

August 1985

# American Horticulturist



# *Help Save America's Endangered Wildflowers*



*Marvin W. Poulson*

*Many of America's most treasured wildflowers—including the spectacular spineless hedgehog cactus, *Echinocereus triglochidiatus* var. *inermis* (above)—are threatened with extinction. In fact, experts estimate that one-tenth of the species and varieties native to the United States are in jeopardy. Over 50 taxa have already disappeared. Help save our endangered wildflowers by purchasing the American Horticultural Society's 1986 Endangered Wildflowers Calendar. Funds raised from sales will be used to support conservation projects. To order your calendar, turn to page 33.*

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*Amsonia tabernaemontana* is a graceful, easy-to-grow perennial that makes an attractive addition to any planting. For more on this lovely plant, turn to page 30. Photograph by George Taloumis.

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**On the Cover:** A painted lady sits atop a bronze-coned purple coneflower at Sonnenberg Gardens in Canandaigua, New York. Join Lynn Lewis Monroe on page 19 for a tour of this remarkable Victorian garden. For more on the purple coneflowers, *Echinacea* spp., turn to page 14. Photograph by Lynn Lewis Monroe.

**Editor’s Note:** Jane Steffey’s popular “Strange Relatives” column will be returning in a few months. Jane is on an extended vacation.

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# Plant Conservation— A First-Year Report

In October 1984 the Society announced an exciting new program to its members—publication of the Endangered Wildflowers Calendar, and the closely related Wildflower Rediscovery Project. Today, almost a year later, we are pleased to report that this endeavor has been enormously successful in every respect; the 1985 Calendar sold out, the 1986 edition is already available, and our first Wildflower Rediscovery awards have been presented. The Endangered Wildflowers Calendar and the philosophy it expounds are destined to have a major influence on Society programs for years to come.

Although AHS members did not see the 1985 Calendar until late last fall, the enormous task of selecting the plants to be featured, as well as searching for information and writing about them, had already begun in July. While preparing both the 1985 and 1986 calendars, I learned a great deal about this nation's wild plants that I had not known before. Even though I have been a wildflower enthusiast all of my life, the time spent working on these publications gave me a new awareness of the threats our native plants face. This project also put me more closely in touch with the many worthwhile organizations and individuals across the country who are struggling to save our native plants—The Nature Conservancy, state Natural Heritage programs, garden clubs, plant societies, World Wildlife-US, and the U.S. Fish and Wildlife Office of Endangered Species, to name just a few. The calendar project has forever changed my outlook on our native plants, from the way I use them in my own garden, and where and how I acquire them, to how I present them in the pages of Society publications. It has also made me more fully aware of the appreciation we gardeners owe our native plants.

Judging from the thousands of letters we have received about the Calendar and the Wildflower Rediscovery Project, the Society's new endeavor struck a chord among gardeners everywhere. We heard

from individuals who have worried about the problem for years, as well as from those who hadn't known it existed. We received letters from gardeners and nature lovers, and from both AHS members and non-members. Although we could not respond to every letter we received with a personal reply, we have read and appreciated each and every one.

As announced in the May *American Horticulturist* News Edition, we have already made the first Wildflower Rediscovery Project awards. These awards were given to individuals who discovered new populations of species thought to be extinct or known to be extremely threatened. Through this program, as well as the Endangered Wildflowers Calendar, we hope to make AHS members and the American public at large aware of the threats to America's endangered wildflowers.

The 1986 Endangered Wildflowers Calendar is already available and, like the 1985 Calendar, features plants from across the country that are extremely rare or threatened. The cover of the 1986 Calendar features hummingbird-pollinated spineless hedgehog cactus from Colorado and Utah, which has been listed as an Endangered species by the U.S. Fish and Wildlife Service Office of Endangered Species. It is primarily threatened by collectors—both amateur and commercial. Sixteen plants are featured in all, including Kankakee globe mallow, Tiburon mariposa, lemon lily and green pitcher plant.

This vital effort to help save our nation's wild plants does not stop with a yearly calendar and a reward offer, however. Plans are under way to produce a guidebook that will help concerned gardeners become involved in the movement to save America's endangered and threatened plants. This publication will not only serve as an educational tool, but will also help the movement gather strength by putting concerned individuals in touch with one another. Although we have not yet acquired funding for this important project, we hope to make

this publication available in the coming months.

In the years to come, the Endangered Wildflowers Calendar will reach more and more gardeners across the country. We hope that the message it carries will cause them to hesitate before purchasing wild-collected plants such as native orchids or cacti. We hope gardeners will begin to ask whether a plant they are purchasing is from collected or artificially propagated sources, because it is only by reducing the demand for collected wildflowers that we will be able to ease the collection pressures that threaten many of our cherished native plants. It is also vital that we support the responsible nurserymen who artificially propagate the wildflowers they sell, for this is the only way we can reward those efforts.

AHS members can play an important role in the Society's effort to spread the word about the threats this country's native plants face. Order copies of the 1986 Calendar to give as gifts to gardening friends who are not members of the American Horticultural Society. Discuss the information presented about the 16 plants featured in the Calendar, as well as in the introductory text about native plants, with a friend or at a garden club or other plant society meeting. Follow the suggestions set forth in the Calendar about helping endangered wildflowers in your region.

As gardeners, we bear a large responsibility toward helping to save these species, whether they are rare soil endemics that can only survive in specific sites or potential garden plants that one day may be made available on a large scale through propagation efforts. Gardeners are in a unique position to help other Americans appreciate the beauty and value of our native plants. The vast, wonderful diversity of our nation's flora is at stake, and each and every species helps make our country—and our own lives—richer.

—Barbara W. Ellis  
Publications Director/Editor

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# Horticultural Therapy In A Historic Setting



TOP LEFT: Patients plant cuttings and raise seedlings in the Center's aging, but elegant greenhouse. BOTTOM LEFT: A small vegetable plot in the shadow of the massive complex stands ready to be planted. ABOVE: A decorative wrought iron fence and century-old maples line the perimeter of the Buffalo Psychiatric Center.

Photos by TJP Design Associates

When Frederick Law Olmsted and Henry H. Richardson sat down to discuss plans for the proposed Buffalo State Asylum for the Insane over 100 years ago, facilities for the mentally or emotionally disturbed were generally drab and depressing. Organized therapy programs, particularly any type of horticultural therapy, were virtually nonexistent. However, back in 1871, the renowned landscape designer and the famed architect were determined to create as comfortable and therapeutic a setting as possible for the projected hospital population.

While Richardson drew up plans for what would become one of his most respected architectural designs, Olmsted surveyed the rough terrain of the 200-acre tract of land and specified the siting of the 11-building complex. Olmsted, of course, was no stranger to landscape design. By the time he designed the Buffalo State Asylum, he had already gained a national reputation for designing numerous city parks. In fact, while he was collaborating with Richardson on the hospital setting, work was in progress on Buffalo's largest park—Delaware Park—which was directly across the street from the proposed hospital; Olmsted

considered the grounds of the hospital to be an extension of the park.

This grand expanse of greenery no doubt appealed to Olmsted's sense of aesthetics, but it also fit in well with his intention of creating a sense of repose and serenity, which he thought so necessary for the comfort of the hospital's patients. For example, Olmsted chose an oblique setting for the buildings so that the maximum amount of light and sunshine would brighten the patients' rooms.

Olmsted went one step further in accommodating the patients; he designed outdoor spaces for recreation *and* therapy.

Such designs were in keeping with Olmsted's own life experiences and background. Olmsted had once been a farmer himself, and for a time embraced agriculture wholeheartedly. He had a solid, scientific knowledge of farming gained through agricultural studies at Yale University, and had on several occasions stated that "rural pursuits tend to elevate and enlarge the ideas."

The farmer and the philosophic designer in Olmsted seemed to come together well in his plan for the Buffalo State Asylum. For practical and therapeutic purposes, Olmsted set specific areas aside for gardening—a garden for female patients, and one for male patients. And in keeping with his commitment to create a sense of serenity, he included a "pastured pleasure ground" and an "airing court for excitable patients."

Upon completion of the complex in 1895 (about the same time that Olmsted himself became a permanent resident of a mental hospital), the grounds immediately came to life, much as their creator had envisioned. Barns, hen houses and a piggery

that dotted the land to the rear of the complex were put to good use, and gardens, tended jointly by patients and staff, became quite productive. A typical harvest yielded tons of hay, wheat, oats, potatoes and a wide assortment of green and yellow vegetables. The produce was used to feed the hospital population, or was sold to surrounding communities.

Olmsted would have been disappointed to learn, though, that after several decades of this type of therapeutic and practical activity, the gardens and farmlands all but disappeared. A neighboring state college appropriated 90 acres from the hospital, reducing the farmlands considerably. Then, in the 1940's and '50's, increased concern over patients' rights led to a movement away from unpaid manual labor such as gardening. Newer and different methods of treatment, including shorter hospital stays and improved medications, became the mainstay of most rehabilitation programs.

In recent years, however, gardening as therapy has once again crept into the picture. Although Olmsted and a select few

may have envisioned gardening as a therapeutic process over a century ago, it has taken a long time for horticulture to be recognized as a legitimate kind of therapy. The practical applications of gardening therapy, it seems, have always existed, but the theory (as well as scientific acceptance) has lagged far behind. For example, before psychiatry ever evolved as a science, physicians often prescribed work in the garden to individuals "for ills of the mind and nervous system."

Gardening therapy was introduced into institutions in European countries as early as the 1700's. However, the idea was slow to catch on in this country. Gardening therapy (the term "horticultural therapy" was not actually coined until 1948) first appeared in the United States around the turn of the century. It did not get a firm foothold, though, until after World War II, when the Veterans Administration incorporated horticulture into its rehabilitation programs for hospitalized veterans. Currently, horticultural therapy is gaining widespread recognition as a valuable part of treatment plans not only in hospitals,

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## PLANTS & PEOPLE

but also in schools, correctional institutions, nursing homes, and community and retirement centers.

The Buffalo State Asylum, now known as the Buffalo Psychiatric Center, is among those institutions that currently have a horticultural therapy program. While the pastured pleasure grounds, airing court and barns are long gone, over 100 acres of well-manicured greenery still remain. In fact, first-time visitors to the historic Center are very often pleasantly surprised at the park-like setting. For example, no high-security fencing or padlocked gates surround the grounds. Rather, the area is delineated by a decorative wrought iron fence, accompanied by a line of century-old trees.

Inside the fence, clusters of pines help soften the sharply defined angles of Richardson's buildings. Unlike the grounds of many modern institutions, which are often taken up by large parking lots, the Center's grounds are still open enough for visitors to take a pleasant stroll. Gently curving walkways, originally specified by Olmsted, traverse the grounds, leading to some obvious and not-so-obvious destinations. To reach the rear of the complex from the front, for example, one can wander down a walkway to the right of the towering administration building. This is no ordinary path, since the visitor must first pass through ivy-covered sandstone walls and grand Romanesque-style arches. It is at this point that perhaps the most pleasant surprise awaits the interested onlooker; flanked by Richardson's massive buildings sits Olmsted's aging, but elegant greenhouse. And here lies the heart of the Buffalo Psychiatric Center's horticultural therapy program.

Although patients may not be aware of the historic setting in which they go about their tasks, their gardening activities complement Olmsted's original designs and ideas. For example, patients assist in starting bedding plants that add a bright dash of color to the many pathways and that complement the graceful rose beds at the entrance to the Center. With the upkeep of the grounds largely in the hands of a professional grounds crew, patients are free to participate in the Center's horticultural therapy program without pressure. The program is loosely structured, and patients participate on a voluntary basis. Several times a week, under the guidance of the recreational activities staff, the "Green Thumb Club" gathers together to undertake various gardening tasks. A typical meeting finds the patients weeding, thin-

ning seedlings, transplanting, or making up potting mixture in the greenhouses. During warm weather, members of the Club participate in outdoor activities, such as tilling, hoeing, grading and planting.

Although relaxing and recreational, the program has a serious purpose: rehabilitation. Gardening helps to achieve this goal in a variety of ways. According to many health professionals, gardening aids in coping with grief or loss, provides a sense of accomplishment and order, and helps reduce stress and alleviate depression. (How many gardeners eagerly await the arrival of seed catalogues every year to lift them out of the mid-winter blues?)

A cross-section of the Buffalo Psychiatric Center population reveals a wide range of abilities and severity of illness. A horticulture program is particularly valuable in this kind of setting, since it can be tailored to meet specific needs. For instance, projects can be short- or long-term. (A severely depressed person, for example, would probably do well in a short-term project with an easily attainable goal.) Also, activities can be on a group or individual basis; one patient might need help in developing interpersonal relationships in a group setting, while another patient might benefit from working in a non-threatening, one-to-one situation.

There are additional advantages to horticultural therapy. For example, many patients at an institution such as the Buffalo Psychiatric Center may have not only mental or emotional problems, but also physical restrictions. Again, gardening can be adapted to meet specific rehabilitative goals, since activities can be on a large or small scale. Hauling sacks of soil or heavy tilling may be impossible tasks for elderly or disabled patients, but seeding, labeling or thinning seedlings in flats, transplanting, pinching, pruning or taking cuttings are not.

Although simple on the surface, such gardening activities are complex when viewed through the eyes of occupational therapist David Merlo. Merlo has worked many years with the Buffalo Psychiatric Center's gardening program, first as a student intern, then as a volunteer. He has also had formal training in both horticulture and occupational therapy.

"Gardening brings a sense of accomplishment and pride," says Merlo. "And whether simple or complex, caring for plants gets the patient's mind off of himself." Furthermore, Merlo explains, gardening helps in "reality orientation." For

example, by following the schedules for watering or planting, patients can better understand the concept of time, a crucial goal in treatment. When a patient understands time in terms of the day for watering or the season to start the planting, the concept becomes less abstract and more personal.

According to Merlo, gardening therapy also helps the patient's self-confidence. "So many times in an institution, all of a patient's needs are met. There are no decisions to make, and there is no chance to have a say in anything. Gardening goes a long way in restoring this decision-making process. What crops to plant, when to water, when to prune or transplant—these are choices that most patients are willing and able to make. Of course, in a program such as this, mistakes happen. One year all the carrots were pulled out, along with the weeds, but we all learned from that mistake."

Despite the problems, Merlo is enthusiastic about the program at the Center: "We've had our vegetable garden for several years now, and from beginning to end, we make every effort to involve the patients in as many aspects as possible. It begins with a field trip to local nurseries to purchase seeds and supplies, and ends weeks later with the harvest. That's the most exciting time for the patients—when they see the results of all their efforts."

The highlight of last year's program, according to Merlo, was the harvest banquet, which was held in the Center's outdoor courtyard. The dinner, in keeping with its theme, boasted a menu consisting entirely of harvested produce; patients and staff dined on garden salad, zucchini quiche and an assortment of crisply cooked vegetables. Set against the background of historic buildings and the century-old grounds, it was a grand feast and a joyful tribute to the rediscovered value of horticultural therapy at the Buffalo Psychiatric Center.

Frederick Law Olmsted would have been pleased. ☉ —Jeanne Palamuso

The American Horticultural Society's Annual Meeting, to be held September 11-14 in Chicago, will feature an in-depth look at the expanding horticultural therapy field as well as other topics of interest to gardeners across the country. For more information on the program, write to Robin Williams, American Horticultural Society, P.O. Box 0105, Mount Vernon, VA 22121.

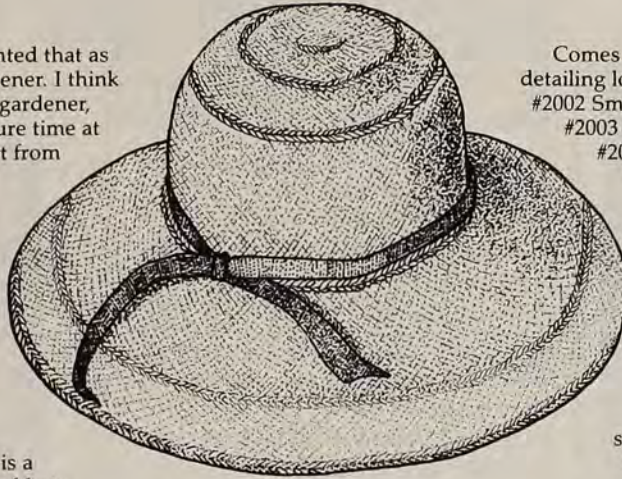
Jeanne Palamuso is Garden Columnist for *The Buffalo News*. Her articles have appeared in *Plants Alive*, *Flower and Garden* and *Lady's Circle*.



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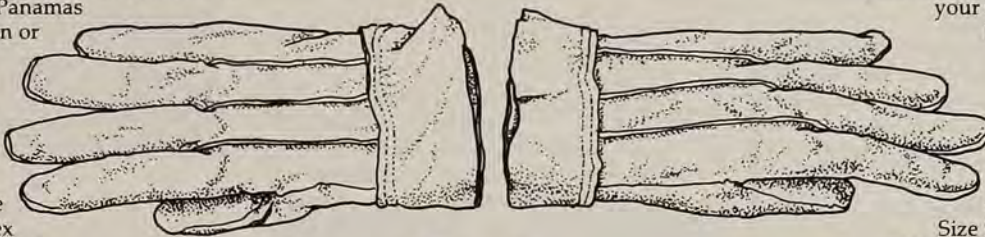
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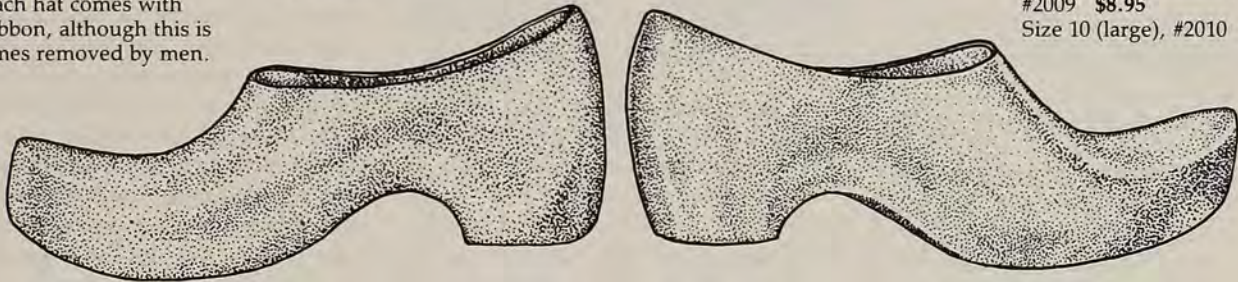
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# Book Reviews

## PERENNIALS: HOW TO SELECT, GROW & ENJOY.

Pamela Harper and Frederick McGourty. HP Books. Tucson, Arizona. 1985. 160 pages; softcover, \$9.95. AHS member price, \$7.95.

*Perennials: How to Select, Grow & Enjoy* is a book for anyone interested in growing perennials—from the rank beginner to the advanced gardener to the nurseryman. Both authors are frequent contributors to *American Horticulturist*, so readers should be quite familiar with their practical, how-to approach to growing perennials.

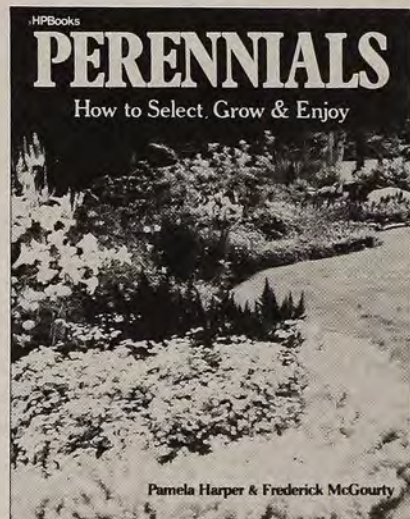
The first 40 pages of the book present general cultural information and suggestions for using perennials in the garden. The discussions of such topics as botanical names, soil preparation, propagation, planning, buying, planting and care after planting serve as both an excellent introduction for a beginning gardener and a perfect review for the more experienced one. The majority of the book, however, is devoted to a "Gallery of Garden Perennials" that would inspire any gardener. Over 250 species of perennials in 135 different genera are included. Each genus is illustrated with a large full-color photograph, and the individual discussions include common names as well as extremely useful hardiness and cultural information.

The plant lists, photographs of gardens and specific plant combinations, diagrams and line drawings found throughout the book, combined with the above, make this information-packed book a must for any gardener.

## THE MAKING OF A GARDEN.

Gertrude Jekyll (Cherry Lewis, Editor). Antique Collectors' Club. Suffolk, England. 1984. 167 pages; hardcover, \$29.50. AHS member price, \$24.35.

This anthology is an excellent choice for gardeners who would like to sample the wisdom of Gertrude Jekyll. It contains a wide variety of passages from Jekyll's writings and is illustrated with many of her own photographs and drawings, as well as watercolors by contemporary artists. The passages are presented in five chapters: Of Gardens, Spring, Summer, Autumn and



Winter. Within each chapter, samples of Jekyll's writings are divided by subject matter, such as gardens of special coloring, colors of flowers, filling gaps, October flowers and ways with free-growing roses.

Although many of the plants mentioned in *The Making of a Garden* are not suitable for American gardens, the book includes a good deal of useful information and, more importantly, provides an excellent overview of the writings of this world-famous gardener.

## PEPPERS: THE DOMESTICATED CAPSICUMS.

Jean Andrews. University of Texas Press. Austin, Texas. 1985. 186 pages; hardcover, \$35.00. AHS member price, \$28.00.

This fascinating book contains all you ever wanted to know about peppers, and then some. Author/researcher/artist Jean Andrews presents the long and colorful history of the domesticated capsicums in an interesting, readable format.

*Peppers* begins with a series of beautiful color plates depicting 32 species and cultivars of peppers. The text begins with a history of the western discovery of these useful plants—all members of the genus *Capsicum*—and continues with extensive discussions of pre-Columbian domestication, early European accounts of the plants and a review of the literature on capsicums. Andrews' book also contains chap-

ters on diagnostic descriptions, floral biology, how to grow peppers, economic uses and recipes, as well as discussions on each of the plants featured in the plates at the beginning of the book. The appendix (which includes seed sources and a guide to events that feature peppers), the illustrated glossary and the extensive bibliography are also extremely helpful. In short, this book is an essential addition to the library of any pepper enthusiast, and almost any gardener who grows peppers will find it fascinating. —Barbara W. Ellis

**THE CULTIVATED HEMLOCKS.**

John C. Swartley. Timber Press. Portland, Oregon. 1984. 186 pages; hardcover, \$24.95. AHS member price, \$21.20.

John Swartley's master's thesis, submitted to Cornell University in 1939 but unpublished until now, has been and continues to be the authoritative study of the approximately 10 species of the genus *Tsuga* and the hundreds of cultivars of these variable trees. Prior to 1984, few copies of the original thesis were available, and thus access to the information was severely restricted; publication of *The Cultivated Hemlocks* finally overcomes this long-standing problem. Humphrey J. Welch and Theodore R. Dudley have updated the descriptions and photographs of the many fascinating forms that have been maintained as cultivars. These cultivars offer the gardener, landscape architect or nurseryman an almost unlimited choice of size, form, texture and growth rate for use in varied applications. From dwarfs to spreading ground covers, from weeping forms to majestic forest trees, there is some cultivar of hemlock that is just right for your garden.

**SAXIFRAGES AND RELATED GENERA.**

Fritz Köhlein. Timber Press. Portland, Oregon. 1984. 220 pages; hardcover, \$34.95. AHS member price, \$29.70.

Most of the more than 300 species in the genus *Saxifraga* are alpine plants that grow best in areas with cool summers. Consequently, they are relatively unknown in American gardens. Although they require some special attention, such as summer

*Continued on page 33*

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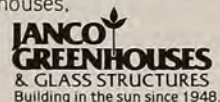
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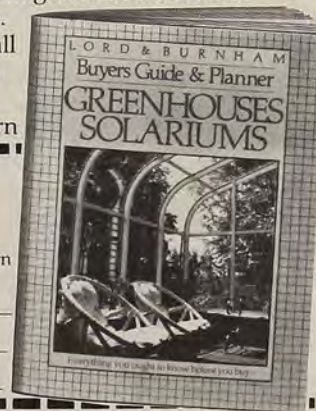


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# The Bewildering Binomials

**H**orticulturists are prone to overestimate . . . the terrors of the nomenclature question," writes the late Liberty Hyde Bailey, one of the world's most renowned horticulturists, in his treatise *How Plants Get Their Names*. Yet can anyone blame them? Most botanical names are so unlike any word found in an English dictionary that even a linguist, especially one who is not well versed in the classical languages, would have difficulty deciphering them. Moreover, the rules and codes (from which Bailey suggests we "expect too much") only go so far in unraveling the mysteries; like any system, botanical nomenclature is fraught with exceptions and pitfalls. It is no wonder many horticulturists find the "binomials" so bewildering!

Binomial nomenclature has been used since recorded time as a convenient means of naming and classifying living things, including plants. However, it was not until the eighteenth century that botanists began abandoning single- and multiple-word plant names in favor of binomial (two-word) designations. In 1753 the Swedish botanist Carolus Linnaeus published his first edition of *Species Plantarum*, in which he "introduced consistent biverbal names (binomials) for all species of the vegetable kingdom then known." According to W. T. Stearn, Linnaeus "did not himself at first set great store" in the binomial system, nor did he intend for the binomials to be the main focus of his work. Yet the impact of *Species Plantarum* was felt almost immediately. Although many plant names continued to be published under different classification schemes, botanists began to show a definite preference for the binomial nomenclature system.

Soon after Linnaeus's work was published, it became evident that a universal set of rules was needed to regulate the naming of plants and to establish the binomial method once and for all. In 1867 an International Botanical Congress was held in Paris, resulting in the formulation of the botanical world's first Code of Nomenclature. A few decades later, in 1905, the first edition of *Species Plantarum* was

formally adopted as what Stearn calls "the starting point for botanical nomenclature in general." Today the *International Code of Botanical Nomenclature*, a product of several botanical meetings over the last century, serves as the definitive guide to naming plants; a separate guide—the *International Code of Nomenclature for Cultivated Plants*—specifically governs the naming of cultivated plants.

For many plant lovers, the binomials are



nothing more than cumbersome names that seem to crop up in every plant book, or to appear at every turn in a public garden. Yet the binomial nomenclature system is invaluable to anyone who works with plants, from the professional to the amateur. While common names can vary from country to country or region to region, botanical names are standard throughout the world, and thus enable scientists and others to exchange information about specific kinds of plants. Furthermore, botanical names—specifically, the binomials—tell us how plants are classified. As Stearn notes, "The binomial [is] more than a two-word label; it function[s] as a point of reference within a vast logically devised and integrated system of botanical recording."

Under this basic, yet ingenious system, the generic name (somewhat like a family

surname) groups a plant into a particular genus, while the specific epithet (analogous to a "given" name) sets one kind of plant apart from all other kinds of plants in the same genus. The correct name of a particular plant species, then, is the generic name and the specific epithet combined. For example, *Hemerocallis aurantiaca* is the name of a plant species that belongs to the genus known as *Hemerocallis*; the specific epithet *aurantiaca* identifies a particular species, or kind,

of *Hemerocallis*. The common name "day-lily" does not provide nearly as much information, nor does it help us understand that different kinds of so-called lilies can belong to entirely different genera and, in fact, different families of plants. For example, the true lilies are *Lilium* species, which belong to the lily family, Liliaceae. Day-lilies are in a different genus, *Hemerocallis*, though they are still in the lily family. Calla lilies belong to the genus *Zantedeschia*, which is not even in



*Manypeeplia upsidownia*

Edward Lear's imaginary plant *Manypeeplia upsidownia* summarizes many gardeners' reactions to botanical nomenclature.

the lily family, but rather the Araceae, or arum family.

Of course, recognizing the merits of the binomial system does not make the binomials themselves less intimidating. Some plant enthusiasts may consider the names useful, but also somewhat "foreign." Indeed, all of the botanical names we use today, regardless of their origin, are treated as Latin. (As luck would have it, the classical languages were in vogue among scholars when many of the plants were classified.) Fortunately for the non-classical scholar, however, the names follow certain patterns. For example, the first name in the binomial formula—the generic name—is always a singular noun (or treated as such) with a masculine, feminine or neuter gender. Further, it always begins with a capital letter. Examples include *Aquilegia*, *Coreopsis*, *Ficus*, *Geranium*, *Heuchera*, *Muscari*, *Portulaca*, *Silene*, *Solidago* and *Vitex*. The specific epithet, on the other hand, is usually an adjective that modifies and agrees in gender with the generic name. Specific epithets of this type include *alpinus*, *boothiana*, *major*, *occidentalis*, *procumbens* and *versicolor*. (The neuter *Chrysanthemum alpinum*, masculine *Dianthus alpinus* and feminine *Echeveria alpina* demonstrate how the endings of a specific epithet may change according to the gender of the generic name.) The specific epithet may also be a noun, in which case it retains its own ending; *millefolium* in *Achillea millefolium* and *mays* in *Zea mays* are two common examples. Or it may be a proper noun in the possessive, such as *danielii* in *Guzmania danielii* (meaning Daniel's guzmania), *thompsoniae* in *Penstemon thompsoniae* (commonly called Thompson's penstemon) or *websteri* in *Senecio websteri* (Webster's senecio). According to *Hortus Third* (and in agreement with the *International Code*), "The practice of capitalizing the first letter of specific epithets derived from names of persons, former generic names, and common (non-Latin) names is still permitted." However, *Hortus* recommends that "all specific epithets commence with a lower case letter."

Unfortunately, knowing the rules governing the formation of botanical names (and there are many more not mentioned here) does not guarantee a full understanding of the binomials. To make sense of the nomenclature, one must also look at the etymology, or origin, of the generic and specific names.

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## BOTANICAL NOMENCLATURE

half of all the names botanists have assigned to genera are derived from Latin or Greek. *Achillea*, *Bellis*, *Eriogonum*, *Helianthus*, *Nasturtium*, *Rhapis* and *Trillium* are just a few examples of names derived from the classical languages. Some generic names in use today—for example, *Acer*, *Carpinus*, *Geum*, *Hedera*, *Ledum* and *Scilla*—are the actual names used in ancient times.

There are many examples of genera named in honor of an individual, whether it be a botanist, plant explorer, politician or other luminary. Commemorative generic names include *Claytonia* (after John Clayton, American botanist); *Forsythia* (in honor of William Forsyth, British horticulturist); *Helenium* (for Helen of Troy, or possibly Helenus, son of Priam); *Linnaea* (after Linnaeus); *Nierembergia* (in honor of Juan Nieremberg, Spanish Jesuit); and *Zinnia* (for Johann Zinn, German botanist and professor of medicine). Although such names generally adopt the spelling of the name of the person honored, there are exceptions. The spelling of *Stewartia*, for example, deviates from "Stuart,"

the name from which it is derived. Similarly, the generic name *Wisteria* does not follow the exact spelling of the name of the person honored, John Wistar.

Generic names can also reveal information about a plant's native habitat. For instance, *Canarina* refers to the Canary Islands, where Canary bellflowers can be found growing in the wild. More common, however, are descriptive generic names that refer to some characteristic of the plant. Such names are usually formed by combining one or more Greek adjectives. For example, *polys* (many) and *gonu* (knee) combine to form *Polygonum*, the generic name for a plant with many joints on the stem. The adjectives *kalos* (beautiful) and *carpos* (fruit) aptly describe the beautiful berries of French mulberry, *Callicarpa*. Translating the components of descriptive generic names is not always as easy as it seems, however. Two descriptive generic names with similar spellings may, in fact, be derived from completely different words. For example, *Calycanthus* is from the Greek words *kalyx* (meaning calyx) and *anthos* (meaning flower), while *Calypso* is derived

from one Greek word—possibly from *kalypto* (for conceal) or after the Greek goddess Calypso.

Many generic names originate from native names, that is, common names used in a particular country or region. These non-Latin designations either retain their original spelling or adopt a new form, often with a Latin ending. Such names derive from almost every language imaginable. Of all the languages influencing botanical names (besides Latin and Greek), Arabic figures most prominently. Given the reputation of early Arab scholarship, it is not surprising that so many of our modern botanical names are Arabic in origin: *Abutilon*, *Aloe*, *Doronicum*, *Jasminum*, *Nuphar*, *Ribes*, *Sophora* and *Tamarindus*, to name just a few. American Indian languages have also had a noticeable influence on botanical nomenclature. A brief survey of generic names reveals that North American Indian names such as *Camassia* are not nearly as numerous as names originating from South America, including *Ananas*, *Bixa* and *Loasa*. Brazil—more than any other South American country—seems



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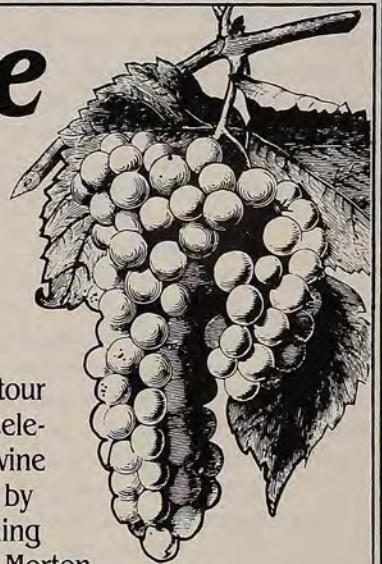
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to have had a significant impact on modern-day botanical nomenclature, contributing such names as *Manihot* and *Petunia*. The Japanese language also has its share of representatives—*Akebia*, *Aucuba*, *Fatsia*, *Nandina*, *Skimmia* and *Tsuga*, for example. The Chinese language is represented by such names as *Ginkgo* and *Kalanchoe*. Although not numerous, names derived from the Romance and Germanic languages are also currently in use, including *Poncirus* (French); *Pimenta* and *Vanilla* (Spanish); *Cocos* (Portuguese); *Babiana* (Dutch); and *Prunella* and *Trollius* (German).

New words or names can be created using certain linguistic methods, and the binomials are no exception. The generic name *Sidalcea* is a compound word created by combining the generic names *Sida* and *Alcea*. *Metasequoia* was formed by adding the prefix *meta* to the generic name *Sequoia*. The familiar process of contraction gave us *Podophyllum*, derived from the Greek word *anapodophyllon* (duck's-foot-leaved). Perhaps the most striking of all generic names in terms of derivation are the anagrams, formed by reordering the letters of another name; *Muilla* (from *Allium*) and *Tellima* (from *Mitella*) are just two examples of this phenomenon.

Sometimes two entirely different genera share very similar names. Confusion can easily result from such look-alikes as *Butea* and *Butia*, or *Dianthus* and *Disanthus*, for example. Similarities between former and current names of some genera (for example, *Pentastemon* and *Pentstemon*, eventually replaced by the name *Penstemon*) can also cause havoc among users of botanical names.

Specific epithets follow many of the same etymological patterns as do generic names. For example, some commemorate individuals (for instance, *hookeri*, *johnsonii* or *veitchiana*), while others are derived from native names (*cacao*, *mays* or *tabaccum*, for example). A few originate from generic names that are either still in use (*abies* of *Picea abies*, for example) or have fallen into disuse (for instance, *majorana*, as in *Origanum majorana*). Specific epithets that derive from generic names can indicate that a particular taxon once belonged to another genus and was later reclassified; *quamoclit* was formerly the generic name for the species now classified as *Ipomoea quamoclit*, for example.

The most common specific epithets are those that describe the plant or its habitat

in some way. Geographic references—from states and countries, to mountain ranges and rivers—abound: *oklahomensis* (from Oklahoma), *chilensis* (from Chile), *pyrenaicus* (of the Pyrenees Mountains), *magdalenensis* (of the Magdalena River), and so forth. However, one must be careful not to assume that the place to which the specific epithet refers is, in fact, the plant's native habitat; *Cupressus lusitanica*, for example, is not native to Portugal (*lusitanica* means "from Portugal"), but rather to Mexico and Central America. Furthermore, more than one specific epithet can denote the same geographic area; for example, *chinensis* and *sinense* both mean "from China."

Most derivations of specific epithets that describe certain characteristics of the plant are surprisingly easy to trace. These adjectives—usually derived from one, two or three Latin or Greek words—often provide enough clues to distinguish one species in a genus from another; *Melianthus major*, for example, is generally larger than *M. minor*. However, even seemingly straightforward adjectives can lead one astray. For instance, the specific epithet *horridus* can take on different meanings, such as bristly or dreadful, depending on the genus with which it is associated. Similarly, *monstrus* can mean strange, wonderful, a monstrosity or horrible. More misleading, perhaps, are the specific epithets that suggest some feature that is only remotely related to the plant, if at all. For example, *Duranta repens* has drooping or trailing branches but does not actually creep, as the specific epithet would lead us to believe. (*Repens* is Latin for "creeping.") Pity the poor gardener who plants *D. repens* as a ground cover, only to discover that his new plant can grow to 18 feet in height!

The binomial nomenclature system serves the horticulturist's purposes quite well. In fact, it is difficult to imagine what working with plants would be like without such a useful and efficient system for naming and classifying. Yet for those who are intimidated and confused by binomials (and understandably so), the thought of life without botanical names is no doubt rather appealing. Perhaps there is solace in knowing that, with a little help from linguists, the binomials can be made not only less bewildering, but even a fascinating subject for study. ☛ —Lynn M. Lynch

Lynn Lynch is Associate Editor of *American Horticulturist*. An avid vegetable gardener, she holds a master's degree in linguistics.



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# Echinaceas

## THE PURPLE CONEFLOWERS

“A prophet is not without honor save in his own country; true is this saying when rendered—A plant is not wanting admiration save in its native land.” This timeless quote from F. Lamson Scribner’s *Ornamental and Useful Plants of Maine* (1874) reminds us that here in the land of rhododendrons, azaleas and magnolias—among the loveliest plants found in temperate climes—we import tulips, Dutch hyacinths and English larches to adorn our yards. By the same token, European gardens sport American wildflowers, such as spiderworts and goldenrod. Purple coneflowers (*Echinacea* spp.) are another example of native American wildflowers that have captured the fancy of Europeans more than that of Americans.

The name *Echinacea* (pronounced eck-in-AY-see-ah) derives from the Greek *echinos*, meaning hedgehog or sea urchin, which refers to the spine-like scales subtending each disk floret on the cone-shaped receptacle. These pointed scales are the chief feature of the dried flowers, which are very attractive in arrangements. Women of some Indian tribes, including the Kiowa and Meskwaki, found the dried flower heads to be perfect for hair combs; hence another common name, comb plant.

The bold, showy flower heads—resembling large black-eyed Susans—are graced with long, drooping ray florets, earning the plant the name “drips” in Ozark lore. Common names including red sunflower, red sunbonnet and purple coneflower refer

BY STEVEN FOSTER

to the showy blossoms. The ray florets vary from white to pink-red to royal-purple in color. Flowers last a month or more once blooming commences.

Echinaceas are in the Compositae, or daisy family. The nine species, primarily indigenous to the Central and Plains states, range from Massachusetts south to Georgia, and as far west as Texas and Montana. Of all the species, only one—*Echinacea purpurea* and its cultivars—is widely available in the horticultural trade, although seeds and plants of several other species are also available. *E. purpurea* has been sold as an ornamental garden perennial since the early part of this century. It is often sold under the name *Rudbeckia purpurea*, the binomial Linnaeus first assigned to the plant in 1754. However, the use of this name should be discouraged; the genus *Echinacea* was described in 1794, and by the 1840’s all of the purple coneflowers had been transferred from *Rudbeckia* to *Echinacea*.

*E. purpurea*’s brilliant orange disk—surrounded by stately purple ray florets that reach a length of up to four inches—makes this a striking ornamental with few rivals. The plants grow to four feet tall and bear many flower stalks shooting up from a single root. The leaves are oval to broadly lance-shaped, with irregular, coarse teeth.

Flowers appear from the first of June through August. The natural range of *E. purpurea* is from Louisiana and eastern Oklahoma, north through Michigan and Ohio. It grows in open woods, thickets and prairies.

Cultivars of *E. purpurea* include ‘The King’, which sports bright crimson ray florets, and ‘Bright Star’, one of the most widely available cultivars, with rosy-red ray florets and a deep maroon disk. ‘Sombrero’ has crimson ray florets and, as the name suggests, produces a broad flower head that sometimes grows to eight inches across. ‘New Colewall Strain’, an English cultivar, also has large flowers, as well as a greenish-bronze cone. White-flowered cultivars with greenish cones or a tint of copper or bronze color are prized for their regal charm. These include ‘White King’, ‘White Prince’, ‘White Lustre’ and ‘Alba’. Several German cultivars provide distinct appeal. One that is available in North America, ‘Leuchtstern’, flaunts large carmine-red blooms.

Though less flamboyant than the *E. purpurea* cultivars, the so-called pale purple coneflower, *Echinacea pallida*, is also alluring. Its large, showy flowers range from deep purple to pale white in color. It grows to over four feet in height and begins blooming in mid-May in the South, lasting into September in the North. *E. pallida*

Purple coneflowers, *Echinacea purpurea*, grace the wildflower meadow at River Farm, the Society’s headquarters.







Photographs by Steven Foster

has long, lance-shaped leaves without teeth. This species occurs from eastern Oklahoma and Kansas, north to Wisconsin and east to Indiana.

*E. angustifolia* is smaller and less stout than *E. pallida*. Commonly called prairie purple coneflower or narrow-leaved coneflower, it grows from six inches to two feet in height. The ray florets are usually very short (less than 1½ inches in length), and the leaves are long and slender. *E. angustifolia* primarily occurs across the Great Plains. Both *E. angustifolia* and *E. pallida* occur on prairies and rocky limestone outcrops in disturbed, compacted soils, where few other plants thrive. They are exceptionally drought-resistant and will grow in very alkaline to slightly acid soils. Both are available from nurseries specializing in prairie plants, although *E. angustifolia* is more difficult to obtain.

Two unique *Echinacea* species are very rare and worthy of protection. *E. laevigata*, a rare Appalachian species that is similar in appearance to *E. purpurea*, is under review for possible federal listing as an Endangered Species. *E. tennesseensis*, Tennessee coneflower, was one of the first plants to receive federal Endangered Species status. First described and named in

the 1890's, it was thought to be extinct by the middle of this century but was rediscovered in 1968. Today, *E. tennesseensis* is known from only four natural stands on cedar glades in central Tennessee. A team of Tennessee botanists, in conjunction with the Natural Heritage Program of the Tennessee Department of Conservation, has initiated a recovery program to propagate and re-establish *E. tennesseensis* in appropriate habitats. The ultimate goal of the program is to increase the species sufficiently so as to remove it from the Endangered Species list. Cheekwood Gardens in Nashville is helping to propagate plants for the recovery program. This species has a compact branching habit and upturned, rather than drooping, ray florets, like those of other members in the genus. It is an excellent example of a rare native American species that has good potential as a garden plant but that must first be protected and successfully stabilized in its native habitat.

The remaining four species—*E. atrorubens*, *E. sanguinea*, *E. simulata* and *E. paradoxa*—have relatively narrow natural ranges. Although they are not listed as rare or endangered, some populations of these species are protected in some states. *E.*

*atrorubens* bears short, incurved, royal-purple ray florets, and occurs in east Kansas, Oklahoma and north Texas. *E. sanguinea* has near-hemispherical heads and reddish-purple blooms. It grows primarily in west Louisiana and east Texas; one Arkansas stand is protected. *E. simulata* is so similar to *E. pallida* that it wasn't named until 1968. It differs from *E. pallida* in that it has yellow rather than white pollen, and half as many chromosomes. Perhaps the most unusual and striking of the purple coneflowers is *E. paradoxa*, so named because of its "paradoxical" yellow ray florets. It grows only in the Ozarks, and has been found in only four Arkansas and 17 Missouri counties.

Purple coneflowers are strong, drought-tolerant, low-maintenance perennials. Hardy throughout the continental United States, these American wildflowers merit greater attention as ornamental garden plants. When many perennials succumb to droughty conditions, echinaceas will stand tall. They can be planted in crevices among rocks, or given a place of honor in the center of a garden. In addition, these attractive plants can provide a colorful medium-height border accent, or can be used to enhance any group planting.



FAR LEFT: *Echinacea tennesseensis* is one of the first plants to receive federal protection as an Endangered species. CENTER: *Echinacea paradoxa* is found only in Arkansas and Missouri. ABOVE: The ray florets of *Echinacea pallida* range in color from white to deep purple.

Echinaceas will do well in any average, well-drained garden soil. (The pH should be between 5.9 and 8.) Frequent shallow cultivation encourages vigorous growth. Although most *Echinacea* species will grow in full sun and in dry, compacted, alkaline or slightly acid soils, *E. purpurea* likes a richer, more moist soil, and will thrive in full sun or in dappled shade.

Purple coneflowers can be propagated from seed, crown divisions or root cuttings. The seeds exhibit some embryo dormancy and germinate more readily if stratified for a month in moist sand. Simply mix the seeds in moist sand, place in a plastic bag, and refrigerate. At the end of a month, rinse the sand off in a screen-mesh strainer and sow.

Like the seeds of many prairie plants, *Echinacea* seed germinates more readily with light, although it is not absolutely necessary for success. It is best to start seeds on the surface of a soil mix. Start them indoors, and move transplants to the garden when the plants are about six weeks old. (I stratified the seed of four *Echinacea* species, then planted it on the surface of a mix made of equal parts of sand, peat and sterile potting soil. The seeds germinated within five to seven days. Stratified

seeds that were covered with about one-eighth inch of soil mix took from two weeks to a month to sprout.) If the plant is grown from seed, vegetative development is very slow the first year. By the second year, however, plants bloom and become robust.

When the plants are dormant in fall or early spring, the budding rosettes on the crowns can be sliced off or carefully peeled from the main rootstock. Plant them in a pot of soil, and place them in a cold frame or directly in the garden. I have divided up to seven plants from one root crown, and have had equal success dividing crowns in both spring and fall. A four- to five-inch section of root, broken off of an older plant, can be used to propagate new plants as well.

Not only are *Echinacea* species beautiful and easy to cultivate, but they also have a rich tradition of herbal uses. In fact, few American plants have such an impressive medicinal history. In *Uses of Plants by Indians of the Missouri River Region* (1919), Melvin R. Gilmore writes, "*Echinacea* seems to have been used for more ailments than any other plant." Plains Indians used *Echinacea* root for treating everything from snake bites to colds to cancers. From 1890 to 1930, *E. angustifolia* was the largest-

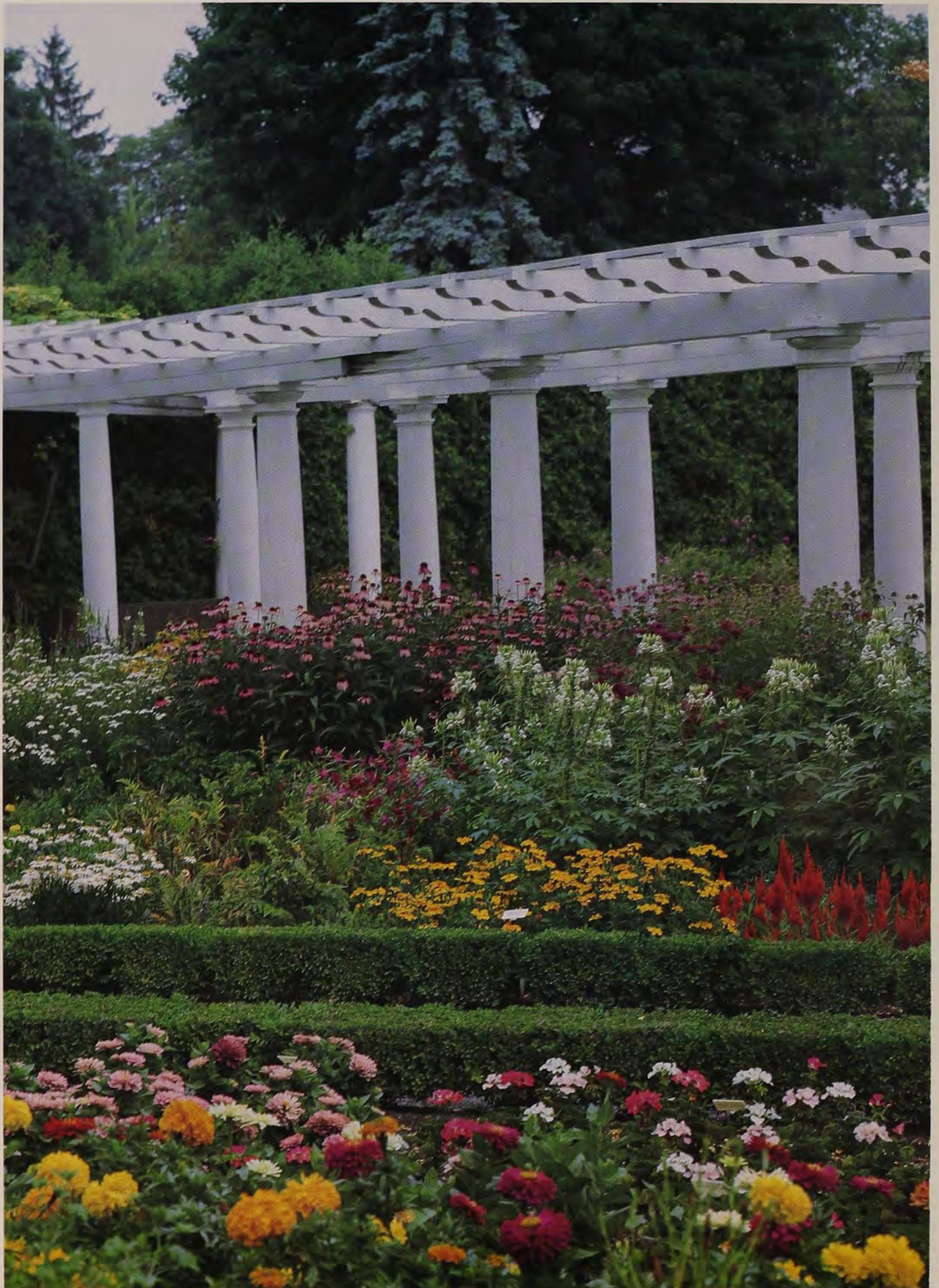
selling and most popular drug derived from an American medicinal plant. (Little-known folk names for *Echinacea* spp., such as Indian root and scurvy root, refer to the plants' herbal uses.)

Research conducted by pharmaceutical scientists over the past 30 years, primarily in West Germany, has revealed that *Echinacea* is useful against certain viral infections such as influenza, canker sores and herpes. Two types of cancer are significantly inhibited by an essential oil found in members of the genus. These plants have also been found useful for treating numerous allergies. In addition, studies have demonstrated that *Echinacea* spp. are anti-inflammatory, helpful in healing wounds, and effective against certain bacterial infections.

Whether appreciated as native wildflowers, showy perennials or plants with valuable medicinal qualities, the purple coneflowers deserve greater appreciation as garden plants. ☼

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# Sonnenberg Gardens

## A Victorian Extravaganza

This mid-summer's day the Colonial Garden at Sonnenberg Gardens, symmetrically planted in an ancient quincunx pattern of five circles-within-rectangles divided by diagonal paths, is a giant colorful kaleidoscope. Curbed within each bed by dwarf box (*Buxus sempervirens* 'Suffruticosa') totaling a quarter of a mile in length, almost 150 different brilliant annuals and perennials blossom in dazzling abandon. Wildflowers from our meadows and prairies grow in harmony with nostalgic lacy pinks and test varieties of marigolds and zinnias.

This garden entices many different kinds of visitors. Red admirals and painted ladies flutter above the bronze-coned purple coneflowers, *Echinacea purpurea*, and bees hum pleasantly amid the tousled red bee balm, *Monarda didyma*. An artist in a straw hat, his easel set up among the feathery celosias and double black-eyed Susans, transforms the rainbow display into clusters of watercolor dots.

The Colonial Garden is only one of nine

TEXT BY LYNN LEWIS MONROE

PHOTOGRAPHY BY  
LYNN AND GENE MONROE

opulent turn-of-the-century gardens—all diverse in theme and design—that make up Sonnenberg Gardens in Canandaigua, New York. In 1857 Mary Clark Thompson, daughter of a New York state governor, and her financier husband Frederick purchased a 300-acre site overlooking Lake Canandaigua for a summer estate. The newlyweds named their property Sonnenberg, for Sunny Hill. A 40-room home of stonework and exposed beams—complete with Romanesque arches and a tower—was built on the property and completed by 1887.

In 1902 Mrs. Thompson, widowed and 67 years old, began to create nine grand and small gardens on the grounds surrounding the mansion and the conservatory as a living memorial to her husband. She was assisted by Ernest W. Bowditch of Boston, the renowned designer of Cornelius Vanderbilt's private gardens and of Cleveland's public park system, known as "The Emerald Necklace." Bowditch's firm sent a young associate, John Handrahan, to work on the ongoing project. By 1903 or 1904, he resigned from the firm and

began working directly with Mrs. Thompson. He continued to work with her during the remaining 20 years of her life.

Although Handrahan and the other professionals working on the gardens were highly qualified, Mrs. Thompson always remained in complete control, and the gardens were distinctly the product of her individual desires, labor and skills. Like many affluent gardeners of her era, she had the means to travel abroad to study famous gardens of many styles and designs, and to create for herself similar superb gardens, both formal and rustic. She blended diverse gardening trends with her own particular preferences, and was not afraid to experiment. Furthermore, she had a penchant for constantly "improving" her gardens. Large greenhouses, a Victorian innovation, allowed her to start multitudes of tender annuals and to "bed out" elaborate curved patterns. Mrs. Thompson also made use of newly discovered floral treasures from the Orient, and hired a famed Japanese designer and his seven assistants to recreate a traditional Japanese garden for her.

Out of a total staff of about 175, probably 90 maintained the gardens during the growing season. Even on the many days Mrs. Thompson opened her gardens to the

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LEFT: Sonnenberg's Colonial Garden is a complex design of five circles within rectangles. The neat boxwood hedge totals one-quarter mile in length. ABOVE: A straw-hatted artist attempts to capture summer's abundance.

public, when up to 7,000 visitors would stroll about, such a staff could keep the gardens in immaculate condition.

After Mrs. Thompson's death in 1923, the United States government purchased the site for a Veterans Administration hospital. Government ownership prevented the property from being divided into smaller parcels or from being developed commercially. However, although patients tried to keep up parts of the gardens, vandalism and the passage of time took their toll.

Today, after almost a half-century of neglect, Sonnenberg Gardens are being carefully restored to their former splendor. Called "one of the most magnificent late Victorian gardens ever created in America" by the Smithsonian Institution, the restored gardens offer an ever-changing palette of colors, and a multitude of perfumes and textures. There are places to sit and dream, and dozens of ideas and schemes to take home to one's own garden. Visitors can absorb and enjoy the classic formality of the Italian Garden; the romance of roses in the Rose Garden; the old-fashioned Colonial Garden; the serenity of the Japanese Garden, inhabited by a large bronze Buddha in the lotus position; the artistic, meandering paths and streams of the Rock Garden; and the intimacy of the Pansy, Sub Rosa, and Blue and White Gardens. There is also the newly restored Moonlight Garden, as well as a conservatory of desert plants and tropical exotics. And all are accentuated by pergolas, belvederes, arbors, gazebos, temples and appropriate statuary.

Sweeping 800 feet from a reflecting pond that mirrors the castle-like mansion to the mansion itself is the South Lawn, designed as a romantic English landscape park. Most of the choice trees gracing the lawn were planted by distinguished house guests, including Thomas Edison and several governors and Civil War generals. Among the many impressive species are yellowwood (*Cladrastis lutea*), weeping and cut-leaf beech (*Fagus sylvatica* 'Pendula' and *F. sylvatica* 'Laciniata') and amur cork tree (*Phellodendron amurense*). Near the pond itself are the four princesses (Japanese flowering crabs), with intertwined branches that are especially lovely in springtime dress, and a picturesque weeping Camperdown elm (*Ulmus glabra* 'Camperdownii'). In Mrs. Thompson's time, the grounds also included a deer park, several aviaries, an elegant Roman-Bath-style swimming pool (still standing, but not yet restored), hot-houses (for raising such off-season delicacies as melons, grapes and nectarines), vegetable garden plots and farmlands.

The Sonnenberg renaissance began in



1966 when the director of the Veterans Administration Medical Center proposed to Canandaigua's citizens that the gardens be restored. Some residents accepted the challenge. Through the efforts of a local attorney, the New York State Board of Regents granted a charter to organize Sonnenberg as a charitable, non-profit, tax-exempt, educational corporation with management vested in a board of trustees.

A special act of the United States Congress was needed to convey the mansion

and adjacent grounds and gardens (about 50 acres of the original 300-acre site) to the new organization, called Sonnenberg Gardens. Also, Congress required some proof of financial capability. A local fund drive secured pledges of \$100,000.

In 1972, before the estate was legally transferred from the federal government, volunteers accepted 4,000 rosebushes from the famous Jackson and Perkins Rose Gardens (which no longer exist) in nearby Newark, New York. To demonstrate their



commitment and competence, the volunteers planted the roses in the original arc-and-circle beds, in Mrs. Thompson's color scheme of red, pink and white. On October 19, 1972, the bill transferring ownership of the Gardens was signed into law by the President.

LEFT: The Japanese Garden in spring. TOP RIGHT: The small, intimate Blue and White Garden is only 40 by 60 feet. BOTTOM RIGHT: The castle-like, 40-room mansion at Sonnenberg was completed in 1887.

The discovery of a cache of glass negatives dating from 1907—saved by a truck driver to use as windowpanes in a greenhouse (or, some say, a chicken coop), which, luckily, was never built—enabled the restorers to lay out garden designs accurately. An unpublished manuscript written in 1916 by William T. Hornaday, then director of the New York Zoological Society (now the Bronx Zoo), described color schemes that black and white photographs could not provide. Descriptions and rec-

ollections provided by visitors of the original gardens, especially those provided by Mrs. Thompson's two grandnieces, were also useful to restorers of the Gardens. Sonnenberg Gardens were finally opened to the public in May 1973, and the restorations continue still.

The formal Italian Garden, Mrs. Thompson's first garden, was mere grass and overgrown shrubbery before its restoration. Its pool had been filled in as a safety precaution. To restore the complex floral embroidery, reconstructed templates of the patterns were marked on the grass with a flour sifter before the beds were dug and prepared. Today the Italian Garden looks almost exactly as it did when it was in its prime. Designed in the "Grand Manner," it has a French influence somewhat reminiscent of Versailles; its central axis is carefully aligned with the library on the west side of the house. The distant Fountain of Hercules, rimmed by evergreens, serves as the Italian Garden's focal point. The four sunken parterres, bordered with small conical yews, are planted twice yearly in a fleur-de-lis design using about 25,000 annuals. Apricot, white, blue and ruby violas were featured in a recent spring planting.

Around Memorial Day, gardeners replant the fleurs-de-lis with summery coleus. Each year Virginia Richmond, the horticulturist at the Gardens, experiments with slightly different color combinations and textures in an attempt to match the old photographs and Hornaday's color descriptions. In 1984 the gold-and-white color scheme included 'Golden Brilliant' and 'Candidum', with 'Flamenco' for a red accent, edged by the darker red 'Festive Dance'. The scimitars, or wings, are planted with golden-flowered *Sanvitalia procumbens* 'Gold Braid'. Featured this year are pale pink cultivars of coleus mixed with purple basil.

To the north, separated from the stately Italian Garden by a classic columned belvedere (Italian for "beautiful view"), is the formal, yet romantic Rose Garden. Approximately 5,000 roses are on display here, including such favorites as the fragrant white hybrid tea 'Pascali' and the pink floribunda 'Gene Boerner'. The east and west "Winner's Circles" display golden and bi-colored roses, as well as the All-America Rose Selections winners. The roses' peak of bloom is celebrated on Rose Sundays, usually the last two Sundays of June, while September brings another burst of beauty.

Separated from the Italian Garden by a red cedar hedge tucked behind the mansion is Mrs. Thompson's old favorite—the "postage-stamp" Blue and White Garden. While the Italian Garden is a tour de force—

impressive, almost intimidating in its upkeep requirements and a garden to be admired rather than loved—this garden is small (a mere 40 by 60 feet) and unassuming. Small white marble statues and the tiny pool emphasize the peaceful outdoor “room,” planted only with blue or white flowers—white peonies, white phlox, white snapdragons and vinca, blue delphiniums, blue anchusa and salvia, and both white and blue bearded iris.

Behind the Blue and White Garden is the Pansy Garden, originally created as a place for meditation. (Pansies symbolize thought in Victorian flower language.) Even the six-foot birdbath—discovered broken into several pieces in one of the barns on the property, and reassembled—is pansy-shaped. Another secluded garden, the Sub Rosa Garden, is hidden away on the west side of the Rose Garden and hedged with privet. It is adorned with a classical fountain of Zeus and small, playful figures of Diana and Apollo.

The extensive Japanese Garden, located far beyond Hercules’ Pool, is tranquil all year long. “Just the reverse of ostentatious or presuming,” Hornaday tells us. “You must hunt for it in order to find it.” Mrs. Thompson’s Japanese gardeners spent half a year converting lawn into this hill garden representing the Eastern philosophy of the essence of nature. Each plant and stone was placed according to ancient rules. Even the water flows from east (purity) to west (impurity). Two devil dogs sit at their posts, one smiling in welcome, the other snarling to ward off evil spirits. Unfortunately, 50 years of uncontrolled growth, as well as extensive vandalism, have altered this garden considerably. However, extensive pruning and shaping continue, and gradually the damage is being repaired. Each year the Japanese characteristics of this garden are stronger.

Here, seasonal changes are subtle. Beside the teahouse, an authentic replica of a venerable teahouse in Japan’s Kyoto Gardens that has been destroyed by fire, flourishes a majestic Japanese maple, *Acer palmatum*. Its lobed leaves turn red in spring, green in summer and scarlet in fall.

Most trees in the Japanese Garden are choice conifers, including firs, dwarf Norway spruce and dwarf weeping hemlock; golden English yew (*Taxus baccata*) and other yews; and pines, such as Japanese red pine (*Pinus densiflora*), with orange bark and soft green needles. There is also an umbrella pine, *Sciadopitys verticillata*, considered one of the best specimens in the eastern United States. These evergreens contribute to the sense of permanence in this informal, but restrained garden.



The 3½-acre Rock Garden is also informal, but more wild and rambling. East of the house and secluded from the other gardens, it is pure enchantment, especially in late spring. Sedums bursting with yellow blooms clamber and sprawl at will just before the entrance to a canyon of pudding stone, a type of conglomerate rock filled with pockets ideal for rock plants. (Tons and tons of pudding stone were shipped over from England, serving as ballast on ships.) Dainty coralbells (*Heuchera san-*

*guinea*), maiden pinks (*Dianthus deltoides*) and native violets, including *Viola cucullata*, blossom in crannies, along with starry white-flowered sweet woodruff (*Galium odoratum*) and blue cornflowers (*Centaurea montana*).

Truckload after truckload of overgrown weeds and plants was carted away when restoration of the Rock Garden began in 1973. Some original plants, among them dwarf Alberta spruce (*Picea glauca* ‘Conica’) and bird’s nest spruce (*P. abies* ‘Ni-





diformis'), have been carefully replanted.

The sight and splash of water is everywhere. There are 500 feet of streams, simulated springs hidden in grottoes, waterfalls and pools fed by geysers. One especially lovely pool, fed by water cascading over rocks, is edged with lush ferns and regal purple iris.

A pergola, guarded by two marble lions, and a belvedere separate the Italian Garden—with its fleur-de-lis planting—from the Rose Garden.

Mrs. Thompson designed the Rock Garden to include as many mini-climates as possible, from canyons in deep shade to sunny slopes. According to Virginia Richmond, this kind of diversity makes the restoration “especially exciting; it has so much potential.”

Although Sonnenberg's restoration has been as accurate as possible, and has been carried on in Mrs. Thompson's spirit of constant improvement, plans have had to be modified at times, and work has often

been delayed due to budget constraints. (The Colonial Garden, for example, is three-fourths planted, though only the most observant would notice; as more boxwood cuttings are propagated, the plantings will continue.) Also, some of the cultivars originally used by Mrs. Thompson are no longer available. Often, newer, better selections (especially of roses) are used in place of the original plants. Today, only seven full-time employees, including the chief horticulturist, maintain the Gardens, which depend heavily on a core of about 200 volunteers.

Serendipitous discoveries encourage the restorers as they continue their work. Sculptures that once adorned the grounds but eventually disappeared, or were given away or auctioned are still surfacing and being returned to the estate. Just recently, in May 1984, a couple moving into a newly purchased home in Canandaigua found a wooden box containing four botanical maps of Sonnenberg Gardens, preserved in perfect condition, on top of a potato bin in the basement. These maps, drawn by the landscape architect John Handrahan, include detailed Rock Garden plantings by name. (The house, it turns out, was Handrahan's home until the early 1960's.) Restorers can now recreate sections of this garden precisely.

One long-vanished garden (even its location was unknown) had survived mainly in a grandniece's poetic description. It was a Moonlight Garden, “dressed mostly in white, and the air was heavy with sweet aromas of heliotrope, tuberose and verbenas, and filled with bees, butterflies, and hummingbirds come in quest of their nectar.” The newly discovered maps locate this magical garden, which has recently been restored.

Sonnenberg offers more than the pleasures of superb gardens. Visitors can also enjoy a tour of the mansion, which is rich with oak and rare butternut woodwork, original furnishings and period pieces. On Sunday afternoons in the summer and on special weekends, those who are fortunate enough to visit the Gardens are entertained by barbershop quartets and strolling actors, or treated to old-time concerts. On the Victorian Weekend, visitors can see the mansion bedecked in Christmas finery. These touches, combined with the opulent Sonnenberg Gardens, recreate the affluent and extravagant lifestyle of an era long past. ☉

Lynn Lewis Monroe is a photographer and writer whose articles on garden history and gardening regularly appear in *Early American Life*. She has also written for *Flower and Garden* and *The New York Times*.





# Water, Water Anywhere

BY LORRAINE MARSHALL BURGESS

**B**ritish gardeners have a way with water. They consider it a part of one's own personal design, to enjoy privately in modest fountains, pools and ponds, or perhaps simply to celebrate as an aesthetic substance in bountiful supply. This is the kind of enthusiasm we might well emulate.

I do not mean to suggest that Americans do not recognize the value and beauty of water. We do, however, tend to think of water ornaments as suitable only for public gardens and municipal parks. We need to find other, more modest ways to use water for our own delight.

Of course, the British have an advantage in that they are blessed with considerable rainfall—24 inches in London, 37 inches in Glasgow and as much as 100 inches in other regions—and have rolling hills and wide rivers. Gardeners in England often have their own streams or lakes to draw upon for watery pleasures. Some designers plant the edges of modest streambeds with gentians and forget-me-nots, and add bleeding-hearts on the higher banks. Others focus their attention on existing bogs, reshape them into ponds, and use higher ground to plant fiddleback ferns, arrowheads or papyrus.

Through centuries of trial and error, the British have learned to use water in all its cadences, from tumbling waterfalls to cascading streams. They also know how to enliven a circular pool with the smallest of recirculating fountains, which produce rhythmic wavelets that reach out to the rim of the pool. Some enterprising British gardeners have even managed to borrow water from a supply in a neighboring creek, guide it gently across their garden slope and then return it downstream to its original course. Regardless of design, open water seems to be the most popular among practitioners in England, who strive to attain a kind of “flow and sparkle” effect.



Photographs by Lorraine Marshall Burgess

**T**he Japanese also seem to fully appreciate the value of water. In areas where the supply is insufficient, they build dry streambeds and waterfalls of stone, and rake ripples into the adjacent sand. Most regions in Japan receive more rainfall than one would wish, but the Japanese still welcome the frequent downpours. They design a kind of bamboo gutter on their houses that provides them with entertainment during the rainiest seasons. By ingenious design, the rain glides from the gutters into the tops of hollow, vertical canes, then flows out the bottoms and gathers in waiting pools; some canes fill up and tip over, while others ring bells as the water moves through them.

History tells us that the very first gardens were in desert lands along the Nile and Euphrates rivers. Water was channeled through tiled canals, and the combination of moving water and shade trees provided a welcome cooling effect. In old Moorish gardens, water was diverted from mountain streams to run swiftly or gently downward through controlled channels, around courtyards and beside stairways. Water was even formed into liquid handrails or arched in jets over statuary. The nipple of a nude often offered a surprising and steady stream. Later, the joyous spoutings of Villa d'Este and the extravagances of Versailles were countered by the rolling hills and quiet pools of the naturalistic British gardens designed by Capability Brown. An old adage prevailed: "Plant the hills, and flood the hollows."

Water is a remarkable substance. Free-flowing though it is, it can be very obliging. It will assume almost any shape we ask of it. It can be playful and sparkling, or serene, deep and mysterious. Water has one willful attribute: it continues to seek its own level. However, this tendency can be used to advantage. For example, we can coax it to move swiftly or gently, according to the course

we devise. If we spread it out in a shallow pool, it becomes an instant mirror, reflecting the sky or the garden we prize. Even if we confine it to a clearing, it will move about, responding to the teasings of the wind. When we pump it to a rise of ground, it will fall again, and we can design where we would like it to fall, or allow it to choose its own way. Each of these watery journeys offers visual delight for us, our families and our garden guests. This magnificent substance promises endless fascination, whether it is tumbling over a lipstone or threading its way downward in crystalline strands.

Liquidity offers other dividends. Water creates its own sounds as it moves, some of which are closely akin to music. Even the touch of water is rewarding. Directed upward into the air on a hot day—either thrust from a fountain or squeezed out from a misting hose—it gives both visual and tactile pleasure. And the pleasures are doubled in the amber light of a summer afternoon. Fountains also create "white noise," which can give us a sense of privacy in a crowded place.

If you are interested in incorporating water into your garden design, you should first make a geographical survey of your property. If it includes a low corner with poor drainage, a bog garden is one possible solution. (If the saturation level is unpredictable in certain seasons, you might add a dew-pond where water, hidden in a rock crevice, can be fed in as necessary to sustain the bog. The moist land in between could be just right for a stand of *Primula denticulata* or *Trillium*.) In general, you should dig your pond at the lowest point in your garden, where it will receive the most natural drainage.

If possible, locate your pool so that it captures the garden's best reflections, or reflects at least one touch of bright color. Stay away from shady locations, or prune away overhead branches



PREVIOUS PAGE: A variety of plants accent a water garden at Highgate, West Hill, London.  
LEFT: At Dower House in Badminton, England, a bubbling fountain produces concentric ripples in a circular pool.  
ABOVE: A fountain at the Chelsea Flower Show adds vitality to a flower-edged pool.



RIGHT: This narrow, free-flowing watercourse enlivens a green landscape.  
ABOVE: The still water of this lily pool reflects the beehive garden that surrounds it.



to let in the sun and make the water sparkle. Be wary of distractions that may appear as objectionable reflections. (Boundary-line utility poles are a good example.) Avoid placing your pool between your sitting terrace and the summer sunset; the offensive glare could be comparable to what many Salt Lake City gardeners experience on summer evenings as dazzling reflections bounce off Great Salt Lake. Also, avoid the rigid reflections of fences and outbuildings that could harden the water's image and mar visual pleasures.

Choose plants to surround your pool that do not shed leaves or flower petals constantly. Broadleaf evergreens produce less litter and give a sense of permanence to the landscape. Don't hide all the shoreline with reeds and rushes; leave a good part of the pond's surface open and free of water plants to maximize the reflections. Also, allow yourself a comfortable place to stand or sit where you can view and enjoy your handiwork.

When or where water is scarce, you can use a circulating system. You can also save water and money by making your pool or pond watertight. Tamp it with clay one foot thick, line it with concrete four inches thick, or use a fiber glass or plastic pool liner. Line a smooth, stone-free hole with polyethylene sheeting.

To make cleaning chores easier, shape your pool into rounded or oval forms rather than angular shapes. If you prefer the formality of a rectangular pool, hire professionals to design and construct it.

With relatively little effort, you can build a temporary puddle pool. Dig a shallow depression in a level lawn, marking it to cover a six-foot circle. Mark it out with a compass made with a yardstick that has been pinned down at an end point. Use a sharp knife to cut through the sod. Do not cut more than two

inches deep around the rim, and three to four inches deep in the center. Set the sod you remove aside for reuse, in case you change your mind about the pool. Line the saucer-shaped puddle pool with black polyethylene, and then fill the shallow basin with a garden hose. When the water gets dirty, sweep it out with a broom and refill. You will have the benefit of a mirrored reflection of flowers without the work of digging a pond.

Tub gardens are another alternative. Find a galvanized tub or watering trough (a half-barrel lined with metal or plastic will do), plant it with a miniature water lily, and add a few fish. Such containers can be a surprise addition on a small terrace.

Supervision of children around water, however shallow, is always recommended. If the pool you devise is in an area where children play, cover it with a sturdy piece of hardware cloth on a fitted frame when the children are not supervised. But don't deny your child the excitement and the familiarity of water; it is one of a garden's finest gifts.

Before beginning your project, read all you can about water gardens—their construction, as well as the plants and animals that inhabit them. The best general advice when designing with water is to use restraint and keep the project simple. Avoid complex and unlikely arrangements, such as zigzag streambeds and unnatural pool shapes, or three-tiered plastic fountains with water that trickles nervously from one dish to another. Such sights and sounds can be disquieting.

The British message is not only gentle but also persuasive. Consider the personal approach to water in your garden; it may be right for you. ♻

Lorraine Burgess is an artist and writer living in Colorado Springs. She is the author of *Garden Art* and *The Garden Maker's Answer Book*.

# Amsonia

**A** *msonia tabernaemontana* is a remarkable, little-known perennial that deserves a choice spot in any garden. If I were to select 10 top perennials on the basis of performance—bloom, general appearance, longevity, non-aggressiveness, resistance to pests—amsonia would be one of them. For me, it would rank with peonies, balloon flowers (*Platycodon*) and *Sedum* 'Autumn Joy'.

The name amsonia honors Dr. Charles Amson, an eighteenth-century physician from Virginia, and is used as both a common and a botanical name. Another common name, listed in *Hortus Third*, is blue-star. I've also heard *A. tabernaemontana* called willow amsonia, which is a particularly descriptive name, since large specimens resemble shrubby willows.

Native to the eastern part of the country from Virginia to Georgia and west to Texas, amsonia is perfectly hardy in my New England garden. What I find most enjoyable about this plant are the clusters of tiny, funnel-shaped blossoms that appear from



***Amsonia* has a graceful appearance and remains neat all season. It is especially eye-catching when the leaves move in the wind.**



mid-May to early June. These flowers are true blue, a hue that is much sought after in flowers but found in only a few, including delphinium, flax, nigella, 'Heavenly Blue' morning-glory, blue poppy or *Meconopsis*, forget-me-not, anchusa and *Lobelia* 'Cambridge Blue'.

A fully developed plant varies in height from 2½ to 3½ feet. Amsonia has a graceful appearance and remains neat all season. It is especially eye-catching when the leaves move in the wind. After a rain or a sprinkling with the hose, the stalks arch over to touch the ground. Yet this plant has the unusual ability to bounce back quickly to its original position, especially if the water is shaken off with a stick.

Amsonia's willow-like leaves are dull green and pointed, and reach three to four inches in length. Like the leaves of peony,

gas plant (*Dictamnus*) and hosta, they remain green and lush all season. In fall, they turn a pure golden-yellow and are especially striking against the brown of oak and other leaves that drift in around the base of the plant. Six- to eight-inch-long stem tips are excellent as greens in flower arrangements when combined with cosmos, Mexican sunflower (*Tithonia*), scabiosa, dwarf dahlia, *Nicotiana*, *Gaillardia* and other garden flowers. Stems exude a milky sap when cut, a characteristic feature of members of the dogbane family, to which amsonia belongs.

Clusters of slender, milkweed-like pods, which grow up to two or three inches long, appear in the summer. These can be used either in flower arrangements or by themselves in a low container or upright vase. Seeds will disperse if allowed to ripen.



Amsonia responds to pruning, unlike any other perennial I know. The plant should be cut back two or three times during the season to prevent it from becoming too tall after it has flowered. I usually prune twice, always by hand, since clipping mars the handsome leaves. After each pruning, amsonia produces new, feathery shoots. Pruned plants also spring back more quickly after a rain or sprinkling.

I know of no pests, diseases or other ailments that afflict amsonia, and have never had any problems with my 23-year-old plant. Neither red spider mites nor slugs—major problems with many plants—bother it. Nor have I had problems with black vine weevils, Japanese beetles or earwigs.

Be sure to provide this native plant with plenty of organic matter, such as compost, peat moss or dried manure. Fertilize in the early spring, and mulch with shredded bark, wood chips or other organic matter such as leaves. Amsonia grows best in full or partial shade, although exposure to sun for half a day produces stockier growth and more flowers in spring. In dry periods, soak the soil about once a week.

Like peony, gas plant and balloon flower, amsonia does not need frequent dividing. My plant has never been separated, but a few years ago—in May—two friends took side divisions. In late fall, all one needs to do is to cut the woody stems back to the ground.

Consider growing amsonia as a tall ground cover, as you would yellow-root (*Xanthorrhiza simplicissima*), that is, in the light, dappled shade of high-branching trees. Space plants 2½ to three feet apart. The result will be a billowy, undulating, airy mass of greenery that sways easily with the slightest breeze.

*Hortus Third* lists only one variety of this species, *A. tabernaemontana* var. *salicifolia*. The leaves of this plant, five to 10 times longer than they are wide, create a graceful appearance. Another variety, sold as *A. tabernaemontana* var. *montana*, has flowers with a bit more substance, and only reaches a height of 15 inches. It is an excellent choice for the front of the border.

Amsonia, with its true-blue flowers, has much to recommend it indeed. ☉

—George Taloumis

George Taloumis, former editor of *Horticulture*, is a free-lance garden writer and photographer. He is a member of the Garden Writers Association of America and has written for a variety of gardening publications.

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# Pronunciation Guide

The accent, or emphasis, falls on the syllable that appears in capital letters. The vowels that you see standing alone are pronounced as follows:  
 i—short sound; sounds like i in “hit”  
 o—long sound; sounds like o in “snow”  
 a—long sound; sounds like a in “hay”

*Abutilon* ah-BEW-ti-lon  
*Acer palmatum* AY-ser pal-MAY-tum  
*Achillea millefolium*  
 ah-KILL-ee-ah mil-ch-FOE-lee-um  
*Akebia* ah-KEE-bee-ah  
*Alcea* AL-see-ah  
*Allium* AL-ee-um  
*Aloe* AL-oh-ee/AL-oh  
*Amsonia tabernaemontana* var. *montana*  
 am-SO-nee-ah tab-er-nee-mon-TAN-ah  
 mon-TAN-ah  
*A. tabernaemontana* var. *salicifolia*  
 a. tab-er-nee-mon-TAN-ah  
 sal-i-si-FOE-lee-ah  
*Ananas* ah-NAN-us  
*Aquilegia* ak-qui-LEE-jee-ah  
*Aucuba* ah-KOO-bah  
*Babiana* bab-ee-AY-nah  
*Bellis* BELL-iss  
*Bixa* BICKS-ah  
*Butea* BOO-tee-ah  
*Butia* boo-TIE-ah  
*Buxus sempervirens*  
 BUCK-sus sem-per-VIE-renz  
*Callicarpa* kal-i-CAR-pah  
*Calycanthus* kal-i-CAN-thuss  
*Calypso* kah-LIP-so  
*Camassia* kah-MASS-ee-ah  
*Canarina* can-ah-REE-nah  
*Carpinus* car-PIE-nuss  
*Centaurea montana*  
 sen-TAW-ree-ah mon-TAN-ah  
*Chrysanthemum alpinum*  
 kris-AN-thah-mum al-PINE-um  
*Cladrastis lutea*  
 klah-DRASS-tiss LOO-tee-ah  
*Claytonia* clay-TONE-ee-ah  
*Clematis maximowicziana*  
 KLEM-ah-tiss/klem-AT-iss  
 macks-i-moh-wicks-ee-AY-nah  
*C. paniculata*  
 c. pan-ick-yew-LAY-tah  
*Clethra alnifolia*  
 KLETH-rah all-ni-FOE-lee-ah  
*Cocos* KO-kose  
*Coreopsis* kor-ee-OP-siss  
*Cupressus lusitanica*  
 kew-PRESS-us luss-i-TAN-i-kah  
*Dianthus alpinus* die-AN-thus al-PINE-us  
*D. deltoides* d. del-toe-EYE-deez  
*Dictamnus* dick-TAM-nus  
*Disanthus* diss-AN-thuss

*Doronicum* door-ON-i-kum  
*Duranta repens* dur-ANT-ah REE-penz  
*Echeveria alpina*  
 eck-e-VAIR-ee-ah al-PINE-ah  
*Echinacea angustifolia*  
 eck-in-AY-see-ah an-gus-ti-FOE-lee-ah  
*E. atrorubens* e. at-row-RUE-benz  
*E. laevigata* e. lee-vi-GAY-tah  
*E. pallida* e. PAL-id-ah  
*E. paradoxa* e. par-ah-DOCKS-ah  
*E. purpurea* e. pur-pur-EE-ah  
*E. sanguinea* e. san-GWIN-ee-ah  
*E. simulata* e. sim-you-LAY-tah  
*E. tennesseensis* e. ten-eh-see-EN-siss  
*Eriogonum* air-ee-OG-oh-num  
*Fagus sylvatica* FAY-gus sil-VAT-i-kah  
*Fatsia* FATS-ee-ah  
*Ficus* FIE-kus  
*Forsythia* for-SITH-ee-ah  
*Fothergilla major*  
 foth-er-GILL-ah MAY-jer  
*Gaillardia* gah-LAR-dee-ah  
*Galium odoratum* GAY-lee-um  
 o-door-AY-tum  
*Geranium* jer-AY-nee-um  
*Geum* JEE-um  
*Ginkgo* GINK-oh  
*Guzmania danielii*  
 gooz-MAH-nee-ah dan-YELL-ee-eye  
*Hedera* HEAD-er-ah  
*Helenium* hell-EN-ee-um  
*Helianthus* he-lee-AN-thus  
*Hemerocallis aurantiaca*  
 hem-er-oh-KAL-iss aw-ran-TEE-ah-kah  
*Heuchera sanguinea*  
 YEW-ker-ah san-GWIN-ee-ah  
*Ipomoea quamoclit*  
 eye-POH-me-ah QUAM-oh-klit  
*Jasminum* jazz-MY-num  
*Juniperus thurifera*  
 jew-NIP-er-us thur-IF-er-ah  
*Kalanchoe* kal-an-KOE-ee/kal-AN-koe  
*Ledum* LEE-dum  
*Lilium* LIL-ee-um  
*Linnaea* LIN-ee-ah  
*Loasa* low-AY-sah  
*Lobelia* low-BEEL-ee-ah  
*Manihot* MAN-i-hot  
*Meconopsis* meck-on-OP-siss  
*Melianthus major* me-lee-AN-thus MAY-jer  
*M. minor* m. MY-nor  
*Metasequoia* me-tah-se-QUOY-ah  
*Mitella* my-TELL-ah  
*Monarda didyma*  
 moh-NARD-ah DID-i-mah  
*Muilla* moo-ILL-ah  
*Muscari* mew-SCARE-ee  
*Nandina* nan-DEE-nah  
*Nasturtium* nas-TUR-shum  
*Nicotiana* ni-koh-tee-AY-nah  
*Nierembergia* near-em-BURR-gee-ah

*Nuphar* NEW-far  
*Origanum majorana*  
 or-IG-ah-num maj-or-AN-ah  
*Penstemon thompsoniae*  
 PEN-ste-mon tom-SO-nye-ee  
*Petunia* pe-TOO-nee-ah  
*Phellodendron amurense*  
 fell-oh-DEN-dron am-ur-EN-see  
*Picea abies* PIE-see-ah AY-beez  
*P. glauca* p. GLAW-kah  
*Pimenta* pi-MEN-tah  
*Pinus densiflora* PIE-nus den-si-FLOR-ah  
*Platycodon* plat-ee-coe-dum  
*Podophyllum* poe-doe-FILL-um  
*Polygonum* poe-LIG-oh-num  
*Poncirus* pon-SIGH-rus  
*Portulaca* por-tew-LACK-ah  
*Primula denticulata*  
 PRIM-yew-lah den-tick-you-LAY-tah  
*Prunella* pru-NELL-ah  
*Rhapis* RAY-piss  
*Rhododendron vaseyi*  
 row-doe-DEN-dron VAZ-ee-eye  
*Ribes* RY-beez  
*Rudbeckia purpurea*  
 rude-BECK-ee-ah pur-pur-EE-ah  
*Sanvitalia procumbens*  
 san-vi-TAL-ee-ah pro-COME-benz  
*Sciadopitys verticillata*  
 sky-ah-DOP-i-tiss ver-tiss-ill-AY-tah  
*Scilla* SILL-ah  
*Sedum* SEE-dum  
*Senecio websteri*  
 se-NEE-see-oh WEB-ster-eye  
*Sequoia* see-QUOY-ah  
*Sida* SIGH-dah  
*Sidalcea* si-DAL-see-ah  
*Silene* sigh-LEE-nee  
*Skimmia* SKIM-ee-ah  
*Solidago* sol-i-DAY-go  
*Sophora* so-FOR-ah  
*Stewartia* stew-ART-ee-ah  
*Tamarindus* tam-ar-RIN-dus  
*Taxus baccata* TACKS-us back-AY-tah  
*Tellima* tell-EYE-mah  
*Tithonia* tith-OWN-ee-ah  
*Trillium* TRILL-ee-um  
*Trollius* TRO-lee-us  
*Tsuga* SUE-gah  
*Ulmus glabra* ULL-mus GLAY-brah  
*Vanilla* vah-NILL-ah  
*Viburnum* vie-BUR-num  
*Viola cucullata*  
 vie-OH-lah/vee-OH-lah koo-kul-LAY-tah  
*Vitex* VIE-tecks  
*Wisteria* wis-TEER-ee-ah  
*Xanthorhiza simplicissima*  
 zan-tho-RISE-ah sim-pli-SISS-i-mah  
*Zantedeschia* zan-ta-DESK-ee-ah  
*Zea mays* ZEE-ah MAZE  
*Zinnia* ZIN-ee-ah/ZIN-yah

## BOOK REVIEWS

Continued from page 9

shade and ample moisture, they are well worth the extra challenge they may present to the gardener who is looking for something different. This book, translated from the original German, not only describes all of the many garden species and cultivars of *Saxifraga*, but also includes such related genera as *Astilbe*, *Bergenia*, *Heuchera* and others that are more familiar to American gardeners. The clear cultural information tells you how to grow these unusual plants, and the 68 color photographs should provide all the inspiration needed to do so.

*NATURE IN OUR BIBLICAL HERITAGE* (1980).

*TREE AND SHRUB IN OUR BIBLICAL HERITAGE* (1984).

Nogah Hareuveni. Neot Kedumim Ltd. Kiryat One, Israel. 142 pages; hardcover, \$24.95 each. AHS member price, \$21.20 each.

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—Gilbert S. Daniels

Barbara W. Ellis is Editor of *American Horticulturist* and Publications Director for the American Horticultural Society.

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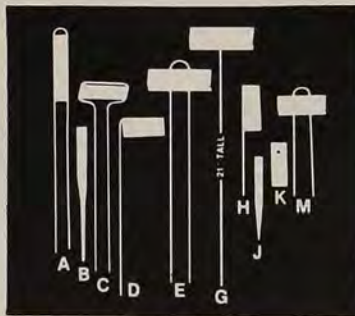
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Requests for applications, which must be made three months in advance of the event, can be obtained from Mrs. Benjamin P. Bole, Jr., Chairman, 1 Bratenahl Place, Cleveland, OH 44108.

# Sources

## HORTICULTURAL THERAPY IN A HISTORIC SETTING

Individuals who would like to learn more about horticultural therapy will want to write the National Council for Therapy and Rehabilitation Through Horticulture (NCTRH, 9041 Comprint Court, Suite 103, Gaithersburg, MD 20877) for information about their programs.

NCTRH will be participating in the Society's Annual Meeting in Chicago, September 11-14. For information about the meeting program, write to Robin Williams in care of the Society.

## THE BEWILDERING BINOMIALS

Individuals interested in reading more about this fascinating subject should look for the following books at their local library. These books should also be available from used book dealers. (See "Garden Book Dealers" by Peter Loewer in *American Horticulturist*, February 1985, for a list of companies.)

*Gardener's Dictionary of Plant Names*, A. W. Smith (revised and enlarged by

William T. Stearn). St. Martin's Press. New York, New York. 1963.

*Hortus Third: A Concise Dictionary of Plants Cultivated in the United States and Canada*. Liberty Hyde and Ethel Zoe Bailey (revised and expanded by the staff of the Liberty Hyde Bailey Herbarium). Macmillan Publishing Co., Inc. New York, New York. 1976. (*Hortus Third* is available through the Society's Book Service. For information, write Jeanne Eggeman in care of the Society.)

*How Plants Get Their Names*. Liberty Hyde Bailey. Dover Publications, Inc. New York, New York. 1963.

*Manual of Cultivated Plants*. Liberty Hyde Bailey and The Staff of the Bailey Herbarium. Macmillan Publishing Company, Inc. New York, New York. 1949.

*Manual of Plant Names*, A. C. Chicheley Plowden. Philosophical Library. New York, New York. 1969.

## ECHINACEAS

The following companies offer *Echinacea purpurea* and its cultivars:

- Plants**
- Bluestone Perennials, Dept. AH, 7211 Middle Ridge Road, Madison, OH 44057, Catalogue free.
  - Busse Gardens, Dept. AH, 635 East 7th Street, Route 2, Box 13, Cokatom, MN 55321, Catalogue \$1.00.
  - Carroll Gardens, Box 310, Dept. AH, 444 East Main Street, Westminster, MD 21157, Catalogue \$2.00.
  - Andre Viette Farm and Nursery, Dept. AH, Route 1, Box 16, Fishersville, VA 22939, Catalogue \$1.00.
  - Wayside Gardens Company, Dept. AH, Hodges, SC 29695, Catalogue \$1.00.
- Seed**
- Environmental Seed Producers, Dept. AH, PO Box 5125, El Monte, CA 91734, Catalogue free.
  - J. L. Hudson, Seedsman, Dept. AH, PO Box 1058, Redwood City, CA 94064, Catalogue \$1.00.

Seed of *Echinacea tennesseensis* is available for \$2.00 per packet, including postage and handling, from Cheekwood Botanic Gardens, Forrest Park Dr., Nashville, TN 37205.

Steven Foster is the author of *Echinacea Exalted! The Botany, Culture, History and*

*Uses of the Purple Coneflowers*, published recently by the Ozark Beneficial Plant Project. Interested individuals may order this 40-page booklet directly from the author for \$4.50 per copy (postpaid). To order, write Steven Foster, PO Box 454, Mountain View, AR 72560.

## SONNENBERG GARDENS

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## WATER, WATER ANYWHERE

The following companies offer a wide variety of pool supplies, aquatic plants and fish:

- Santa Barbara Water Gardens, Dept. AH, PO Box 4353, Santa Barbara, CA 93103, list free.
- Lilypons Water Gardens, Dept. AH, Lilypons, MD 21717, Catalogue \$3.50.
- William Tricker, Inc., Dept. AH, Saddle River, NJ 07458, Catalogue \$1.00.
- Van Ness Water Gardens, Dept. AH, 2460 North Euclid, Upland, CA 91786, Catalogue \$2.00.

Gardeners who would like to read more about water gardens will want to write for the AHS book list, which includes several books on this subject. (All books listed are available to AHS members at discount prices.) To order a copy, write Jeanne Eggeman, American Horticultural Society, PO Box 0105, Mount Vernon, VA 22121.

## AMSONIA

Amsonia is available from the following companies:

- White Flower Farm, Dept. AH, Litchfield, CT 06759, Catalogue \$5.00.
- Woodlanders, Inc., Dept. AH, 1128 Colleton Avenue, Aiken, SC 29801, Catalogue \$2.00.

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# Continual Color

“**A**nd how did your garden bloom?” out-of-town friends asked me almost as automatically as they inquired about my health. My interest in a special gardening project was that obvious.

I became interested in starting a garden with continual color during the blooming season when we announced we were moving from California to the Midwest. Friends warned me that I would not be able to have as nice a garden as I had had in San Francisco. At that time, bedding plants were not as widely available in the Midwest as they are now. People planted seeds, and it took longer for gardens to make a showing.

“Midwestern gardens are notoriously ‘one-shot’ affairs,” one friend volunteered. “You’ll continually hear the alibis,” another friend predicted. “‘You should have seen my garden last week’ or ‘Come back in a couple of weeks, and the garden will be nicer.’”

These words were a challenge to me. So when we bought our home in a Chicago suburb in 1950, I was determined to disprove them. I spent 25 years working out the problem. I also found there were several concessions I had to make.

First, such a garden cannot be overloaded with one’s favorite flowers. Favorite flowers do not necessarily contribute the most bloom; they can also create problems. I had very nostalgic memories of picking violets as a child, so my garden had to have a few of those. I had just the spot for them. In fact, it was so perfect, the violets choked out other flowers. I even had to dig them out of the lawn!

Second, one cannot expect such a garden to produce the earliest or the best flowers. It is impossible to become an expert on the cultivars of so many different plants, or to devote the time required to produce exhibition-type blooms. I did not attempt to remember the basic care required by all the flowers in my garden. Instead, I kept a garden calendar to help me keep track of the necessary chores. As I acquired new plants, I wrote down the instructions for their care.



Third, rare and unusual flowers are not essential to this type of garden. Usually, it is the common, tougher varieties that yield the most bloom for the longest period. Some of the common flowers that were once of no interest to me became my best allies. I did have success with a rhododendron and a holly that elicited comments, but I had to remove all traces of midwestern limy-clay soil and replace it with a humus-rich, acid soil when I planted them.

Fourth, a continually blooming garden is never really spectacular. Occasionally, when I viewed the breathtaking splash created by concentrating on fewer types of plants, I felt a bit wistful.

There are undoubtedly many ways to achieve continual color, and many types of plants that could be used for this purpose. Because our lot was small, and because we wanted to keep the center of our yard open, we chose perennials, roses and bulbs to be the mainstay of our garden. We planted a foreground border of spring bulbs around the entire yard. A few shrubs

and small trees provided accents. We used clematis on trellises and the fence, and added blue flowers in small areas to create the illusion of space. The only annuals we used filled in over the spring bulb border.

Before digging the flower beds, we positioned a garden hose on the ground to form a free-flowing pattern. The first year, before I started planting, I divided the flower beds with flagstone paths because I wanted to be able to weed and plant without trampling the flowers that were planted closely together. My neighbors were curious about this project. “Are you planting a cemetery?” they wanted to know. But those flagstones proved to be an asset. I enjoyed weeding after a rain, and the paths made it easier for me to do so. When various clubs came to visit the garden, the guests used the paths to examine plants more closely. The neighborhood children begged for permission to walk on them.

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**GARDEN DESIGN**

Bulbs require a great deal of work. However, by selecting a variety of species and not putting all one's faith in one cultivar, it is possible to have blooms for more than six weeks. Our bulb border was not completed in just one or two years; I added to it and divided the bulbs as they multiplied. I used zinc markers to label the bulbs as I planted them, and marked off vacant spots with little sticks to indicate where bulbs could be added.

The first to bloom in the yard were the small bulbs: snowdrops, snow crocuses, Dutch crocuses and grape hyacinths. (Crocuses are not limited to just white, lavender and yellow colors. Some bulb specialists list over 75 species and cultivars, together with their blooming dates.) These smaller bulbs were scattered throughout the bulb border among the larger, later-blooming bulbs.

Then came the daffodils, with their large trumpet-like crowns, and the jonquils, with small yellow flowers and short crowns. These also come in early-, medium- and late-blooming cultivars. If the weather is right, they spread sunshine for several weeks.

Tulips vary not only in their blooming dates, but also in height. Late-blooming types are subject to bud blast during unseasonably hot weather. Spraying with a fungicide prevents blight when bulbs are planted closely together. Unless one is willing to replant bulbs each year, the leaves should be allowed to dry off, since they supply the food for the following year's bloom.

I devoted an entire bed to lilies, since there are so many good ones for the garden and the blooming dates are so staggered. Bellingham hybrids bloom in May, Madonnas, in June. The Regal, Henryi and Rubrum lilies will bloom in July and August. I used a shallow-rooted annual in between the lilies each year as ground covers, to keep the roots cool and to cut down on weeds; alyssum and lobelia were especially effective. The stems of the lilies must also be allowed to die back, and dead blooms must be removed so they do not go to seed and take strength from the bulb.

Although I relied heavily on spring bulbs, I found summer-blooming gladioli impractical for my garden. For one thing, they required too much work and space for the number of blooms they produced (only one per bulb) and for the length of the blooming period, which is very short. Also, they had to be dug up and stored in

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the fall. I liked to use gladioli in arrangements, but found it simpler to buy inexpensive bouquets at the local farmer's market than to raise them.

Tuberous begonias bloomed throughout the summer, until late fall, in troublesome shady spots in the garden. When started indoors, then planted in pots that could be sunk a little below soil level, they were easy to handle, and I could move them from place to place where color was needed. I could also bring the pots indoors when frost was predicted, and their blooming period would then last through the dreary November weather. The bulbs could be cleaned and stored at my convenience when the foliage died down. Occasional spraying with a fungicide during periods of high humidity kept mildew under control. The potted plants had ravenous appetites, which I satisfied with regular applications of fish emulsion fertilizer.

Rose beds were located throughout the garden. The roses that received light afternoon shade held up best. Roses that had southern exposure bloomed first, usually for Memorial Day, but also "cooked" the

fastest in hot weather. We purchased our roses from a local nursery, where they were field-grown under the climatic conditions of our area, or from nurseries that carried the cultivar we wanted in disposable pots. These wintered better than bare-root plants from other localities. Grandiflora roses eventually became the mainstay of our garden because they performed so well.

Roses require regular spraying. When they develop fungus diseases such as black-spot or mildew during periods of high temperatures and humidity, they are weakened and apt to winterkill. I also found that a general 5-10-5 fertilizer performed just as well as special rose fertilizers. Occasionally, I added cow manure to the soil.

The choice of perennials is almost unlimited. These plants, which vary widely in color, height, blooming date and their preference for sun or shade, are easy to divide and spread around as they multiply. However, a garden can get overloaded with rapidly multiplying types, such as phlox and daisies. Large clumps of perennials with simultaneous blooming dates can be spectacular for a short time, but when

planted too close together, do not give maximum bloom. In addition, they require preventive spraying as well as frequent fertilization. Sometimes it is worth it to sacrifice a glorious short-term performance for a long season of color.

Peonies are an excellent accent in a mid-western garden because of their classic foliage and beautiful blooms. However, their blooming time is short, and planting a number of peonies in just one spot can leave a big void after they bloom. Also, cultivars with exceptionally large blooms are not always practical. It is thrilling to have a blossom as large as a dinner plate, but if there are heavy rains, as we frequently had, the exhibition-size blooms can become so heavy that the stems snap.

A gardening friend who experimented with hybridizing several types of peonies gave me a number of the Japanese single-flowered cultivars, which proved to be excellent and lovely in arrangements. Their foliage can be cut sparingly for flower arrangements.

Iris are more effective when planted in clumps, but after blooming, leave too many

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## GARDEN DESIGN

dead spots in a small garden. I used them to border the paths. Spraying to prevent borer is essential with the newer, fancier hybrids. The blooming dates of iris vary.

Many nurseries specialize in Oriental poppies, which come in a wide assortment of colors. These perennials are excellent for arrangements when the stem ends are burned to seal in the juices.

I included dahlias in the garden for late summer and early fall color. Tall cultivars of dahlias proved to be impractical because they required so much staking. High winds can break the stems of these plants, and dinner-plate-size blooms can create problems when soaked with water. After much trial and error, I settled for dwarf dahlias. These can be grown from seed or purchased as seedlings or as potted plants. Dwarf dahlias also develop tubers that can be stored and wintered. These plants grow easily, require little care, and bloom earlier than their taller cousins. Prolific bloomers, they are excellent for cutting and seem to be disease-resistant. I used them as a background for the bulb borders. Because I did not do much disbudding to get the max-

imum-size blooms, the plants bore more flowers and thus provided additional color in the garden for a longer period.

Hardy chrysanthemums require pinching before July to prevent them from getting too tall and scraggly, and to encourage branching. Disbudding encourages larger flowers. "Football" mums require more extensive disbudding, and need to be dug and wintered indoors in the Chicago area.

All during summer and fall, the border that edged the garden provided color during dull periods. A friend who studied garden design once told me that the border was like the ribbon on a nosegay; it tied the garden together. So I planted the same annuals around the entire yard right over the bulb plantings.

I tried many plants for the border—geraniums, petunias and alyssum, for example. Many were satisfactory, although I found that petunias and alyssum needed constant pruning to keep them at peak bloom. Geraniums were straggly in shaded areas. In my opinion, semperflorens begonias performed best and required the least amount of care. They bloomed pro-

lifically the entire blooming season, did not fold up in severe heat, withstood rainstorms, and were pest- and disease-free. (However, they did require a very humusy soil and responded well to regular applications of fish emulsion.) Furthermore, they added color almost immediately after they were planted, and seemed to make the drying bulb leaves less conspicuous.

The cost could be prohibitive if one buys many flats of these plants, but I made cuttings of them in the fall and wintered them in my little greenhouse. Cuttings can also be placed in a sunny windowsill or grown in a basement under fluorescent lights.

My biggest disaster was my attempt to raise hardy azaleas. A friend who works with azaleas was visiting us from Long Island, New York, and thought I had the perfect spot for them. He made cuttings and started new, healthy plants from the many different plants in his garden. We had invested in a soil-testing kit, prepared the soil carefully, and when the huge bundle of plants arrived, planted them as instructed. They seemed to do well, but although we gave them winter protection,

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not one of the approximately 25 plants survived! A few years later, the local nursery carried azalea bushes that were supposed to be winter-hardy in our area, but by that time we had enlarged the patio over the "perfect spot."

Local nurseries did not always carry the types of plants in the colors I wanted. I found the advertisements in gardening magazines to be of tremendous help. There are specialty nurseries for almost every species, as well as nurseries that carry a complete assortment. The nurseries advertising in gardening magazines are usually well established and reliable.

I learned to avoid "bargain" brochures that make astonishing claims. Frequently, their methods of packaging are inferior, and plants arrive in poor condition. It is also best to purchase specimens through the mail that have been grown in a climate similar to that of one's own area, or that are accompanied by specific directions for growing the plants under the conditions in a particular area. Frequently, better instructions come with a mail-ordered plant than from a local nursery.

Catalogues and books devoted to one specific flower were of tremendous help to me as I chose plants for the garden because they give blooming dates. For some, the date is indicated as early, medium or late. For others, the exact blooming date is given. Of course, there are discrepancies due to weather and growing conditions, but at least the dates are a starting point. It is also helpful to see what is blooming in other gardens when one's own is void of color.

A continually blooming garden spreads cheer everywhere. Not only was our garden a pleasure to look at all summer, but it also provided friends with flowers to decorate their homes. Sometimes I made an arrangement as a surprise when I knew a friend was celebrating a special occasion. There was always something available for the Plant, Flower and Fruit Guild of the garden club to which I belonged, and we always had bouquets of flowers in our home. When frost was predicted, we scrambled to cut all the flowers in the yard and to put them in coffee cans, which were then delivered to shut-ins, to a local hospital and to people without gardens.

Eventually, I really didn't miss my San Francisco garden as much as friends claimed I would. ☉ —"Lyn" Vodak Larkin

"Lyn" Larkin is an avid gardener who lives in Beloit, Wisconsin.

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# Garden Rooms

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In some landscapes, the natural terrain and the trees, hedges and paths of an existing garden can serve as a starting point for a garden's basic layout. But where does one begin if the site is a rectangle of grass, like that surrounding so many American homes?

"Work from the house outward," suggested one gardener I know, who began designing her garden by picturing her flat suburban backyard as a series of rooms. The first "room" built was a fieldstone terrace shaded by a pergola covered with *Clematis maximowicziana* (usually sold as *C. paniculata*). A step down from the French doors of the living room and one step up from the lawn, the terrace acts as a gradual transition from the house to the lawn and garden. In August and September, the clematis is a billowing mass of white, fragrant flowers that perfume both house and garden.

Surrounding the otherwise formal square lawn with a pleasant woodsiness that requires no pruning are shrub borders of *Rhododendron vaseyi*, *Fothergilla major*, *Clethra alnifolia* and various species of *Viburnum*. The shrubs are placed to outline the square lines of the lawn, while their varied natural forms prevent the effect from being too stiff. The succession of shrub bloom begins with the pink blooms of *Rhododendron vaseyi* and the cream-colored flowers of *Fothergilla* in April and May, followed by *Viburnum* in May and *Clethra* in July and August, all of which are brought to a dramatic crescendo of autumn foliage.

On the right side of the lawn, through a break in the shrub hedge, is another "room"—a utilitarian mix of laundry area, compost bins and herb garden. On the left side of the lawn, through a small wooden gate set into the shrubs, is an orchard of five dwarf apple trees, complete with a few



A view down an axis at Hidcote in England reveals a series of garden rooms.

rustic wooden benches. Directly across the lawn from the living room doors is a brick path that leads through the shrubs and bisects a large vegetable garden. At the end of the brick path is a stone fountain, with a single jet of water, set against a backdrop of *Juniperus thurifera* 'Nana'. This line of Spanish or incense juniper—with its finely textured, gray-green foliage—runs along the entire length of the vegetable garden and screens the area from a neighbor's backyard. The vegetable garden cannot be seen from the living room and most of the lawn, and the brick path with its fountain becomes a visual extension of the more formal atmosphere of the lawn. When you step out onto the lawn, you see only glimpses of different garden areas just waiting to be explored.

"I stole the idea from Sissinghurst," the owner explained. "I wanted to have that sense of space and anticipation you feel when you step through the entrance at Sissinghurst onto the large lawn surrounded by walls covered with flowering vines, and all those doorways leading into different gardens."

Certainly Sissinghurst is one of the best examples of how garden "rooms" can divide and organize space effectively. Another is Hidcote in Gloucestershire, a major inspiration behind Sissinghurst. That these gardens are English is incidental; more important is that they both transform flat, relatively boring landscapes into compel-

ling sequences of garden events.

Like the floor plan of a house, where a hallway or entry hall acts as a backbone or a central core for the arrangement of rooms, the separate gardens within Sissinghurst and Hidcote radiate from central points, varying from long corridors of tightly clipped hedges to evergreen rondels, each with exits that frame adjoining garden areas. For example, Hidcote has its Red Border and rooms with various themes. Similarly, at Sissinghurst many areas, such as the White Garden, are used to develop an idea or a plant association to the limit. It is, in large part, the logic and rhythm of the frameworks of these two gardens—with their borders and water gardens, rose and herb enclaves—that keep them from becoming a circus of unrelated plantings.

Divided into rooms, a smaller garden can be made to seem larger, and a large garden, more intimate. But not all garden rooms have to be surrounded by walls or hedges. In some gardens, an area can assume the feeling of a room simply by how it is used. For example, a bench set into a turn in a path makes that spot a goal and a place to pause. Or, in the most informal landscapes, a few chairs positioned in the shade of an apple tree or the breezy enclosure of an arbor or pergola can create a garden room's sense of place and separateness. ☉ —Margaret Hensel

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



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