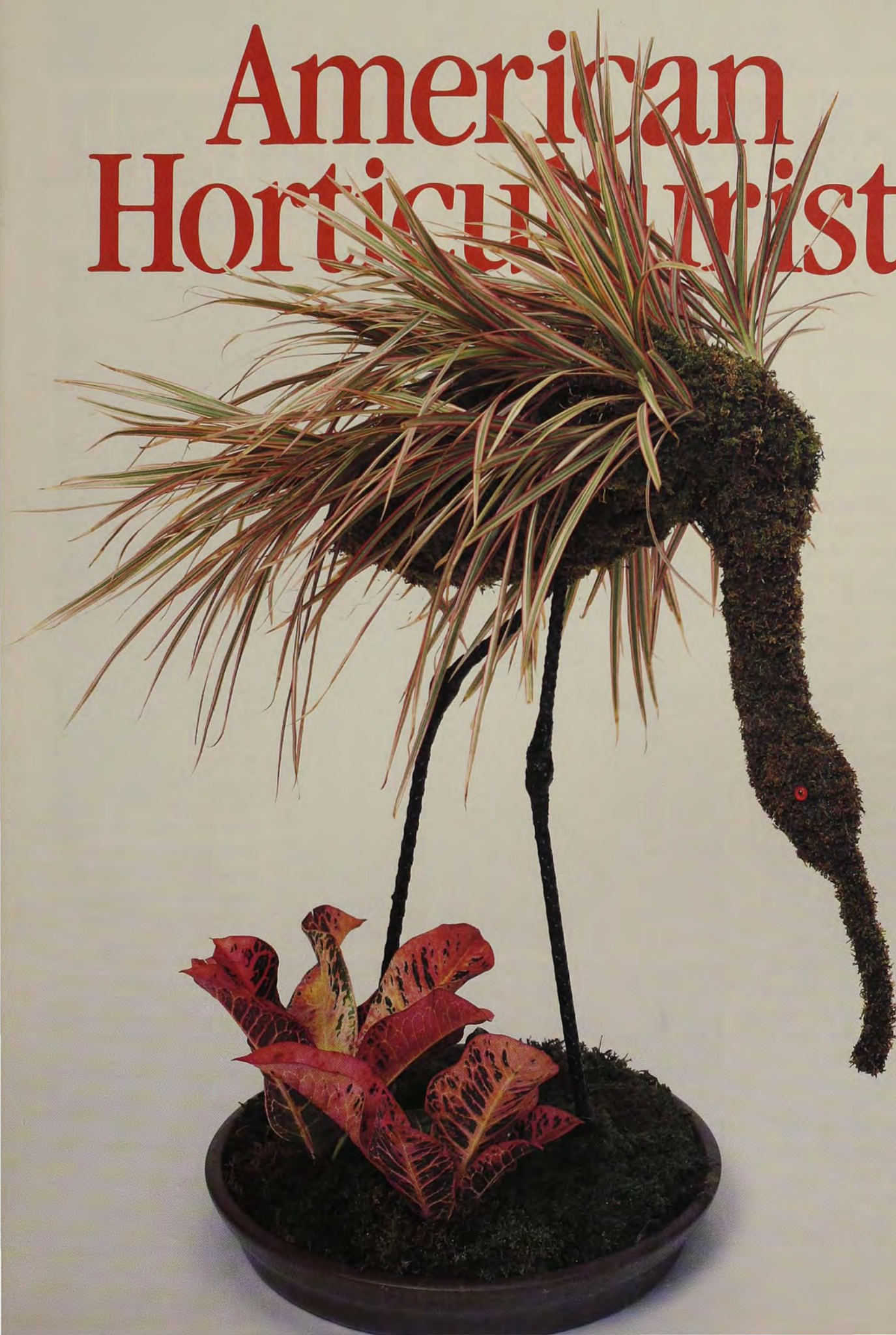


American Horticulturist



BEAUTIFUL & BOUNTIFUL

Horticulture's Legacy to the Future

San Francisco, "The Golden Gate City," provides a perfect setting for the 41st Annual Meeting of the American Horticultural Society as we focus on the influence of oriental gardens, plant conservation, and edible landscaping.

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Please send me special advance registration information for the Society's 1986 Annual Meeting in San Francisco, California.

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Contents



Gardeners forced indoors during the usually rainy month of April have one consolation: all of that rain will one day help produce a colorful panorama that may be enjoyed during warmer, sunnier weather.

Ruby Weinberg enjoys this view from her patio, which is surrounded by plantings of *Taxus baccata* 'Repandens' and two cultivars of *Rhododendron*—'Madam Mason' and 'Lee's Dark Purple'. Native trees hang over the nearby brook. To learn how Ruby Weinberg and her husband Martin transformed their country farm into a spectacular garden, turn to page 23. Photographs for the article by Ruby and Martin Weinberg.

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On the Cover: It is hard to believe that plants can be used to create living sculptures such as this exotic, tropical water bird. Small, stuffed topiaries are not as difficult to make as they may seem, and they are certainly easier to design and maintain than traditional clipped-shrub topiaries. In fact, anyone with a little patience and creativity can make a portable topiary for his or her own home or garden. For step-by-step directions that will help you create a whole menagerie of living sculptures, turn to "Portable Topiary" on page 28. Photograph by Barbara S. Gallup.

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Interns and Inspiration

One of the most wonderful things about gardening is the sense of renewal it brings. Every spring, as we see winter's ice and dead leaves replaced by a refreshing green, we start the cycle of growth anew. Armed with yet another chance to order our universes, we head for the windowsill, the back yard, or the "back forty" to experience once more the pleasure and satisfaction of helping the natural world achieve its full glory.

Of course, it is easy to be idealistic when the gardening season is just beginning. We're still a few months away from July's unbearable heat and drought, and the unrelenting attacks of insects with voracious appetites. On a hot summer's day, a mere weed can take on new, quite odious dimensions. A rabbit can seem downright pestilential when you discover he has nibbled on your lettuce. At moments like these, even the best of us have our doubts about our horticultural enterprises.

There is, however, one person who never seems to have doubts about gardening, either as a career or as a passionately pursued hobby: Steven Davis, the Society's Director of Horticulture. Steve, who has been on the AHS staff since 1976, retains an unflappable love of plants and gardens through thick and thin. And he is one horticulturist who has seen a lot of "thins"!

Steve supervises the Society's 25-acre River Farm headquarters, which has seen much improvement since the Society moved here in 1973. He is in charge of all of our display gardens, and oversees the creation and maintenance of our wildflower meadow, our dwarf fruit tree orchard and our water garden, as well as all of our lawns and boxwood hedges. In the time left over, Steve also coordinates the Society's Seed Program, and helps with the Gardener's Information Service and other education programs on both the national and local levels.

Considering all of Steve's duties, it would be logical to assume that this busy man has many people working for him—perhaps five or six on the grounds maintenance crew, a horticulturist to supervise the crew, and a landscape designer to help



Steve Davis (left), the Society's Director of Horticulture, is responsible for the AHS Summer Intern Program. Here, he instructs Summer Interns Lynn Hightower and Karl Stromayer about the care of one of the many woody plants found growing at the Society's River Farm headquarters.

with the installation of new gardens, not to mention a building maintenance crew. Steve wishes this were the case. In fact, he has a full-time staff of two stalwarts—Aubrey Glass and his son, Aubrey, Jr. There is some welcome but intermittent volunteer help, but for the most part, the Glasses and Steve do it all, without extra help.

Except, that is, for the Summer Interns. "I can't say enough about the Intern Program," Steve will tell anyone who asks. "It is one of the very best things the Society does, and it makes it possible for us to carry on with the skeleton crew we have. At the same time, it gives college students a chance to get into the real world of horticulture—to get their hands dirty, to learn what it really takes to care for just any kind of garden you can name."

Steve claims that each year's crew of Interns helps him maintain his positive outlook. "I know the Society's members support us, because without their donations, we couldn't have the Interns here. And just knowing that they care enough to send in a contribution to this program inspires me."

I share this feeling of inspiration with Steve, especially when the Interns are here (generally from late May through early September). These young people exemplify the kind of individuals we want to see in the field of horticulture. Their love of plants, which in most cases started in early childhood, is apparent in everything they do around River Farm. I have never seen more hard-working, committed young people than those serving as River Farm Summer Interns. The heat, the very hard work and the modest wage do not seem to deter them in the least. They truly set a fine example for all of us gardeners.

And so do the donors who have made these internships possible. The Society members who respond to our requests for help for the Intern Program will never hear "thank you" often enough to suit me. If you have contributed to this project in the past, please accept Steve's and my sincere thanks, along with our hope that you will continue to help us in years to come. If you have not given in the past, I hope you will give it some serious thought this year.

Gardeners are generous people. This may be due to some inexplicable facet of their personalities, which is reflected in those things they value: the cycle of creative renewal they find in their gardens; the spring feeling of rebirth; the deep satisfaction of the harvest; and above all, the challenge of coaxing order and beauty out of chaos. People who care about these things generally care about other people, too, and they especially like to give young people a chance to share their passion. I am very grateful that so many Society members have done just that by contributing to our Intern Program in the past.

I invite all of our members to continue this tradition by contributing to the 1986 Summer Intern Fund, thereby sharing in the inspiration that it brings to so many.

Charles A. Huckins

—Charles A. Huckins
Executive Director

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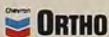
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Paving Patterns



Margaret Hensel

There are many questions to consider before deciding on the location and texture of paving. For example, is it appropriate for paving to call attention to itself in a terrace or perhaps the floor of a summerhouse? Or should paving act as an understated background throughout the garden?

The selection of paving materials also requires some thought. A garden may have a dominant theme or style to which everything else—vegetable and herb gardens, reflecting pool, and so fourth—is subordinate. In a country meadow garden, for example, the paving materials would probably be rustic.

The various types of paving in a garden can also direct movement, or even stop

Selecting and placing variously patterned paving means much more than simply adding detail to a garden. Paving, like any architectural feature, can help establish a garden's character when placed with a purpose and a sensitivity to the site and garden plan.

action cold, depending on the texture or richness of detail. In addition, paving can provide dramatic contrast in unexpected places (a path of beautifully cut marble located deep in the woods, for example), although it takes a fine touch for the effect to be truly successful.

In one garden I know, movement through the various areas is artfully contrived by the placement of lawns, plants and variously paved paths. Although it is not a large garden, the paths and paving create stops, starts, surprises and occasional confrontations that make it seem larger. It has all kinds of flashy "events," but one intimate corner full of contrasting foliage overhanging a pleasantly patterned path is especially effective.

There, a narrow concrete path, divided into sections, is set with smooth stones in loosely geometrical patterns. The texture along this short stretch of path is rich, but the overall effect is not busy, and the sound of water from a fountain can be heard just a few steps away. The whole scene seems to have been designed to make the visitor slow down, pause and then move on. And that is exactly what most visitors do, many not quite knowing why.

The selection of concrete for paving is often based on financial considerations. Concrete is cheap, but unfortunately, it is also lifeless and flat, with a monotonous texture and color. Nevertheless, these liabilities, along with its malleability, make concrete a wonderful background medium for a variety of paving textures. If concrete is mixed with pea gravel and the surface is brushed down before the mixture hardens, the texture becomes mildly interesting. But when the textured forms are outlined with bricks, say along a walk or terrace, the whole effect can be very elegant in a complementary setting.

Several kinds of paving materials, including concrete, fulfilled the design requirements quite nicely in another setting I know. The new owners of a classic Cape Cod cottage in a Boston suburb were confronted with the typical problems of a suburban site—and then some. Foundation shrubs planted 50 years ago had grown into 75-foot hemlocks, and an archetypal five-foot-wide concrete slab led to the front door. Evidently, the former owner had a weekend compulsion for mixing galvanized washtubs full of concrete. As a result, the back yard was an elaborate puzzle of concrete paths to garage, woodshed, compost heaps and sundry garden features. The culmination of this scene was a large, unattractive slab off the living room. A stairway of only slightly smaller concrete outcroppings leading down a hillside made the whole thing look like a missile launching pad.

The first stretch of concrete to go was the front walk. The forest of hemlock was removed, and brick was chosen as a warm and inviting entry. Thirty feet long, the walk was a very brief introduction to the house, so there was no point in making it appear even shorter with an elaborate brick pattern. A straight running pattern, with bricks laid end to end on their sides, seemed best suited to the house's simple character. The concrete outside the living room was replaced with native stone—a granite schist with a lively, rough surface that would

help unite the house with the future lawn of wildflowers. Bluestone was flatly rejected as terrace material because its austere surface seemed too cold and formal.

Since so many paths were needed, including those for herb and vegetable gardens, cost was a definite consideration. The idea, too, was to create surfaces that would contribute to the character of the garden and that would not require upkeep (as would paths composed of wood chips or gravel). In accordance with some of the paving concepts used in England and Spain, concrete was made in different-sized forms: three-foot-by-two-foot blocks, two-foot squares, and so forth. Handled like blue-

stone or slate, these blocks were fitted together in various patterns. Here and there, along the walk or terrace, expansion joints were used to divide the concrete into panels.

The end result combined paving materials, patterns and textures into a design that was stylistically compatible with the architectural features of the house and garden. The paving added much-needed contrast and interest to an otherwise dull scene. And all of this was accomplished without devouring the garden budget for the next ten years. ♦

—Margaret Hensel

Margaret Hensel is a landscape designer and writer living in western Massachusetts.

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The Ginger Family



Photographs by Jessie Harris

Ginger ale, gingersnaps, gingerbread and curry sauce have savory appeal, while shell ginger, torch ginger, ginger lily and peacock plant evoke visions of tropical flowers and recollections of exotic fragrances. Sources of all these sensory delights are found in one plant family: the Zingiberaceae, or ginger family. The common name ginger is a corruption from many translations of *zingiber*, the Indian name for these Asian plants.

The word ginger usually brings to mind the spice obtained from the underground stems of true ginger, *Zingiber officinale*. However, *Z. officinale* is only one of over 1,000 species in the ginger family, many of which are rich in volatile oils and are widely used in condiments, dyes, perfumes and medicines. In addition, the flowers of these tropical and subtropical species are among the most beautiful in the world.

The typical inflorescence of a ginger family member is made up of overlapping, scale-like leaves called bracts. Flowers develop in this cone-like structure, behind the bracts. The flowers, which are bisexual but irregular in form, have a unique and very complicated structure. There is one

fertile stamen, accompanied by one or several infertile stamens, or staminodes, one of which is large, petal-like and often colorful. Some flowers are very fragrant. Seeds vary in form; some are enclosed in capsules, while others are berry-like.

Gingers are common throughout the tropics. They grow from heavily branched rhizomes (fleshy underground stems) and develop erect, cane-like stems in clumps. Large, elongated leaves sheathe the stems.

Approximately 85 species belong to the genus *Zingiber*. True ginger, *Z. officinale*, has been cultivated since ancient times in tropical Asia and is still widely grown there for local consumption. Most of the fresh ginger sold in American markets today comes from Jamaica and is more pungent than the Asian product. In warm sections of the United States (USDA Zone 10), ginger can be grown as an ornamental plant, but commercial ginger production requires higher temperatures than those that occur anywhere in this country.

The parts of the ginger plant used for food are the curiously lobed or fingered underground stems (rhizomes) known as "hands." Preparation of good-quality ginger involves an elaborate process of washing (and sometimes boiling), peeling and drying the "hands." The processed rhizomes are sold fresh, dried or in powdered form for culinary uses, while the essential

oil is extracted for its fragrance and its medicinal properties. Preserved ginger, which is exported from China, is made from young, fleshy rhizomes that are boiled with sugar and then packed in syrup.

The ginger plant's cane-like stalks reach a height of three or four feet, and bear long, smooth, narrow leaves. The flowers, which are borne on stalks that are separate from the leafy stems, are one to two feet tall and bear a cone-shaped head of light green, closely overlapping, scale-like leaves or bracts. The yellow-green and purple flowers behind the bracts are inconspicuous. Seed is rarely formed; the plant is propagated by division of the rhizomes.

Variegated ginger, *Z. darceyi*, is a handsome two- to three-foot native of India. Its 12 to 20 shiny, bright green, leathery leaves are one foot long and three inches broad, and display wavy, creamy-white margins and center stripes. One-foot-tall spikes produce white-to-yellowish flowers nestled in many overlapping, dark red bracts. This very ornamental species is tender, but will survive outdoors in Zone 10.

Z. zerumbet, shampoo ginger, gets its common name from the sudsy juice exuded from the flower cluster. The exudate was once used as a hair shampoo. The flower stalk is short (about one foot) and bears a club-shaped head of dull green bracts suffused with red and arranged in a spiral.

LEFT: *Alpinia purpurata*, commonly called red ginger. RIGHT: *Alpinia zerumbet*, commonly called shell ginger or pink porcelain lily.

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STRANGE RELATIVES

Small yellow flowers are found among the bracts. The underground stem has been used in Hawaii as a perfume for tapa cloth, and the stalks, as flavoring for pork.

Turmeric, *Curcuma domestica* (sometimes listed as *C. longa*), is another aromatic member of the ginger family. The rhizomes are similar to those of true ginger. As with ginger, the roots are prepared by washing, peeling and drying. Turmeric is used mainly in powdered form as a spice and a dye. The crop is grown in India and other countries of tropical Asia. India is the chief exporter; the United States is the chief importer.

Turmeric rhizomes are 30 to 40 percent starch, but their main value derives from the pungent oil they contain. Although turmeric lacks the spicy flavor of ginger, its slightly musty flavor lends itself well to commercial curry powders and to American-style mustard and mustard pickles. Its saffron-orange color serves as the basis for a dye.

There are approximately 65 species of *Curcuma*. The inflorescence of this robust plant is a dense terminal spike borne on a leafy or leafless stalk. The spike is made up of snowy-white, pink-tipped bracts that enclose pale yellow flowers. Both *C. domestica* and *C. petiolata* are sometimes cultivated in the United States (Zone 10) and the West Indies; various other species are cultivated in the tropics. Zedoary is a tonic and perfume ingredient obtained from *C. zedoaria* (formerly *C. pallida*), which is cultivated for the arrowroot-like starch in its rhizomes. *C. angustifolia*, East Indian arrowroot, is also grown for its edible rhizomes.

Cardamoms are the fruits of *Elettaria cardamomum*, a perennial plant native to India and Ceylon. The black, angular seeds contain a delicate, spicy essence. Seed capsules are harvested carefully with scissors, because the seeds retain their delicate flavor much better if they remain enclosed in the capsule. The seeds of *E. cardamomum* are used chiefly in curry powders but also in sausage, as a digestive aid, and for flavoring of some liqueurs. In Arabic countries, cardamom coffee is a popular beverage. Scandinavians use cardamom more widely than cinnamon, especially in cakes, pastries and fruit pies. Most of the cardamom pods found in the United States are imported from Sri Lanka or Guatemala. Next to saffron, cardamom is the world's most expensive spice.

The coiled flower spike of *Elettaria* develops spreading panicles of flowers with

white and pink-lipped petals on a leafless, two-foot-long stalk. *E. cardamomum* is a handsome ornamental plant that grows up to 10 feet tall and sports two-foot-long leaves. It is grown outdoors in the tropics; in less temperate climates, it can be grown in beds in warm greenhouses.

Species of several genera of the ginger family are known for their beautiful and fragrant flowers or their striking foliage. Among these are the ginger lilies, which are species of *Alpinia* and *Hedychium*; *Costus*, commonly called spiral flag; *Nicolaia*, or torch ginger; and *Kaempferia atrovirens*, or peacock plant. Outdoor culture is simple in tropical and semi-tropical regions; under glass, these species are grown in tubs or very large pots.

Alpinia zerumbet (formerly *A. speciosa*) is widely cultivated in tropical gardens for its prolific shell-like flowers, which spill out from the top of stems that sometimes grow to 12 feet in height. Known as shell-flower or pink porcelain lily, this species features nodding terminal spikes of fragrant, bell-shaped, waxy-white flowers with red-lipped petals. The flowers have persistent white bracts, and resemble small shells clustered together. After flowering, *A. zerumbet* produces a characteristic red, ridged fruit. This species is popular both for cut flowers and as an ornamental plant in the garden. Smaller but similar flowers on *A. mutica* are followed by a red-to-orange, felt-covered fruit that is excellent for use in dried flower arrangements.

The inflorescence of red ginger, *A. purpurata*, is often pendulous and as long as three feet. The many red bracts, which are set close together in the spike, give the species a distinctly red color. Each bract envelopes an inconspicuous white flower. As the flowering head matures, small leafy plantlets often develop behind the bracts that have bloomed earlier. Because the inflorescence is long-lasting, the plant is widely grown for local and export flower trade in some tropical areas.

A. sanderae, variegated red ginger, rarely flowers; it is grown for its white-striped foliage. Another species with yellow-and-white-striped foliage is *A. tricolor*, which displays persistent rose-colored bracts and white flowers. *A. officinarum* and *A. galanga* yield galangal, the rhizomes used in medicines and as a seasoning.

The flowers of *Alpinia* species are occasionally eaten raw or pickled, particularly in Java. The genus contains approximately 250 species.

The flower known as torch ginger springs

up like an independent plant on a naked, three- to six-foot-tall stalk, and is almost hidden among the bamboo-like stalks of the parent plant, *Nicolaia elatior*. The spectacular torch bloom is a rose-red, cone-like structure. The bloom's waxy bracts are narrowly tipped with white; the lower-most bracts—greatly enlarged, waxy and flowerless—form a collar or nest for the upper portion of smaller bracts, which contain the red flowers. Torch ginger, a native of Celebes and Java, is widely cultivated in Hawaii and the tropics. Unfortunately, the "torches" do not last well when cut.

Hedychium is a tropical Asiatic genus whose members are commonly known as ginger lilies or garland flowers. Of the approximately 50 species in this genus, several (notably *H. coronarium*, *H. flavum* and *H. gardnerianum*) can be found outdoors in frost-free areas of the United States.

H. coronarium—butterfly ginger lily, white ginger or garland flower—has extremely fragrant blossoms that are widely used as cut flowers. The flower buds are used for lei-making. The spike-like terminal inflorescence consists of many tightly overlapping green bracts. Three to six white flowers grow in the axil of each bract. The edible flower petals, two inches long and moth-like, are actually enlarged sterile stamens with broad, two-lobed lips. This species has become naturalized extensively in tropical America (Zone 10). As a garden plant, its culture is similar to that of canna; that is, it thrives in rich soil and requires plenty of water. It rests in winter in temperate areas.

Similar to *H. coronarium* is *H. flavum*, yellow ginger lily, from India; its flowers, too, are used for leis. Also from India is *H. gardnerianum*, Indian ginger lily or Kahili ginger. Its foot-long flowering heads are made up of widely separated bracts, each of which holds two yellow flowers with long red stamens. Another Indian species (one that has proved hardy in Zone 7 of the eastern United States) is *H. spicatum*, which bears yellow flowers that are less showy and fragrant than those of white ginger lily. Rhizomes of this species yield a volatile oil that is used in perfume in the Far East.

The 50 species of the genus *Kaempferia* are nearly stemless herbs with thick, aromatic rhizomes. A flowering spike rises from the base of the plant, and a solitary flower is borne in the axil of each bract. The flowers are showy, with large, staminal lips (petal-like, sterile stamens) of

white, yellow, violet or purple. The distinctive coloring of the foliage of some species is an added attraction. These species are good pot plants for the greenhouse or conservatory, and can be grown outdoors in the southern United States. In tropical gardens, they are often planted as ground covers.

The peacock plant, *K. atrovirens*, grows to six inches in height. Its flowers are white, and feature petals tipped with lavender, pink or violet. The six-inch-long leaves are dark green and more or less iridescent. *K. roscoeana*, commonly called the peacock lily, is a native of Burma. *K. rotunda*, the spring-flowering resurrection lily or tropical crocus, is a native of Southeast Asia. Its purple-tinged, flowering spike carries about 10 lilac-lipped white flowers, which are two inches across and about three inches long. Leaves of this species, which are variegated above and purple beneath, are four inches wide and as long as 18 inches. Products of *K. galanga* and *K. rotunda* are used medicinally and as seasonings in Southeast Asia.

Spiral flags belong to the genus *Costus*. These plants, from the tropics of both the Eastern and Western hemispheres, are distinguished by spirally twisted stems and spirally arranged leaves. The plants are large and not easily accommodated in the greenhouse, but they can be grown outdoors in Florida, on the Gulf Coast and in Hawaii.

Costus speciosus, or crepe ginger, is a 10-foot plant with dense, six-inch flower heads of red-purple bracts. These bracts enclose the base of a tubular flower that has three whitish petals and a conspicuous white crepe-like lip. *C. spicatus*, or spiral flag, produces a dense, cylindrical cluster of dull red bracts; a pair of yellow flowers extends from each bract. *C. igneus*, orange ginger from Brazil, is rarely more than a foot tall, and thus is much smaller than either *C. speciosus* or *C. spicatus*. Its inflorescence, surrounded by a rosette of smooth green leaves, is relatively inconspicuous. The overlapping bracts and flowers are orange-red.

In times past, explorers made long voyages to the Spice Islands of the Far East in search of ginger plants. Today, thanks to their efforts, food and medicinal products of the ginger family are used worldwide, and these lovely plants adorn tropical gardens everywhere. 🌿

—Jane Steffey

Jane Steffey serves as Editorial Advisor to *American Horticulturist*.



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Ugh! Fetid Flowers

Flowers are so often associated with the pleasant things in life—for example, butterflies, hummingbirds, vivid colors and fragrant perfumes—that most people assume they have no disagreeable characteristics. It may therefore come as a great surprise to many an arm-chair gardener to learn that some flowers are actually fetid, or foul-smelling.

Of course, the sense of smell, like all other perceptions, is largely a matter of personal opinion. The discriminating olfactory organs of some people can barely endure scents that I find quite pleasant. Different smells have always been subject to individual interpretation, and their acceptance seems to follow the vagaries of fashion.

In 1835 the *Gardener's Magazine and Register* carried an interesting column addressing the question of the floral scents of house plants and indoor bouquets. It was reported that the combination of jonquil and tuberose was "insupportable by persons of delicate nerves." Furthermore, few ladies could tolerate being confined in the same room with a sprig of fragrant lilac blossoms. Violets could easily cause fainting in gentlewomen who carried too many on their person, and many citizens were suspected of having perished after inhaling oleander's perfume in close quarters.

We have apparently become rather tolerant of floral scents; certainly we have learned to enjoy a broad spectrum of smells. Yet certain odors remain in universal disrepute, including those emitted by carrion, excreta and rotting matter. Few gardeners could honestly claim to enjoy the close company of a flower that was suggestive of these ripe odors.

There have been attempts to make the classification of floral fragrance more scientific and less a matter of personal definition. In 1893 an Austrian botanist, Count Kerner von Marilaun, proposed a system for grouping plants according to their floral scents. Most of the categories that he proposed were reserved for the more pleasing aromas, yet he did allow for the bitter along with the sweet. He classified most



TOP LEFT: Skunk cabbage, *Symplocarpus foetidus*, is commonly seen in damp woods throughout the northeastern United States from late winter to early spring. TOP RIGHT: *Stapelia gigantea*, known as giant stapelia or giant toad plant, bears flowers that are 11 to 16 inches across. BOTTOM: *Aristolochia ringens* is a native of Costa Rica and the Amazon that advertises its attractive blooms with a foul odor.

of the malodorous plants in what he called the indoloid group, named for indole, the active chemical responsible for their odor. This chemical, along with closely related skatole, is present in decaying matter as well as feces.

Another category in von Marilaun's system includes those floral odors that imitate animal scents. Like the indoloid group, this group contains some ill-smelling members. Some plants straddle two categories. One example is skunk cabbage, *Symplocarpus foetidus*, whose strong odor is familiar to

any bog-trekker and can best be described as a nasty mixture of carrion, garlic and skunk.

Interestingly, many extremely fragrant blossoms also emit indole as part of their fragrance. Although this strong scent is usually masked by the pleasant perfumes of other chemicals, many people find the scents of flowers containing indole to be overwhelming. The most prominent example is the odor given off by blossoms of *Cestrum nocturnum*. This member of the Solanaceae, known as night-blooming

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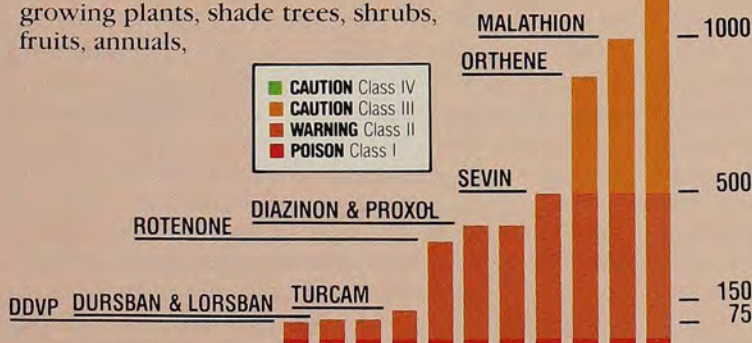
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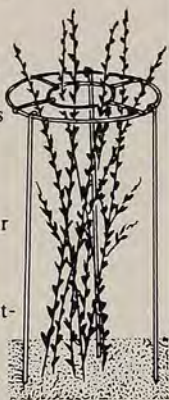
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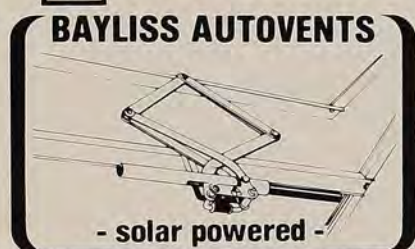
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jessamine, produces a distinctive, yet almost sickeningly sweet perfume. Gertrude Jekyll, the popular nineteenth-century garden writer and lecturer, is reputed to have once instigated a desperate search for a dead rat she suspected of sharing her chamber, only to find that the source of the overpowering odor was a jessamine whose perfume hung too heavily on the evening air.

If one of your floral acquisitions suddenly reveals itself to be foul-smelling, take heart; you probably will not suffer long. The odors of most fetid flowers are fleeting. These blossoms are generally seeking to lure pollinators such as carrion flies or dung beetles, whose larvae mature on rotting matter. Once their goal of attracting insects is accomplished, they cease producing the scent. Although the flowers of some species remain open for as long as three days, they spew their effluvium only during a short period of time, that is, while the female flowers are ripe for pollination. The unpleasant smell will last for an endurable 24 hours at the most, although it is usually noticeable for a much shorter time period.

Even while the odor is at the height of its intensity, the human nose often becomes fatigued. That is, the receptor sites become blocked, and that particular scent, as well as smells of a similar chemical composition, is no longer registered in the brain. Certain scents tire the nose more rapidly than others. Unfortunately, a violet's sweet aroma can only be enjoyed briefly. You will therefore enjoy your nosegay more if you take short, dainty sniffs than if you inhale deeply. Many of us can be thankful that musk also dulls the senses very rapidly.

Fortunately, few malodorous flowers actually emanate their scent; their odor is usually a private matter between themselves and their pollinators or those humans naive enough to bury their noses in every blossom and inhale deeply. There is no point in revealing the secrets of such nonaggressive species. However, the public should be aware that there are more serious offenders who send their odors floating on the breeze, hoping to attract any insect passing by the neighborhood.

Among those plants that openly display their odors are members of the genus *Senecio*. Senecios belong to the Compositae, or daisy family, and comprise one of the largest genera of flowering plants. Most of the more than 2,000 species exhibit no flower odor whatsoever. However, some species, especially those with succulent

growth, broadcast a scent akin to that of strong cheese.

Senecio articulatus, a native of South Africa, is one species that is best known for its ripe odor. Like the blossoms of most other succulent senecios, the flowers of *S. articulatus* are not large, structurally unique or colorful. Fortunately, these foul-smelling blooms, which are held on long, spindly stems, can easily be removed.

More exciting to the eye but also more stimulating to the nose are the flowers of *Aristolochia* spp. These large, gaudy blossoms are more typical of the flowers associated with putrid odors. Many growers willingly endure the flowers' unpleasant odors in order to enjoy their visual splendor. Fortunately, the most blatantly odoriferous aristolochias are not commonly cultivated in this country, and the scents of all of the species currently on the market are quite tolerable.

Like many malodorous plants, *Aristolochia* spp. force their pollinators to tarry in their clutches overnight. All of the species in the genus display a single, flattened, expanded petal, called a limb, from which a tube leads to a bloated pouch known as a utricle. What we perceive as a beautifully intricate pattern of calico-like markings on the limb, a pollinating fly sees as a piece of torn carrion waving gently in the breeze, an impression that is reinforced by the floral smell. Once the pollinator has been tricked into entering the tube, its journey into the pouch-like utricle (and thus to the sexual organs) is aided by soft, inward-pointing hairs. After pollinating the receptive stigma, the fly prepares to depart, only to find the exit barricaded by the same hairs that expedited its entry. The fly is obliged to stay until it can be dusted with newly ripened pollen to be carried to another blossom. The following morning, the flower begins to wilt. Before the blossom collapses, its tubular hairs open, clearing the exit. The fly is then released, carrying its burden of pollen to another blossom.

This type of cunning trap is not unique to members of the genus *Aristolochia*; a similar technique is used by members of the Araceae, the family that includes philodendrons, arums, calla lilies and skunk cabbage, among other popular tropical and common hardy plants. Although only certain aroids (as members of this family are known) attract their pollinators with an abominable stink, they all display the Jack-in-the-pulpit combination of spadix swaddled in spathe. Typically, those aroids with off-color scents feature macabre combi-



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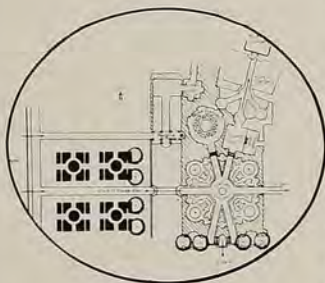
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nations of velvety black, crimson and purple.

Upon entering an aroid inflorescence, a fly or midge often finds its admission aided by the slippery walls of the spathe. After gliding easily down to the female flowers, the insect then finds its escape route blocked by two sets of bristly hairs. One set of hairs serves as a partition between the female flowers and the male flowers on the spadix until the pollen is ripe enough to be carried to another flower. When this partition wilts, allowing entry into the male flower's chamber, the insect is detained by another set of hairs, which insures that the pollinator will be dusted profusely with pollen. Finally, the insect is permitted to escape when the uppermost bristles wilt. The whole process may engage the insect for a day. Variations on this common theme can be found throughout the arum family.

Surprisingly, metabolic rates in plants can differ. Aroids claim the highest rate of metabolism of all angiosperms, another characteristic that aids them in luring insects. Approximately 19 to 22 hours before certain species open their blossoms, the male flowers produce a triggering hormone known as calorigen, an occurrence that is stimulated by variations in light. From this point onward, the plant converts its stored chemical energy to heat. The inflorescence then begins to heat up, exceeding the temperature of the surrounding air by 18° to 27° F. At this temperature, the plant's amines and ammonia are volatilized to produce a distinctly nauseating odor that is dissipated over a broad area. Fortunately, the temperature is maintained for only a few hours. In the case of the most infamous member of the family, the voodoo lily, the stench is always most intense at high noon.

The voodoo lily is the most commonly grown of the ill-scented aroids. Although larger family members bear far more spectacular inflorescences, they are generally not suitable for the average home or greenhouse. They are, however, legendary by virtue of their tremendous stench and their equally awesome proportions. Large family members have earned such names as the great dragon (*Dracunculus vulgaris*) and devil's-tongue (*Amorphophallus rivieri*), and their smells have been likened to the essence of burnt sugar, rancid fish and worse.

The largest of the aroids, *Amorphophallus titanum*, has often been incorrectly cited as the largest flower in existence. Al-



The enormous blooms of *Dracunculus vulgaris* are striking, but the foul stench of the blooms attracts flies for miles. The photographer and his companion nicknamed this plant, found growing in Turkey, "the dead horse flower."

though the inflorescence does exceed the size of any single blossom, it is actually composed of many small flowers that comprise the huge spadix. The corms of *A. titanum* weigh 60 to 100 pounds each, while the inflorescence reaches a maximum of eight feet in height. The smell that emanates from the blooms is sufficient to deter any human from admiring the flowers for any length of time. Obviously, this is not a suitable house plant.

Stapeliads are nearly as noxious as members of the aroid family. Known as carrion flowers, these succulent members of the Asclepiadaceae thrive on abundant light, require very little attention and make excellent house plants. Although the majority of stapeliads emit rank odors while in bloom, the event is so spectacular and the blooms so unique that many people find it worth enduring the unpleasant aroma.

Stapelia gigantea bears one of the largest and most bizarre of all flowers. The giant blossom, with its five-lobed petals, reaches a foot across and looks very much like a starfish. It is marked throughout with blood-red concentric lines radiating from the center on a background of yellow. Covering the entire surface are long, white hairs that dance easily in the breeze. These hairs mimic teeming maggots, while the petal markings look like carrion. The sight could perhaps be described as beautiful if it were not for the omnipresent flies that court the flower.

Stapeliads deviate slightly from the norm in their pollination procedure. Instead of yielding pollen dust, they produce pollen that is encased in crescent-shaped organs known as pollinia. When a fly inserts its tongue into a fissure to find the blossom's recessed stigmas, it brushes an open clamp on one of the pollinia, which then springs shut on the insect's proboscis. In this man-

ner, the pollen cargo is transferred to the insect to carry to the next flower.

Although passifloras are most often associated with sweet fragrance and delicious fruit, the blooms of one member of the passionflower family are no treat for the discriminating nose. *Passiflora jorullensis*, a recently discovered native of Costa Rica, bears some of the worst-smelling flowers in cultivation. The odor, which is broadcast widely, is more than faintly reminiscent of a gym locker whose contents need washing. The deceptive flowers are delicate and demure, with nearly transparent petals crowned by the characteristic orangish-red passionflower filaments. Each flower opens to approximately 1½ inches. While some passionflowers are shy about displaying their wares when grown in the home, *P. jorullensis* blooms quite profusely. Because it is easy to grow, the plant may someday become popular among house plant enthusiasts. Perhaps it will become popular with pranksters, or among those indoor gardeners who wish to dispatch unwanted house guests.

Fetid flowers need not be avoided. They can be fully enjoyed by the adventuresome gardener and by those who discover beauty in all of nature's creations. However, unless you are endowed with sinus trouble, many of the plants mentioned above should not be grown in your bedroom window or on the dining room table. If you are an indoor gardener, you should learn all you can about these plants' unique characteristics; otherwise, you may be greeted with an unpleasant surprise when your new acquisition first flowers. ☛

—Tovah Martin

Tovah Martin is the begonia specialist at Logee's Greenhouses in Danielson, Connecticut. She is also a free-lance writer and photographer.



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EL REFUGIO

Garden in the Cloud Forest

TEXT AND PHOTOGRAPHY BY MARCIA BONTA



ABOVE: *Heliconia rostrata*, commonly called parrot plant or lobster-claw, is a striking El Refugio resident. It is native from Argentina to Peru. RIGHT: El Refugio commands a breathtaking view of the surrounding cloud forest.

El Refugio is a small botanical paradise in the remote cloud forest of central Peru, twelve hours by rented car from Lima, ten by bus, eight by van and, for most Peruvians, seven by private car. It takes María Vargas, the redoubtable owner of El Refugio, only six hours. Getting there is definitely a challenge, at least for North American gringos who are not used to driving on Andean roads.

On our trip to this botanical paradise, my husband and I proceeded cautiously up the winding, mostly paved Central Highway from Lima, at sea level, to the 16,000-foot Ticlio Pass, then drove on over 30 miles of heavily potholed dirt roads to the mining town of La Oroya. From there, we traveled 17 miles across the high puna (arid tableland) on an excellent road, then took a somewhat narrow turnoff that spiraled down to the charming, flower-be-decked city of Tarma at 10,000 feet. We spent the night there before attempting to navigate the difficult, but spectacular stretch of road through the cloud forest to the town of San Ramón, where the botanical garden El Refugio, with its guest cottages, is located.

The cloud forest of Peru has only been partially explored, and scientists are still finding new plant and bird species at a dizzying rate. Because the terrain is mostly vertical, with vegetation far thicker than any rain forest, it is a challenge to explore. Unfortunately, the region can also be dangerous, since the environment is ideal for growing coca. The town of Tingo María, further north, used to be the center for botanical collecting in the cloud forest. Now it is the center for Peruvian cocaine traffic, and Dr. Ramón Ferreyra, Peru's most eminent botanist, cautioned me to stay away from the area. He advised me to go instead to San Ramón if I wanted to see the cloud forest.

Another Peruvian, Minnie Dickson (President of Lima's largest, most active garden club, Club Marigold), told me about

El Refugio and its energetic owner, Señora María Antonieta Vargas Praeli. She urged me to visit the place if I wanted to see a beautiful Peruvian garden. We had heard rumors that the road from Tarma to San Ramón was bad, but the clerk at the state tourist hotel assured us the 50-mile stretch would take us only two hours.

The paved road lasted through Tarma but quickly changed to good dirt. Fortunately, since it had rained before dawn, we did not have to inhale dust. We sailed along through a lovely, fertile, intensively farmed valley that followed the Tarma River. The river was rimmed with wild calla lilies, as well as eucalyptus trees that were planted as part of a governmental reforestation effort promoted in the mountainous regions of the country.

After passing through a few small villages, the road narrowed as it began a steep descent, with a series of hairpin turns, into the Palpo Canyon. Despite the poor conditions of the road, truck traffic was heavy, and several times we inched ourselves around a curve only to meet a truck head-on. One of us would then back carefully into the nearest pull-off while the other would squeeze by with a wave—typical Andean driving form.

The canyon was thickly populated with wildflowers of every hue growing on the steep mountainsides. I recognized a species of mountain lupine (*Lupinus ballianus*); the tiny, yellow, slipper-like blossoms of *Calceolaria ranunculoides*; and the popular American house plant *Begonia bracteosa*. The begonias, their large pink or white blossoms overhanging the banks, grew far more luxuriantly than any I had seen in plant shops back in the United States. Obviously, they were flourishing in their native habitat.

About halfway down the canyon, we were stopped by construction work, which held us up for 25 minutes. When the roadblock was removed, we timidly followed the vehicle in front of us over a bumpy,



The cloud forest of Peru has only been partially explored, and scientists are still finding new plant and bird species . . . Because the area is mostly vertical, with vegetation far thicker than any rain forest, it is a challenge to explore.

rock-filled road that was barely passable. The bad stretch continued until we reached a well-paved road eight miles from San Ramón.

The surroundings were definitely tropical once we entered the Chanchamayo Valley near the town. The climate was warm, the vegetation was lush and green, and tree-covered mountains encircled the valley. We almost imagined we were back in the eastern United States, but the height and steepness of the mountains, the large and colorful birds, and the small plantations of bananas, papaya, avocado and citrus fruits quickly dispelled the notion.

By then it was three p.m., and what had been described as an easy two-hour drive had actually taken a harrowing four hours. Could El Refugio be worth the heart-stopping drive we had endured?

We found it at the edge of town, a two-acre botanical garden surrounded by walls,

with 16 immaculate guest bungalows tucked in along the flower-lined paths. We had meant only to see the garden, to meet Señora Vargas, and then be on our way back to Tarma for the night. But we were instantly seduced—by the garden, the birds, the bungalows and, most of all, the personality of Señora Vargas herself. The gracious, bubbly, attractive woman was in her early fifties and spoke only rapid Spanish, which was accompanied by hand gestures for emphasis. I had learned a few slow phrases of Spanish, and she, a couple of English words, but her smiling welcome was so warm that I felt as if we spoke the same language. I knew I had to spend the night so I could get to know more about this extraordinary woman and her garden. My husband Bruce, who had been working in a Peruvian library for three months, would be able to translate for us.

María Vargas was raised in Tarma, the daughter of Doctor Manuel Vargas, from whom she had absorbed a love of plants. Then she went off to Lima, where she studied classical ballet for six years before getting married. During those years, she also helped a German plant specialist classify his bromeliads.

Eighteen years ago, she moved to San Ramón with her children to begin her life as a single parent. For 15 years, she supported her family by managing a mineral transportation company, often driving the vehicles herself over rugged terrain. After eight difficult years, she had enough money and time to start designing the dream of her life—a botanical garden.

Señora Vargas began her garden in 1976, buying from plant dealers in Lima and filling in with wild plants she had collected in the Chanchamayo Valley. First she built a house; then, as her six children matured, she started constructing a bungalow for each one. But her children, like most ambitious young Peruvians, left one by one for Lima, and only a son remained to keep her company. By 1984, she had designed and built enough bungalows to accommodate 40 guests—now her chief source of income.

In her spare time in 1981, Señora Vargas founded the Club de Planta Selva Central (The Garden Club of the Central Forest), which already had 40 members by the time of our visit. She also campaigned successfully for streetlights and a park for San Ramón, and she made a collection of local wild plants for the Natural History Museum in Lima (for which she recently re-



LEFT: Señora Vargas, the owner and creator of El Refugio, admires a *Sanchezia* sp. RIGHT: Poinsettias and other tropical plants grow lushly in this garden in the cloud forest.



ceived a diploma of honor from the Peruvian Botanical Society). She discovered one new species (still unnamed) in the Chanchamayo Valley on November 5, 1982. "Genus *Ruellia*, family Acanthaceae," she told me, as she showed me a color photograph she had taken of its rosy-hued blossoms.

That photograph was one of more than 1,800 she has taken of both cultivated and wild flowers. She keeps them in six carefully mounted photograph albums in the dining room, along with a large collection of horticultural books in several languages, which she freely shares with her visitors.

In her glass-walled dining room, Señora Vargas serves her guests delicious fresh-fruit drinks straight from her garden. We chose the drink made of carambola (*Averrhoa carambola*), the yellow, star-shaped fruit of an East Indian tree. We were also provided with a gargantuan breakfast, the best we had in Peru. While eating and drinking, we could admire her collection of native stuffed birds, mounted butterflies and minerals, which were displayed on top of the bookcases.

In Lima, there are many private gardens in the hidden back yards of the wealthy, but they are usually designed, grown and maintained by an army of gardeners who often ride their bicycles to work with small, hand lawn mowers tied to the handlebars. Very few homeowners actually do any of the gardening themselves, so I half-expected Señora Vargas to have her own gardeners.

"I am the gardener," she said proudly. Not only does she choose all the plants, but she does most of the digging, transplanting and fertilizing, with the assistance of one young man who helps with the heavy work. She uses liquid and solid manure and compost, plus two applications each year of potassium, to keep her plants in beautiful condition. Her only troubles occur in the rainy season—from September through December—when she has to contend with fungal growths and insects, but sparing use of insecticides keeps them at bay.

I asked her how many species of plants she had in her garden, but she had no idea. "I keep planting more," she explained, "and I have never counted them." But she did admit that her favorite families are Orchidaceae, Araceae and Piperaceae, all of which are well represented in her garden.

When we visited El Refugio in mid-May, huge red poinsettia trees (*Euphorbia pulcherrima*) dominated the scene, along with the rose-and-white blossoms of *Antigonon leptopus*, a native of Mexico commonly called love vine or coral vine. There were impatiens plants of many colors and species; the spectacular red, waxy-looking flowers of *Nicolaia elatior* or torch ginger, native to Java and Celebes; several African tulip trees (*Spathodea campanulata*), whose large, orange, tulip-shaped flowers attracted hummingbirds; and *Ionopsis utricularioides*, an epiphytic orchid with tiny blue flowers, growing on a citrus tree. This wild orchid is found in South Florida, Mexico, the Galápagos Islands, Bolivia,

Paraguay and Brazil, but it is rarely grown in cultivated gardens, because it is difficult to keep alive. Señora Vargas's specimen was thriving, along with two native Peruvian plants—the brilliant red *Sanchezia conferta* and the red-and-yellow *Heliconia rostrata*, which she called parrot-plant.

In addition, there was a small, exquisitely designed water lily pond; a collection of potted cacti that ringed a glass-walled conference building she had had constructed in honor of her father; a large display of rain and cloud forest ferns; numerous species of hibiscus; and several avocado, grapefruit, banana and orange trees. I kept seeing what I had always thought of as typical North American house plants: spider plants (*Chlorophytum comosum*), a whole bank of wandering Jew (*Tradescantia fluminensis*), and many species of *Philodendron*, *Coleus*, fancy-leaved *Caladium* and *Dieffenbachia*. But, in fact, many of these plants are natives of the Amazon River Basin just southwest of San Ramón.

The color and beauty of the plants and trees would have been wondrous enough to our northern eyes, but the fantastically hued, subtropical hummingbirds, antshrikes, finches and warblers that flitted in and out of the shrubs and trees were an added treat. One large coconut palm supported several pendulous, two-foot-long nests of the crow-sized, black, crested oropendolas. These birds presented a continuous show during the daylight hours at El Refugio, moving their long yellow tails and chestnut rumps up and down as they emitted a peculiar honking noise, unlike any bird we had ever heard. The sound will remain our dominant auricular memory of the cloud forest. (Actually, at 800 meters, El Refugio is barely above the rain forest line, but it is just high enough to be out of the malaria zone, another advantage of this nearly ideal horticultural climate.)

The hours we spent in Señora Vargas's thriving garden, surrounded by colorful plants from all over the world, were not long enough, and it was with deep regret that we bade the owner farewell the following morning. She had chosen well when she named her garden-hostel El Refugio. The dream-like beauty of that garden in the cloud forest cast a spell over us we would never forget, leaving us with the memory of a peaceful refuge far removed from the concerns of the outside world. ☉

Marcia Bonta, a weekly columnist for the *Altoona Mirror*, has written for *The Conservationist*, *Bird Watcher's Digest* and *Pennsylvania Heritage*. Her most recent article in *American Horticulturist*, "Eliza Lucas Pinckney—Colonial Gardener," appeared in October 1985.

Jack-in-the-Pulpit

TEXT BY JUDITH HILLSTROM



It has led a wild life among shadowy glades in the woods of springtime. It has been shuffled by coy cottontails, and teased by cavorting squirrels. A free spirit, it has been coaxed from its native home and tamed to live in our cultivated gardens. Let me introduce Jack-in-the-pulpit. This lovely wildling can be found from Canada to the Appalachians; its native range extends down the coast to the Carolinas, and from Minnesota to Kansas in the Midwest.

Jack-in-the-pulpit, *Arisaema triphyllum*, is a member of the arum family, Araceae. Among its colorful relatives are skunk cabbage (*Lysichiton* spp. and *Symplocarpus* spp.), green-dragon (*Arisaema dracontium*) and sweet flag (*Acorus calamus*). Many gardeners will also recognize some of its tropical relatives, the philodendrons.

Although Jack-in-the-pulpits do not bear the showy, brightly colored blooms normally associated with wildflowers, they are fascinating nonetheless. You can identify Jack-in-the-pulpit by its broad, three-parted leaves. The leaves are borne one or two per plant, and the stems measure from one to three feet in height. To appreciate the unique character of the flowers, you must peer beneath the two leaves, which form a canopy above the flower. There, you will discover the unusual blossom from which these species take their common name. An outer leafy covering, called the spathe, surrounds the bloom and takes the form of a miniature, hooded pulpit. The gracefully curved spathe is usually green, although in some varieties it may be brown or striped with purple. If you gently raise the hood, you can see "Jack" preaching from his "pulpit." The "Jack" is actually a candle-shaped spadix. (A spadix is a thick or fleshy flower spike, characteristic of the arum family, that is usually surrounded by a spathe.)

The flowers, which are clustered at the base of the "Jack," are often either staminate or pistillate, meaning that male and female flowers are borne on separate plants. Surprisingly, the amount of food a Jack-in-the-pulpit stores in its over-wintering corm plays a role in determining the sex of the plant the following season. If very little food has been stored, the plant will only produce a single leaf. If the plant had a more successful year, it will have stored enough food to produce two leaves and a male flower. Only plants that have stored enough food to set seed will produce two leaves and female flowers.

There is some disagreement about the classification and taxonomy of the Jack-in-the-pulpits. Some texts, including *Hortus Third*, list *Arisaema triphyllum* as a



LEFT: The bright red fruits of Jack-in-the-pulpit, *Arisaema triphyllum*, are attractive to birds. ABOVE: Jack-in-the-pulpits often bear male and female flowers on separate plants. Here, a plant with male flowers is on the left; on the right is a specimen with female flowers.

species that contains several other varieties and subspecies, including *A. triphyllum* var. *stewardsonii* and *A. triphyllum* subsp. *triphyllum*, for example. Some of these plants are treated as separate species in field guides. Peterson's *A Field Guide to the Wildflowers*, for example, recognizes three separate species: *A. stewardsonii*, *A. atropurpureum* and *A. triphyllum*. *A. stewardsonii*, commonly called northern Jack-in-the-pulpit, has a spathe ribbed with white ridges. It can be found in bogs and swamps from Canada to Appalachia. *A. atropurpureum*, woodland Jack-in-the-pulpit, is found in woods and swamps throughout the northeastern and north-central states. Finally, *A. triphyllum* is described as a small species that can be found growing in wet soil on the coastal plain and in the Piedmont, from southern New England south. It is commonly called small or swamp Jack-in-the-pulpit. For the sake of clarity, I will hereafter follow *Hortus Third* and refer to Jack-in-the-pulpit as one species, *A. triphyllum*.

A. triphyllum has been used for various purposes over the centuries. Native Americans dug the starchy corms and, after a long period of baking and/or drying, ate them; hence, the common name Indian turnip. (A note of caution: the roots, stems and leaves of Jack-in-the-pulpit contain crystals of calcium oxalate that cause severe burning to the mouth and throat when eaten raw.)

Jack-in-the-pulpits make wonderful additions to shady woodland gardens. Al-

though they are willing transplants, it is advisable to leave wild plants undisturbed and flourishing in their native habitats (unless, of course, a particular site lies in the path of construction). The best idea is to order from nurseries that specialize in growing wild plants in containers (see "Sources" on page 43) or to grow your own plants from seed.

Choose a spot that is primarily shaded but open to the warmth of dappled morning sunlight. Turn under a forkful of well-rotted compost to simulate the plant's leafy native home, where the woodland floor is loose, moist and peaty. Be sure to let fallen leaves accumulate from year to year; a mulch guards the roots against winter frost heaving, and keeps the soil moist through the summer months. Also, the natural breakdown of the leaves provides food for *A. triphyllum*.

The seed of Jack-in-the-pulpit is easy to germinate. Look for ripe seed in late summer. (If you prefer to order seeds, see "Sources" on page 43.) After the hidden spadix is pollinated and the curved spathe withers away, Jack-in-the-pulpits will bear clusters of brilliant red berries on stiff, succulent stalks. In the wild, the seeded berries fall into moist earth; often they are distributed by hungry birds.

For fall sowing, plant the seeds outdoors in a prepared seed bed. (Collected seed must be cleaned before sowing.) If you plan to sow in spring, either indoors or out in the garden, place the cleaned seeds in a plastic bag filled with damp, long-fiber sphagnum moss, and provide a 60-day period of cold stratification before sowing.

In my small wildflower garden in the Twin Cities area, Jack-in-the-pulpit holds forth the third week in May and remains attractive for several weeks. It appears in the company of wild columbine (*Aquilegia canadensis*) and wild geranium (*Geranium maculatum*).

Whether growing in its native habitat or in a wildflower garden, Jack-in-the-pulpit evokes many images and feelings in us. Perhaps it brings thoughts of a stroll through a leafy woods and the earthy fragrances that awaken our senses to spring. Or it may bring to mind a childhood memory. For some, it may merely create a desire to nurture an unconventional member of the floral kingdom. When invited into our gardens, this unusual, picturesque plant cannot help but cultivate a love of watching things grow. ☐

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TEXT BY RUBY WEINBERG

PHOTOGRAPHY BY RUBY AND MARTIN WEINBERG



A COUNTRY GARDEN



Sixteen years ago, my husband and I decided to move from the suburbs to the countryside and build a new home. “Daniel Boone fever” had engulfed us, for we had visions of living close to nature in a kind of wilderness environment. Taming that wilderness was part of the dream: I wanted a large garden of ornamental plants as well as a small nursery; my husband’s thoughts ran mostly to vegetable and fruit tree growing.

In my imagination, the new garden always included a pond, a placid body of water that would reflect the surrounding scenery. The pond would also be a nearby location for one of our favorite hobbies—fishing. Incredibly, the dream became a reality, but with one ironic twist: creating and maintaining the mini-farm became far more absorbing than catching fish! Now we are happy just feeding the leaping rainbow trout that live to a ripe old age in our half-acre pond.

It all began on a frigid winter day when we walked a six-acre tract in a snow-covered valley. The site was bowl-shaped and surrounded by steep, forested hillsides. Three acres of cleared, rolling fields were backed by a woodland that was spongy with oozing rivulets of water. Separating field from woodland was a ditch that caught excess water and carried it downhill in a gully. At the foot of the hill, the gully emptied into a larger stream called Frog Hollow Brook.

The gully divided the property and set off a series of knolls that were high, dry and sparsely wooded. Below the knolls was a swampy, impenetrable thicket of alders and brambles.

Perhaps it was dementia that overcame us, but we perceived this wild and woolly place as “interesting.” The knolls, with their stand of slender birch, overlooked the entire scene—a splendid house site, we thought. Above it all loomed a majestic white oak—a treasure, though it needed careful preservation. Below, amid an excess of saplings, were some mature trees that would frame house and lawn nicely. The perimeter of the property contained

A sweeping bed of dwarf white iris leads toward the author’s country home. ‘Cherokee Princess’ dogwood, a cultivar of the native *Cornus florida*, provides an added touch of spring color.

hedgerows of trembling aspen, dogwood, witch hazel, viburnum and pinxterbloom rhododendron, among others. Unfortunately, this promising native flora was badly choked in a tangle of catbriers and wild grapevine.

The field was yet another matter; I called it "desperation pasture." Its previous owner, a farmer, had grazed cows here when space was unavailable elsewhere, and the slope was ribboned with water channels. But we knew that drainage could be improved. Besides, for this part of the country, the soil did not appear overly rocky. Most importantly, because of the cows, the soil was well manured. (Now what gardener can look a gift cow in the mouth?)

It was the running water in the gully that most intrigued us. A neighbor informed us that the flow was continuous, even in midsummer. We examined the water's source and discovered it originated from clear, cold, uncontaminated natural springs. Some of it, we thought, could be captured and impounded in the low spot where the bramble patch lay. A pond site! We purchased the property.

An authority from the United States Department of Agriculture's Soil Conservation Service encouraged and supervised our pond excavation. My husband tackled the first step by clearing the thicket with a brush cutter, a herculean task. Then the free-form shape of the pond was drawn on paper, surveyed and marked for water depth (10 feet to discourage weeds), and a bulldozer operator commenced digging. Soil removed from the pond was used to construct a three-sided dam. When the pond was nearly completed, a concrete overflow was installed to carry water under the dam and into the brook at the foot of the hill. Water in the gully was then re-diverted to fill the massive hole . . . and we waited.

Visiting friends and neighbors turned away in horror at the sight of the cavernous mud hole. Even the bird population seemed to vanish at the roar of the bulldozer. Only the local frogs seemed happy, for we noticed that every watery tire track became the habitat of one of several frog species. As the pond took shape, frogs became the first permanent residents. In three weeks' time, the pond had filled to capacity. Then and there, we gave a name to our place: Frog Pond Farm.

From that moment forward, our time was also filled to capacity, with a multitude of projects. We planted grass at the top of the dam. (Luckily, the area is wide enough to mow by machine.) We supervised the bulldozer operator, who dug the drainage ditches across the top of the field and in other essential places. A six-foot-wide hole was also dredged to make a small fish pool at a spot in a minor stream, which runs parallel to and 40 feet from the rear of the house.

When construction of the house began, we started preparing the soil in the field. My husband planned a small apple orchard, and plowed a sizable vegetable garden and blueberry patch. My attention was concentrated on the nursery.

Rushing to plant a garden without first constructing its framework is a big mistake. I knew that the early stage of property upheaval is usually the best time for major construction, because it is then most accessible. Our former suburban garden had been landlocked, that is, inaccessible to machines. We spent many a strenuous year working that garden out of a wheelbarrow. Although we planned to build permanent accessibility into most parts of the new garden, we decided to tackle major projects—for example, grading and seeding lawns, and building the patio, walls and walks—when passage with machinery was easiest.

Our first machinery purchase was an old Ford 8N tractor, complete with grading blade, front-end loader, sickle bar and plow. Under my husband's hands, the tractor became an invaluable tool. I had a small garden tractor of my own with which I felt more comfortable and could achieve a degree of independence.

Because of the rolling terrain, we planned our garden on three levels. We designed a winding drive to the garage, at mid-level, to be the shortest distance from the roadway, thus simplifying snow-plowing. Above the drive, a wild embankment was leveled and retained with a three-foot-high railroad tie wall.

Foremost in our thoughts was the garden's focal point, the pond, which, by this time was attracting waterfowl. The serenely pleasant view would be most effective, we decided, if revealed gradually. To this end, we left some existing trees on the

lawn to block full exposure. Other trees were removed from selected areas to open the view. We also had the house angled on the lot so that passers-by would get only a fleeting glimpse of the pond from the roadway.

Fortunately, in the country, private sitting areas do not have to be relegated to the back yard. Instead, I designed our patio as an extension of the tree-shaded main walk, which is at mid-level. About 40 feet along the walk, we widened the space into an arc and then, a step down, made it curl around the north side of the house. This patio, or sitting area, is now especially pleasant on a hot summer day. Its placement takes advantage of one of the best views of the pond.

In time, we paved the patio with large blocks of bluestone set in sand. Then, two sets of railroad tie steps were cut and placed at both the front and the rear—the front, leading down to the pond, and the rear, allowing easy access to the upper lawn, the stream and the adjacent woodland.

Water feeding the pond still traveled in an ugly gully that was all too visible from the sitting area. A remarkable transformation occurred when my husband built a bridge over the gully; in one fell swoop, the gully became a babbling brook! Plantings on each bank further enhanced the scene.

From the drive down to the pond, we graded and seeded a rolling lawn, one section at a time. But since the walk and patio are 12 feet higher than the pond, a retaining wall was needed to hold these areas level. The wall proved to be one of the largest undertakings of all.

For over two years, we collected local rock for our wall. (The roadways were full of them.) We enlisted the help of any visitor who happened to call. All collectors were advised to "select only the largest that you can handle . . . and please, only those that are reasonably flat." Eventually, we had an enormous stockpile of rocks, and I grew impatient to begin construction. We called in two stonemasons who, with skilled hands, laid about 90 feet of double-tiered rock walls in a pattern. The four-foot-wide upper and lower tiers were then ready for planting.

With the major construction projects over, I could concentrate on plants. Iron-



ically, now that we had completed this major construction, I tried to devise schemes to make it look as though Mother Nature had played a role as landscape designer. Yet I did not want a wild garden; my own horticultural inclinations ruled that out. I did want to minimize the appearance of human involvement, however, so I avoided such things as statuary, clipped hedges and geometrically shaped beds. I planned borders that curved informally around the lawn, and thought of using groups of shrubs—mostly rhododendrons and azaleas—behind drifts of flowering perennials. I favored spreading, rather than upright, shrubs, since many native trees already supplied vertical lines.

The first planting project at Frog Pond Farm involved new trees. One of my earliest observations was that white ash, the predominating native on the site, leafs out late in spring and drops its leaves early in autumn. I therefore removed some of the ash to make room for a dozen or so smaller trees, specifically, cultivars and Asiatic members of genera indigenous to the area. Native dogwoods clothe our surrounding



ABOVE: After the site had been cleared and surveyed, the Weinbergs hired a bulldozer operator to dig their pond. This cavernous mud hole was then filled with clear, cold water from a nearby brook. TOP: Because several species of frogs were the pond's first inhabitants, an appropriate name for the property was coined—Frog Pond Farm. Today, the placid, mirror-like pond looks as if it has always been a part of the landscape.

hillsides and are represented in the garden by *Cornus* 'Cherokee Princess' as well as the June-blooming Korean dogwood, *Cornus kousa*. I also planted quite a few cultivars of crab apples. My favorite, located on one slope, is *Malus* 'Red Jade', which is especially lovely in fall when laden with scarlet, cherry-like fruit. I established two specimens of *Prunus* 'Weeping White'—lovely ornamental cherries that actually have pale pink flowers—on each end of a bed near the pond. The flowering branches look lovely when cascading over the water. There was just enough room left to plant the popular *Pyrus calleryana* 'Bradford'. From the upper deck of the house, we have a bird's-eye view of the early blossoms as well as the very late golden-orange foliage.

For special features in midsummer, I called upon flora of the Orient: the golden-rain tree (*Koelreuteria paniculata*), the Japanese maple (*Acer palmatum* 'Blood-good'), star magnolia (*Magnolia stellata*) and *Stewartia pseudocamellia*. Companion planting—bulbs and perennials that bloom with the trees—is my goal. The star

magnolia now opens its first fragile buds above drifts of blue squills and comes into full bloom over a carpet of native blood-root, *Sanguinaria canadensis*.

Overlooking the setting are several plantings of hemlock, *Tsuga canadensis*. The hemlocks, rapidly rising through and above the deciduous woodland, are one of the few conifers that thrive under such shady conditions. I also found weeping willow to be pleasantly suited to our site. On a calm day, the reflection of *Salix babylonica* is mirrored on the tranquil surface of the pond.

Erosion control was also a priority, so on one bare slope I planted a cover of *Cotoneaster dammeri* 'Skogholmen'. Unfortunately, in this area of the country it is not evergreen, but it does display reddish-purple foliage throughout the winter. Most cotoneasters spread rapidly in sunny places and bear ornamental red or orange fruit in the autumn.

I gave berried shrubs high priority throughout the landscape. Since I had eliminated the thorny native barberry wherever it grew, it was important to substitute fruiting shrubs to sustain the bird populations. I planted low hollies (*Ilex* 'Blue Boy' and 'Blue Girl'), as well as many species of viburnum, euonymus and aronia, in several places.

At long last, I was able to return to the rock wall tiers. The site is partly sunny and partly shady, and requires moderately tall plants. Now growing on the lower tier is a colony of Japanese andromeda (*Pieris japonica*), whose year-round beauty can be seen and appreciated from the patio. The andromedas are flanked by *Rhododendron* 'Lee's Dark Purple', which is surprisingly hardy in its western exposure. On the upper tier, the white-flowered *Rhododendron* 'Madam Mason' frames a curve of low English yews, *Taxus baccata* 'Repandens'. A mass planting of the medium-height azalea 'Delaware Valley White' completes the curve. The chartreuse leaves of the azalea against the deep dark green of the yews provide a nice foliage contrast. Occasional clumps of the native mountain laurel (*Kalmia latifolia*) add to the spring-flowering display.

When the walls were built, I decided to forgo planting between the rocks. To plant in crevices, one must lodge prepared soil

in and around the rocks, and at first there was no time for me to accomplish this task. Later, I decided to add a few sturdy rock plants to provide a splash of color against the wall. Once the wall was completed, however, it was a far more difficult task to plant the crevices; I had to dismantle rocks, sandwich soil between them and carefully plant so that the roots would have a cool root run within the wall. The lemon-yellow-flowered *Aurinia saxatilis* 'Citrina' (formerly *Alyssum saxatile*) is now becoming established, and I am hoping that *Campanula portenschlagiana* (formerly *C. muralis*) will also eventually thrive here. (Thus far, slugs have discouraged this lovely blue-flowered plant.)

At ground level, wherever the wall is high enough, I am working narrow perennial beds into the scheme. In an alcove amid the walls, melon-flowered daylilies bloom in June, along with the purple and white rhododendron flowers. This color combination has proved to be quite pleasing.

Warming the winter landscape with evergreens had to take precedence over planting the flowering shrubs that I might have preferred, especially along the entrance drive. Above the railroad tie wall, three low-growing 'Katherine' crab apples are surrounded by evergreens in a variety of shapes, sizes and foliage colors. I established 12- to 15-foot-high tanyosho pines



ABOVE: *Aurinia saxatilis* (formerly *Alyssum saxatile*) bathes a rock wall with the bright color that led to its common name, basket-of-gold. RIGHT: A canopy of native trees provides dappled shade for the plants surrounding the author's patio. A sparkle of sunlight glimmers on the water beyond the plantings of pink and white rhododendrons.

(*Pinus densiflora* 'Umbraculifera') in the background, then planted other moderately high evergreens, as well as a ground cover of myrtle (*Vinca minor*) and blue rug (*Juniperus horizontalis* 'Wiltonii') to billow over the rough ties. A specimen of weeping hemlock (*Tsuga canadensis* 'Sargentii') greets visitors from above the entrance drive. On a hot summer day, its pendulous branches provide a cool hiding spot for one of our cats.

In this manner, I gradually worked my way around the place, inventing simple names for each of the scenes I was trying to create: the evergreen garden, the hedge-row borders, the small pool, the wildflower patch, and so forth. I still spend a good many summer days in the rear stream, clearing weeds. (Watery places are perfect hatching grounds for weeds, and are my nemesis thus far.) The stream was originally a battlefield where forget-me-not and watercress fought for supremacy. But I relegated the watercress to a wild area, and, in place of the tiny-flowered, native forget-me-not, planted the prettier *Myosotis scorpioides* var. *semperflorens*. My goal is to produce a grass- and weed-free sheet of blue within the water.

Over the years, strips of lawn have been cut away gradually to make room for larger colonies of perennials. My first attempts at growing perennials were not too successful; like all gardeners, I blame failure not on my skill but on the erratic climate. Whenever I let Mother Nature clue me in, the results are better. Cultivars of our perennial wildlings—flags and daylilies, black-eyed Susans and field daisies—seem to be the hardiest and to be in bloom the longest. But during the last few years, I have tried a multitude of other flowering plants, many from seed or cuttings. Various species of *Iris*, *Primula*, *Geranium* and *Dianthus* head the list of those that are the most suitable and endure the longest in this climate.

A recent addition to Frog Pond Farm has been a raised dry-stone rock bed. I wanted to grow alpines, but in our poorly drained soils, even the hardiest were short-lived. Furthermore, the bed did not seem to fit in with the rest of the landscape. Therefore, I built the rock bed in a nook across the bridge, where it serves as an interesting termination point for a garden walk.



After clearing a site, my husband and I again went rock collecting, hoping that our neighbors would not see us once again combing the roads and streambeds for the needed boulders. As the walls went up, we placed carefully prepared, sandy, gritty soil within the enclosure as well as in the crevices. Later, I was delighted to see demure little plants thriving amid the rocky boundaries—alpine plants that would collapse elsewhere on our place.

My greenhouse is one reason for my inexhaustible interest in new plants. Plants are so easy to propagate under glass that I can try growing seeds or cuttings of many new plants that are difficult to locate. Luckily, I am confined to only 156 square feet of glasshouse space; propagation can over-occupy a gardener who is badly in need of time for outdoor work.

Not everyone with a bit of acreage needs to continue planting *ad infinitum* to have a pretty garden. But the truth is, unless I progress to landscaping our field, I will run out of space! We do want to keep some of Frog Pond Farm brushy and wild for nesting birds who, in turn, keep our insect population under control. One summer

when I spotted an indigo bunting (a bird that is becoming all too rare), I realized that despite all the changes we had made, Mother Nature still had her finger in the pie.

Our “wilderness” area has become far more populated with humans with the passing of years, but luckily, the terrain will always provide us with a good deal of seclusion. Our small acreage is spacious and allows plenty of opportunity to develop a scene that is both varied and fascinating.

Without doubt, we have experienced setbacks, for conditions in the northeastern United States are not always ideal for gardening. In our cold little valley, we have had freak low winter temperatures of -18° F. We have had monotonously continuous spring and summer rains that have played havoc with planting schedules. There have also been hot summers with precious little rainfall. During drought, in spite of soil amendments and irrigation, our clay soil has the consistency of over-baked bread. Fortunately, these are abnormal conditions, and we’ve found that temporary adversity enriches the enjoyment of the times

when nature is beautifully cooperative.

To many people, small acreage implies the necessity for outside help. Depending on such help has never been a part of our lifestyle. With careful planning, gradual development and the proper machinery, do-it-yourself gardening can become a soul-satisfying way of life. Of course, do-it-yourselfers *must* limit themselves, especially when their cry is, “If only I were as young as my garden!” Large future projects must now remain pleasant daydreams.

When children fish in the pond, skaters enjoy the ice, or a sunbather lolls on the waters in our little rowboat, we remember the time when this place was a brambly swamp. Visitors can now see tangerine butterflies flitting above orange butterfly weeds; a goldfinch plucking at purple thistle; a hummingbird sipping nectar from a cardinal flower; or our fluffy white cat napping on a carpet of crab apple petals. The landscape designer plans, but the unexpected moments in every garden provide the most unforgettable memories. ☼

Ruby Weinberg is a gardener and writer living in Califon, New Jersey.

Portable Topiary



BY BARBARA S. GALLUP
AND DEBORAH A. REICH

The art of shaping plants into living sculpture has a long history in Eastern and Western civilization; its origins can be traced to China, Egypt and Rome. Topiary, the Western tradition of training plants, made its way from Rome to the rest of Europe, including Great Britain, where it has weathered waves of popularity and disfavor. However, it was not until the 1960's that forms of topiary were developed that were suitable for gardeners with average-sized homes.

Few people today have the means or the space to create large, formal topiary gardens. (Show places of grand-scale topiary executed in boxwood, yew and privet can still be found in a few privately endowed gardens. Two examples are Green Animals in Portsmouth, Rhode Island, and Ladew Topiary Gardens near Monkton, Maryland, both of which are open to the public.) Furthermore, creating topiary by clipping and pruning hardy shrubs is a long-term undertaking; five to 10 years are required for a shrub to effectively assume the desired shape. By using fast-growing vines trained over a wire frame, however, it is possible to produce an elegant plant sculpture within months rather than years. This new style of plant sculpture, variously referred to as stuffed-form, portable or indoor topiary, seems to be a uniquely American invention. Although some gardeners argue that this horticultural pursuit should not be included in the category of topiary, many others are satisfied that it belongs among pleached allées and tonsured shrubs.

Twenty years ago, there were only a few creators of stuffed topiary. These early practitioners designed and, in many cases, fabricated their own frames. Ivy was the plant of choice for indoor projects. One of the earliest examples of stuffed topiary was a seal entered by Mrs. F. Otto Haas of Ambler, Pennsylvania in the 1963 Philadelphia Flower Show. The seal, made of several types of ivy, balanced a ball in circus fashion on the tip of its nose.

In January 1968, *House & Garden* published an article on the topiary of Mr. and Mrs. Charles D. Webster. (Mr. Webster is currently Chairman of the Board of the Horticultural Society of New York.) The article featured many pieces of topiary in classic pots and jardinières, and provided readers with instructions for stuffing and planting a topiary goose.

During the 1970's, interest in stuffed topiary increased. Garden clubs began of-

fering lectures on this new form of plant sculpture, and there were multiple entries in flower shows, including chairs, roosters, carousel horses and other whimsical beasts and shapes. These unusual figures were planted with ivy (*Hedera helix*), creeping fig (*Ficus pumila*) and baby's-tears (*Soleirolia soleirolii*).

The stuffed technique begins with a commercial or homemade metal frame. This skeleton is lined with sheet moss, packed with a mixture of long-fiber sphagnum moss and a soilless growing medium, then wrapped with a skin of sheet moss. Thus, the entire figure provides moisture and nourishment for the tendrils and adventitious roots that climb over its surface. If enough cuttings are planted directly in the stuffed form, the figure is immediately enchanting, and will be fully covered within a few months.

Since the size of stuffed topiary depends on the size of the frame and not on the growth habit of the plant, the sculpture can be any size or shape. Elegant geometric forms, whimsical birds and beasts ranging from actual-size mice to a life-size elephant have been created out of stuffed forms. Last summer, the Channel Gardens at Rockefeller Center in New York City featured an African display in which an elephant, giraffe, lion, camel, rhinoceros and flamingo, all rendered in creeping fig, wandered calmly among the skyscrapers in their preserve of gerbera and ornamental grasses. The following December, life-size reindeer (created by the authors of this article) greeted sightseers at the New York World Trade Center.

One advantage of indoor forms is that they may be started at any time of year as house plants or greenhouse denizens. However, they need not be confined indoors. In frost-free areas, they can be grown as landscape accents or left out in tubs year-round. Further north, stuffed plant sculptures can be placed outside during the warm months to adorn terraces or serve as seasonal garden focal points. In addition, stuffed topiary can be moved around the house easily or used expressly for party decorations.

Cultural Requirements

Creating and maintaining stuffed topiary is no more difficult than developing and caring for any house plant collection.

The ideal growing location for topiary is one that offers bright light, moderate temperatures and good ventilation. The importance of proper air circulation to the successful culture of stuffed topiary cannot be overemphasized. Since the leaves are pressed against damp sphagnum, water that

remains on them for any length of time invites a host of fungal problems.

Topiary should be rotated to develop even growth. (Rubbermaid® turntables are an invaluable aid in exposing all sides of a sculpture to the light source.) However, it is difficult to maintain lush, even growth on the underside of plant sculptures. To create a perfectly covered topiary, place it on a mirror for several hours daily to reflect light upward.

The best watering regime for topiary sculptures is a weekly soaking in a sink or tub, augmented by frequent misting. Since it is impossible to water stuffed forms without wetting the foliage, try not to spray or soak on overcast days. During the growing season, apply a weak fertilizer solution. In spring and fall, soak the topiary thoroughly in diluted fish emulsion.

Episodes of neglect that result in crisp leaves or shaggy figures are not catastrophic. Although one slip of the shears or a prolonged period of drought can have dire consequences for clipped topiary, stuffed topiary can be easily "repaired" by removing a few plants and replacing them with vigorous young plants or rooted cuttings. If properly cared for, stuffed figures last about five years. After this time, the filling settles and the sheet moss deteriorates, thereby undermining the structure of the form. If the frame is of good quality, it may be used for another form.

Recommended Plants

Ivy (*Hedera helix*) and creeping fig (*Ficus pumila*) are the best plants to use for your initial topiary effort. Commonly available and easily grown, these plants thrive in a wide range of temperatures and light exposures. There are hundreds of cultivars featuring different leaf forms, sizes and colors.

In subsequent creations, you can experiment with other plants. Any house plant with a creeping or trailing habit has potential for covering indoor topiary. Just as different-sized stitches in needlepoint create raised patterns, the use of different plants on the same form can create various patterns, including stripes and spots, on the surface of your project. The key to original plant sculptures is a combination of courage and imagination.

Many plants are available that can provide detail, contrast and accents. Some suggest tails and manes, while others look more like horns and shells. Artillery plant (*Pilea microphylla*) makes a good horse's mane or peacock's crest. Spider plants (*Chlorophytum comosum*)—particularly the variegated cultivars—are beautiful, easy to grow and quite effective as a lion's mane.

Wispy leaves of tricolor dracaena create the wings and feathers of this graceful water bird, which is walking amidst several colorful crotons.



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LEFT: Creeping fig, *Ficus pumila*, is trained over the head of a topiary reindeer. RIGHT: Although legs and other small appendages are often too small to plant successfully, these legs, which are being covered with vines, are probably large enough to support growth without drying out too quickly.

Mosses and lichens are also useful as accents, and feature a variety of textures as well as a wide range of colors, from golden-brown to gray and green. By leaving selected portions of the figure unplanted, the exposed sheet moss serves as a decorative surface. Antlers and slender limbs often look better unplanted.

Stroll through greenhouses and plant shops to see what plants strike your fancy, or order plants by mail. Don't be afraid to try unusual plants that can give your beasts and other whimsical creations a special look.

Creating Stuffed Topiary

To construct indoor topiary of any shape or size, the following materials are necessary: frames, filler, wrapping and training aids, and rooted cuttings or small plants. (See "Sources" on page 43 for information on how to locate these supplies.)

Frames. There are two basic types of frames. One is freestanding, and is used with shallow or flat containers. The other has spikes for anchoring the frame below the soil surface, and is designed for use with pots. (The latter type of frame is the more stable of the two and should be used with all top-heavy shapes.)

When selecting a frame, keep in mind that the completed figure will be larger overall than the bare frame. You can control the size of the end product by choosing plants carefully. For example, ivy will provide a thicker covering than will creeping fig. (You can figure an additional one inch for ivy, more for large-leaved cultivars.)

For indoor use, frames are made of rust-

resistant, light-weight metal. Frames constructed of heavy-gauge stainless steel can be used in frost-free regions, where stuffed topiary figures can be left outdoors all year round. Or, frames can be constructed at home of aluminum wire or coat hangers. However, since commercial frames are available in a variety of shapes and sizes, your time is probably better spent stuffing and planting. (Keep in mind that you can always add character to a ready-made frame by bending it to give a tilt to a head or tail.)

Filler. Before plants can be trained over a frame's surface, the frame must be filled or stuffed with a growing medium. The medium should consist of ingredients that are moisture-retentive and capable of providing nutritional as well as physical support for the plants' root systems.

The filler should also be relatively light weight so that the topiary figure is not too bulky or difficult to move. To reduce the weight of the filler, pieces of Styrofoam® may be placed in the center of large forms before filling. Weight can also be reduced by filling plastic bags with Styrofoam® pellets or perlite. If you use bags, poke holes through the plastic so that the roots can penetrate.

You can also use cheesecloth to hold the pellets or perlite. Although cheesecloth is more expensive than plastic, it eventually rots, allowing the perlite or pellets to mix with the soil, and thus provides a haven for roots in the core of the form.

Coarse, shredded sphagnum is frequently used as an ingredient in filler for stuffed forms. Never use milled sphagnum, as its texture is not suited to topiary.

Sterile, soilless mixes are by far the best fillers. Potting soil is much heavier and lacks the moisture-retaining properties of soilless formulas. Never use garden soil; it is full of insects, fungi and bacteria that will run rampant in damp topiary.

Topiary Wrapping. Topiary forms are wrapped to provide an even surface for the stuffed form as well as a place for the adventitious roots to anchor. The most common wrapper is sheet moss. Although dried, brownish moss will prove satisfactory for most topiary projects, fresh, predominantly green sheet moss is preferred when portions of the frame will be left unplanted.

You can use various materials to secure the sheet moss to the frame, including monofilament fishing line and florist wire. If monofilament is used, eight- to 10-pound test line is a good strength for all but the largest projects. For very large shapes, 25-pound test is the best weight. If you use florist wire to wrap sheet moss, number 30 is an ideal weight. Although easier to work with than fishing line, florist wire rusts quickly and should not be used for forms you intend to keep for any period of time.

Preparing the Form. Before filling the form, soak the sheet moss in a weak solution of liquid fertilizer; let it drain, then squeeze out excess moisture. (Moss may also be used dry.) Moisten the sphagnum and soilless mix. Then line the base of the frame with sheet moss, adding chicken wire or hardware cloth as necessary. Stuff the frame with a mixture of sphagnum and soilless medium. Use two parts soilless product to one part sphagnum in the main body portion. For tails, heads and other narrow extremities, use one part soilless medium to two parts sphagnum. Hang pieces of sheet moss around the stuffed portion, reserving the bigger pieces for larger areas of the figure. Cover the entire form. Next, lash the moss covering on tightly with monofilament line. Leave a tail at the beginning, wind back to the starting point, and use the tail to tie it off securely. Finally, check details such as ears and paws, adding bits of sphagnum as necessary to lend character and definition.

Planting. There are two methods of planting. You can plant the vines in a pot in which you have anchored the shape, training the runners up and around the form, or you can insert smaller plants in the form itself. The latter technique is sometimes referred to as "plugging." The advantage

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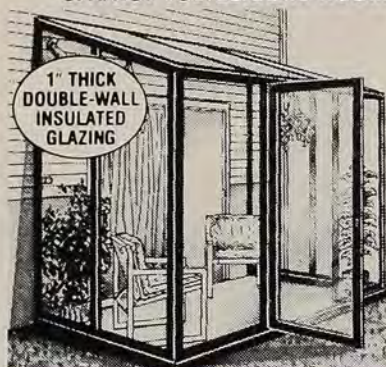
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of plugging is that you may soak your entire creation in a tub, sink or pail of water to keep the growing plants properly moistened.

To follow the first method, select a pot that is approximately the size of the base of your form. Plant two good-sized, healthy specimens on either side of your form (more if the form is large or you are in a hurry to obtain a finished look). Since the form will almost cover the surface of the pot, place the plants as close to the rim as possible; otherwise, the plants will come up inside the form. Orient the plants so the underside of the foliage faces upward. (Ivies, for example, will flop out of the pot with leaves pointing down and stems up.) This

way, once the vines have been secured to the surface of the form, the leaves will be correctly oriented. Next, firmly anchor the form in the center of the container, taking care not to damage the plants. Lift up the plants and lay them on the form, covering the surface as evenly as possible. Pin the tendrils loosely. Remember, you are aiming for one layer of growth only; leaves trapped beneath others will rot. Once you have decided on the pattern, pin the vines securely, because they will root where they are pinned. Do not puncture the leaves or delicate shoot tips.

Hairpins are excellent for training tendrils or securing vines around the form. Florist pins are adequate but a little clumsy

Recommended Plants for Indoor Topiary

- *Dracaena marginata* 'Tricolor'. Small specimens of this cream-, green- and red-striped plant lend a feathery look to indoor topiary. Although it doesn't have a vining habit, it provides good coverage and interesting color to many projects.
- *Ficus pumila* (creeping fig). This is the most dependable plant for indoor use. It roots easily, rarely succumbs to insects or disease, and gives a smooth, dark green appearance to plant sculptures.
- *F. pumila* 'Quercifolia' (oak-leaf creeping fig) and *F. pumila* 'Minima' (miniature creeping fig) create an even finer texture but are slow-growing. *F. pumila* 'Variegata' has white-splashed leaves. These cultivars are useful in providing contrast on the same form, since all have the same care requirements. Outdoors, creeping fig is hardy to Zone 9. Indoors, it should never be allowed to dry out.
- *Ficus sagittata* 'Variegata' (formerly *F. radicans*). This cultivar, closely related to creeping fig, has pointed, gray-green leaves with creamy-white markings along the margins.
- *Fittonia verschaffeltii*. Two varieties of this plant are especially effective for topiary work. The leaves are quite flat and paper-thin, and the bright colors are a marvelous change from the greens. *F. verschaffeltii* var. *argyroneura* is bright green with white veins. *F. verschaffeltii* var. *pearcei* is olive-green with pink veins. Both plants need frequent, heavy waterings.
- *Hedera helix* (English ivy). Ivy is very popular for topiary because of its tremendous variability. There are hundreds of cultivars with ruffled, pointed or heart-

shaped leaves, some edged with gold or white. Use leaf shapes and colors that will enhance the special characteristics of your subject. Try a white-marked selection for the body of a panda, and plant a dark green type on the limbs.

The following cultivars of English ivy have been found to be most successful. (Do not limit yourself to these, however; try others, but look for plants with leaves closely set on their stems.)

- *H. helix* 'Glacier' has white-marked triangular leaves.
- *H. helix* 'Little Diamond' has even more white than 'Glacier', but sports smaller, densely borne leaves.
- *H. helix* 'Gold Dust' is graced with trilobed, gold-speckled foliage.
- *H. helix* 'Needlepoint' has tiny, dark green leaves that grow in profusion along self-branching stems.
- *H. helix* 'Ivalace' is another miniature cultivar. The glossy leaves have curled margins that give the plant a lacy appearance. This is a special favorite.
- *H. helix* 'Itsy Bitsy' has diminutive, pointed foliage.
- *H. helix* 'Fleur de Lis' bears apple-green leaves that are shaped as the name implies.
- *Soleirolia soleirolia* (baby's-tears). This moss-like plant is an attractive lush green, and forms dense mats of tiny foliage. The thread-thin stems root easily where they touch moss or soil. Little pinning is necessary; simply snip off unruly growth. This plant cannot survive episodes of neglect; make sure the form never dries out, and mist daily. *S. soleirolia* 'Aurea' has predominantly golden-yellow leaves.

to work with. In a pinch, number 21 florist wire can be cut into short lengths and bent into pins, or paper clips can be reshaped to form crude pins.

For the second method, select plants or rooted cuttings. Plants grown in two- or three-inch pots are perfect for most projects. However, those grown in four- to six-inch pots are preferable if you want large sculptures to be covered rapidly. Using a sharp knife, make a slit in the sheet moss. Remove the plant from its container and insert it in the opening as deeply as possible, pressing gently but firmly to be sure no air pockets surround the roots. Next, close the opening around the plant with a plug of sheet moss so that the roots are enclosed and the stuffing will not fall out during watering. Then secure the moss plug with a pin. Continue planting until the main surfaces are covered. Don't plant in extremities or narrow portions in the form, since these areas dry out too quickly to sustain root systems. To cover these spots, train vines planted in adjacent areas. Finally, pin the tendrils in place.

Although ordinary household scissors or penknives will suffice for most stuffed topiary work, a few specialized but inexpensive tools will make many construction and maintenance tasks easier. Wire cutters are useful for cutting florist wire and pins, and for pruning out woody branches when grooming more established topiary plants. Seam scissors are invaluable for delicate work and for removing dead leaves. Tweezers, particularly the long surgical models, are especially helpful with meticulous grooming.

Stuffed topiary is a relatively new art form, but it is part of a discipline that has a long history. The emergence of this modern style has coincided with a renewed interest in topiary's traditional forms. In her recent book, *Classic Garden Design*, Rosemary Verey notes, "Now is the moment to think about the revival rather than the survival of topiary, and the extent to which, from a practical point of view, it can be used in present-day gardens." Indeed, thanks to the newfound versatility of topiary in its stuffed version, we can all now render our favorite subjects in living sculpture. 🌿

Barbara S. Gallup is President of Totally Topiary, a company that specializes in creating custom topiary. She has lectured on the subject and has won numerous prizes for her work. Deborah A. Reich is a former freelance landscape designer who has joined Totally Topiary. The authors are currently collaborating on a book about topiary.

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Book Reviews

THE SMALLER RHODODENDRONS.

Peter A. Cox. Timber Press. Portland, Oregon. 1985. 271 pages; hardcover, \$29.95. AHS member price, \$25.48.

As a gardener, nurseryman and rhododendron enthusiast, Peter Cox draws upon his personal experience when writing about his favorite plants. *The Smaller Rhododendrons* is a new book, not a revision of *The Dwarf Rhododendrons* (published in 1973), and it deals with the most garden-worthy rhododendrons whose ultimate height in cultivation is less than five feet. In his book, Cox updates the classification and taxonomy of these plants, and includes information on the new species and hybrids that have been introduced.

The major portion of *The Smaller Rhododendrons* is devoted to descriptions of *Rhododendron* species. Each discussion includes comments on garden suitability and hardiness. Also included are explanations, where appropriate, of how recent changes in classification affect each species. This may be more information than the non-specialist needs, but for those gardeners closely involved with these plants, these notes may clear up any confusion resulting from the latest botanical revisions within the genus.

Chapters on culture and garden use are relatively brief, but they are loaded with good, useful information. A list of recommended species for special situations is particularly helpful for anyone choosing plants for his or her own garden.

GROWING ORCHIDS (BOOK FOUR—THE AUSTRALASIAN FAMILIES).

J. N. Rentoul. Timber Press. Portland, Oregon. 1985. 190 pages; hardcover, \$26.95; softcover, \$19.95. AHS member price, \$22.95 (hardcover), \$16.98 (softcover).

The first three volumes of this series were primarily devoted to the cultivation of the world's orchids in Australia. This new volume deals with the worldwide cultivation of Australia's orchids. The book is organized by genus, and includes general notes on habitat, history of cultivation and taxonomy. The author discusses the more im-

portant species individually, and pays particular attention to the details of habitat as well as cultural requirements. Unlike most books about growing orchids, *Growing Orchids* gives the terrestrial orchids and the more popular epiphytes equal coverage. In addition to black-and-white text illustrations, 72 pages of excellent color photographs illustrate most of the species described in the volume.

DICTIONARY OF PLANT NAMES.

Allen J. Coombes. Timber Press. Portland, Oregon. 1985. 207 pages; hardcover, \$9.95. AHS member price, \$8.48.

As any good gardener knows, the only reliable name for a given plant is the scientific name. Common names of plants vary from place to place, and a single common name often refers to two or more different plants. Many people are reluctant to use botanical names because they are afraid of mispronouncing them. Allen Coombes has solved this problem with his *Dictionary of Plant Names*. Not only does he provide the meanings and origins of the scientific names of most of our garden plants, but he also includes a simple guide to pronunciation for every genus and species listed. If, for whatever reason, you have difficulty using the scientific names of the plants in your garden, this little book may well be the answer to your problem.

—Gilbert S. Daniels

GARDENING: THE COMPLETE GUIDE TO GROWING AMERICA'S FAVORITE FRUITS & VEGETABLES.

The National Gardening Association. Addison-Wesley. 1986. 432 pages; hardcover, \$34.95; softcover, \$19.95. AHS member price, \$26.95 (hardcover), \$15.38 (softcover).

This is both a beautiful and a useful guide to growing fruits and vegetables. The book begins with a discussion of how to choose a site, and contains many helpful suggestions on how to design a practical and attractive garden.

The majority of the book is devoted to individual chapters on over 40 different fruits and vegetables. These chapters provide the essential information on the plan-

ning, preparation, planting, care and harvesting of the various vegetables, fruits and berries that are included. The section on beans, for example, begins with a general discussion on growing beans, followed by detailed discussions on how to grow and harvest the three major types of beans: snap beans, shell beans and dried beans. It also contains instructions for building a pole bean trellis and includes a chart summarizing planting recommendations and days to harvest. Other vegetables covered in this manner include asparagus, beets, Brussels sprouts, celery and tomatoes. A separate chapter entitled "Other Vegetables" includes cultural information for such vegetables as kale, mustard greens, watercress and celeriac. The vegetable section concludes with a chapter on insects and diseases.

The section of the book containing chapters on fruits and berries covers such crops as apples, apricots, blackberries, citrus, grapes, raspberries and strawberries. A discussion of insect pests and diseases of fruits and berries concludes this section.

Gardening is lavishly illustrated with drawings and color photographs, and there

are many useful charts that contain a wealth of information. This is an excellent reference for anyone interested in growing food plants.

AZALEAS.

Fred C. Galle. Timber Press. Portland, Oregon. 1985. 486 pages; hardcover, \$65.00. AHS member price, \$55.25.

Although Fred Galle originally intended simply to revise and update Frederick P. Lee's popular work, *The Azalea Book*, *Azaleas* is a completely new book that presents up-to-date information on this remarkable group of plants.

Azaleas begins with introductory chapters on *Rhododendron* and azalea taxonomy and nomenclature, but the majority of this book is devoted to descriptions of the various *Rhododendron* species that are commonly called azaleas, as well as the thousands of azalea cultivars developed the world over. The plant descriptions are divided into chapters on deciduous and evergreen azaleas, and the book also sets forth the various taxonomic relationships between these species by grouping them by subseries and alliance.

Each description contains a brief history of the species, distribution information and a description. The cultivars are listed by hybrid groups. For example, the Ghent, Mollis and Knap Hill hybrids are all listed separately. Lee has included a brief history of each group and describes each cultivar in the group. In all, 6,000 cultivars are described, and the "list" section of the book occupies over 240 pages. Color plates illustrate 366 of the plants that are described.

The author has also included very useful chapters on the use of azaleas in the landscape, planting and care, propagation, hybridization, pests and diseases, as well as information on special azalea culture, such as bonsai, standards, espaliers and gift plants. In short, this is a definitive work that will be an essential part of every azalea fancier's library for years to come. ☼

—Barbara W. Ellis

Barbara Ellis is Editor of *American Horticulturist* and Publications Director for the American Horticultural Society. Gilbert S. Daniels is the immediate Past President of the American Horticultural Society.

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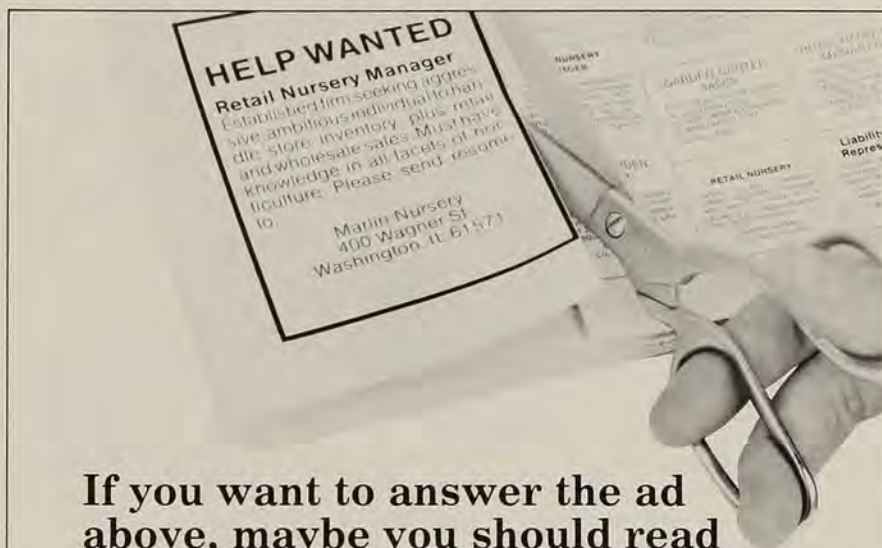
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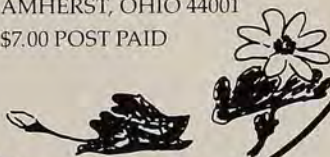
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In Search of Gertrude Jekyll (July 24-August 7). Learn about the remarkable partnership between Gertrude Jekyll and Sir Edwin Lutyens, which produced some of England's finest gardens and had a lasting impact on garden design the world over. Tour homes and gardens by Jekyll and Lutyens such as Little Thakeham, Millmead, Munstead Wood and Hestercombe. We will also visit Hidcote, Kiftsgate and Cliveden. Join tour leader Mac Griswold, a garden writer and historian who is working on a book about garden images for the New York Metropolitan Museum, for a fascinating tour.

Switzerland and Northern Italy (July 11-25). Travel to the scenic Italian Lake district, and visit gardens along Switzerland's Lake Lugano as well as beautiful Lake Maggiore. We will visit Villa Carlotta with its wonderful terraced gardens and see the sights of St. Moritz. Participants will learn about alpine plants while crossing the Julier Pass to Lucerne, and on the way to Interlaken. Don't miss this opportunity to enjoy some of Europe's most breathtaking scenery.

Southern California (August 4-10). Don't miss our pre-Annual Meeting tour to public and private gardens along the coast of southern California, from San Diego to San Francisco. Visits to Rancho Santa Ana Botanic Garden, Los Angeles State and County Arboretum, Alice Keck Memorial Garden in Santa Barbara and the flower fields in Lompoc are included. We will also tour the Antonelli Brothers'

Begonia Gardens in Capitola and the Filoli Estate in Woodside. Tour leaders Robert M. Fletcher, a landscape architect from Los Angeles, and Dennis R. Pittenger, Extension Urban Horticulturist at the University of California, Riverside, will guide us on our way.

The Pacific Northwest (August 19-22). Visit spectacular gardens in the Pacific Northwest on the Society's post-Annual Meeting tour. Tour the Portland Japanese Garden, the International Rose Garden, Berry Botanical Garden and the Hoyt Arboretum while in Portland. We will visit Mount Rainier and the beautiful Rhododendron Species Foundation Gardens on our way to Seattle. Visits to Seattle's Freeway Park, Carl English Garden and Washington Park Arboretum will top off this exciting tour. John Wott, an AHS Board Member and Professor of Urban Horticulture at the Center for Urban Horticulture will be our tour leader.

Fall England (September 10-25). Enjoy England's least spoiled and loveliest areas on this tour of the counties of Essex, Suffolk, Norfolk and Cambridgeshire. We will visit some of this country's finest gardens, including Harlow Car, Sandringham, Stourhead and the Cambridge Botanical Garden.

YES! Please send me more information on the tours I have checked below.

- ☐ The Amazon
- ☐ In Search of Gertrude Jekyll
- ☐ Switzerland & Northern Italy
- ☐ Southern California
- ☐ The Pacific Northwest
- ☐ Fall England

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Sources

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

UGH! FETID FLOWERS

Gardeners who would like to try growing some of the plants mentioned in Tovah Martin's article may order them from the following companies:

The Abbey Garden, Dept. AH, 4620 Carpinteria Avenue, Carpinteria, CA 93013, Catalogue \$2.00.

Altman Specialty Plants, Dept. AH, 553 Buena Creek Road, San Marcos, CA 92069, Catalogue \$1.00.

The Banana Tree, Dept. AH, 715 Northampton Street, Easton, PA 18042, Catalogue 40¢ in stamps. Seed only.

John Brudy Exotics, Dept. AH, 3411 Westfield Drive, Brandon, FL 33511, Catalogue \$1.00. Seed only.

Kartuz Greenhouses, Inc., Dept. AH, 1408 Sunset Drive, Vista, CA 92083, Catalogue \$2.00.

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

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David Kay, Inc., Dept. AH, 4509 Taylor Lane, Cleveland, OH 44128, Catalogue free.

Kenneth Lynch & Sons, Dept. AH, P.O. Box 488, Wilton, CT 06897, Catalogue \$7.50.

Meadowbrook Farm, Dept. AH, 1633 Washington Lane, Meadowbrook, PA 19046, Catalogue 44¢ in stamps.

Topiary Artworks and Greenhouses, Dept. AH, P.O. Box 574, Clearwater, KS 67026, Catalogue free.

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Pronunciation Guide

Acer palmatum AY-ser pal-MAY-tum
Acorus calamus AK-oh-rus KAL-ah-mus
Alpinia mutica
 al-PIN-ee-ah MEW-tih-kah
A. officinarum a. oh-fiss-i-NAIR-um
A. purpurata a. pur-pur-AY-tah
A. sanderi a. SAN-der-ee
A. speciosa a. spee-see-OH-sah
A. tricolor a. TRY-cull-or
A. zerumbet a. ZER-um-bet
Alyssum saxatile
 ah-LISS-um sacks-ah-TILL-ee
Amorphophallus rivi
 ah-mor-foe-FAL-us riv-ee-AIR-eye
A. titanum a. tie-TAN-um
Antigonon leptopus
 an-TIG-oh-non LEP-toe-pus
Aquilegia canadensis
 ak-quí-LEE-jee-ah can-ah-DEN-sis
Arisaema atrorubens
 air-iss-SEE-mah at-row-RUE-benz
A. dracontium a. drah-KON-tee-um
A. stewardsonii
 a. stew-ard-SONE-ee-eye
A. triphyllum a. try-FILL-um
Aristolochia ringens
 air-riss-toe-LOW-kee-ah RING-genz
Aurinia saxatilis
 aw-RIN-ee-ah sacks-ah-TILL-iss
Averrhoa carambola
 av-er-ROW-ah kar-am-BOWL-ah
Begonia bracteosa
 be-GO-nee-ah/be-GOAN-yah
 brac-tee-OH-sah

Caladium kah-LAY-dee-um
Calceolaria ranunculoides
 kal-see-oh-LAIR-ee-ah
 rah-nun-kew-LOY-deez
Campanula muralis
 kam-PAN-yew-lah mure-AL-iss
C. portenschlagiana
 c. por-ten-schlag-ee-AY-nah
Cestrum nocturnum
 SES-trum nock-TURN-um
Chlorophytum comosum
 klor-oh-fie-tum koe-MOE-sum
Coleus KOE-lee-us
Cornus kousa CORN-us KOO-sah
Costus igneus KOSS-tus IG-nee-us
C. speciosus c. spee-see-OH-sus
C. spicatus c. spy-CAT-us
Cotoneaster dammeri
 koe-toe-nee-ASS-ter DAM-mer-eye
Curcuma angustifolia
 kur-KOO-mah an-gus-tih-FOE-lee-ah
C. domestica c. doe-MESS-tih-kah
C. longa c. LONG-ah
C. pallida c. PAL-ih-dah
C. petiolata c. pet-ee-oh-LAY-tah
C. zedoaria c. zee-doe-AIR-ee-ah
Dianthus die-AN-thuss
Dieffenbachia dee-fen-BACH-ee-ah
Dracaena marginata
 drah-SEE-nah mar-jin-AY-tah
Dracunculus vulgaris
 drah-KUN-kew-lus vul-GAIR-iss
Elettaria cardamomum
 el-eh-TAIR-ee-ah car-dah-MOE-mum
Euphorbia pulcherrima
 yew-FOR-bee-ah pull-CARE-im-ah
Ficus pumila FIE-kus PEW-mil-ah
F. radicans f. RAD-ih-kanz
F. sagittata f. saj-ih-TAY-tah
Fittonia verschaffeltii
 fit-TONE-ee-ah ver-shah-FELT-ee-eye
Geranium maculatum
 jer-AY-nee-um mack-yew-LAY-tum
Hedera helix HEAD-er-ah HE-licks
Hedychium coronarium
 hed-ICK-ee-um core-oh-NAIR-ee-um
H. flavum h. FLAY-vum
H. gardnerianum h. gard-ner-AY-num
H. spicatum h. spy-KAY-tum
Heliconia rostrata
 hell-ih-COE-nee-ah ross-TRAY-tah
Ilex EYE-lecks
Ionopsis utricularioides
 eye-on-OP-sis
 you-trick-yew-lair-ee-OY-deez
Iris EYE-riss
Juniperus horizontalis
 jew-NIP-er-us hor-ih-zon-TAL-iss
Kaempferia atrovirens
 kemp-FUR-ee-ah at-row-VIE-renz

K. galanga k. gal-LANG-gah
K. roscoeana k. ross-koe-ee-AY-nah
K. rotunda k. row-TUN-dah
Kalmia latifolia
 KAL-mee-ah lat-ih-FOE-lee-ah
Koelreuteria paniculata
 kel-rew-TAIR-ee-ah pan-ick-yew-LAY-tah
Lupinus ballianus
 lew-PINE-us ball-ee-AY-nus
Lysichiton ly-sih-KY-ton
Magnolia stellata
 mag-NO-lee-ah stell-AY-tah
Malus MAL-us
Myosotis scorpioides
 my-oh-SO-tiss score-pee-OY-deez
Nicolaia elatior
 nick-oy-LAY-ee-ah ee-LAY-tee-or
Passiflora jorullensis
 pass-ih-FLOOR-ah jor-rue-LEN-sis
Philodendron fill-oh-DEN-dron
Pieris japonica
 pee-AIR-iss jah-PON-ih-kah
Pilea microphylla
 PY-lee-ah my-kro-FILL-ah
Pinus densiflora
 PIE-nus den-sih-FLOOR-ah
Primula PRIM-you-lah
Prunus PRUNE-us
Pyrus calleryana PIE-rus kal-er-ee-AY-nah
Rhododendron row-doe-DEN-dron
Ruellia rue-ELL-ee-ah
Salix babylonica
 SAY-licks bab-ih-LON-ih-kah
Sanchezia conferta
 san-CHEZ-ee-ah kon-FER-tah
Sanguinaria canadensis
 San-gwin-AIR-ee-ah can-ah-DEN-sis
Sauromatum guttatum
 sour-oh-MAY-tum goo-TAY-tum
Semperflorens sem-per-FLOOR-enz
Senecio articulatus
 sen-EE-see-oh are-tick-you-LAY-tus
Soleirolia soleirolia
 soe-lie-ROLL-ee-ah sol-lie-ROLL-ee-eye
Spathodea campanulata
 spath-oh-DEE-ah kam-pan-yew-LAY-tah
Stapelia gigantea
 stah-PEEL-ee-ah jie-GAN-tee-ah
Stewartia pseudocamellia
 stew-ART-ee-ah SUE-doe-kah-MEAL-ee-ah
Symplocarpus foetidus
 sim-ploh-CARP-us FET-tid-us
Taxus baccata TACKS-us back-AY-tah
Tradescantia fluminensis
 tray-des-KAN-tee-ah flue-mih-NEN-sis
Tsuga canadensis SUE-gah can-ah-DEN-sis
Vinca minor VIN-kah MY-nor
Zingiber darceyi ZIN-gih-ber DAR-see-eye
Z. officinale z. oh-fiss-ih-NAL-ee
Z. zerumbet z. ZER-oom-bet

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