilies and trails of lavender wisteria to the wind-shielding hemlock that shelters woodland flowers, this is a real achievement that overcame unusual adversities.

David Murray, an art director and the person responsible for this accomplishment, has been a gardener for most of his life. But when he moved to New York, he was cut off from gardening until he came to reside at his present location. With apprehension he approached the desolate, blacktop roof covered with broken glass, but could not resist the opportunity that this outdoor area presented to garden once again. He proceeded gradually, respecting the new and strange territory, experimenting with numerous plants, and attentive to the novel problems presented by the roof. Heading the list were some rather formidable conditions: reflected solar radiation, only four hours maximum sunlight in summer and no sun at all in winter, premature thawing and freezing in spring, and the changeable, unpredictable weather in New York. After all, how many Manhattan rooftops have witnessed the failure of attempted gardens? How many "grand plans," after a try or two, have now dwindled to nothing more than several potted plants and a lounge chair? Urban rooftops can be as hostile to vegetation as the Mojave Desert—but the desert can be made to bloom.

As the seasons passed, the gardener learned a major lesson—invaluable for urban rooftop gardeners—about dealing with the fierceness of the sun's heat. The most direct sun the garden receives is four hours around the time of the summer solstice,



Photos by Bard Martin



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yet the rays pour down as though concentrated through a magnifying glass. Unlike gardening in the country, where excess solar radiation is absorbed into the earth, in an elevated, urban environment the heat reflects off the hard surface beneath and assaults the delicate undersides of the leaves, dries out the stomata, and impairs the plants' respiration. Everyone has seen this

LEFT: A leafy garden surprises the eye among the angular buildings of Manhattan's skyline. ABOVE: A deep shade arbor provides relief from a relentless summer sun.

reflected solar radiation in mirages, such as those in summer that make a street's blacktop appear like a pool of water. No type of paint or artificial surface can sufficiently retard these scorching, rebounding rays. Mr. Murray discerned the only solution—lavishness. Employing pots and tubs and large, permanent wooden boxes, he entirely covered the roof area with rich soil which could support abundant foliage, including trellised vines, creepers, and small trees.

Though a crucial triumph, this was not the end of the battle. Other enemies loomed:

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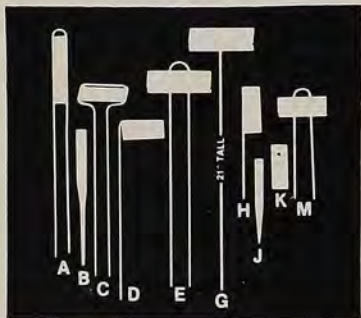
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THE URBAN GARDENER

the wind, winter's cold, and the vicissitudes of Manhattan's climate. Through years of building, of experimenting, of using annuals to maintain a color scheme while progressively working in perennials, this dedicated horticulturist learned another vital lesson: only the toughest plants can survive a New York roof. Accordingly, he sought out hardy specimens. For instance, a young mulberry tree was discovered growing through a crack in the pavement; relocated to the roof it is now a handsome, virtually indestructible provider of valuable shade. Taking the search to the countryside of New Jersey and Pennsylvania, he observed those plants which exhibited an ability to overcome harsh conditions such as those growing by the roadside where heat and auto pollution are factors and those exposed to winter wind in unsheltered areas. Through his keen eye and intuitive sense, he chose an array of sturdy specimens, the strongest of which have become the very heart of the garden. Columbine (*Aquilegia canadensis*), black-eyed Susans (*Rudbeckia hirta*), and blue flag (*Iris versicolor*) are but a few. Curiously, many of these wildflowers, like Queen Anne's lace, had been grown in old-time gardens. By planting such hardy plants on his rooftop and carefully working in other worthy candidates, Mr. Murray has created a garden with definite, old-fashioned charm.

From the end of November until the end of February no light reaches the roof. During this season the great enemy is windburn. Though somewhat alleviated by the building's false front which serves the garden as a wall, the wind can nonetheless be a serious problem. To combat this, all perennials are placed in a protective corner, mulched, and a windbreak erected which is kept open to the sky so that the plants receive moisture. An unexpected result of windburn has been the trimming and shaping of the wall-guarded hemlock, keeping it within the proportions of the garden. Also, in winter all clay pots are emptied and the plants are transferred to plastic containers.

The next challenge is an early thaw. After a winter of no direct sun, in late February the sun suddenly reappears and at this crucial time of early growth solar radiation again becomes a problem. The roof warms rapidly in the light and retains that heat into the night, creating a false spring often followed by a hard freeze. Early on it was understood that the best way to counter

this was to resist the natural desire to start gardening early in the spring and, instead, to keep the plants in the darkest areas of the roof, well mulched, until the middle of April. Despite these measures, certain plants, such as hybrid tea roses, would not survive and had to be abandoned.

Because of the garden's lushness and hardiness certain unexpected ecological changes took place. For instance, six years ago, just before spraying for aphids in June, it was discovered that the garden had attracted a large number of ladybugs and these completely destroyed the aphids. Each year the ladybugs return and spraying has become unnecessary. Five years ago praying mantises were discovered.

The north wall, graced with clematis and other climbing plants, serves another purpose—the aesthetic one of enclosing the space. By making use of this and of the stairwell housing and constructing arbors and fencing (now grown over with wisteria), the garden has been removed from the harsh factory environment which surrounds it. Of course, the success of this escape depends even more on the informal, yet deliberate, arrangement. Having laid the foundation and overcome the basic obstacles to urban rooftop gardening, the garden now possesses a collection of several hundred tried-and-true plants that produce a colorful, changing palette from April until October. Pink-and-white spring beauties (*Claytonia virginica*), purple trilliums (*Trillium erectum*), and rosy-purple wood geraniums (*Geranium maculatum*), are soon followed by dainty, white-and-yellow Dutchman's breeches (*Dicentra cucullaria*), an assortment of daylilies, and the splendid Japanese irises (*Iris kaempferi*). Summer brings white baby's breath (*Gypsophila paniculata*), *Veronica spicata* 'Blue Fox', lavender, astilbe, and hollyhock. In late summer there are phlox, mums, hardy asters, blanket flower (*Gaillardia × grandiflora*) with their cherry-red centers, and the obedient plant (*Physostegia virginica*) with rosy-pink spikes. *Achillea*, *Coreopsis*, and blazing stars (*Liatris*) are also proven survivors of the city's heat.

One can sit under the arbor during the summer and feast one's senses. Due to patience, labor, and perseverance, it can now be imagined that the setting is a charming country garden even though the snarled traffic of Manhattan is not far below.

—Joseph M. Picard

Joseph M. Picard is a freelance writer who resides in New Jersey.

Pronunciation Guide

Agathis australis

AG-uh-this aw-STRAY-liss

Alonsoa a-lon-ZO-ah

Amaranthus caudatus

am-ar-ANTH-us caw-DAY-tus

A. tricolor A. TRY-kull-er

Ampelopsis aconitifolia

am-pel-OP-sis ak-on-ite-ih-FOE-lee-ah

A. arborea A. are-BORE-ee-ah

A. brevipedunculata

A. brev-ih-ped-unk-yew-LAY-ta

Aquilegia canadensis

ak-wil-EE-ji-ah can-ah-DEN-sis

Arthropodium cirrhatum

arth-ro-POH-dee-um sir-RAY-tum

Astelia as-STEEL-ee-ah

Azadirachta indica

az-ah-dirr-ACH-ta IN-dick-a

Baptisia australis

bap-TIZ-ee-ah aw-STRAY-liss

Cardiospermum halicacabum

kar-dee-o-SPERM-um hal-ih-ka-KA-bum

Celmisia cell-MISS-ee-ah

Chamaecyparis

kam-ee-SIP-a-ris

Chrysanthemum leucanthemum

kris-ANTH-em-um loo-KANTH-em-um

Cissus antarctica

SIS-us an-TARK-tih-ka

C. discolor C. DIS-kull-er

C. rhombifolia C. rom-bih-FOE-lee-ah

C. striata C. stry-AY-ta

Clarkia pulchella

KLAR-kee-ah pul-CHELL-ah

Claytonia virginica

clay-TOE-nee-ah ver-JIN-ih-ka

Clematis KLEM-at-is or klem-AT-is

Clianthus puniceus

kle-ANTH-us pew-NISS-ee-us

Coprosma repens

kop-RAHZ-ma REE-penz

Corokia cotoneaster

kor-OH-kee-ah ko-toe-nee-AS-ter

Coreopsis tinctoria

kore-ee-OP-sis tink-TORE-ee-ah

Cotula KAH-tew-la

Dacrydium cupressinum

da-KRID-ee-um ku-press-SIGH-num

Dianthus caryophyllus

dy-AN-thus care-ee-oh-FILL-us

D. deltoides D. del-TOY-deez

D. plumarius D. plo-oo-MARE-ee-us

Dicentra cucullaria

dy-SEN-tra koo-kul-LARE-ee-ah

Dicksonia fibrosa

dik-SOH-nee-ah fi-BRO-sa

Dictamnus albus

dik-TAM-nus AL-bus

Gaillardia × *grandiflora*

gay-LAR-dee-ah grand-ih-FLOR-ah

Geranium maculatum

jer-AY-nee-um mack-yew-LAY-tum



PHOTO/NATS: Priscilla Connell

Geranium maculatum, the cranesbill, takes its name from the classical Greek word for crane, geranos, an allusion to the long beak of the carpels.

Gomphrena globosa

gom-FREE-na glow-BO-sa

Gypsophila paniculata

jip-SOFF-ill-ah pan-ick-yew-LAY-ta

Gunnera GUN-er-ah

Hebe elliptica

HE-bee el-LIP-tick-ah

Hedycarya hay-dee-KAY-ree-ah

Helichrysum petiolatum

hell-ih-CRY-sum pet-ee-oh-LAY-tum

Ipomoea purpurea

eye-po-MEE-ah pur-pur-EE-ah

Iberis sempervirens

eye-BEER-is sem-per-VIE-rens

Iris kaempferi

EYE-riss KEMP-fare-eye

I. versicolor I. VER-sih-kull-er

Lampranthus lam-PRANTH-us

Lavendula lav-AN-dew-la

Leptospermum scoparium

lept-oh-SPERM-um sco-PAY-ree-um

Lobularia maritima

lob-yew-LAY-ree-ah mah-RIT-ih-ma

Medicago circinnata

med-ih-KAY-go sir-sin-AY-ta

M. intertexta M. in-ter-TEX-ta

M. scutellata M. skew-tell-AY-ta

Mimosa pudica mim-OH-sa pu-DEE-ka

Mirabilis jalapa

meer-AB-ih-lis jal-AH-pa

Myosotidium hortensia

my-oh-so-TID-ee-um hor-TENSE-ee-ah

Olearia cheesemanni

oh-LEAR-ee-ah cheese-MAN-ee-eye

Pachystegia insignis

pack-ee-STEE-gee-ah in-SIG-nis

Parthenocissus quinquefolia

par-thee-no-SIS-us kwin-kwe-FOE-lee-ah

P. tricuspidata

P. tri-kus-pid-AY-ta

Phaseolus coccineus

fa-SEE-oh-lus kok-SIN-ee-us

Phormium tenax FORM-ee-um TEN-ax

Physostegia virginiana

fy-so-STEE-ji-ah vir-jin-ee-AY-na

Pimelea pih-ME-lee-ah

Pittosporum tenuifolium

pit-OS-por-um ten-yew-ih-FOH-lee-um

Podocarpus nivalis

po-doe-KAR-pus nih-VALL-iss

P. totara P. toe-TAR-ah

Pratia angulata

PRAY-tee-ah ang-gew-LAY-ta

Primula helodoxa

PRIM-yew-la hell-oh-DOX-ah

Proboscidea louisianica

pro-bo-SCI-dee-ah loo-eez-ee-AN-ni-ka

Pseudopanax lessonii

sue-dah-PAN-ax les-SON-ee-eye

Raoulia ra-OOL-ee-ah

Reseda odorata

re-SEE-da oh-door-AY-ta

Rhoicissus ro-ee-CISS-us

Rudbeckia hirta

rude-BECK-ee-ah HER-ta

Senecio greyi

sen-EE-see-oh GREY-eye

Sophora tetraptera

so-FOR-ah teh-TRAP-teh-ra

Tagetes erecta

ta-JEE-tees ee-RECK-ta

T. patula T. PAT-yew-la

Tussilago farfara

tuss-ih-LAY-go far-FAR-ah

Veronica spicata

ver-ON-ih-ka spy-KAY-ta

Vitis aestivalis

VY-tis es-tih-VAY-lis

V. amurensis V. ah-mure-EN-sis

V. coignetiae V. kwun-YAY-tee-eye

V. davidii V. day-VID-ee-eye

V. labrusca V. lah-BRUSS-ka

V. rotundifolia

V. row-ton-dih-FOE-lee-ah

V. vinifera V. vy-NIF-er-ah

Xeronema callistemon

zer-oh-NEE-ma kal-ih-STEE-mon

Book Reviews

Wildflowers Across America

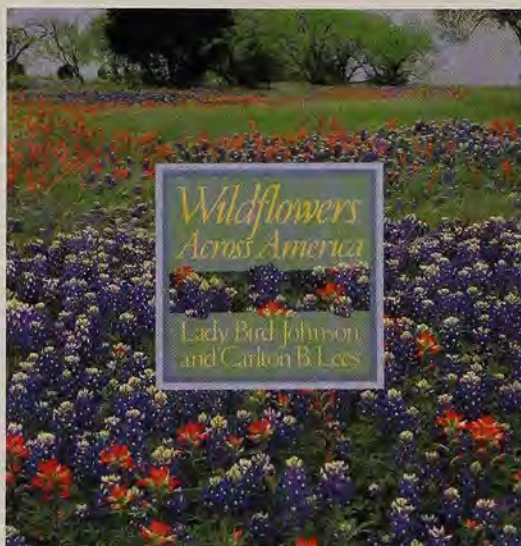
Lady Bird Johnson and Carlton B. Lees.
Photographs selected by Les Line. National
Wildflower Research Center, Abbeville Press,
New York. 1988. 309 pages, \$39.95.

This celebration of American wildflowers brings together three quite different perspectives. Writing in a personal vein, Lady Bird Johnson recalls some experiences associated with her lifelong delight in wildflowers, culminating with her establishment of the National Wildflower Research Center in Austin, Texas. Horticulturist Carlton Lees examines many facets of the past and present of wildflowers, presenting a wealth of information in lively, nontechnical terms. And superb color photographs of wildflowers speak for themselves.

These diverse elements are loosely interwoven in an exploration of this country's native and immigrant wildflowers and their place in gardens and landscapes, and in people's lives. Mr. Lees observes that we understand the word "wildflower" according to "our own experiences and prejudices, where we live, romantic allusion, biology, history, and a host of other factors." That suggests the scope of the book.

Many readers will probably linger over the pictures first. Color photographs, representing the work of many photographers and the discriminating eye of Les Line, make up nearly half the book. The highlight is a hundred-page portfolio of photographs depicting wildflowers from many regions and habitats across the continental United States. A field washed yellow by mustard; claret cup, brilliant against an austere backdrop of mountains; a single delicate miterwort blossom—splendid or subtle, these photographs evoke the individuality of each flower.

Much in Mr. Lees' essays may be new to readers familiar with wildflowers chiefly through field guides or how-to books on wildflower gardening. Looking at wildflowers in the broad context of horticultural and human history, he delves into such topics as the evolution and migration of wildflowers, the climatic regions of the United States, and the taming of wildflowers in gardens and, most recently, in roadside plantings and wildflower meadows.



An absorbing chapter follows the search for new plants in America, making plant explorers vivid through excerpts from letters and journals accompanied by plates from early botanical publications.

Beyond the botanical name of every flower pictured or mentioned, the book does not attempt to give information about particular plants. Moreover, the emphasis of both authors is on wildflowers in landscapes designed for human use, to balance the continuing loss of natural habitats. Within that compass, *Wildflowers Across America* is an engaging invitation to wider acquaintance with a beautiful and diverse aspect of America.

—Mary Pockman

Mary Pockman is president of the Virginia Wildflower Preservation Society which works with Virginia state agencies and other environmental groups.

The Garden Design Book

Anthony Paul and Yvonne Rees. Salem House
Publishers, Topsfield, Massachusetts. 1988. 256
pages, 350 full-color photographs, 100 two-color
diagrams, \$34.95.

The way in which gardens are designed has always followed our lifestyles. Now that life has become busier and finding good garden help more difficult, we need gardens that look well all year with the least care.

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The book is divided into eight sections plus an appendix on choosing plants. It begins with a chapter introducing the young gardeners and their methods of planning gardens. Following this, there is a part about applying principles and making a master design. The third section covers designs and themes of gardens to fit every need, climate, and terrain.

The authors feel that enclosing boundaries gives a garden a feeling of shape and character, so chapter four is titled "Creating the Framework." Then comes a section on features to be added for additional interest. "Living in Style" is sixth and focuses on outdoor living.

The seventh, "Designing With Plants," is the most exciting part of the book. It shows the use of plants to make the design apparent. Stunning color pictures show how the texture of large leaves combined with small foliage gives emphasis while differing sizes, shapes, and textures provide interest. Patterns of small leaves or gravel are restful. Shades of green, from gray to emerald, as well as harmonious colors are shown.

The eighth section is a helpful guide to the design of garden constructions such as gates, trellises, decks, steps, and walkways.

The appendix is devoted to choosing plants and includes helpful lists. Although some of the plants shown in the gardens may not grow in your area, there are many native plants with the same foliage shapes and sizes and the same plant forms. Let these pictures stimulate you to make your gardens beautiful at all seasons with a minimum of care.

—Alice Upham Smith

Alice Upham Smith, a retired landscape architect, is a Fellow of the Garden Writers Association of America.

The American Weekend Garden

Patricia Thorpe. Random House, New York. 1988.
238 pages text, 48 pages color plates, \$24.95.

For the many among us who have only weekends in which to revel in and labor in our gardens, and who find the labor not really laborious at all, Patricia Thorpe has written this morale booster of a book. Throughout the opinionated, humorous, and informative text, she addresses readers who are tired of the characterless, low-maintenance "suburban acre which is as devoid of natural life as a gas station." With fine line drawings and inspirational photographs, we read how we may rise above this and create our own "American cottage garden."

The author's own experience as an avid gardener with an extremely busy schedule, as well as her predilection for the cottage garden style, has led her to conclude that what we need is a strong dose of perennials, a point well made. Unfortunately, the fact that some gardeners are not wholly taken by this fluffy, feminine, floriferous garden style is never acknowledged. The use of foliage texture and color through ground covers and dwarf conifers is barely mentioned. The book, while acting as advocate for a particular group of plants, is not a manual on how to grow them, but rather a thoughtful, well-written deliberation on the choices and processes involved in creating and maintaining an in-

teresting garden without becoming a slave to it. In spite of the easy, breezy style, the book promotes some serious and progressive ideas: criticism of the overuse of water and chemical pesticides and fertilizers, and choosing plants biologically adapted to one's climate and aesthetically adapted to one's regional landscape are two examples.

In separate sections, some of the more mundane aspects of gardening are touched upon, such as weeding and soil preparation, and there is a hilarious as well as informative chapter on pests in the garden. Because this is more of a thought-provoking book than a practical guide, the author doesn't make the common mistake many American authors fall prey to, that of trying to be all things to all gardeners in all places. However, she does address regional gardening in a very broad manner in a chapter dealing mainly with the various climates and soil conditions and their effect on gardening.

All in all, the author puts forth a strong argument for "restructuring our gardening habits by establishing the place of perennials and hardy bulbs," as she puts it. It is hoped that many of us weekend gardeners will read this well-written book and take some of the author's good advice.

—Lauren Springer

Lauren Springer is a professional horticulturist who writes and lectures frequently.

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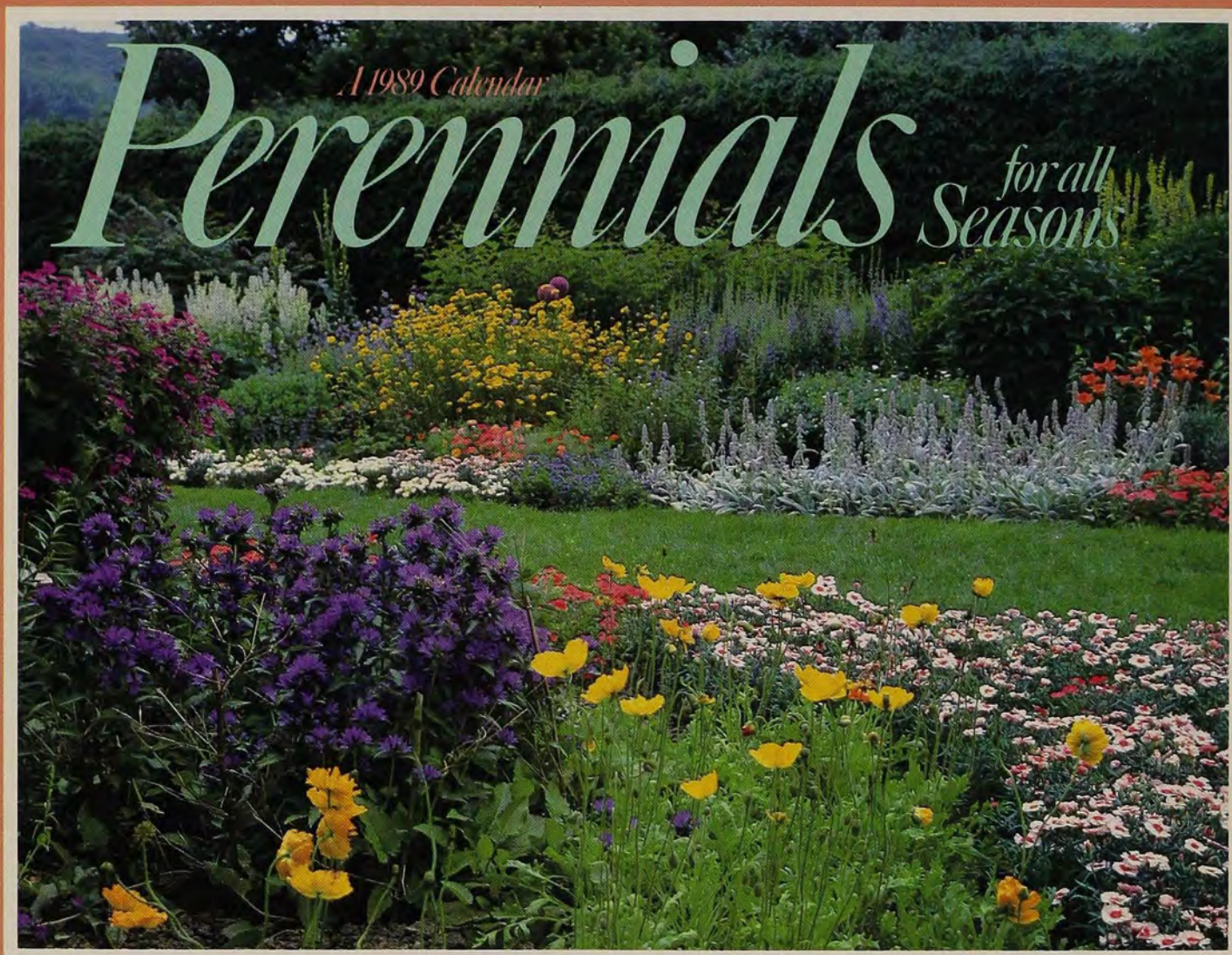

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