

American Horticulturist

A Publication of the American Horticultural Society

August 1990

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Horatio Herbert Kitchener Island at Aswan. Program leaders are Carolyn Marsh Lindsay and Bob Lindsay. Mrs. Lindsay is a Past President of AHS.

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April 16-21, 1991 **AHS Annual Meeting in Birmingham**

Enjoy the beauty of Birmingham, Alabama, during the American Horticultural Society's 1991 Annual Meeting. The Meeting will focus on gardening classes and clinics held at the Birmingham Botanic Garden; horticultural tours will highlight some of Birmingham's finest public and private gardens. Post-meeting tours will feature fabulous gardens throughout Alabama as well as a riverboat cruise up the beautiful Mississippi River.

American Horticulturist

Volume 69, Number 8

August 1990

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Employees of a research lab in this California city can take a break in a stroll garden complete with "mountains."

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Fascinated with Fasciation

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AUGUST'S COVER

©Photographed by Maryl Levine

Roses are delightful in May, but even more welcome in late summer and into fall when other blooms have beat a retreat. 'Gold Medal', a hybrid tea introduced in 1982, is one of nearly 400 hybrid teas, grandifloras, floribundas, and climbers to be seen at the American Horticultural Society's River Farm headquarters. Flower prints by Maryl Levine are among the many items available at the River Farm Cottage Shop.

EDITOR: Kathleen Fisher. ASSISTANT EDITOR: Mary Beth Wiesner. EDITORIAL ASSISTANT: Martha Palermo. DESIGN DIRECTOR: Ellen Cohen. MEMBERSHIP DIRECTOR: Kathleen B. Amberger. ADVERTISING: American Horticultural Society Advertising Department, 80 South Early Street, Alexandria, VA 22304, telephone (703) 823-6966. COLOR SEPARATIONS: Chroma-Graphics, Inc. EDITORIAL ADVISORY BOARD: Dr. Gerald S. Barad, Flemington, NJ; Dr. Harrison Flint, West Lafayette, IN; Peter Loewer, Biltmore Station, NC; Dr. Elizabeth McClintock, San Francisco, CA; Frederick McGourty, Norfolk, CT; Janet M. Poor, Winnetka, IL; Maire Simington, Phoenix, AZ; Jane Steffey, Sykesville, MD; Dr. James E. Swasey, Newark, DE; Philip E. Chandler, Santa Monica, CA.

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COMMENTARY

In coming months, I would like to introduce myself personally and talk with each one of you. But I will not be able to do so unless you attend our Annual Meeting, or a symposium that we sponsor, or one of the many garden shows in which we participate. I will be attending many of these events where I hope to see you and hear your views on the future of American horticulture and the role of AHS.

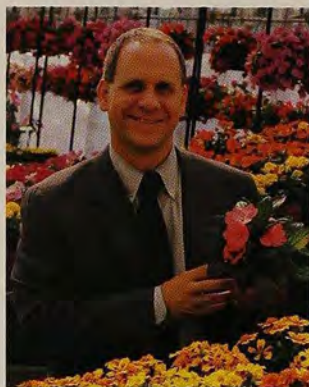
Perhaps your views, like mine, are evolving. On the other hand, they may be set in place, rooted in experiences of many years in and around gardens. In either case, we need to start a dialogue in these pages. First, let me tell you a bit about myself and my own ideas about the American Horticultural Society.

I'm a Midwesterner, born in the suburbs of Chicago, where I still reside. Raised in a family horticultural business, I learned it literally from the ground up. Having traveled extensively, I've learned about how horticulture is practiced, for both pleasure and profit, in other cultures. I share with you a great respect for plants of all kinds. I have a small garden that I spend too little time in, and I keep an eye out for those special plants for which I might have an affinity. Everyone has a group of favorites. Mine is a hodge-podge. My perspective is continuously influenced by business opportunities. For example, I try experimental cultivars from our breeders. I may not have any personal attraction to them for months. Then, suddenly, I see the point, the essence of the plant. This experience of learning about new plants is the heart of my interest in horticulture.

I feel very fortunate to have a life working with plants, and I am fortunate to have been offered the opportunity to provide AHS with leadership as its President. Over the next year, I intend to focus the efforts of the dedicated AHS Board and staff on developing a strategic plan that will set the course for the next decade. This process will require study, analysis, and discussion. We must answer the challenges presented to the advancement of gardening and the profession of horticulture by migration and the aging of our society, the decline of old traditions, the emergence of new ones, and the rapid increase of knowledge. I believe that societies, and all elements within them, should be constantly evolving. Without recognizing change and adapting to it, they stagnate.

The American Horticultural Society is in an excellent position to guide the nation toward a better understanding of horticulture. Our members are committed to disseminating sound technical information as well as lively articles on plants, gardens, and gardeners. We need new members in order to expand our many activities. To attract them, we will develop a range of new, additional services for both new and old members.

We all have a lot of particular notions and special interests that make us unique individuals. Please let us know what you want your Society to do for you. We appreciate letters from you and I will gladly answer as many of them as I can. But most of all, I look forward to meeting you at one of our many events. Please come to one of them. They are personally enriching and horticulturally rewarding.



George C. Ball Jr.
AHS President

American Horticultural Society

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A Flower Arranger's Symposium

Cleveland will be blooming this October during a Flower Arranger's Symposium co-sponsored by the American Horticultural Society and the Garden Center of Greater Cleveland. The symposium, which will be held October 9 at the garden center, will feature speakers, slide presentations, and a fresh flower arranging demonstration.

Topics and presenters for the one-day event are:

♦ **"Unusual Perennials and Annuals Excellent for Cutting,"** presented by Allen Armitage, professor of horticulture at the University of

Georgia. Armitage is a sought-after speaker who has lectured to the trade on topics ranging from growing flowers for the fresh-cut market to procedures for keeping them in prime condition.

♦ **"Grasses—The Under Utilized Element,"** a lecture by John Greenlee. Owner and manager of a Pomona, California, nursery specializing in unusual grasses, Greenlee will describe varieties adaptable to the perennial garden as well as easily found wayside varieties suitable for floral designs.

♦ **"Variegated and Colored Foliages,"** a talk by Janet Oberliesen, director of development of Chadwick Arboretum of the Ohio State University in Columbus, Ohio. Oberliesen is an accredited flower show judge and has served on the decorations committee of the Columbus Museum of Art.

♦ **"Inspiration and Techniques for the Flower Arranger,"** a demonstration by Pauline Runkle, owner and manager of a floral design and landscaping business in Manchester-by-the-Sea, Massachusetts. Runkle was production assistant for the WGBH television series "A Small City Garden," and is a regular participant in the Boston Museum of Fine Arts' "Art-in-Bloom" festival. Her work has appeared in *Better Homes and Gardens* and *Town and Country* magazines.



Pauline Runkle

The charge for the symposium, which includes a box lunch, is \$78 for AHS members and members of the Garden Center of Greater Cleveland; \$88 for non-members. Lectures begin at 9:30 a.m. followed by lunch and the design demonstration, which finishes at 3:00 p.m.

To register, fill in the form below and mail it, along with a check payable to the Garden Center of Greater Cleveland, to the Garden Center at 11030 East Boulevard, Cleveland, OH 44106, Attn: Flower Arranging Symposium. Registrations

must be received by October 1 as seating is limited. For more information or directions to the Garden Center call Marilyn Sommer at (216) 721-1600.

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Registrations must be received by October 1, 1990.

BOOK REVIEWS

HEMEROCALLIS: THE DAYLILY

R.W. Munson Jr. Timber Press, Portland, Oregon, 1989. 144 pages. Color photographs. Publisher's price, hardback: \$39.95. AHS member price: \$33.95.

When Bob Thomson, host of "The Victory Garden," calls daylilies "America's favorite perennial," it's time to take notice of these remarkable flowers, once relegated to roadsides and abandoned homesteads. Bill Munson's glorious book will cause anyone who sees it to take a fresh and dazzled look at the modern daylily. Just the stunning photos of four daylilies on the dust jacket will hold you entranced as you examine their extraordinarily complex coloring and forms.

Munson's preface alone makes this book indispensable for all who are engaged in the hybridizing of *any* plant genus. The point is passionately and effectively made that breeders must consider plant habit and health, in addition to floral beauty. The daylily's claim to fame as a carefree garden plant is being eroded as breeding emphasis often focuses too narrowly on the flower.

The introduction traces the early history of *Hemerocallis* from the first reference in Chinese literature in 2697 B.C. through

importation into Europe in about 1550 A.D. Chapter one follows logically with descriptions of the species.

A distinctive and delightful feature of this book is the section containing biographical sketches of individuals who made significant contributions to the development of the modern daylily. Bill's long association with the genus has brought him into contact with many of these individuals and allows him to add personal anecdotes that enliven the historical record.

The central feature of the book is a dazzling forty-nine-page section that describes 521 "worthy daylilies," 187 of which are pictured in gorgeous color. Readers of the book should be cautioned that while all the cultivars pictured are "worthy," they are not equally so in all parts of the country. Some perform beautifully in the South, while others are more suited to the Northern states. A few, unfortunately not identified as such, serve well in all regions.

As a fleeting glance at the photographs will demonstrate, the old yellow and fulvous orange daylily has been transformed into a genus with a full rainbow of colors (including white, black, and brown, but alas, not blue or aqua) and forms ranging from wide and ruffled to spidery.

From growing daylilies to hybridizing them is almost inevitable, and a clearly written chapter describes the process well from the moment of pollen dabbing to the magic moment when a new creation unfurls its first blossom.

A section on landscaping provides an excellent list of basic elements to be considered, accompanied by photos of daylilies used effectively in landscapes; the following chapter covers horticultural requirements and is illustrated by instructive photos showing the propagation of daylilies.

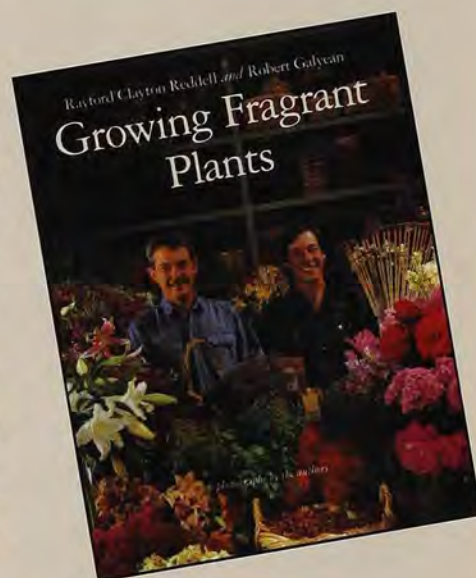
Final chapters on the judging standards and awards and honors system of the American Hemerocallis Society (AHS) are largely quoted from the current edition of the *AHS Judge's Handbook*. An appendix lists seventy-two reputable sources for daylilies, and the index, listing primarily people and cultivars, is helpful.

While much of the book will become dated in a few years, placed on your coffee table it will provide ample inspiration, and

the horticultural and historical information make it a valuable companion to other texts on *Hemerocallis*.

—Jim Seeden

Jim Seeden is the founder and current president of the Hemerocallis Society of Minnesota and chairman of the American Hemerocallis Society's 1991 National Convention.



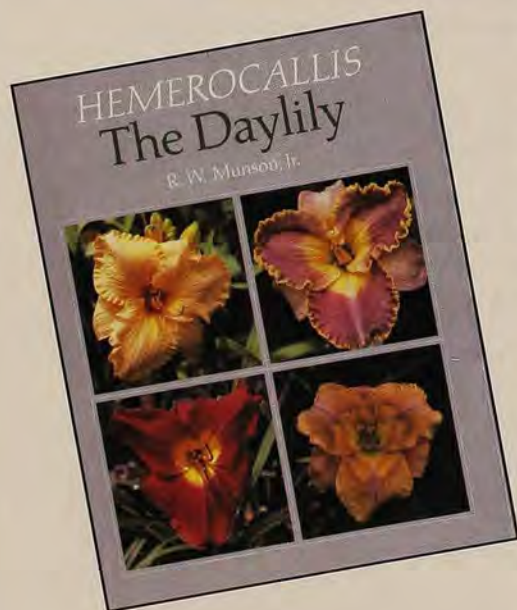
GROWING FRAGRANT PLANTS

Rayford Clayton Reddell and Robert Galyean. Harper & Row, New York, New York, 1989. 173 pages. Color and black-and-white photographs. Publisher's price, hardcover: \$35.95. AHS member price: \$30.50.

This book is the authors' report card on their successes and failures at their Garden Valley Ranch, a commercial flower ranch near Petaluma, California, forty-three miles north of San Francisco. But what a report card! The style is informal and conversational, while eschewing inconsequential chit-chat.

Reddell is the ranch owner and the book's true chronicler; Galyean is the ranch foreman and head gardener for the fragrant garden, and also Reddell's resource for data and details.

Despite its California origin, the book manifests minimal regionalism. Petaluma,



though relatively mild compared to most of the nation, still sustains an occasional freeze that's not supposed to happen. And happily, cultural notes for the 250 or so plants described are homeowner oriented and will fit many gardens and gardeners of America. The 175 photographs, most in full color, are a delight.

Plant lore, curious facts, historical notes, anecdotes, and opinions abound.

In speaking of hyacinths: "Modern varieties almost always produce one bloom per stem. Cutting them seems extravagant. However, to deny oneself the pleasure of having their irresistible aroma in the house seems masochistic. Either plant twice as many as you first considered, planning to smuggle half of the blooms indoors, or plant bulbs inside to begin with."

About roses for potpourri making: "While it's true that rose petals are the essence of most potpourris, none retains strong scent after drying. Only essential oils revive faded aromas; don't let anyone persuade you otherwise."

There is a multitude of useful planting suggestions such as digging a trench twelve to eighteen inches deep for planting sweet peas. (They also make a similar foot-deep trench for hyacinths.) A brief but useful section provides tips on landscaping for fragrance. The drying and potpourri section is a trifle longer and is packed with helpful tips: If you're really cramped for drying room, spread newspapers under the beds and scatter petals on the papers. If you dry your own citrus rind, be sure to cut it into little pieces while it's still pliable; after it dries hard, you'll need a cleaver.

The book isn't quite perfect. The greatest boo-boo was their omission of phonetics. Latin names are used throughout, along with common names, of course, but there are no phonetics to aid the novice. Galyean admits that Latin names gave him fits; he should have spared readers whatever burden he had to endure.

From that genuine bit of disappointment, the complaints degenerate to true nit-picking. For instance, the book says freesias grow satisfactorily "in pots in a sunny window, where they'll bloom without a lot of bother." Whoa, there. Freesias thrive in a temperature below sixty or possibly sixty-five degrees—hardly one's av-

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Siftings

Jens Jensen

foreword by Charles E. Little

afterword by Darrel G. Morrison

American Horticulturist called *Siftings* a book "about the philosophies of a lifetime devoted to gardens and plants...one with such insights that it should be looked into when the world is too much with us, late and soon." The only book by early twentieth-century landscape architect Jens Jensen is now back in print.

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—Frank Good

Frank Good has been writing a weekly garden column for the Wichita Eagle-Beacon for forty-four years.

AMERICA'S COTTAGE GARDENS

Patricia Thorpe. Photographs by Eve Sonneman. Random House, New York, New York, 1990. 191 pages. Color photographs. Publisher's price, hardcover: \$29.95. AHS member price: \$25.50.

Subtitled "Imaginative Variations on the Classic Garden Style," this beautifully illustrated book examines a different kind of garden. We are used to books that describe large, well-managed, sophisticated gardens, usually employing at least one gardener. Here we are presented with gardens designed to take advantage of a small space, usually an enclosed plot, with walls of the house and garden used for vertical

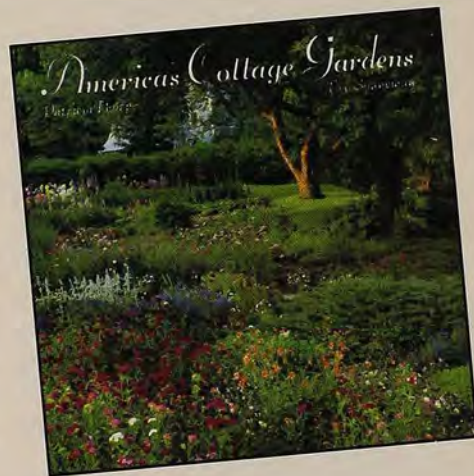
growing space. Often vegetables and flowers are grown together.

Unlike the English cottage garden (which became a definite style), the American cottage garden is, in the author's words: "small, personal, individual, eccentric, spontaneous." These gardens are created by amateurs who grow what they want to grow in an unselfconscious way, with the owner of the garden doing all the work. Most of the gardens included in this book are modest, their owners people with little or no money but with great determination. The results are delightful.

I was happy to see the inclusion of a place in Baltimore quite familiar to me—Maria Taylor's small topiary garden, which faces a busy street and is always eye-catching. Bright Easter eggs are hung on a shrub at one season, American flags dominate the scene before Independence Day, pumpkins announce the coming of Halloween, etc. While her garden is unique, her approach—highly individual and colorful, with a desire to please others—is common to all the gardens described.

There are regional differences, usually based on differences in climate and topography. New England gardens, restricted by fences, a short growing season, and rocky soil, contrast with azalea-filled, lush Southern gardens. Dry California, with its exotic variety of plants and emphasis

on container gardens, is unlike cooler Washington State where abundant rainfall and mild temperatures can produce enormous roses. Pictured in the book is a garden in Billings, Montana, filled with spinach, bells of Ireland, celosia, corn, and sunflowers, a striking combination, and somewhat sprawling when compared to a small suburban garden.



Cottage gardens tend to be fewer in suburban areas of the Mid-Atlantic states. Here the homeowner seems to prefer a perfect lawn and well-manicured shrubbery to the untamed look of a colorful flower garden. The exceptions noted here are often gardens planted by people of Italian extraction, featuring grape arbors, crowded bright flowers, and rich-looking tomatoes, eggplants, peppers, zucchini, and herbs. While the author doesn't say so, the one characteristic that unites these gardens is excitement.

Despite their wide variety, each of the gardens presented is arresting to the eye, certainly a reflection of the gardener's own personality. Both thoughtful and fun to read, the book is profusely illustrated. The pictures themselves should be an inspiration—especially for anyone who has been daunted by a lack of space for gardening.

—Adelaide C. Rackemann

Adelaide C. Rackemann is a Baltimore free-lancer and gardener who serves as librarian for the Cylburn Arboretum and with her husband, Frank, edits its newsletter.

Book Order Form

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R. W. Munson Jr. \$33.95
TIM 007

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LETTERS

Azaleodendrons

In the April edition of your publication, Ann Nugent's article on the Meerkerk Rhododendron Garden quotes garden manager Bill Stipe as saying that azaleas cannot be crossed with rhododendrons. False!! The results of deciduous azalea crosses with rhododendrons, to cite a few, include 'Broughtonii Aureum', 'Martha Isaacson', 'Oregon Queen', 'Valley Sunrise', 'Odoratum', 'Fragrans', and 'Mary Harmon'. Crosses of evergreen azaleas and rhododendrons include 'Martine', 'Hardijzer's Beauty', and 'Ria Hardijzer'.

Patricia Ann McDowell
Auburn, Washington

The impossibility of crossing azaleas and rhododendrons is a fairly common misconception, says former U.S. National Arboretum Director John Creech, because people tend to forget that azaleas are rhododendrons. However, it's not easy to find the right parent plants for making such crosses, he adds. As a result, there are very few of these 'azaleodendrons' around.

Catalog Welcome

The Book Catalog in your April issue was a welcome surprise. I trust it will become a regular feature. Will the next listing offer a selection of South African and Australian publications? Many of us grow plants from those two areas. And I do question the charge of \$2.50 per book for small paperback guides, such as the Wisley Handbooks.

Leonard H. Corbett-Grant
Napa, California

We will not update the catalog on a monthly basis, but we will issue another when the number of new titles seems to warrant it. The publishers we work with offer primarily American and British books; we will be alert for books about plants from the countries you mention. And we do plan to offer a more differentiated system of postage charges.

An Industrial Oasis In Berkeley

Large organizations often provide gyms as a way to help their employees reduce stress, but gyms don't appeal to everyone. Instead of an indoor exercise facility, David and Evelyn Lennette, who own a virus research laboratory in Berkeley, California, decided to create a garden near the lab site. Workers who wanted vigorous exercise would have space for games. But problems can often be thought out during a quiet walk, so the area would primarily be a stroll garden—what they called “an industrial oasis”—where they and their staff could relax a while from the taxing concentration their work requires.

Too often in landscape architecture, plants take second place, being fitted to the structural design after it is complete. The garden the Lennettes envisioned called for a plantsman-designer, and when they toured the private garden of Harland Hand in nearby El Cerrito (see “A Garden Work of Art” in the April 1983 *American Hor-*

ticulturist), they knew they had found the approach they sought. Hand was commissioned to work with Hero Morimoto, the architect who designed their lab and office buildings, to create this city garden.

Harland Hand is noted for marching to his own drum, creating gardens closer in mood to Japanese gardens—inspired by nature yet stylized—than to typical American or European landscape architecture. The completed city garden employs many of the same elements as his private garden, with its flowing informal paths, sheltered places where one can sit or walk unobserved, and raised vantage points. He also used the same techniques for sculpting concrete that he developed for his El Cerrito garden.

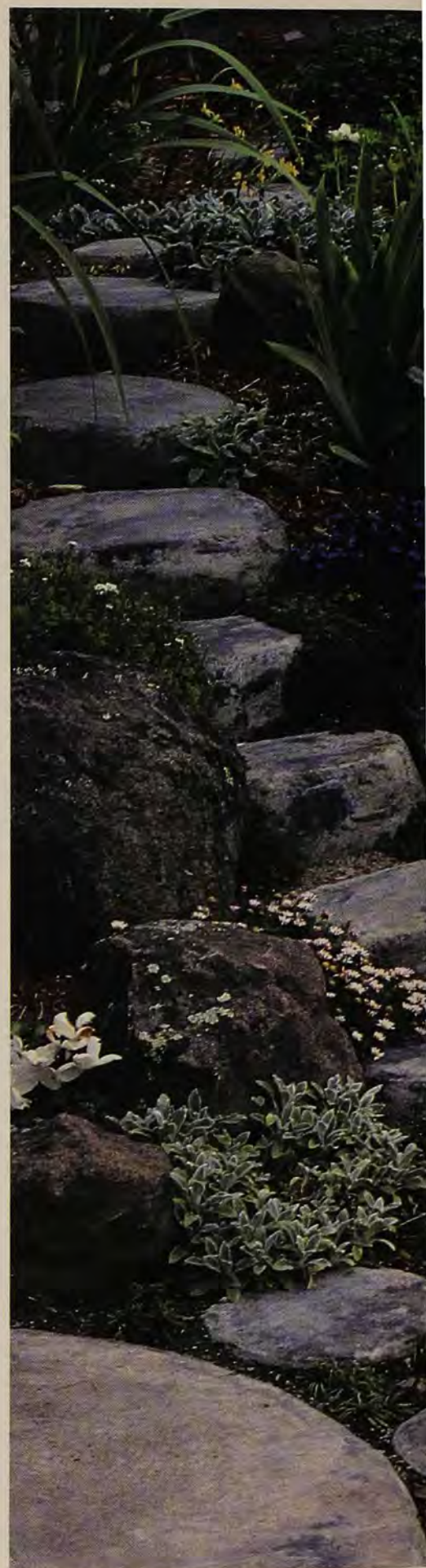
There the resemblance ends, for this was a very different site. Hand's garden is on a steep slope with magnificent views. The site selected for the Lennettes' city garden was a flat lot 75 by 150 feet, a block and a half from the busy approach to a freeway, with “views” of city streets and shacklike buildings.

Privacy was the first need. A fence was erected six feet high—the maximum permitted—at the front and sides and eight feet tall in back, using prefabricated concrete posts and horizontal “boards” that the casual observer would think to be wood. Along the front a ladderlike wooden capping adds a decorative finish plus a little more height and some support for such vines as white wisteria, white *Clematis montana*, and yellow banksia rose. The fence is not high enough to conceal completely the dilapidated industrial buildings beyond, but somehow their presence enhances the pleasure of being in this secret garden. In time, strategically placed shrubs and small trees will provide additional screening.

Appropriate to this urban sanctuary, the front entrance is evocative of the torii through which visitors enter the Shinto shrines of Japan. Dark bands of painted



Above: A view over the fence into the Lennettes' employee retreat. Right: Inside the gate, steps lead to a path along the top of a boundary bank planted with cyclamen, *Lithospermum*, *Carex*, and dwarf yarrow.







iron cross the gate at intervals that diminish from bottom to top, giving the illusion of greater height. Against the panels of vertical boards that flank the gate, clumps of the tall spuria iris 'Port of Call' seem to stand at attention and guard the entry with their swordlike leaves. Along a six-foot-wide strip of ground between the sidewalk and the garden's fence are scattered large boulders that were individually selected for their interesting shapes. They are interspersed with round and half-moon stepping stones of Hand's hallmark textured concrete, interplanted with irises and such gray-leaved plants as artemisias and the busy, white-flowered *Convolvulus cneorum*.

Hand's theme for the garden was a northern California mountain setting. Not only are hills and dells more visually pleasing than flat ground, but contouring stretches the amount of surface available for planting. Three hundred cubic yards of adobe topsoil and fifty-five tons of moss- and lichen-covered volcanic rock were used to form twelve "mountains" up to five and a half feet high. Eight of these are incorporated in a bank of varying heights and widths inside the perimeter fence, starting on either side of the front gate and continuing down its sides. Because the back part of the lot was set aside as a game field, the ornamental section is square, but the curving lines of these boundary banks disguise the symmetrical shape and make the garden much more welcoming.

As so often happens, implementation of the garden plans revealed shortcomings in the paper design. It soon became apparent that plants on top of the boundary banks could not be easily tended without stepping on plants further down. By adding a stepping-stone path along the top of the bank, the creators not only solved a practical problem but provided strollers along the overlook trail with changing views down on the garden and a chance to study bank-

top plants up close. This elevated path is reached by steps of sculpted concrete on either side of the front gate.

Harland Hand thinks seating is essential in a garden, not merely or even primarily as places to sit, but as design elements that make a garden more interesting to look at and more inviting. Where the boundary bank curves inward, he has installed four benches: simple, backless units of slatted redwood that has been bleached and stained light gray, supported on sculpted concrete "rocks." One is a single, straight unit, spacious for two and big enough for four very good friends. Two are double units joined in a chevron shape to fit into the contours of the bank. The fourth is a conversation corner for the gregarious and can serve as a meeting area, with seating for about fifteen on bench units that form three sides of a square.

These sitting areas are given a feeling of seclusion by three other large mounds situated as islands in the front half of the garden. By hiding parts of the garden, they help create surprise and mystery.

There is no lawn. Paths, which widen into "rooms" as they wend their way between mounds and banks, are surfaced with paving stones of concrete that was poured in place in randomly rounded shapes and sizes and smoothed to a soft and natural look. The concrete mix—five parts sand to one part cement—was streaked with lampblack and a sienna brown to produce a dark gray marbling with the faintest hint of a rosy pink. The color is perfectly echoed in the winsome flowers of a bearded iris called 'Marriage Vows'. No lime was added to the mix because it would have altered the pH of the surrounding soil. Two or three inches of soil separate the stones from each other, so they will not crack as solid concrete often does when the soil shifts. The crevices are filled with plants: here and there a taller one, but primarily creepers and carpeters such as thyme, ajuga, *Mazus reptans*, sedums, dwarf yarrow (*Achillea tomentosa*), mossy green Irish moss (*Sagina subulata*), and yellow Scotch moss (*S. subulata* 'Aurea'), dark-leaved wire vine (*Muehlenbeckia*), and gray *Cerastium tomentosum*.

At the back of the garden a templelike gazebo with a slatted pyramidal roof juts

out over an irregularly shaped sunken pond, thirty-seven feet across at its widest point with the twelfth mound in its center. Areas of marsh at either side are planted with moisture-loving irises: *Iris ensata*; *I. laevigata*; Louisianas with large but delicate flowers aptly portrayed in the name of one called 'Elusive Butterfly'; and the unique *I. × chrysographes* × *I. pseudacorus* hybrid 'Holden Clough', with golden yellow flowers that are heavily netted with brown.

It is intended that white-flowered vines will eventually grow over the roof of the gazebo, suggesting clouds and snow-covered volcanoes among mountain foothills. The gazebo forms part of a deck that is also a bridge across the pond and the main walkway from one side of the garden to the other. Wooden railings prevent mishaps without obscuring the view of the pool and the garden beyond. Twin utility buildings with peaked roofs matching that of the gazebo are set behind and to either side of it, forming a T-shape. One is a storage shed and the other a lavatory.

But in the quest for a unique garden there's plenty of room for disaster and there are certain to be some raised eyebrows, and in its raw stage, this garden raised mine. The three large island knolls are studded with rocks: rocks not three-quarters buried as traditional rock garden construction requires, but three-quarters exposed, and often standing on end. At this stage, an observer could have been forgiven for thinking he had strayed into a pet cemetery.

But the designer knew what he was about. The rocks were there to display and enhance the plants, of which a large proportion would be irises with their stately, upright habit. Just a year after planting, the rocks and plants are in balance, with neither dominating.

This is a garden designed by a plantsman for owners who know and love plants and want to share that interest with their employees. Although irises predominate—bearded types, both large and small, in colors both sumptuous and subtle; stately spurias; exotic Japanese; hybrids of the refined and graceful Pacific Coast natives; and a host of less common species—there are many other plants. In fact, the needs of any plant that thrives in the Bay region

Left: Yellows predominate on one of the twelve "mountains" that were built inside the garden. Plants include Iris 'Kai-ban Trail', flax, dwarf yarrow, golden thyme, white-flowered Felicia ameloides, Carex 'Evergold', and Tanacetum densum subsp. amani.

Rx for Workers

In recent months, research funded by the National Aeronautics and Space Administration has been cited as showing that plants in office buildings may make them more healthy for workers by removing pollutants in the air. Other studies show that plants add enough humidity to closed work environments to bring the air to the point where it is considered comfortable for human beings.

Yet other research shows that employers need to do more than just stick a philodendron in a corner of the waiting room. A study by Kim Randall of Virginia Polytechnic Institute and State University, presented this spring at a symposium on the Role of Horticulture in Human Well-Being and Social Development, indicated that workers prefer to bring in their own indoor plants to take care of.

Nor should greenery be limited to what can be brought inside in a plastic pot. Not only does gazing out a window not distract workers from the chores at hand, but access to a pleasing natural view appears to enhance physical health and reduce stress.

Rachel and Stephen Kaplan, psychologists at the University of Michigan who have conducted extensive research on human responses to the environment, asked employees of two government agencies and a private corporation a number of questions relating to their health and job satisfaction. Work-

ers with a view of natural elements, such as trees and flowers, felt that their jobs were less stressful and were more satisfied with their jobs than others who had no outside view or who could see only human-built elements from their windows. They also reported fewer headaches and other ailments.

Some of the activities that the employees identified as restorative included getting some physical exercise, walking out on a balcony, eating lunch outdoors, and sitting or eating near a body of water.

Incredibly, workers may not even need to do this to benefit from having nature next door. In a new study, the Kaplans asked 600 workers how difficult it was for them to see out of their buildings, what they saw, and how likely it was for them to take advantage of the view on a given day. They found that employees were likely to be happier in their jobs if they had access to a view, even if they rarely looked out at it.

There have been similar findings among students in college dormitories adjacent to an open field, and families living near parks who didn't often visit these facilities. Kaplan calls this a quality of "thereness," which somehow serves to provide a sense of a richness of environmental possibilities.

—Kathleen Fisher

Kathleen Fisher is editor of *American Horticulturist*.

what does well in the Bay area. *Saponaria ocymoides* cascades over a rock. *Anacyclus depressus* and *Bellis perennis* nestle in niches where rocks meet.

The gray of the fence, paving, seats, boulders, and buildings is a perfect foil for the bright flowers. Some of the harder-to-place colors are planted near gray foliage that serves the same purpose. *Homeria breyniana* 'Aurantiaca', a bulb with flowers a bit like miniature apricot-colored daylilies with a darker orange eye, is set against a lichen dark gray rock hugged by the silver-felted leaves of a nonflowering lamb's-ears, *Stachys byzantina* 'Silver Carpet'. The baby pink flowers of bearded iris 'Pink Taffeta' are displayed against a mat of *Tanacetum densum* subsp. *amani*, a carpeter with leaves like tiny silver feathers. The combination is spiced up with sprays of red coralbells that save it from too-pretty.

A dominant color theme in each part of the garden makes it easier for the owners to place new plants. Strong pinks and blues predominate on a knoll planted with violet-blue bearded iris 'Titan's Glory', brilliant blue *Lithodora diffusa*, rosy pink *Diascia rigescens*, blue sisyrinchiums, white iberis, and a favorite pink snapdragon that is perennial here. White and yellow is the theme on another knoll, with an iris called 'Kaiban Trail', yellow flax (*Linum flavum*), dwarf yarrow (*Achillea tomentosa*), golden variegated thyme, a yellow-striped sedge (*Carex morrowii* 'Aurea-variegata'), and white-flowered *Felicia amelloides*.

Many of the tall-bearded and large-flowered Japanese irises have been planted for quick color, and will gradually be eliminated to make way for the more delicate-flowered species and hybrids that the Lennettes prefer. A small collection of species direct from China have recently been added.

But although plants will change as the owners take over the selection process, the bones of the garden are in place. Already it looks far more mature than it is, and it seems certain that it will go from strong to stronger. The Lennettes' employees are to be envied.

Pamela Harper, owner of the Harper Horticultural Slide Library, writes and lectures on horticultural topics.

can be met somewhere in the garden. The mounds and the fence offer north, south, east, and west exposures. There is sharp drainage at the top of the mounds, and moister spots at the bottom. (In the marsh,

Right: Blue and pink are the colors on another mound. Here are planted Iris 'Titan's Glory', *Dianthus deltoideus*, *Lithodora diffusum*, *Delosperma*, *Iberis sempervirens*, snapdragons, *Armeria maritima*, *Diascia*, and blue-eyed grass.

employees can even find watercress to nibble on.) The many plants that like to get their roots under rocks and paving are amply provided for. Some of the protected niches between rocks are not reached by the sprinkler system, so plants that need to be kept dry can be accommodated.

Providing extended color are some new, unusual, or experimental plants, such as the white-flowered form of *Felicia amelloides*. But most of the plants were selected on the basis of Hand's long experience of



BIG BRUIISERS

FOR THE BACK OF THE BORDER

by Elisabeth Sheldon

Do you have trouble finding reliable hardy perennials tall enough for the back of the border or the middle of island beds? I've found a few that have proven almost flawless and some others that I persist in planting although they are not without their irritating little ways. Let's start with the splendid plants that have some regrettable tendencies and work our way up to those that can do no wrong—at least in my garden.

For eighteen or twenty years I've had delphiniums, the big double ones, in the back of the border. There are probably half a dozen reasons for *not* growing them: they must be sprayed to prevent cyclamen mites, red spider mites, and mildew; they suffer from leaf spot and stem borers and are irresistibly attractive to slugs, armies of which throw themselves on the emerging shoots and mow them to the ground; they often fail to make it through the winter; and, worst of all, they're the very devil to stake. Even if you stake each stem and tie a soft cord around it, when the flower head becomes laden with rainwater it bends just at the cord, whereupon the top half of the spike dangles toward the ground—a sad spectacle. I must admit that I tie each flower spike in only two places, although I have read that I should tie it at one-inch intervals from bottom to top! For heaven's sake—a person does have other things to do! Why we keep struggling with delphiniums I can't think—it's all for that brief period of splendor before the summer rain hits. The sight of four or five fat spikes of cobalt *Delphinium elatum* 'Blue Bird' standing in sunlight against the cream-colored feathery explosion of goatsbeard is worth almost any amount of effort it takes to produce it. Apparently.

The single delphiniums, *D. × belladonna* 'Belladonna' and 'Bellamosum', are beautiful too, and bend but don't break during a storm. I really shouldn't be talking about them here; they rise to only four feet and can't be used in the very back of



Above: *Veronicastrum virginicum*, a native of Northeastern woodlands and meadows that grows up to seven feet tall, makes an elegant late summer plant. **Right:** 'Album' is a popular cultivar.

the border. But while they do need staking (I never met a delphinium that didn't, no matter what anyone says), at least it's not a major operation. Two or three light stakes and one cord around the whole plant will do it. And although they too attract slugs, mildew, and mites, they are longer-lived than the doubles.

Another marvelous pure blue is to be had in the Italian bugloss, *Anchusa azurea*, which can grow as high as five feet. Its coarse scratchy foliage isn't one of its charms but it produces, early in June, masses of tiny, brilliant blue, forget-me-not flowers. (In North Africa you can come upon *fields* of this plant in bloom, a sea of blue to make you gasp.) However, in your garden, when the performance is over and you cut it to the ground, it leaves a great gap, since just one plant has been taking up a space about equal to that of a wringer washing machine. *Anchusa* needs nearly perfect drainage because it has deep fleshy roots that tend to rot. Also, because of those roots it is difficult to move except when very small.

I was reading in Louise Beebe Wilder recently that *Thalictrum speciosissimum*—in my experience the tallest of the meadow rues—doesn't need staking. Mine needs three stout posts and two or three rounds of strong twine as it proceeds on its way to six feet or more before erupting into a froth of pale sulphur yellow stamens. (Perhaps mine is really *T. flavum*, which she says is even taller and does need staking?) The great mass of inflorescences may, in spite of my efforts to prevent it, tip over after a storm. The intricately cut, blue-green foliage of this species makes it look like a giant columbine and contributes to the garden picture even after the dead flower stems have been removed. *Thalictrum*, unlike columbine, preserves its pretty leaves all summer long. No diseases, no enemies for this one, and its pale yellow flowers go well with delphiniums. (Actually, I find—also in Wilder—that it's an old favorite combination. I thought I had invented it.)

Thalictrums come in lavender and dusty





pink as well as yellow. *T. rochebrunianum* grows almost as tall as *T. speciosissimum* and carries light purple flowers with yellow stamens. It doesn't seem to have the rambunctious spirit of *T. speciosissimum*.

Another frothy flopper is *Clematis recta*. This clematis is not a vine but a garden perennial. I started out by putting it and *C. recta* 'Purpurea', a cultivar with smoky purplish foliage, in midborder, but every year they grew taller—or should I say longer?—so I've had to move them back. When they were young, peony rings held them up perfectly, allowing their tiny white flowers to cascade over the metal rings. Now they grow so much higher than the hoops that they need tall stakes as well. Yet they are lovely plants that, as in the case of *Thalictrum speciosissimum*, give trouble only in the staking department.

The British assert that *Artemisia lactiflora* (white mugwort) does not, even when it reaches six feet, require support. I quote from one eminent authority: "... it is one of the few tall herbaceous plants that are absolutely self-supporting." Nor do American writers I've consulted mention the fact that two or three strong stakes must be set around it before it flowers to keep its tall, slim, straight stems from sprawling. They don't just curl over but fall straight down. One strong cord attached to the posts suffices to keep the plant erect.

This artemisia is a favorite of mine, not only because it is an imposing presence in the back of the border with its dark green, finely cut foliage, but because of the sweet, far-carrying fragrance of its small, creamy white flowers, borne in tapered panicles well above the mass of leaves. It flowers at the best time of year, when summer is turning into autumn, the oppressive heat is drawing off, the air is tender, slightly misty, gold-spun. The scent of the artemisia blossoms mingles with that of the field asters and the surprisingly exotic perfume of Queen-Anne's-lace.

If you have enough white mugwort you can cut the huge panicles of flowers before they turn brown and hang and dry them for winter wreaths or bouquets. This ar-

***Filipendula rubra* 'Venusta', or queen-of-the-prairie, grows up to eight feet tall and does best in cool, moist climates.**

SOURCES

Canyon Creek Nursery, 3527 Dry Creek Road, Oroville, CA 95965, (916) 533-2166, catalog \$1.

Carroll Gardens, 444 East Main Street, P.O. Box 310, Westminster, MD 21157, (301) 848-5422 or (800) 638-6334, catalog \$2.

Crownsville Nursery, P.O. Box 797, Crownsville, MD 21032, (301) 923-2212, catalog \$2.

temisia is not an aggressive colonizer, as are so many species of that genus. The clump merely becomes larger every year and is easy to divide—you can have it marching down the whole length of your garden, if you please. No problems, other than the staking.

If you have a damp area where you need or can use tall subjects, you can plant some of the rogersias and ligularias. They are becoming easier to find now than they were a few years ago. One garden writer says that the rogersias are too rarely grown in American gardens, but that just might be because there have been so few of them available and those few have been—and are—expensive. When they are grown in rich, moist, or even boggy soil they display tremendously dramatic leaves—palmate, in the case of the Chinese *Rodgersia aesculifolia*, which is probably the tallest one. The leaves are deeply veined and tinted bronze, so splendid that the plant already has contributed more than its share of beauty before it sends up its huge panicles of small cream-to-pink flowers.

There are several species of rogersia in circulation. I've been struggling to satisfy one plant of *R. podophylla*, which never seems to get its required quota of water in my garden. I've finally built it a kind of sunken plastic bathtub that has cheered it up somewhat. It really is silly of me to try to accommodate that plant and its companion, *Ligularia japonica*. Both of them just hang in there and visibly yearn to be moved to the edge of a pond, but in a wet summer they're so spectacular that I can't bear to part with them. The ligularia has huge yellow daisylike flowers on tall sturdy stems and the rogersia carries its many small yellow flowers on spikes. The best-known ligularia is probably *L. stenoccephala* 'The Rocket', which shoots its yel-

low racemes up to five feet. A knockout.

On the edge of the same damp spot where your ligularias and rogersias are growing you can have *Cimicifuga racemosa* as well. When this Northeastern native feels adequately nourished, when it has enough to drink, and when the sunlight it receives is filtered—restrained rather than relentless—it will create great clumps of toothed, twice-divided dark green leaves, from which ascend, in midsummer, sometimes to a height of eight feet, tall, dark, smooth, wiry stems that bear racemes of tiny white fragrant flowers, like long white candles. The impact is heightened, naturally, if they are grown against a dark background. *Cimicifuga* certainly needs no stakes and mine gave me no trouble of any kind until the last two years when it has suffered from what I believe to be botrytis. I mean to treat it early next spring with a fungicide.

Cimicifuga simplex and its cultivars are shorter plants that bloom late; here in New York their charming white bottlebrush blossoms are frequently blasted by frost. *C. simplex ramosa* is a good tall plant, but since it and its purple-leaved form bloom even later than *C. simplex*, I haven't tried them. I'd love to be able to grow them, especially 'Atropurpurea', which is said to be striking.

Angelica archangelica would decorate this same damp area and seed itself freely. All the gardener has to do is remove the volunteers that become too numerous. Both the thrice-compound leaves and the huge umbels of small whitish flowers on the six-to-seven-foot plant are attractive. It provides architectural interest, as the garden designers say. Angelica will grow happily in sun or part shade, so long as it has enough moisture. Since the seed doesn't remain viable for long, your best bet, if you want to get it started, is to beg seed from someone who grows it and sprinkle it, in the fall, where you want it to grow. All over the world candied angelica stalks are used in cakes and puddings, much as vanilla is used here. Its delicious flavor makes a nice change from vanilla, especially in cheese cake.

Everybody knows about putting bee balm in the back of the border, and tall daylilies as well, so I won't deal with either in detail. They are a great solace, especially good

old *Hemerocallis* 'Hyperion', which takes all kinds of abuse and comes smiling through, holding its perfumed lemon trumpets five feet up into the wind and sun, needing no props, no spraying, no diagnoses of mysterious afflictions. Such a plant endears itself to the overworked, overanxious gardener who, by planting lots of 'Hyperion' in his border, frees himself to hover uneasily over exigent alpinists.

Goatsbeards (*Aruncus dioicus*, formerly *sylvestris*), the ones standing behind the delphiniums, are superb plants only to be faulted for their tendency to strike back when they feel they are being neglected. Like many of the astilbes, whom they greatly resemble, they cause their leaf edges to brown and curl when their allotment of water doesn't come up to expectations. This, of course, is usually in late summer after their flowering has finished. Still, it's irritating to have fine foliage that one has counted on as background for other plants fail to carry out its assignment. While they are in their glory they are indeed glorious, each plant, about four feet by four feet to begin with, adding another foot and a half of cream-colored feathery blossoms on branched panicles.

Some of the delphiniums I was grumbling about earlier have been replaced by three different plants. These are the teacher's pets because they never behave badly.

The first is Japanese iris which, while we are still trying to pronounce "*kaempferi*," we are now told to call *Iris ensata*. Never mind, we all know what we mean: those tall, slim-leaved irises that people say are difficult and that must be grown by a stream with a sluice gate so that they can have water one season and not the next. Is it water when they're blooming or when they're not blooming? Or while they're dormant? Someone who saw them growing in Japan came back and told us one or the other. But the amazing discovery that I, and probably a lot of other people, have made during the last few years is that they require neither the stream nor the sluice gate. They *do* like soil on the acid, rather than limey side, but after that they seem to be perfectly happy in the border, planted deep, mulched with compost or silage, getting water only when the rest of the garden gets it. Admittedly, they don't grow as tall



Above: *Anchusa azurea*. **Right:** The elegant foliage of *Angelica archangelica*.

as they would beside a stream or pond, but they grow tall enough—four and a half to five feet anyway. *So far*—and mind you I'm not ruling out the possibility that someone will invent a whole collection of Japanese iris diseases—so far they've been clean and content, busy, in their season, breaking into breathtakingly beautiful blossoms in white, lavender, rose, purple, blue, and various combinations of these, variously spotted, veined, and striped. I can't tell you what a joy they are! They do not get viruses or borers, they do not crash to the ground when it rains, they do not require daily deadheading and their foliage remains attractive and persistently vertical all summer. If you take seed from a friend or buy it from a seedhouse you'll be bound to raise some serviceable purple and red-violet ones, at least, and a few very fancy ones. Of course you can buy elegant cultivars from a nursery.

The second of these paragons is a plant that is known in the trade as *Filipendula*

rubra 'Venusta'—queen-of-the-prairie, and so it is. If you have a big stand of it (and it does slowly annex territory) you will cut it all to the ground in the fall. In the spring, out of the expanse of wasteland, emerge shiny red shoots that quickly rise to unfurl great jagged dark green glossy compound leaves, almost as handsome as those of *rodgersia*. Up they all go, making a forest, then, in July or August, depending on where you live, the fireworks begin. On six-to-eight-foot stems appear huge, flat-topped panicles of fluffy pink flowers. Spectacular, simply spectacular. If a really bad storm comes, the stems do tend to lean afterwards, but they don't fall to the ground. No disease has appeared here on this fine American plant. It does its best in rich moist soil, but performs heroically even under adverse circumstances.

I have considered another native, *Veronicastrum virginicum*, to be in many ways my best tall plant. But now, looking at the picture and description of *V. virginicum* 'Album' in the new Ruth Clausen and Nicolas Ekstrom perennial book, I'm beginning to think that, lovely as my species plants are, I haven't seen anything yet. Mine are certainly not as stout and showy as the cultivar in the picture, whose white flower spikes appear to be four or five times as long as mine. Nevertheless, the species is a fine plant, with straight tall stems that provide perpendicular lines and evenly spaced whorls of pointed, toothed leaves that make horizontal ones. Even when, in late summer, it is carrying pointed racemes of white flowers on its four-to-seven-foot stems, it never keels over, no matter what the weather does. I wonder if *V. virginicum* 'Album' will be so brave?

Elisabeth Sheldon is the author of A Proper Garden.

Perennials for American Gardens by Ruth Clausen and Nicolas Ekstrom, which Elisabeth Sheldon uses as a reference for this article, is among the 700 selections in the American Horticultural Society's Gardener's Book Service. The \$35 hardcover book is available to AHS members for \$29.75. Order #RAN022.



GARDENING CHALLENGES

GETTING A HAND ON SAND

Story and Photos by Mary Ann Evans

To any gardener who has ever held a fistful of rich loam, gardening in sand might seem like an impossible task. I was faced with that task three years ago when I settled on the sandy soil of the New Jersey shore after having gardened for over twenty years on a variety of soils in both northern New Jersey and upstate New York. I have found sand to be both a challenging, and yet easy, growing medium.

Coastal gardening has been a struggle ever since the Pilgrims' first attempt some 370 years ago. Because they clung to the gardening techniques they had used in their homeland, their initial harvests would have been extremely disappointing if not for the helpful intervention of the natives.

More than 200 years later, their descendants had apparently learned a thing or two. During his investigative visits to Cape Cod, Henry David Thoreau wrote in his journals that he was amazed at the variety of fruits and vegetables that the fishermen/farmers harvested out of the sand. Much corn was reportedly raised in Eastham. Indigenous plants that grew in abundance there included beach pea (*Lathyrus japonicus*), blueberry, huckleberry, beach plum, shadbush, and boxberry. (Strange that he did not record seeing any bayberry, since it is so prolific in the area today.)

That plant life is abundant on the nation's shores should not be surprising. The coastal environment possesses an invigorating atmosphere of mineral-rich air,

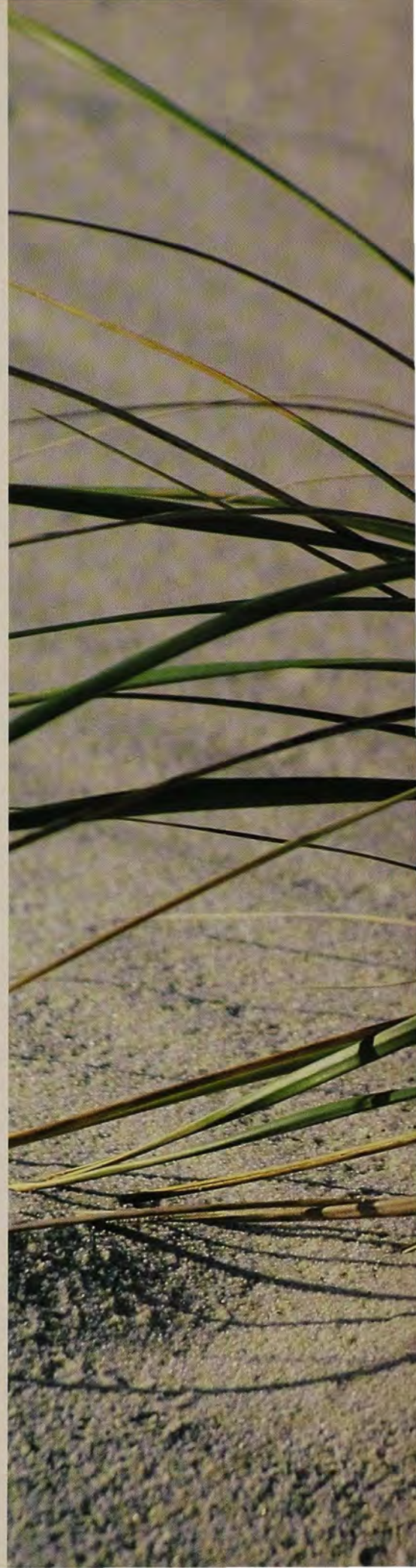
abundant with negative ions that help to recharge living cells. No wonder beach vacationers feel a sense of well-being! Even in coastal areas that receive minimal rainfall, such as southern California, life-giving sea mists roll inland to nourish the tropical vegetation.

The typical New England landscape may appear harsher and drier than that of California. Instead of cliff houses jutting out of the terrain on stilts, weather-stained cottages nestle low to the ground, where low-growing thyme, silver mound artemisia, lavender, bayberry, juniper, and scrub pine cling tenaciously, their blue-green, gray, and silvery foliage complementing the sea and sky.

Those who garden here are faced with the same problems as the first settlers; many transplanted inlanders make the same mistakes as the Pilgrims by trying to incorporate inland techniques and plant varieties unsuitable to the environment. Thousands of dollars worth of fertilizer and pesticides as well as millions of gallons of water are wasted on the upkeep of inappropriate lawns and plantings.

Lawns, besides being out of place in a coastal community, are extremely difficult to establish on acid, sandy soil. If coastal residents must have a lawn, they will do best to choose seed mixtures high in fescue. Some alternatives to a grass lawn are carpeting varieties of plants such as chamomile and thyme.

The key to successful gardening in sand is observing what is growing naturally in the coastal environment. Those with beachfront property may find dusty-miller





(*Artemisia stellerana*), beach grasses, ice plants, or other low-growing herbaceous natives. Between the dunes, bayberry, holly, beach plum, or sea grape may be growing. Further inland where there is protection from the wind and salt spray could be some red cedars, pines, palms, or scrub oaks.

Sand's advantages are also its drawbacks. It is easy to work and allows for excellent drainage, but it lacks essential organic matter and nutrients. Many native plants won't object to the lack of fertility and water retention. For those that need more of both, a harmonious solution is to use natural resources close at hand.

- Kelp and other seaweeds can be applied—fresh or washed—as mulches, or be worked into the soil to improve water retention. Seaweed is high in potash (five percent) and trace elements, and a good source of magnesium sulphate. Tomatoes and potatoes benefit greatly from a dose of seaweed.

- Fish make an excellent fertilizer. They should be buried at least eighteen inches below the plant.

- Ground crab shells make a good fertilizer, and crushed seashells are useful as a mulch. Whole seashells can be used to decorate flower borders.

Of course, there are natural and readily available substances not unique to the shore that can be used to supplement and amend marine soil. Some good choices for fertilizers are composted cow manure, dried blood (high in nitrogen), bone meal (high in phosphorus), cottonseed meal (a good fertilizer for acid soils, high in nitrogen with small percentages of phosphorus and potash), or wood ashes (a source of phosphorus and potash).

Adding compost, leaves, peat moss, or topsoil will help improve water retention. Mulches will also help by slowing evaporation of the soil around plants, but getting them to stick to sand can be difficult unless the soil is thoroughly soaked before they're applied. Some good bets for mulching are wood chips (add nitrogen fertilizer first); peat moss (incorporate with a little sand and apply one inch deep); pine needles (good for acid-loving plants such as straw-

Planting grasses, such as American beach grass, can help prevent erosion.

berries, it should be applied one to two inches deep); oak leaves (also great for acid lovers, they should be applied two to three inches deep); and salt hay and straw (be sure it's free of seeds).

It's crucial for seaside gardeners to know the pH of their sand, especially if they want to establish any sand-loving plants not indigenous to their area. Most coastal areas possess a relatively fine, alkaline sand because it contains crushed seashells. Further inland, the sandy soils are coarser and more acidic.

Since I live one mile inland from the bay and three miles from the ocean, my sandy soil is on the acid side. To help sweeten the soil for plants that prefer a higher pH, my usual choice is lime. Hydrate of lime is faster acting than ground limestone or ground oyster shells, and it enables sandy soil to retain more moisture as well as allowing fertilizer nutrients to become more available to plants; it should be applied two weeks or more before adding fertilizer or the fertilizer nutrients will be lost. (Hydrate of lime has already united its calcium with water, so it will not burn plants as quicklime will.) Wood ashes can also be



Above: Seashells have been given a new life as an edging for a tulip bed.

SOME SAND LOVERS TO TRY

DUNE GRASSES

Pacific Northwest: European beach grass.

Northeast: American beach grass.

South: broom sedge, sea oats, Volga wild rye.

Plant by root division on bare sand or seed on sand that has been mulched with salt hay or seaweed. The seedheads can be cut and used in dried arrangements.

SHRUBS

Southeast and West Coast: Acacia, cotoneaster, daisy bush, gold dust tree, Japanese privet, mirror plant, natal plum, sea box, tamarisk.

Northeast: Azalea, bayberry, beach plum, bittersweet, broom, cotoneaster, forsythia, honeysuckle, hydrangea, lilac, juniper, rhododendron, rugosa rose.

TREES

West Coast: Australian pine, California laurel, California pepper tree, eucalyptus, Monterey cypress, olive.

Southeast: Australian laurel, mayten tree, primrose tree, sand pine.

Northeast: Beech, black locust, crab apple, holly, honey locust, maple, mountain ash, oak, pitch pine, poplar, red cedar, spruce, yew.

HARDY PERENNIALS

Artemisia, beach pea, Christmas rose, chrysanthemum, columbine, coralbells, daisy, daylily, delphinium, dusty-miller, evening primrose, foxglove, heath, heather, hollyhock, iris, lavender, lily-of-the-valley, oriental poppy, peony, phlox, pinks, primrose, sea lavender, shasta daisy, snow-in-summer, violets, yarrow.

ANNUALS

Calendula, California poppy, cleome, lupine, marigold, morning glory, nasturtium, pelargonium, petunia, sunflower, zinnia.

HERBS

Chamomile, horehound, hyssop, lavender, lemon balm, savory, tansy, thyme, sage.

OTHER SAND-LOVING PLANTS

Blueberries, blue-green agave, clematis, dahlia, pachysandra, pampas grass, prickly pear, sedum, strawberries, wisteria, yucca.

used to sweeten soil and will add phosphorus and potash at the same time.

Oceanfront gardeners can increase acidity by incorporating oak leaves or hardwood sawdust.

If you're unsure of your soil's pH, you can always send it out to be analyzed or use a store-bought kit to do it yourself. An easy at-home method is to shake a soil sample in a small jar with filtered or distilled water, add a teaspoon of clear ammonia, and let it stand overnight. If the liquid is dark brown or black in the morning, your soil is acid. If it is light in color, the soil is more neutral or alkaline.

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Soil should be prepared for planting with an eye to retaining nutrients and water. When planting a shrub or bush, I like to line my planting hole with a thick layer of leaves, and add composted cow manure and bone meal. Then I position the plant and add some water. I replace the sand around the roots and water again. The top inch or two of sand is mixed with peat moss, firmed down to form a hollow to collect water and watered again.

Preparing the vegetable bed is done in a similar fashion. First I hoe out a trench,



Seaweed serves as a mulch for this "salad bed."

then I add composted cow manure and a sprinkling of bone meal and water it all well. After sowing the seed, I cover it with a mixture of peat moss and sand, pat it down to form a hollow and water again. More mulch and liquid fertilizer are added throughout the season. Watering long and deep encourages deeper roots that are better able to find any available moisture.

Vegetables suited to light soils include asparagus, beets, dwarf French beans, carrots, kale, lettuce, onions, peas, potatoes, radishes, and Swiss chard. Vegetables that prefer an acid soil such as mine include potatoes, tomatoes, squash, pumpkins, onions, watermelons, beans, carrots, and peppers. Members of the cabbage family are difficult to grow in acid sand, where they tend to suffer from club root, a problem that a dose of lime will help prevent.

In choosing landscape plants, know your climatic zone. The carobrotus that blankets the Pacific coast might be tempting to try in your New England coastal garden, but it would never survive the winter. Whether it's a Pacific coast landscape, a Northeast seaside, or a Southern shore, certain vegetation will be more adaptable to one than another.

I have suggested some plants that do well in sand in all or some locations along our country's coastline. (See chart, page 24.) The list is by no means complete, and you may find exceptions to the rule in your own garden trials.


Successful seaside gardening depends on an understanding of and cooperation with the unpredictable qualities of nature. By developing ecological practices that enhance the natural landscape, you will find sand cultivation a rewarding experience.

Mary Ann Evans is a free-lance writer who lives in Toms River, New Jersey.

This is the first in a series of articles about the challenges posed by gardening in different regions of the United States. In October: The challenge of gardening in New Mexico.

..... Those who want to learn more about gardening in sand may want to read Seaside Gardening by Susan S. H. Littlefield. The \$12.95 paperback is \$10.95 for AHS members. Order #SIM039.





FASCINATED WITH STORY AND PHOTOS BY ROBERT GENEVE FASCIATION

Picture an old-fashioned carnival midway on a sultry summer evening. You're strolling along somewhere between a cotton candy stand and the ferris wheel when you hear a barker's cry: "Come see the fasciated lilies! Mutants of the plant world! Uncommon freaks! One-of-a-kind monstrosities that will astound you!"

Maybe plant fasciations will never command the same appeal as a two-headed calf, but if you've spent some time in gardening, I know you've seen a fasciated plant. You can't

help but react to them because their growth is so distinctive.

When fasciation occurs, a plant part abandons normal symmetrical growth and grows rapidly in a single plane. Any growing part—including stems, flowers, fruits, and roots—can become fasciated. But the most observable and spectacular fasciations occur in rapidly growing stems and flowers. The stem typically becomes large, flat, and ribbonlike, which leads to a remarkable increase in flowers and leaves growing along its length. I have seen fasciated lily stems produce forty-five flowers bunched together across a single stem, while nearby, normal flowering stems are bearing only thirteen to fifteen flowers.

The word fasciation comes from the Latin word, *fascia*—to fuse. So in a broad sense, the fusion of plant parts—a driving force behind plant evolution—can be considered a form of fasciation. It is interesting to think of normal modern plant species as representing degrees of fasciation.

The star magnolia (*Magnolia stellata*), with its many leaflike petals, is a good example of a primitive flower. Flowers are thought to have evolved from leaves that modified, folded, and fused to become the typical modern flowers containing sepals, petals, anthers, and a pistil. Thus highly evolved flowers usually have fewer flower petals. Are the fused flower petals of the Heath family—the cup-shaped flowers of mountain laurel (*Kalmia latifolia*) and the bell-shaped flowers of Japanese pieris (*Pieris japonica*)—examples of fasciation?

A more convincing case that fasciation played a role in plant evolution is found in the development of fruit types. Two striking examples are the apple and the strawberry. The portion of these fruits that we eat is actually receptacle tissue. The receptacle is part of the flower stem, which, in these cases, continues to grow and elongate. The apple receptacle swells and grows until it completely surrounds the seeds inside the fruit. Strawberry seeds (actually the small nutlike fruits) are distributed on top of the swollen red receptacle. One can

Previous page: A celosia showing examples of linear and bifurcated fasciation. **Above:** A fasciated celosia still growing in the garden.



frequently find strawberry fruits with broad, flattened tips typical of fasciation. The old strawberry cultivar 'Fairfax' consistently had a percentage of large, fasciated fruits when the environmental conditions were favorable.

The most extensively studied example of fasciation in modifying a fruit's shape is the tomato. In this case breeders, able to determine which tomatoes carry the gene responsible for fasciation, have used the fasciated condition to increase the fruit's size. Originally, the wild tomato fruit contained only two locules—the seed chambers inside the fruit. The cherry tomato is an example of this original condition. As the result of extensive breeding and selection, all of today's large commercial tomato varieties are fasciated. This increases the number of locules, which results in

larger fruit. The extreme example is the fasciated 'Beefsteak' tomato, which has over 200 locules in a single fruit. I was fascinated to observe in the 'Beefsteak' I grew in my garden last summer that the flower parts, particularly the style, showed a typical fasciated condition well before the fruit developed.

Fasciations have fascinated botanists for centuries. Descriptions and an illustration of a fasciated pea called the "tufted," "Scottish," or, more commonly, the "mummy" pease (Old English for pea) can be found in John Gerard's *The Herball or Generall Historie of Plants* and in John Parkinson's *Paradisium*, both written in the sixteenth century. The mummy pea is a selection that, when self-pollinated, breeds true from seed and always shows the fasciated character: a typical fasciated stem

with all the flowers bunched together at its top, rather than being produced in the leaf axils as occurs in normal peas.

The mummy pea figured prominently in the classic experiments with peas conducted in 1866 by Gregor Mendel, the father of modern genetics. Fasciation was one of the seven pea characteristics Mendel selected for crossbreeding to illustrate his concept of dominant and recessive traits. He found that, in the pea, fasciation was a homozygous recessive trait, so that when normal and fasciated parents were crossed, the next generation would have one fasciated plant for every three normal plants.

Mendel's classic paper went unnoticed and unappreciated by his contemporary scientific colleagues, who were preoccupied with the Darwinian concept of natural selection. The manuscript was independently rediscovered thirty-five years later by three scientists, one of whom was Hugo de Vries, a Dutch geneticist who extensively studied fasciation in the genus *Oenothera* (evening primrose).

The prominent nineteenth-century botanist Julius Sachs was also fascinated with fasciations. Sachs showed that if he removed the growing point above the cotyledon from rapidly growing bean seedlings, the shoots that developed from the cotyledonary buds would be fasciated. He was hoping to prove or disprove a theory proposed a century earlier by Carl von Linnaeus, the father of our botanical nomenclature system, who believed that fasciations were the result of several growing points fusing.

In 1840, A. Moquin-Tandon suggested an alternative hypothesis: that fasciations were the result of the original growing point changing to form one large growing ridge. Since then, anatomical investigations have shown that fasciations can occur via either route. Most of the naturally occurring fasciations that have been studied arise from a single growing ridge, while many artificially induced fasciations show multiple, fused growing points.

Stem fasciations can be linear, bifurcated, multiradiate or stellate, and ring-shaped.

Linear fasciations are the typical flat, ribbon-shaped stems. They can be very spectacular. It is common for the stem to

*As the result
of extensive breeding
and selection, all of
today's large commercial
tomato varieties
are fasciated.*

begin normal symmetrical growth, then gradually become more flat as the growing point broadens, commonly to two to six inches wide. In the fasciated cristate cacti forms, the growing ridge can reach several feet in width.

Bifurcated fasciations are linear fasciations that split to produce a "Y"-shaped double ribbon. In the multiradiate fasciation the stem is split into three or more short branches. The ring fasciation is the least common. Here the growing point folds over and fuses to form a funnel shape. I have never seen a ring fasciation in nature, but it is a fairly common form of fasciation in plants being propagated in tissue culture. The potential for fasciation in tissue culture can be quite high, possibly because of the high levels of growth regulators that

are used in the culture medium.

Fasciations can occur in plants for a number of reasons. In many cases, they come about through spontaneous mutations in individual plants. In others, such as the mummy pea, fasciation becomes an inherited trait. For gardeners, the most familiar inherited fasciation occurs in the flower of the cockscomb celosia (*Celosia argentea* var. *cristata*). While the colorful, contorted growing ridge that constitutes the celosia's flower is an inherited trait, the size of the fasciated stem and flower is easily influenced by the environmental growing conditions.

The fact that the environment has always played an important role in the expression of heritable fasciation has made genetic studies difficult. Environmental conditions that favor rapid growth will also favor the expression of fasciation. Sometimes fasciations are induced by environmental conditions alone. The most common, nongenetic cause for fasciation is damage to the growing point caused by insects, disease, or physical injury. This type of fasciation was demonstrated nicely in experiments conducted by L. E. Loiseau in 1954. Using tiny glass needles to physically damage the growing point of impatiens, he produced fasciations in about thirty percent of the damaged plants. Fas-



Strawberries frequently have broad, flattened tips typical of fasciation.





Left: When a stem is fasciated, like that of this lily, it may produce many more leaves and flowers than normal.

ciations in garden asparagus have been attributed to physical damage or pressure exerted on the growing point as it pushes through the soil. In the evening primrose, fasciations can be caused by damage to the growing point by the egg-laying activity of a moth. Gall wasps, caterpillars, and mites have been similarly blamed for inducing fasciations in a variety of plant species.

The use of herbicides has inadvertently caused fasciations. Most commonly, this occurs when low levels of herbicides of the 2,4-D type are used for broadleaf weed control in lawns. Any drift of these chemicals into nearby vegetable or flower gardens can cause herbicidal symptoms in sensitive plants. One such symptom can be a growth distortion similar to fasciation.

In most cases, it is not known whether the fasciations that occur in woody plants are heritable. However, the fasciated character can be maintained by vegetative propagation through cuttings or grafts. Cultivars with the typical fasciated stem occur in several of the conifers including *Cryptomeria japonica* and *Chamaecyparis obtusa*. You will find these listed under descriptive cultivar names like 'Cristata', 'Torulosa', and 'Monstrosa'. Witches brooms—the mass of short shoots that forms in the tops of some conifers—have been called fasciations. These shoots do not have the typical flattened stems associated with stem fasciations, but are considered a multiradiate form of fasciation. Many of our dwarf conifers have been selected from cuttings taken from witches brooms.

Fasciations are more than a sideshow attraction of botanical oddities. Scientific interest in fasciations has persisted for centuries and, although they have had commercial importance in only a few species of ornamental and fruit crops, their rich history makes a rewarding study for anyone who responds to the barker's call.

Dr. Robert Geneve is assistant professor of horticulture at the University of Kentucky.



Planting Flowers for Pressing

by JoAnn Gillespie

The Wisconsin growing season is fleeting. Even before I began my own garden, watching flower gardens spring into color and then fade each year led me to think about ways to keep the blossoms. During our long gray winters, as I admired the flowers captured in the photographs of garden catalogs, I began to study the evolution of other arts and crafts that attempted to immortalize flower blossoms.

From ancient times people studied flowering plants, committing their color and form to sketches. Much of this horticultural artwork has been work of great beauty and detail. Yet these remain reproductions. I wanted a way to preserve the beauty of the blossoms themselves. This desire prompted the beginning of my experience in the art of flower pressing.

Pressing flowers was a popular art during Victorian times. In the beginning young Victorian women gathered seaweed during low tide. The delicate fronds were placed between several sheets of blotting paper and pressed between the pages of a book. The dried and pressed seaweed was used to make pictures. During the 1850s these budding artists began pressing flowers to add to their seaweed designs. Leaves and feathers were attached. Locks of hair given

Left: Queen-Anne's-lace, hibiscus, a yellow rose petal, and statice are combined in a note card. Above: Larkspur flowers, Johnny-jump-ups, and cleome petals and stamens enhance a small gift card.



as valentines and collected as a reminder of those who had passed away were often woven into the pressed flower pictures. The finished artwork was then framed with cherry or pear wood.

My own initial experiences with pressing flowers began twelve years ago, after my late husband and I built a home on twenty-one acres of land in a suburb of Milwaukee, where many beautiful flowers were mine for the picking. But these early efforts were disappointing; as the dried pressed flowers were exposed to air, the colors of the petals were slowly lost.

Undaunted, I began to experiment with different varieties of plants. I prepared a raised flower bed near our house, with many of my favorite annuals, biennials, and perennials. I soon discovered that the blossoms would retain their color after pressing if protected from the air with clear contact paper or acetate. I also began to use leaves from various plants and trees to create backgrounds for these pressed and protected petals.

Once my pressed flowers were thus accentuated, mounted, and protected from air, I was proud enough of the results to want to share them with my friends. This

quickly led to a partnership with two specialty shops. We found that there was a growing market for this kind of card, and we retained the services of several professional card designers to help us lay out the materials and construct the cards.

This activity centers around my pressed flower garden. From humble beginnings, it has evolved into an organized growing area that provides the flowers and foliage we use in making our cards. We try to take a scientific approach to the flowers we press: we keep phenological records of when each species blossoms, its color and height, and pressing characteristics. It is an activity I never tire of. In the winter we check out new varieties of commercially available flowering plants, looking for new colors, shapes, and textures.

I started the garden in what had been an area of lawn, removing the grass and loosening the soil. On top went a mixture of three parts topsoil to one part sand, mounded up to two feet above the surrounding turf and gradually sloping to meet the lawn.

Taller flowers such as cosmos, larkspurs, cleomes, and delphiniums are on top, offering shade to the shorter flowers—many of them cold-season or early flowering plants such as violas, pansies, and Shirley poppies—seeded or planted at the base. Between them are columbines, perennial verbenas, and some ferns. The seeded species are covered with a fine layer of soil and sphagnum moss; the moss is an excellent germinating medium and serves as a retainer of moisture and as a mulch for



young seedlings.

We have had great success starting this part of the garden from seed mixes. I have especially liked the "Everlasting" and "Cottage Garden" collections of flower seed from Shepherd's Garden Seeds in California. From such a source you may obtain individual species useful for pressing, such as *Agrostemma*, cornflowers, foxgloves, canterbury-bells, semi-dwarf delphiniums, and hollyhocks. I obtain other perennials for my garden—*Mertensia*, *Aquilegia*, love-in-a-mist (*Nigella*), and small petunias—from Mileager's, a trusted source in Racine, Wisconsin. A good mix of plants will give some attention to flowering periods, so that there will be blossoms to press throughout the growing season. Each year I experiment with and test new species to expand the collecting period.

Don't be limited to your cultivated garden; some flowers generally considered weeds produce beautiful specimens for pressing. Good wildflower selections include Queen-Anne's-lace (*Daucus carota*), the lovely dandelion (*Taraxacum officinale*), and birdsfoot trefoil (a clover of the genus *Trifolium*). But remember, before cutting any native wildflowers, please consult identification books and endangered species lists. Never collect where there are only a few specimens evident, and always leave some flowers and foliage to allow the native plants to continue growth and reproduction.

You should start to harvest the flowers of your labor as soon as the blossoms begin to appear. Go out with scissors and basket after the dew has left the plants. In Wisconsin I choose flowers between 11 a.m. and 1 p.m. Plants left with any spots of moisture will encourage mildew on the plant itself and may spread to other plants in the press. The cut flowers can be pressed whole or in parts. Some entire flowers are too thick for pressing without separating the petals; in these cases I reconstruct the flower after the individual parts are separated and pressed.

A good flower press is necessary to exert pressure evenly on the flowers. I use a wood

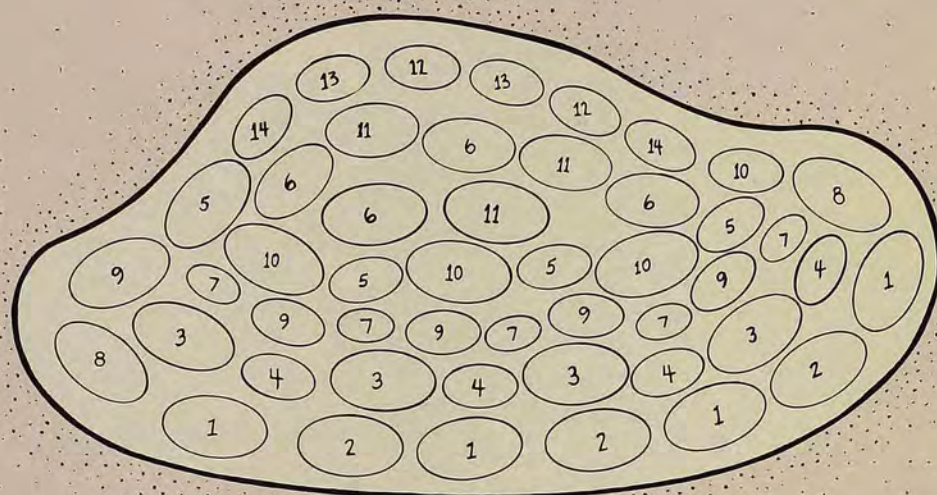
Some Flowers That Press Well

Name	Color	Time of Bloom	Annual/ Perennial
Agrostemma	plum to pink	June to August	annual
Artemisia	silver	grown for foliage	perennial
Cleome	white, pink, lavender	July to September	annual
Columbine	assorted colors	June	perennial
Coralbells	coral	June to August	perennial
Cosmos	white, pink, orange, red	July to August	annual
Delphinium	light to dark blue	June to August	perennial
Jacob's-ladder	lavender	June	perennial
Johnny-jump-up	purple, yellow, and white	May to July	annual
Larkspur	pink, white, blue	May to June	annual
Lobelia	red, light blue	August to September	perennial
Nigella	white, pink, blue	June to July	annual
Pansy	assorted colors	May to July	annual
Queen-Anne's-lace	white	July to August	perennial
Scabiosa	wine	June	perennial
Shirley poppy	pink, white, rose, salmon, crimson	April to May	annual
Verbena	white, red, pink, lavender	June to August	perennial
Viola	light blue, deep yellow	May to July	annual

Left: Here, a columbine is set off by Queen-Anne's-lace, Johnny-jump-ups, and rose petals.



A GARDEN FOR PRESSING FLOWERS



KEY

- 1. JOHNNY-JUMP-UPS
- 2. VIOLAS
- 3. PANSIES
- 4. ARTEMISIA
- 5. AGROSTEMMAS

- 6. AQUELIGIAS
- 7. SHIRLEY POPPIES
- 8. FERNS
- 9. VERBENAS
- 10. DELPHINIUMS

- 11. LARKSPURS
- 12. CLEOMES
- 13. COSMOS
- 14. QUEEN-ANNE'S-LACE

press with wing nuts and washers. A handy person can easily make a press or one can be purchased from various retail or mail-order companies. The flowers, or separated petals, are placed on paper towels, then layered in corrugated cardboard and placed in the press. I suggest using a paper towel without embossing since even a small mark will transfer to the flowers during pressing. Using tissue isn't a good choice either; most contain perfumes and don't breathe well so flowers won't dry properly.

After the flowers dry—most flowers take a minimum of one week—they may be stored in resealable plastic bags. A piece of typing paper in the bag will increase rigidity. It is important to seal the bags since the flowers will fade when exposed to air. The paper towels and cardboard can be recycled and used for the next pressing project.

Much of the fun in a pressed-flower garden comes in the excitement of planning and experimentation. We are limited only by our imagination in what we construct with our cards. We have found that back-

Left: A bright yellow pansy is complemented by mullein, rose petals, baby's breath, and Japanese maple leaves. Above: One possible plan for a pressed flower garden.

SOURCES

Shepherd's Garden Seeds, 6116 Highway 9, Felton, CA 95018, (408) 335-5311, catalog \$1.

Mileager's Gardens, 4838 Douglas Avenue, Racine, WI 53402-2498, (800) 325-0305, catalog \$1.

The Art of Flower Pressing, S75 W20755 Field Drive, Muskego, WI 53150, (414) 679-9560, catalog free.

grounds to the pressed flowers can be made visually interesting with the use of leaves from trees such as the ginkgo and the miniature Japanese maple. Fern leaves and other foliage such as artemisia or sedges (*Carex* spp.) also serve to accentuate and complement the pressed blossoms. Many house plants can also be pressed. Spider plant leaves, rabbit's-foot fern, poinsettia bracts, and anthurium are all good choices. Such materials are harvested, pressed, and stored in the same way as the garden flowers.

To construct cards, cut heavy paper to the size and shape desired and add any personalization. Next arrange the pressed flowers on the card. Cut a piece of clear contact paper one-eighth inch larger than the card. Peel off the paper backing and,

holding the contact paper by each side, bend it into a "U" shape to help break the static field so the flowers will not move around. Lay the contact paper on top of the flowers. Working from the center, rub out all the air and trim the cards. Cards may be placed back in the press for twenty-four hours to completely seal the design.

This process has given me much delight. Growing flowers for pressing can lead you down many paths. Today we have an active and growing cottage industry based on our pressed-flower cards, candles, and soaps. A pressed-flower garden that we have planted at Forest Ridge, a nearby retirement community, is in its second year. The residents of Forest Ridge cut and press the flowers from this garden for our use in cards. Although they can no longer maintain their own individual yards, the pressed-flower activities give them a garden to work with. We have also shared our knowledge by giving workshops on pressed flowers at garden clubs and at centers such as Milwaukee's Boerner Botanical Gardens and the Wehr Nature Center.

Try flower pressing, and see where your personal path might lead.

JoAnn Gillespie is co-owner of The Art of Flower Pressing in Muskego, Wisconsin.



Gardens That Live Forever

*"You are responsible
forever for what you have tamed."*

—Antoine de Saint Exupéry,
The Little Prince

It's not uncommon for gardeners to devote a lifetime to acquiring and caring for their plants and shaping the landscape in which they grow: finding the perfect fall bloomer for the back corner of the garden; providing a sanctuary for rare or exotic natives; nurturing friendships by sharing cuttings with gardening chums; amassing a collection of a favorite genus or species.

Yet when the gardener dies, that precious collection may be lost in a matter of months. Unlike stocks and bonds, it will not survive in a safe deposit box. And unlike the family diamonds, its value may not be fully appreciated by the survivors. Even if the property remains in the family, relatives may lack the funds or expertise to maintain it. If the heirs sell the site, the new owners may not be interested in the same plants—or any plants at all. Any plants not carefully recorded may be removed by new owners unaware of their value or, if they are dormant, their existence. Even if gardens are willed to local horticultural organizations, the story may not have a happy ending if the owners have failed to leave money for their care.

In too many instances, beloved and beautiful gardens will fall into neglect and

whole collections die waiting for wills to be settled and property to change hands.

Rae Selling Berry was a well-known Portland, Oregon, plantswoman and an avid collector of primulas, rhododendrons, and alpine plants, many of them rare plants collected from expeditions to China and the Himalayas. Her ten-acre garden became a personal refuge for exotic and endangered species.

When Berry died in 1976 her heirs planned to sell the property to a developer who intended to subdivide the residential plot. But the gardening community, fearing that the unique plants Berry had collected would be destroyed, convinced the

heirs to let them buy the land and conserve it as a public garden. In 1978, the Friends of Rae Selling Berry was formed under the umbrella of the Oregon Nature Conservancy and members began raising funds to acquire the site. Later that year the Berry Botanic Garden was opened to the public.

Berry's story is an unusual one. Most gardeners will do better using foresight rather than trusting to such good fortune, say professionals who help establish public gardens and smooth the inheritance process.

Elizabeth Sullivan, assistant to the director at the American Association of Botanical Gardens and Arboreta (AABGA), suggests that planning to preserve a garden

Left: Thanks to the Friends of Rae Selling Berry, visitors are able to enjoy Rhododendron chamae-thomsonii on the patio of the Berry Botanic Garden.



should begin with an honest appraisal of whether or not the garden is *worth* preserving as a garden. Does it have horticultural significance? Is it unique to the area?

"It's important to have your property evaluated by a professional horticulturist and to take a detailed inventory of the plant material involved," says Sullivan. The horticulturist can help with the inventory, which should include each plant's full botanical and cultivar name, its source (nursery, greenhouse, cuttings, etc.), its age and size, and how many of each are on the property.

If the horticulturist agrees that the garden is worth preserving as a whole, you may be able to donate the property to a university or to a state or county park sys-

tem, depending on its potential uses for education or recreation. If your property also has historic value, your state or local historical society may be interested.

One such property was Dumbarton Oaks, a garden set on sixteen acres in Washington, D.C., that was designed by Beatrix Jones Farrand over fifty years ago. Farrand was still finishing the project when, in 1940, owners Robert Woods Bliss and Mildred Barnes Bliss donated Dumbarton Oaks to Harvard University, Mr. Bliss's alma mater. The property, which was generously endowed by the Blisses, includes a neo-Georgian mansion, a garden library of over 1,500 books including reference works and rare botanical books, and museum collections of Byzantine and pre-Columbian art.

Adjacent to Dumbarton Oaks was

twenty-eight acres of undeveloped woodlands that the Blisses donated not to Harvard, but to the National Park Service. Parks departments at various levels of government may be interested in acquiring gardens that can be converted to parks or public gardens. In 1974, Los Angeles County accepted a very different type of property from Virginia Robinson. When Robinson died in 1977, her Beverly Hills

Below: The Berry Botanic Garden was created to preserve an outstanding collection of primulas, rhododendrons, and alpine plants. Primula poissonii, shown here, is a native of China. Right: One of the Garden Conservancy's first projects is Ganna Walska Lotusland in Santa Barbara, California.





estate became part of the Los Angeles County Department of Arboreta and Botanic Gardens, and in 1982 it was opened for public tours. The six acres boast a series of patio gardens on terraced hillsides featuring a lush palm grove of tropical and subtropical specimens and a rose garden. The property also has historical significance; the estate was one of the first residences in Beverly Hills.

Do check with the chosen organization before you include the bequest in your will—some accept only property that is endowed because they lack the funds or staff available to maintain the garden. In other cases, your garden may not fit the organization's mission or goals. It's a good idea to sit down with your financial advisor and the appropriate park or university staff to work out an agreement beneficial to everyone involved.

A national organization devoted to preserving gardens of merit is the Garden Conservancy, formed in 1989. The group's role is to "encourage and facilitate the preservation of exceptional gardens," says Antonia Adezio, the conservancy's director.

Conservancy founder Frank Cabot defines an exceptional garden as "a garden

*"A real garden where one
can enter in and forget the whole
world cannot be made in
a week or a month or a year.
It must be planned for, and waited
for, and loved into being."
—Chinese proverb*

that both landscape architects and plantmen respect and admire." The conservancy's selection criteria are extensive, including aesthetic considerations (setting, overall design, use of plants, quality of architectural features, integration into natural and architectural settings); horticultural considerations (quality of plants, cultural conditions, uniqueness of collection, diversity of habits, representation of a particular group of plants); historical/cultural considerations (representation of the style of the period in which it was built, special cultural, local, or ethnic significance, significant work of a well-known designer or landscape architect, illustration of development of a region, relation of people to the land at a point in history); and feasi-

bility considerations (ownership, scope of effort, scale and access, community, management, and maintenance).

"Once the conservancy agrees to sponsor a garden," says Adezio, "our role can take on various forms. We may assist with local fund raising, identify local horticultural management, or set up a local advisory board. We have a strong feeling that the local community has to be involved. Once the structure is in place and running, the Garden Conservancy turns everything over to the local administration, but is still available for technical assistance."

The group is currently working with two gardens in California, the Ruth Bancroft Garden in Walnut Creek, a four-acre collection of exotic desert plants (see *American Horticulturist*, October 1989) and Ganna Walska Lotusland in Santa Barbara. Lotusland is the thirty-seven-acre estate of the late Madame Ganna Walska, and is named for the lotus pond that is the focus of the estate's Japanese garden. The plant collections—aloes, bromeliads, cacti, cyads, and palms—are well known for their scientific as well as aesthetic value.

Adezio says the organization hopes to identify exceptional gardens for preservation elsewhere in the United States. They

are considering three Eastern gardens, including one with extraordinary Asian and rock garden collections and another designed by an important American landscape designer.

To begin the process that will transform a garden from private to public, the conservancy asks ten pages of questions: type of garden (dry, formal, landscape, meadow, perennial, rock, topiary, water, woodland), outstanding features, condition, design history and significance, current access and visitation and community attitude towards visitation, conditions of the garden and facilities, and possible threats to the garden (adjacent development, deer browsing, insects, disease, noxious weeds, overvisitation). Site plans and photographs are also requested.

These completed questionnaires are reviewed by a ten-member screening committee, currently chaired by Marco Polo Stufano, director of horticulture at Wave Hill in Bronx, New York. Committee members then make site visits to the most promising gardens.

Another route for preserving an entire garden could be donating or selling it to one of the country's 800 land trusts, which protect natural, recreational, scenic, agricultural, historic, or cultural property in urban, suburban, and rural areas. Ninety percent of them accept land donations; sixty percent buy land for conservation. Over seventy percent of all land trusts accept conservation easements that place permanent legal restrictions on future development. Kathy Barton, associate director of the Land Trust Alliance, says that many land trusts do not accept gardens, but all have their own criteria and prefer to negotiate on an individual basis.

To the organization debating whether to accept a garden, a fascinating history and outstanding plants may not weigh as heavily as whether funds are available to begin the conversion process and keep the garden running in the future. Nonprofit and government organizations may not have money to maintain additional property. The well-intentioned, generous gift of a garden may not be well received if it creates undue financial hardship for the recipient.

Starting a tax-exempt organization to care for the garden is one solution. A tax-

SOURCES

To locate a botanical garden or arboretum in your area contact the American Association of Botanical Gardens and Arboreta, 786 Church Road, Wayne, PA 19087.

To receive a survey form or membership information call or write the Garden Conservancy, Box 219, Main Street, Cold Spring, NY 10516, (914) 265-2029.

For more information on land trusts contact the Land Trust Alliance, 900 17th Street, N.W., Suite 410, Washington, DC 20006, (202) 785-1410.

For more information on the National Foundation, Inc. write or call NFI, Suite 340 Heritage Building, 7617 Little River Turnpike, Annandale, VA 22003, (703) 642-8245.

For help in locating a financial planner write the National Association of Charitable Estate Counselors, Box 6097, West Palm Beach, FL 33405.

exempt organization pays no tax on its income and all contributions made to it are tax-deductible for the donors. Help in setting up such charitable organizations can be obtained from an attorney or a financial planner or the National Foundation, Inc. (NFI), a tax-exempt group recognized by the Internal Revenue Service and the courts. The services that NFI provides to fledgling foundations include serving as the project's main office, so its backers won't need to rent office space; secretarial, bookkeeping, accounting, and legal services; keeping payroll records; disbursing consulting fees and salaries; depositing donations; and writing disbursement checks.

Setting up a foundation can offer advantages long before the day to settle one's estate has arrived. Harrisville, Pennsylvania, bowling alley owner Weldon Delp and his wife Virginia used NFI's services to establish the Crystallaire Rhododendron Foundation to support him in his avocation—researching and developing new

rhododendron hybrids. For thirty-five years, Delp had given away his rhododendron "children" to admirers, but was unable to deduct the expenses from his taxes. Contributions to the foundation allowed the Delps to rebuild greenhouses lost in a fire last year. The Delps can deduct any of their own money that they donate to the foundation; other donors also receive tax benefits and may in turn acquire Weldon's seedlings.

Another funding option, suggests Bernice Newmark, former executive director of the National Association of Charitable Estate Counselors, is taking out a life insurance policy or annuity with the garden as beneficiary. Trusts can also be set up, but Newmark warns that they may be a more expensive proposition. Again, it's wise to consult an attorney or financial advisor before deciding on a strategy.

Limited financial backing is not the only major stumbling block to establishing a public garden. As manager of a private Pennsylvania estate making the transition to a semipublic garden, Christopher Woods feels that good communications and public relations are also essential. "The neighbors may be happy about having a beautiful garden in the neighborhood while the owner is alive, but when he decides to go public they might quickly become unhappy," Woods says. "Most people think public gardens are all like Longwood Gardens with hordes of people and loads of school buses." Open communication may divert this kind of opposition.

Although Lotusland was well endowed by Madame Ganna Walska, its trustees found that many of its neighbors were quite concerned about the potential increase in traffic that might be associated with a public garden. It has been a sensitive issue, and the Garden Conservancy is assisting Lotusland trustees with their efforts to obtain the permits necessary to open the garden on a restricted basis.

As Berry Botanic Garden supporters found out, rezoning can be another headache. The residential community was reluctant to agree to a request for new zoning. Officials compromised by controlling visitation; the garden is open by appointment only. Limited visitation brought about another problem since it meant that the

garden couldn't achieve nonprofit status as a public garden. Fortunately, Berry had collected a fair number of rare and endangered native plants so the organization gained a nonprofit designation as a rare plant sanctuary.

But what if your garden isn't spectacular enough to become a public showplace or the financial wherewithal just isn't there? You can still preserve part of your garden through plant donations. If you have an unusual collection, a botanical garden or arboretum may be interested. Your best bet is to contact the director of the organization with a detailed plant inventory in hand. Once again it's wise to contact the institution well in advance. Says Erik Neumann, head of the U.S. National Arboretum's education department: "There's no sense leaving something that the organization doesn't want or can't maintain." He adds that the arboretum "probably won't send a crew out to dig up something that's commonly available."

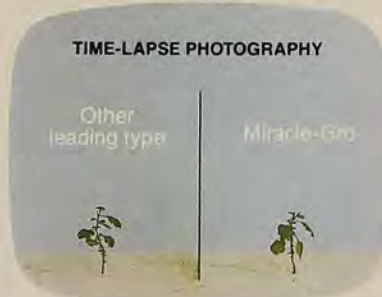
But every garden has different needs, and what is ho-hum to one may be worth a king's ransom to another. The American Horticultural Society's River Farm headquarters has a number of uses for "ordinary" plants: in its children's garden, its education classes for horticultural interns, and a new small space garden that will demonstrate the selection and use of plants for townhouses and other urban gardens. The only restriction on plant donations is size, according to AHS Horticulturist Donna Matthews. "We can always use shrubs and herbaceous material but we don't have the resources to transplant anything larger than a small tree."

Even if your plants are too common for a botanical garden, the beautiful blooms you've nurtured can still create a living legacy. A treasured plant given to a family member or a friend can become a wonderful heirloom. For one AHS member, the most valuable plant in her mother's garden is an old rose, 'Harrison's Yellow', which originally belonged to her great-grandmother and has been passed along through three generations. "I hope I'll be the fourth," she said. "It's an incredible gift."

Mary Beth Wiesner is assistant editor of American Horticulturist.

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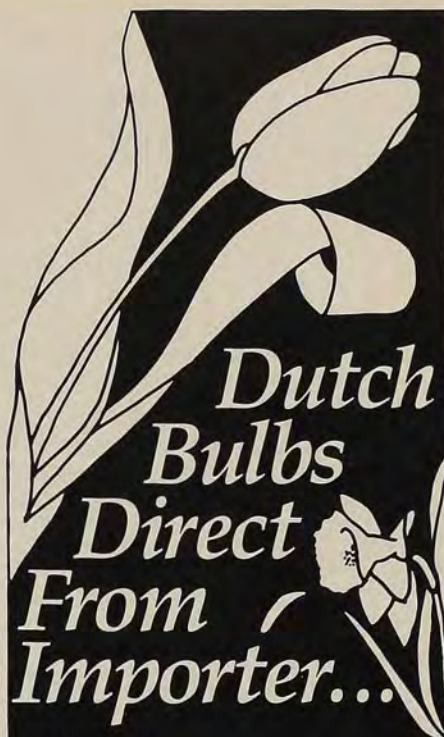


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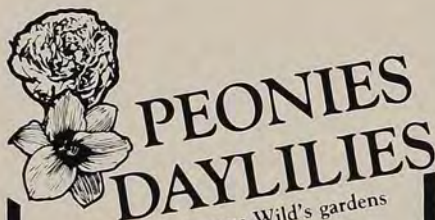
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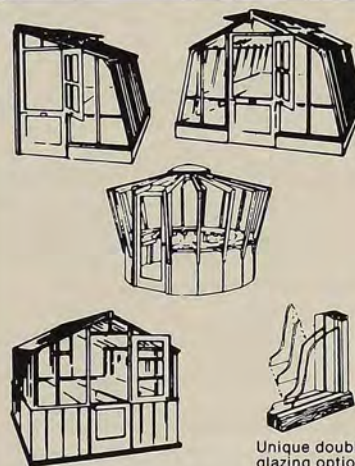


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ro-do-DEN-dron kam-ee-TOM-son-ee-eye
Rodgersia aesculifolia
ro-JERZ-ee-uh a-skew-li-FO-lee-uh
R. podophylla R. po-do-FIL-luh
Sagina subulata
sa-GEEN-uh sub-ew-LATE-uh
Saponaria ocymoides
sa-po-NAIR-ee-uh oh-si-MOI-deez
Stachys byzantina
STACK-is bye-zan-TEE-nuh
Tanacetum densum subsp. *amani*
tan-uh-SEET-um DEN-sum subsp.
a-MA-nee
Taraxacum officinale
tar-uh-ZACK-um oh-fis-ih-NALE
Thalictrum flavum
tha-LIK-trum FLAY-vum
T. rochebrunianum
T. row-shah-brew-nee-A-num
T. speciosissimum
T. spee-see-oh-SIS-ih-mum
Trifolium tri-FO-lee-um
Veronicastrum virginicum
ve-ro-ni-KAS-trum vir-JIN-i-kum



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