American Horticulturist

Volume 55 Number 3 Spring, 1976

MADONNA LILIES

A CAPSULATE HISTORY OF LILIUM CANDIDUM

A native of the Holy Land area of Asia Minor, this ancient and elegant white lily of Virginal purity is considered to be that of Scriptural reference:

> "And why be anxious about clothing? Consider the lilies of the field, how they grow; they neither toil nor spin; yet I tell you, even Solomon in all his glory was not arrayed like one of these."
>
> Matt. 7:28-30

From the beginning of recorded history these noble and easiest grown of lilies have so awe-stricken mankind with their ecstatic beauty and jasmine-like fragrance that there has always been a close connotation to the spiritual and divine. From the sculpturings on sarcophagi found in ancient tombs to medieval Mother and Child paintings by the great masters, these majestic beauties have been the favorite subjects.

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OUR COVER PHOTO: Pearl Dawn Mini-Rose by Charles Marden Fitch

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AN EDITORIAL

PLANT/PEOPLE SYMBIOSIS

Do you need a friend? Are your friends disloyal? Is your boss on your back? Are you worried about the future? Does the population explosion frighten you? Perhaps you need to know about the great horticultural pacifier.

The Bicentennial year provides a time to look back, to reflect, but more importantly it affords us the opportunity to look ahead. Ever since humans developed practical minds, many of these minds have been engaged in schemes to provide a constant food supply. Concerns for "our daily bread" have moved progressively through our evolution from a selfish individual viewpoint, to a family-oriented concern, to community and city preoccupations and, finally, to national and international endeavors. Now, in many ways we find ourselves moving back to a position of selfish concern.

As mechanization, and more recently, automation have become the way of life in agricultural and horticultural production, an ever larger percentage of human activity has been diverted to other forms of city-based preoccupation. More often than not, thoughts concerning the needs of green and growing things have been sloughed aside.

Fortunately, through generation after generation, some of us have not lost this instinct for the farm and the inherent love or need for a plant-oriented relationship. Thus, ornamental and economic horticulture developed along with the gradual human movement away from the land into our present congested concrete and asphalt metropolises.

For the past 20 years we have witnessed the mushrooming of suburbia–in many ways an effort to flee the plant–sterile environment of the city. Presently, because of economic and other considerations, there is a strong trend to return to the city. Architects are preoccupied with building new, or transforming old, metropolitan environments which will combine our high-density population with frequent easily-accessible open spaces devoted to various forms of amenity horticulture and fresh air recreation.

It is readily apparent that greater educational efforts are required to provide hobby-oriented recreational gardening. This is particularly true in indoor artificial light gardening. There is nothing like a live plant sharing the human living space. What better way to strike up a meaningful symbiotic and aesthetic relationship? The person is absolutely needed for the plant's survival and the plant responds directly to the cultural treatment given–a true symbiosis. In this relationship there can be no arguments, only responses and healthy challenge. It is a relationship with, and of, beauty. It can last for years. However, with more inexperienced gardeners the relationship may have to be repeated time after time before perfection is achieved.

The gardening hobby teaches tolerance, appreciation for beauty and individual responsibility. Here there is a great choice in horticultural subject matter, from the easily-grown philodendron to the more complex and demanding world of exotic orchids.

With this hobby the pocketbook need not suffer. Once the cultivation lessons are learned the modest investment may bring dividends of seed for exchange and gifts. Naturally, this leads to friendly relationship with other humans of similar interest.

What may be of greater and more far-reaching significance, is that as creatures of nature we learn to relate compatibly with plants to complete this symbiotic relationship. Those of us who are just "discovering" the green world *can* learn to grow plants.

Through our association with the American Horticultural Society we can become better equipped to pass along our knowledge of plants and plant culture to new generations. We can help carry on a proven means of successful and therapeutic relaxation, and an enjoyable hobby for the increased leisure time which, hopefully, all of us will enjoy later in life.

Russell J. Seibert, Director
Longwood Gardens
Kennett Square, Pennsylvania 19348

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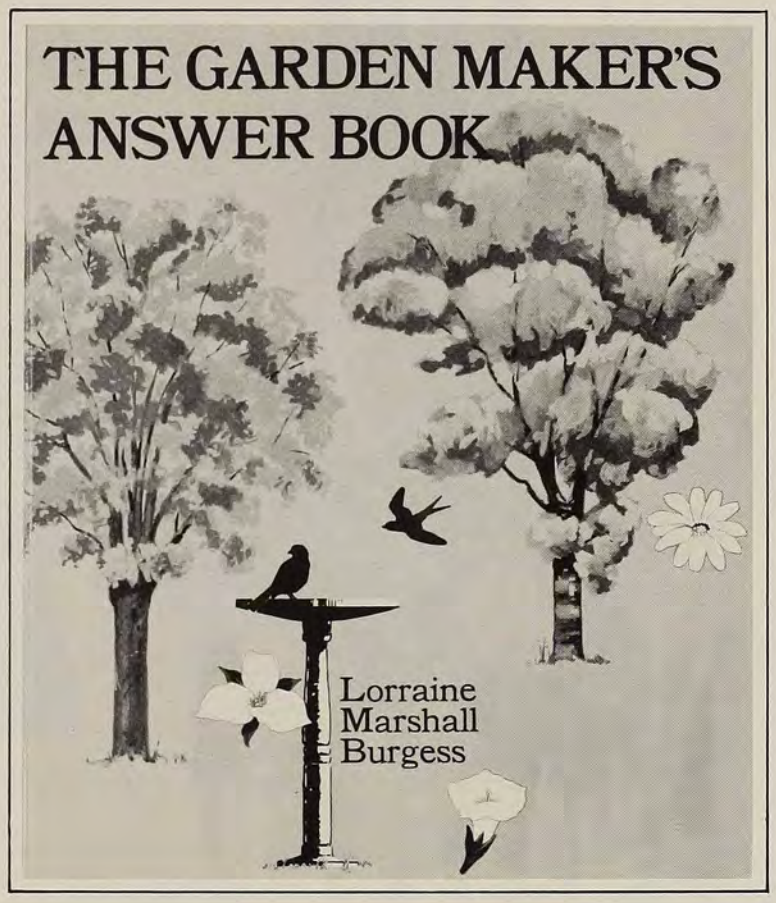

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Do We Need a National Flower

Periodically we receive impassioned pleas and threatening letters from gardening enthusiasts demanding that the American Horticultural Society take a stand on the "vital need" for an official American flower.

Currently a promotional effort is being made by the marigold lobby to adopt its versatile and beautiful flower as our nation's symbol. In the past the Halls of Congress oft resounded with the honey-gravel tones of the late Senator Everett Dirksen proclaiming the virtues of his beloved marigold.

The marigold has much going for it. Unfortunately, it's a native of Mexico. It's still American—but not from the U.S.A.

We have heard pleas from proponents of the American holly, goldenrod, the Shasta daisy, dogwood, rose, and wild columbine. Doubtless, all are noble plants. But do we *really need* a national floral symbol?

If I had my druthers, our national plant would have the radiance of the rose, the scent of an orange grove in bloom. It would climb like a clematis with foliage of the magnolia. It would be as hardy as the dandelion, produce fruits of the passion vine, but with the taste of Maine island blueberries. This plant doesn't exist. So I'll simply wait till it is hybridized before I cast my vote for a national plant.

What if we could decide on a reigning favorite? To me, the fun of the whole thing would then be over. It's more exciting to fan the fires while muddying the waters of decision. As long as we can keep green thumbers debating the merits of coleus versus tiger lily, we have a healthy situation.

When you come right down to it there is not much controversy in horticulture. Most debates are generated by gardening "experts" whose most pressing need is to know if *Mazus reptans* is hardy to zone 5 or 6.

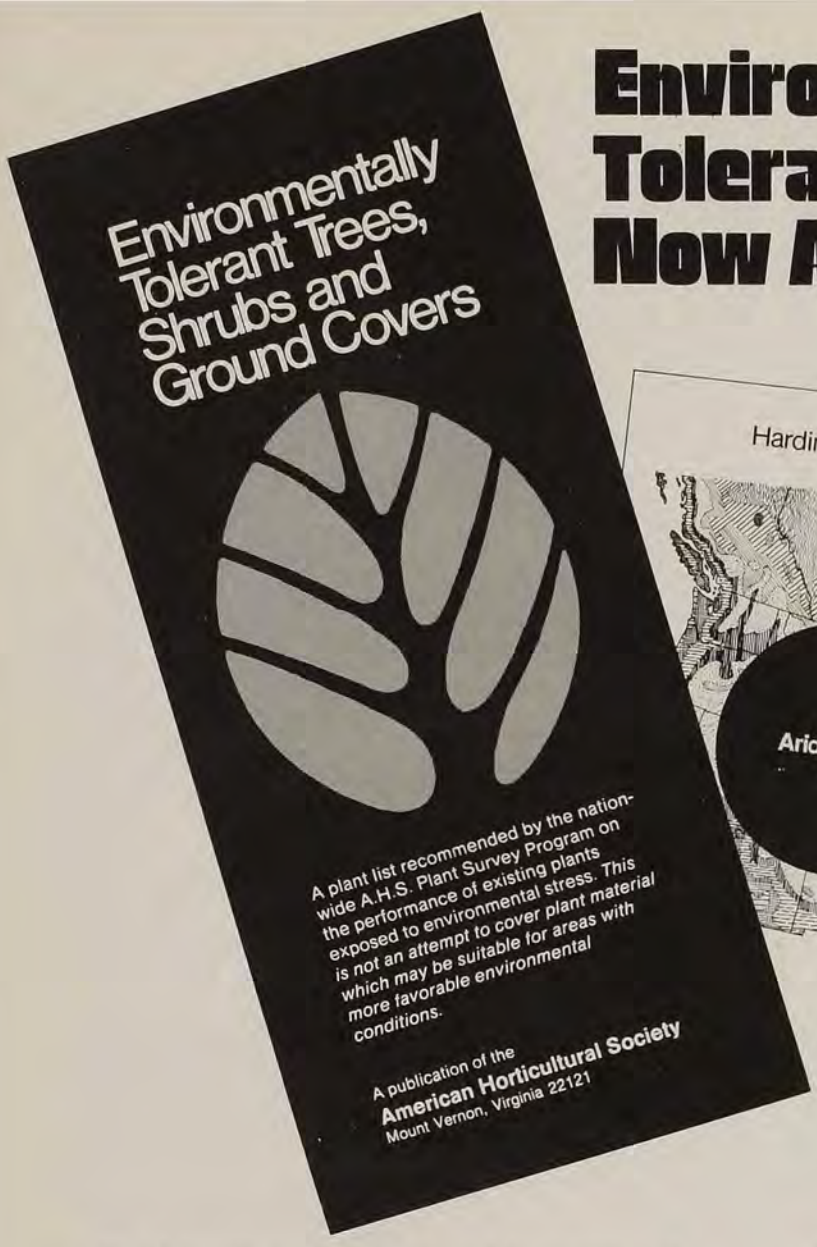
The national plant controversy makes good garden writer compost. Its educational benefits are limitless. So, let the promoters promote. Let the plant society advocates turn magenta from elevated blood pressure. Let them babble 'til their voices fail extolling their favorite flora. Disagreement will only serve to enhance the art of gardening.

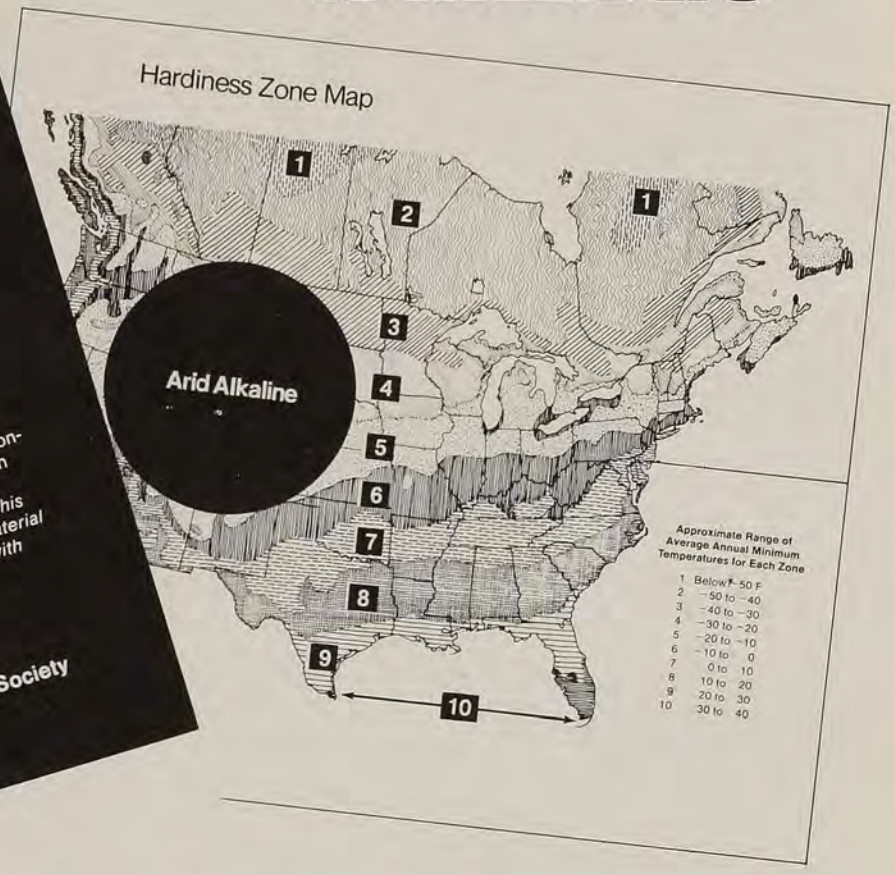
Say, for example, we had to pick an all-American boy (or girl, for that matter). What would this person be like? What color would he assume? Would he be hardy in Bangor, Honolulu, Peoria, or St. Petersburg? If his name were *Smith*, would he spell it with a "y" or an "i"? This example is absurd. *So* is the controversy surrounding the national plant—be it clover, columbine, pussy willow, ponderosa, sassafras or seaweed, it matters not, yet fun to talk about.

Oh but you say, "We have a national bird". That decision didn't come about without controversy either. Many of our forefathers would have preferred the native turkey. In the year of our Bicentennial, perhaps it's time to reopen the debate. Do you think the Bald Eagle is hardy in Zone 9?

Murray Keene
Editor

Environmentally Tolerant Plant List Now Available to Members





The Educational Horticultural Committee of the American Horticultural Society has conducted a nation-wide survey and produced a list of environmentally tolerant plants for all ten U.S. hardiness zones. The 30-page compilation, titled "Environmentally Tolerant Trees, Shrubs and Ground Covers", was made possible in part by a grant from the Founders' Fund of the Garden Club of America. The listing was produced by the American Horticultural Society Plant Science Data Center.

According to Mrs. Pendleton Miller, co-Chairman of the AHS Educational Horticultural Committee, "The plant listing is designed primarily for use by public planting agencies who must maintain areas subject to high pollution levels as well as heavy human and animal traffic". Mrs. Miller comments that: "Many plants are faced with surviving unavoidable environmental stress: the weakening factors of air pollution, general traffic abuse and pedestrians, automobiles and pets." Further, one must consider that public planting agencies must function under their own financial limitations. Funds are rarely available for providing other than minimum drainage, soil preparation or maintenance. Realistically, this adds up to the necessity of using plant species which can not only survive a combination of environmental stress/abuse, but at the same time be given minimum growing conditions and maintenance.

Mrs. Miller emphasizes that these plants do exist and we should both accept and use them. If you wish a copy of this valuable AHS publication, fill in coupon and mail today.

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YES! I would like to order the Environmentally Tolerant Plant List.

☐ $2.95 check enclosed ____ additional copies at $2.95

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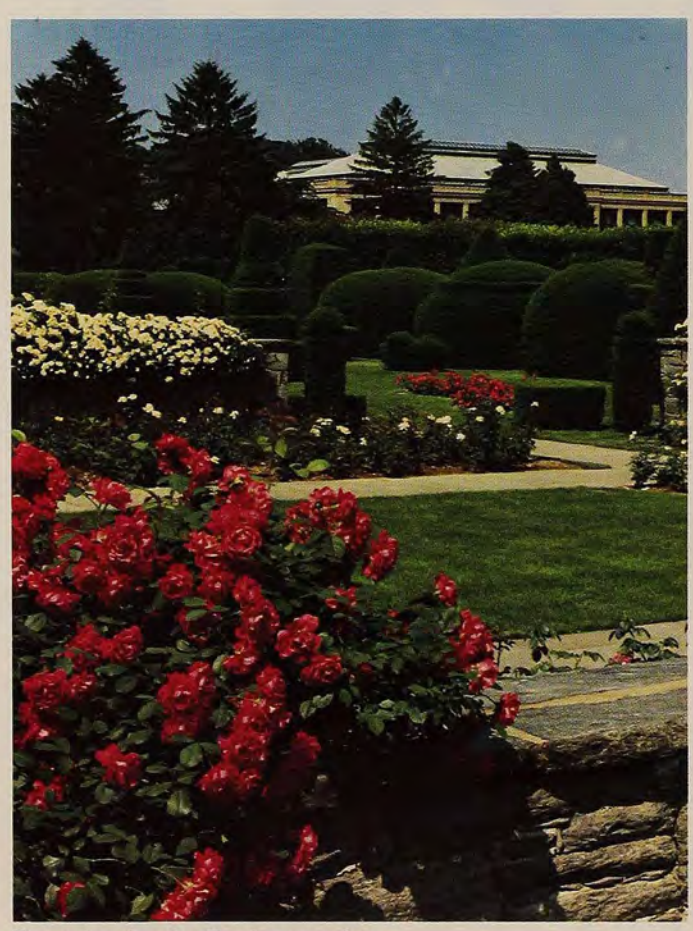
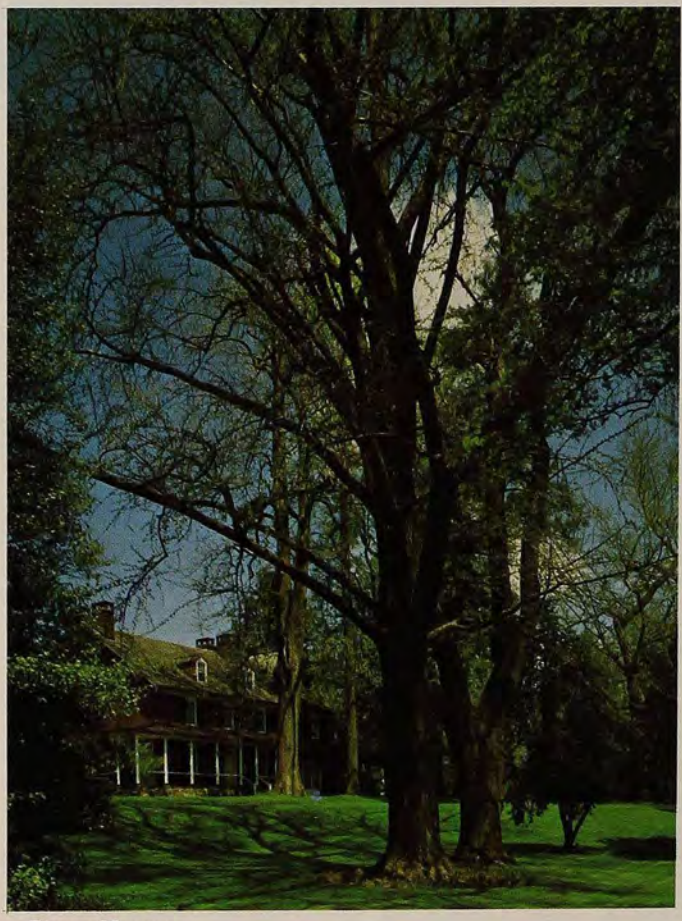
Center walk at Longwood conservatory features white Petunia, Hydrangea, Bougain, and Ivy-leaf Geranium.

Summer flower garden with Zinnia and Petunia

A Look at Longwood



Roses border the Topiary garden



Pierce House

Azalea House displays Cyclamen and Birches

A LOOK AT LONGWOOD

AHS members who plan to attend the Society's Annual Congress in Philadelphia, September 8-12, 1976, will be treated to one full day's exploration of famous Longwood Gardens, near Kennett Square, Pennsylvania. Longwood is one of the most outstanding display gardens in this country, its fountain systems, landscaped grounds and conservatories rivaling those of the finest gardens in Europe. The gardens occupy more than 300 developed acres and are supported by another 700 acres of meadow and woodland. Counting growing greenhouses as well as display conservatories, there are almost four acres under glass. In one year alone, hundreds of thousands of visitors came from every state in the union and ninety-three foreign countries to visit these remarkable gardens.

Longwood owes its existence to the interest and foresight of the late financier, industrialist, and philanthropist Pierre Samuel du Pont (1870-1954). Its horticultural history, however, dates to the early days of the Commonwealth. In 1700 a Quaker farmer, George Peirce, purchased a tract of land from William Penn's land commissioners in the unsettled township of East Marlborough. Thirty years later his son, Joshua, raised a brick farmhouse on the property and established it as the Pierce family homestead. In 1798, Joshua's twin grandsons, Joshua and Samuel Peirce, began planting an arboretum near the house. It became known within fifty years to horticulturists throughout the country as the finest collection of evergreen trees in the United States.

The brick farmhouse is still standing at Longwood and will be open for your inspection. Many of the trees planted by the Peirce brothers, including a large yellow cucumber magnolia native to Southern Georgia, two ginkgoes native to China, and a pagoda tree native to Japan, can also be seen. The Peirce property remained in the hands of Joshua's descendants until May, 1905, and was known locally as Peirce's Park during the latter half of the nineteenth century, although the family continued to operate it as a working farm.

Pierre du Pont purchased the Peirce farm in 1906, primarily to save the great, old trees in the arboretum from a lumbering operation. He began almost immediately to develop the land into formal gardens reminiscent of Europe. Between 1906 and his death in 1954, he directed the construction of various flower and water gardens at Longwood, as well as a number of architectural garden features. He also built the first houses in the large conservatory complex, opening the so-called "Orangery," where changing seasonal exhibits are now staged, in 1921. An elegant ballroom with a ceiling of pink, etched glass and parquet floor of black walnut was later added north of the orangery, along with an organ room to accommodate one of the largest pipe organs in the country. The organ has more than 10,000 pipes and incorporates a grand piano as well as the voices of an entire percussion orchestra.

Longwood's conservatories are divided between permanent plant collections and floral displays that change with the seasons. The permanent collections include palms, ferns, roses, orchids, desert plants, pineapple family plants, insectivorous plants, plants of economic importance to man, and representatives of all the important tropical and subtropical plant families. The orchid display is one of the most popular of the indoor attractions at Longwood. Each week the finest blooms are chosen from the more than 8000 plants in Longwood's orchid collection to go on exhibit in the Orchid House.

There is also an excellent bonsai collection which attracts a great deal of attention from visitors. Some specimens in the collection are more than 150 years old.

An outstanding collection of tropical waterlilies and other aquatic plants is on view in outdoor pools located between the conservatories from June through October.

In the two largest conservatories at Longwood, the Orangery or "Main Conservatory" and the Azalea House, the displays change constantly, marking the seasons with thousands of beautiful flowers. Plants are exhibited only at their peak; as soon as the flowers show any signs of aging, they are replaced with new plants from Longwood's extensive growing houses. Three spectacular displays each year concentrate on traditional holiday plants and attract thousands of visitors. At Easter the conservatories are filled with spring bulbs and Easter lilies; in the fall, more than 5000 chrysanthemum plants welcome Thanksgiving visitors; and at Christmas red, pink, and white poinsettias, together with cyclamen and paper white narcissus, create a festive holiday air. Between holiday displays, a series of different show plants dominates the large conservatories, beginning with acacias and spring bulbs in January and February, and continuing to azaleas and rhododendrons in March and April, and begonias throughout the summer months. In early autumn, coleus and ornamental peppers are planted in the conservatories with the first of the Thanksgiving chrysanthemums.

The outdoor gardens at Longwood combine the natural beauty of woodland paths and lakes with the formality of bedding plants and fountain gardens. Of particular interest are an herb garden; a wildflower area where plants native to within a hundred miles of Longwood are grown; a topiary garden with an unusual analemmatic sundial; and the Rock and

Heather Garden, built on a hillside around a sixty-foot waterfall and chimes tower. Electronic chimes in the tower count the hours and quarter hours, and carillon concerts may be heard at 11 a.m. and 2 and 5 p.m. daily. Rose gardens nearby include a display of All-American rose selections, and in the Pinetum, east of the Rock and Heather Garden, many interesting and unusual conifers are grown, including the dawn redwood and the giant California redwood.

The many fountains at Longwood make it unique among the world's horticultural displays. In addition to several small, single fountains that punctuate the flower gardens and walkways, there are three large fountain displays at Longwood. One is in the Italian Water Garden, based on the design and dimensions of a garden at the Villa Gamberaia near Florence, Italy. The carved stonework for the garden was imported from Italy, but native hemlock trees were substituted for the Italian cypresses of the Florentine garden. The fountains in the Italian Water Garden are in operation during the day throughout the summer months.

In front of the main conservatory is one of the most famous fountain systems in the world. Covering approximately five acres, the fountains and canals of the Main Fountain Garden are outlined with Japanese holly and the entire area is bordered with clipped Norway maples. At night, illuminated by myriad colored lights, the fountains provide a never-to-be-forgotten experience as they eject water at the rate of 10,000 gallons per minute. One of the central pairs of jets throws a column of water 130 feet into the air. Evening displays are presented for a half hour every Tuesday, Thursday and Sunday evening from the beginning of June until Labor Day.

The water for the Main Fountain Garden system is recirculated and is located in a large underground reservoir east of the Rock and Heather Garden. Water is pumped up from the reservoir to gush through the Eye of Water before it cascades over the nearby waterfall. The Eye of Water is Longwood's newest water feature, inspired by the "Fuente de Ojo de Aqua" near San Antonia de Belen, Costa Rica.

Longwood's third fountain system is located at an open air theatre on the grounds, where a novel "water curtain" made of small jets spaced six inches apart adds immeasurably to the enjoyment of performances. The Theatre seats 2100 people and is in use on scheduled summer evenings when local organizations give musical and dramatic presentations for the benefit of charity. The backdrop of the stage is formed by clipped arborvitae and tall trees. Following each performance, a lighted display of fountains on the stage provides a memorable finale.

Besides maintaining the remarkable indoor and outdoor horticultural displays, the staff at Longwood considers education to be an important part of its duties. A series of horticultural evening lectures is given by guest speakers during the winter months and in autumn, winter and spring; short courses are offered to the public on such horticultural subjects as botany, plant propagation, pressed plant design and wildflowers and various phases of gardening. A staff member is also available Monday through Friday to answer practical horticultural questions concerning the displays and plants exhibited at Longwood.

An effort has also been made to educate the public through attractive exhibits in the display conservatories. Example gardens, illustrating the various solutions of local landscape architects to common home landscaping problems, are maintained in the Azalea House, and there are displays of containerized house plants and vegetables.

Longwood Gardens has several work-study programs for students of horticulture. One of these is the Professional Gardener Training Program, a two-year course for high school graduates. This program includes both classroom sessions and on-the-job instruction for those wishing vocational training.

During the summer months, a limited number of college students majoring in the plant sciences participate in the Summer Laboratory of Ornamental Horticulture. The students gain practical experience by working in the gardens and are exposed to other useful areas of horticulture through lectures and field trips.

A graduate program for students working for a Master's Degree is conducted in cooperation with the University of Delaware. Students in this program study at the University and gain vital work experience at Longwood Gardens.

A small number of International Horticultural Trainees are in residence for a period of one year.

Longwood Gardens limits its experimental research to finding and improving new plant materials which can be used in the floral displays and to improving growing methods for crops produced at Longwood. The experimental greenhouses and research facilities, off limits to the general public, will be open to AHS Congress participants. Society members may view newly acquired plants and will be given guided tours of the plant breeding facilities.

The Joys of a Rainbarrel

Hugh A. Johnson, M. D.
2500 North Rockton Avenue
Rockford, Illinois 61103

The word itself, rainbarrel, should conjure up an image of a mossy, oaken barrel—one joy right there.

As a boy, many years ago, in the cool of a summer evening, I'd go with my father as he solicited farmers for the supply of milk for our dairy. As my father talked to the farmer, I'd wander about the farmyard. One such evening I found *the* classical rainbarrel. As I write this I can vividly recall the evening, almost smell the freshly cut hay, see the setting, red, summer sun, and see the image of the broken pitch fork handle as I put it in and out of the rainbarrel, wondering why it bent. I could see the deepening blue sky reflected and the barrel seemed bottomless.

In those days, health was a duty, not a right to be provided by an omnipotent bureaucracy. "Health" was taught in our grade schools then, and I mean taught. Every day we had to fill in our health charts; mine, a week of solid x's with a row of 6-0's at the bottom, one x for Saturday's bath. My teacher, Mrs. Silverstein, damned rainbarrels; mosquitoes bred in them. I was a nasty, smug boy so superior; we had no rainbarrel, but most of our Dutch neighbors did. One "old world" type had what I now realize was a lovely arrangement—a back porch facing south, with his cucumbers encroaching upon it. Organically laden dishwater was thrown on the vegetables and the rainbarrel was right there. After learning of the health hazard of a rainbarrel from Mrs. Silverstein, I took it upon myself to sneak over with a Campbell's soup can, one quarter full of kerosene. The first drop spread a circular rainbow, then in went the rest. We weren't

*"Wife, Tottie," our butler-handyman Johnson (the author) does the spading and other heavy work.

going to have malaria! I suppose the nearest *Anopheles* was several hundred miles away.

I don't remember just when my gardener* first suggested a rainbarrel, but I do recall my joy at the prospect. Barrel search began. The only oak barrel to be found was priceless (in an antique shop). Life is a compromise, so off to the Smith Oil Company's warehouse to buy an oil drum. I was envisioning cutting off the top with a cold chisel when the man asked, "Going to make a dock?" I don't know why I felt guilty, (perhaps Mrs. Silverstein), but who thinks about malaria now with our present day plagues of cancer and gonorrhea? I quietly told him, "A rainbarrel." "Then you will want the top off and steamed out." Did you know they have an electric can opener for those barrels? Fantastic! Their barrels have a tough-type plastic coating on the inside, very resistant to rust. I loaded the barrel into the back of the station wagon. (Be sure to block it, otherwise you too will have as exciting a trip home as I did.) I painted our barrel with rust-resistant, "Wagon and Implement Green," a shade darker then John Deere green. Not the oaken barrel I have visualized, but a joy.

The next joy came a few nights later, a very light drizzle and our expanse of roof completely filled the barrel. Our brass dipper was resurrected and hung on the barrel's rim.

Now the joys are the gardener's. As Tottie sets out plants, a dipperful is given each. The barrel seems bottomless. The overflow is gentle and spreads a widening circle in a heavy rain. You can imagine how many times the barrel is tapped in the course of a gardener's year, and a joy each time. The best though; this past fall I watched Tottie picking a few tomatoes for dinner. As each was picked, it was tossed into the rainbarrel. When she had finished picking, she gathered up the floating, washed tomatoes. When carrots and other ripe crops are gathered, they are laid on the mulch and the clinging dirt is returned to the garden by a couple dipperfulls. Thus, there is less mess in the kitchen and less dirt to stop the sink trap. If one rainbarrel is good and one has another downspout, two are better. This second barrel is in another garden patch on the other side of the house. Unlike most who find downspouts troublesome, I wish we had more.

I am still concerned about mosquitoes, but I am not worried about malaria. I add a drop of oil from time to time as I pass by with my garden tool oil can. An occasional single drop is enough to plug the spiracles of any culex larvae that might be there. It's a joy and rather exciting to think that the layer of oil producing the spectral rainbow is but one or two molecules thick.

In the early fall, the barrel is a good judge of the severity of a frost. Standing free and exposed as the barrel does, a degree or two of frost will make a thin layer of ice as perfect as window glass.

What to do with a rainbarrel in our hard winters? I tried to recall those rainbarrels of my boyhood in winter—covered with ice? I couldn't remember. Now I know why. Always thinking, I reasoned (fallaciously I've learned to my sorrow), that a large plastic bag of air sunk to the bottom with stones, would absorb the expansion of the ice and I'd not have to empty my two barrels. I wondered at the time, as I often do when feeling especially clever, why people don't apply practical, good sense more often. The morning after the first clear, cold night, when I found the bottom rounded out like a small chianti fiasco—without its straw, I learned the power of ice and had to buy another barrel. The bottomless one is now used to store my smelly sludge from the city sewage disposal plant until it has been slowly added to the compost.

An unexpected joy was humor. One summer night as I went by walking the dog, I thought—did I see a movement deep in the barrel? In the twilight I could see a gray shape moving about near the bottom. I went and got the flashlight I keep just inside the back door (everyone should have one there). A shaft of light through the clear rainwater revealed a large carp, a foot and a half long, cruising about. I didn't tell Tottie, the gardener, about the fish, for I hoped to catch the look of discovery on her face. I missed it. The next day I took the carp (poor thing, gasping and more or less swimming on his side—there must be very little oxygen in standing rainwater), and released him from our bank on the mighty Rock River. We knew that eventually the answer would out. It soon did; the boys in the block behind us had caught the carp and didn't quite know what to do with it, then remembered the Johnson's rainbarrel.

Now to bring the ancient rainbarrel into the atomic age. Those of you who might fret about hysterical journalists' dire threats of the rain washing the atomic fall-out onto our earth can relax, for though that is true, such fall-out is insignificant compared to what one might get from the dial on one's watch or the radiation one endures getting the yearly chest x-ray the Life and Breath people advise. What, me worry? Not worth worrying about.

To empty the barrels for winter, one puts the garden hose slowly into the barrel, letting it coil up on the bottom. When the hose is covered, a thumb is placed over the end, the hose is withdrawn until only a coil or two remain on the bottom and the water can be siphoned to a dry area of the garden. The barrel is turned over, perhaps over some less hardy plant one wishes to protect.

So, please, come share my rainbarrel joys, get one if you don't have one. Look in the Yellow Pa - - -, but wait, part of the joy is in the planning and the anticipation, your own dreams for your own garden.

Let's Grow Some Vegetables

by Henry E. Allen
5510 Brite Drive
Bethesda, MD

You don't need a lot of space to enjoy the fun of growing your own vegetables. They can be grown in a variety of places. Many leafy vegetables can even be grown in partial shade. Lettuce, chives and parsley make attractive borders for flower beds and you can always find room for a couple of staked tomato plants in a sunny border. Cucumbers, when grown on a fence or trellis, take up very little space. A trellis can be located at the back or end of a flower bed or can serve as a screen by a patio. Grown in this manner they do not require full sun, as usually recommended, but will do remarkably well on a minimum of eight hours of sunlight a day. Or scarlet runner beans grown on a trellis make an interesting ornamental with their decorative scarlet blossoms during most of the summer, followed by pods of beans which can be used fresh or left to dry for shell beans. There are other climbing beans which, although not as decorative, can be grown this way.

If you have a small space in your yard which can be given over to vegetables—as little as eight feet wide by twelve or fifteen feet long—you can grow an amazing variety of vegetables in quantities sufficient to add zest to the family meals.

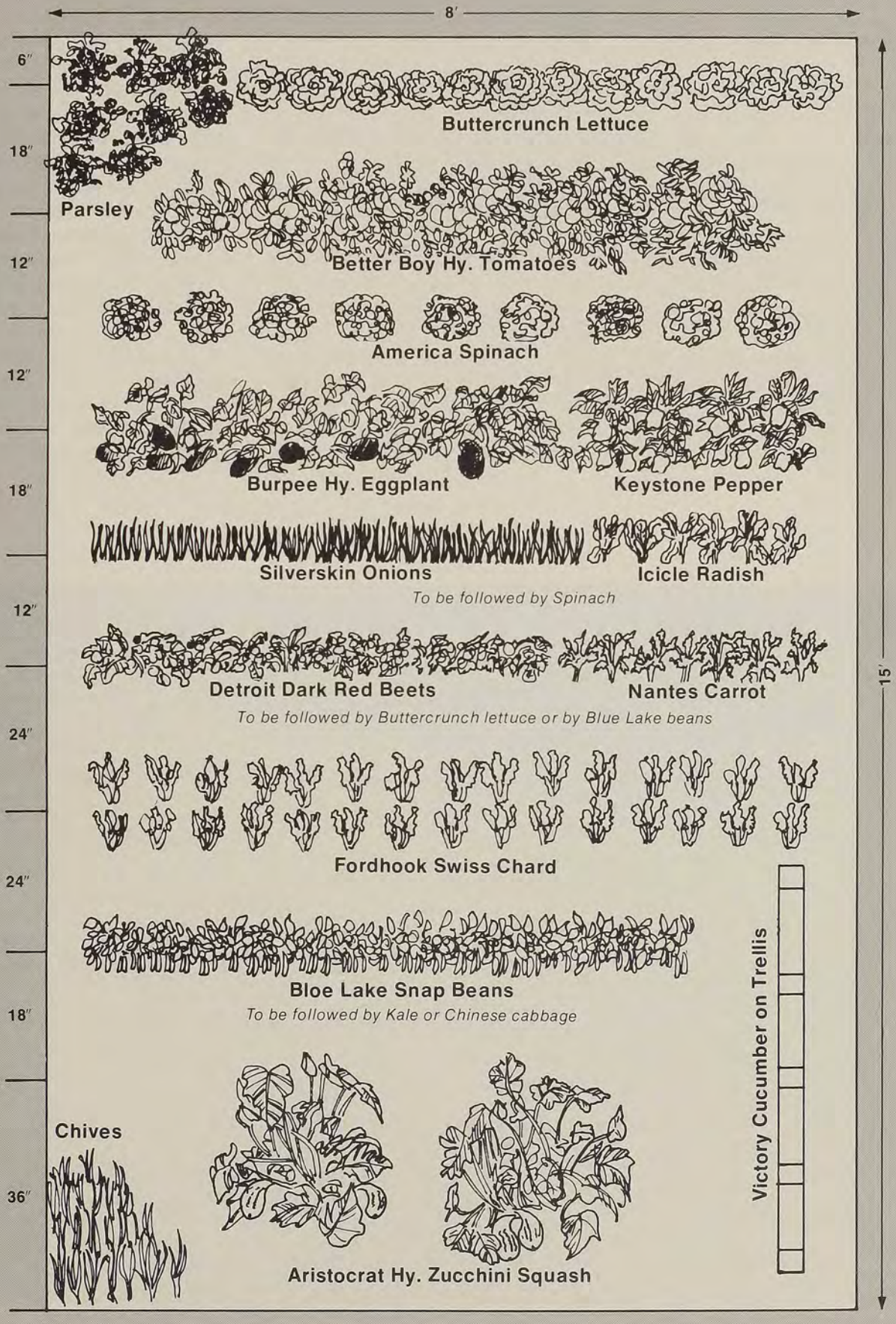
Start with the hardier crops such as lettuce, onion sets, radishes, chard, spinach, beets and carrots planted about three weeks before the average date for the last frost. To get a jump on the season, lettuce and chard can be started indoors and the plants set out six inches apart at the proper time. Lettuce, radishes, onions and spinach can be planted between the rows. Later you can plant the more tender crops such as tomatoes, peppers, eggplant, beans, squash and cucumbers (shown in the accompanying diagram). In planting onion sets try setting a double row four inches apart. Sow the seeds of radishes and carrots in rows or bands four inches wide and later thin to stand an inch to two inches. Ball or round type radishes, like Champion, can be seeded in the same row with the carrots; they will have been pulled and eaten by the time the carrots need the space for growth. Except for chard, all of these early crops will have matured before the longer season tender crops will compete with them for moisture and nutrients.

The Swiss chard will need its own space to grow for it will continue to provide succulent greens throughout the summer and well into the fall. Onions and radishes will be used by early summer and the beets and carrots will be ready to harvest by midsummer. These crops can be followed in the same space by a planting of beans for fall use, or more lettuce and spinach, or by kale and Chinese cabbage which will provide greens well past the early frosts of fall. In fact, Winter Bloomsdale spinach and Vates kale will continue to grow up until Christmas. If protected by a light mulch, they will produce tender greens in early March of the following year.

After all danger of frost is past, four tomato plants of a disease resistant variety such as Better Boy, can be set out in the row between the lettuce and the spinach; three eggplants and two peppers can be set between the spinach and the row of onions and radishes. At the same time plant a row of bush snap beans, two hills of bush type zucchini squash, such as Aristocrat, and a five foot row of disease resistant cucumbers, such as Victory or Gemini, to grow on a trellis.

In a front corner of your garden tuck in some parsley to be readily available for seasoning and garnishes all summer and even into the following year (it is a biennial). In the other corner set out a few clumps of chives. Both of these popular culinary herbs are hardy and can be started from seed as soon as the soil can be worked or plants can be set out at the end of March.

This plan suggests but one of many ways that a small space can be made productive. There is great flexibility in planning a garden and the tastes of the family should be a major consideration. For example, broccoli, Brussels sprouts and edible podded peas are all excellent fall crops. If planted by the first week in August, one or more could be substituted for lettuce, kale or spinach. Try growing some vegetables—you may be surprised to find how much pleasure and good eating a small plot of land can provide.


8′
15′
6″
18″
12″
12″
18″
12″
24″
24″
18″
36″
Buttercrunch Lettuce
Parsley
Better Boy Hy. Tomatoes
America Spinach
Burpee Hy. Eggplant
Keystone Pepper
Silverskin Onions
Icicle Radish
To be followed by Spinach
Detroit Dark Red Beets
Nantes Carrot
To be followed by Buttercrunch lettuce or by Blue Lake beans
Fordhook Swiss Chard
Bloe Lake Snap Beans
To be followed by Kale or Chinese cabbage
Victory Cucumber on Trellis
Chives
Aristocrat Hy. Zucchini Squash

Tall Bearded Iris

Text: Lorraine Marshall Burgess
Photos: Guy Burgess
202 Old Broadmoor Road
Colorado Springs, Colo. 80906

Lest we take our treasures for granted, allow me to extol the beauties of the tall-bearded iris. This magnificent plant grows so easily in much of our country that we tend to think of it as commonplace. The hybrid iris is anything but that. Excellence was achieved more than a generation ago and today we tend to take these past accomplishments for granted.

Given good rhizomes, a sunny location, and well-drained garden soil, iris will flourish and multiply, contributing greatly to our perennial gardens. I urge all plain dirt gardeners and new garden makers who are not already convinced to include iris in their garden schemes.

Tall-bearded iris combine with coral bells and foxtail lillies. Cut pink peonies from another part of the garden float in the fountain dishes.

First off they should seek out good hybrids, either old or new. They should avoid the offerings of common varieties proffered by neighbors. These are often the sickly cream and purple bicolors, or the purple-blues that smell like grapeade. Such gifts may seem a friendly gesture, but they are no favor to the new gardener.

Instead, new gardeners should go to a reputable iris grower for their initial root stock, or to a knowing home gardener who is willing to share some of his treasured rhizomes. Even then it makes no sense to get one of every color hybrid available unless the gardener expects, after evaluation, to discard the dissonants.

Better today's gardener should explore public and private iris gardens first, building up a preference list, and then ordering desired varieties from national iris growers. The nice thing about iris is that you can plant or transplant them in July and August soon after the May-June blooming season, while the shapes and colors are still clear in your mind.

In fact one earnest gardener of my acquaintance, a landscape painter by profession, saw fit to transplant her iris while they were in full bloom to move them to another part of the garden where they might better harmonize with the plants around them. Her iris survived the transplanting without mishap, and were clipped of their blooms as soon as they faded to direct all further root nourishment to the root fibers.

Iris culture is simple. A sunny location is of prime importance. However, dark reds and near blacks hold their strong colors better in semi-shade. They may bloom a little later, but that merely extends the blooming season. If the soil is heavy with clay, planting pockets should be thinned with sand, and laced with garden compost. A handful of bonemeal, mixed with soil around each rhizome group at planting time is beneficial. Bonemeal, superphosphate or commercial fertilizer can be used as an iris top dressing in early

Techny Chimes, the most dramatic of the bright yellows with a rich tangerine beard.

Lilac Festival, is a magnificent lightly ruffled orchid iris with a harmonious paler orchid beard.

A Phillip Loomis seedling 'Yellow Lace', never introduced, has crinkled lacy edgings surrounding the luminous golden beard.

spring or late fall.

To plant, set iris rhizomes with a few short leaf blades on a mound of the soil mix, allowing the rootlets to fan out naturally. Cover the roots with only a little soil because the rhizomes prefer to grow near, or partially above, the surface of the soil.

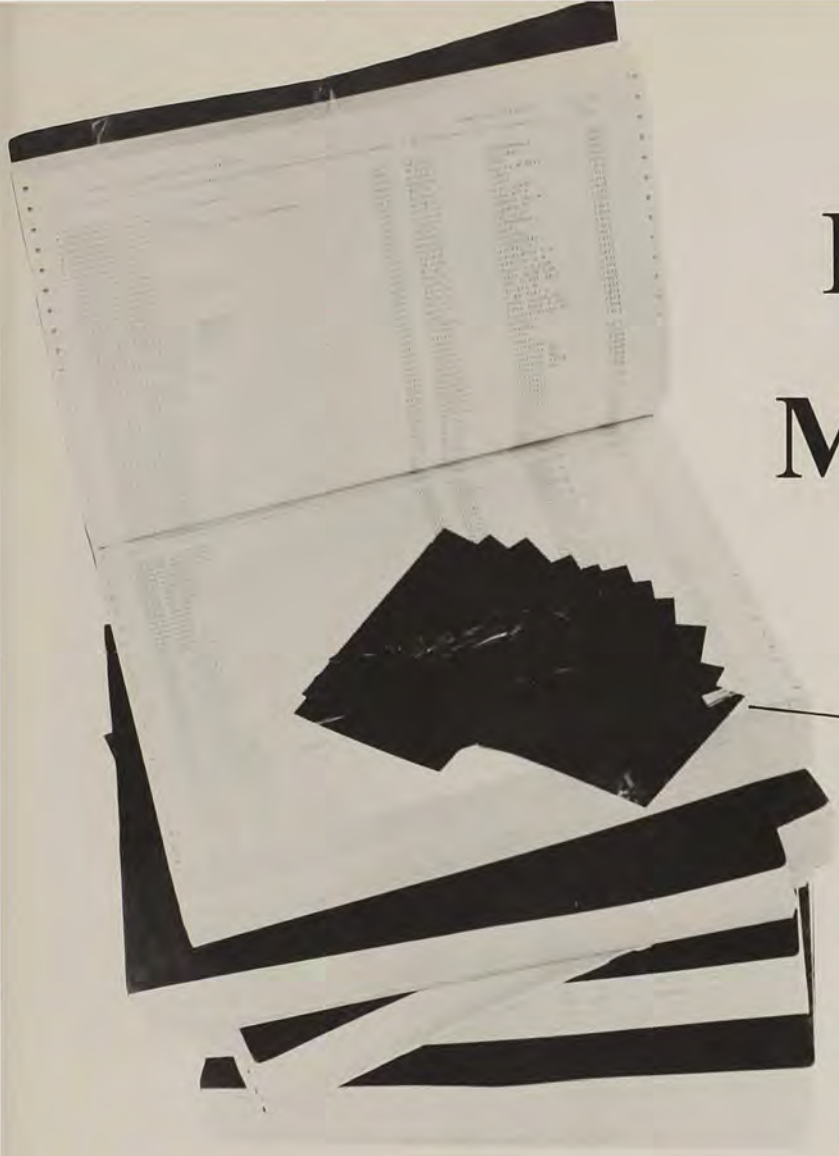
Do not plant iris out in rows, they look too regimented, but rather in groups of 3 or 9 about 12 inches apart. Large clump plantings are best composed of one variety, or at most two harmonious strains. As the plants take root hand-pull weeds, avoiding cultivation with a hoe because the roots grow very close to the surface.

The biggest chore with this robust plant comes from its abundant, easy growth. Every 3 or 4 years, because of crowding, it becomes necessary to lift, divide, and replant the rhizomes. Replant only the large, young plants, discarding rhizomes that carry old bloom stalks as these bulbs will not flower again. Clip leaf blades to 6 inches to reduce transpiration and replant what you can use. Offer the extras to eager gardening friends to widen the devotion to this remarkable family of plants.

Then apply a thin layer of mulch to prevent heaving during the first winter. Come spring, wash away the mulch into nearby depressions. The first season of bloom may not be spectacular, but iris are an investment in beauty, long-term, with a minimum of garden care.

As your interest in iris flowers, join the American Iris Society, 2315 Tower Grove Avenue, St. Louis, Mo. 63110. The Society offers quarterly bulletins, and has 24 regional chapters. One may be near you.

Plant Sciences Data Center Master Inventory Available



12 Microfiche Cards Equal to 5 Volumes of Computer Generated Print (2,400 pages)

After more than six years in development, at a cost in excess of $1 million, the Plant Sciences Data Center is pleased to announce the availability of its "Master Inventory".

The "Master Inventory" is a unique computer listing of the plant records from 29 North American botanical gardens and arboreta. The listing contains a total of 139,162 records of living plants cultivated in American public gardens, reflecting about 49,000 plant taxa (names); 4,000 plant genera.

More than just an accurate list of plant names, this inventory identifies gardens reporting each plant name, the original *source* and year of acquisition.

Though it should not be considered as a listing of plants or plant materials offered by the gardens represented within the listing, it is an invaluable reference for locating plants and possible commercial sources. This inventory is a *must* for researchers, nurseries, libraries and botantical gardens.

Because of the vast amount of data represented by the inventory, it is available *only* in microfiche form. The microfiche format, while compact and permanent, does require a viewer to reproduce the reduced (42X) data to readable size.

The "Master Inventory", which will be updated and offered annually for $25, is currently available to AHS members at the special introductory price of $18.00 (offer expires 1 August 1976).

Write to: American Horticultural Society, Plant Sciences Data Center, Mount Vernon, Virginia 22121 for additional details or to place an order.

mini-roses

"Chipper" Mini-Rose

George J. Jung
70 Greenwood Street
Wakefield, Mass. 01880

Yellow Doll

White Angel (Quarter Shown for Scale)

Magic Carrousel

Scarlet Gem

Photos: Charles E. Bell, Jr.

MINI-ROSES

Miniature roses are becoming more and more popular because they have so many uses around the home, both inside and outdoors. They are available as tree roses budded on a 10-inch stem or Bonsai trees budded on a 5-inch stem. They come as standard bush types and climbers. They can be used in formal beds of their own, as edging along walks or beds, in the rock garden and in window boxes. They make an attractive pyramid garden (the type used for strawberries) where space is limited.

Roses require sun six or seven hours a day and should be planted in well-drained soil. For a planting mix they like one third humus with soil, bone meal or superphosphate and dehydrated manure. The pH requirement is approximately 6.5.

They should be planted on nine- to twelve-inch centers. Some varieties are very vigorous—growing 15 to 20 inches high and over a foot in diameter. One variety "Chipper" in my garden is three years old. It is 22 inches high, and 14 inches in diameter. It had 170 one-inch flowers on its first flush of bloom and it has repeated constantly.

The plants should not be allowed to dry out. They require watering every day or two in dry weather. This is particularly true of small plants with roots close to the surface. Mulching with buckwheat hulls, leaf mold or other good mulching material is a must during dry periods.

Mini-roses require the same care as regular roses. They get the same diseases including black spot and mildew, and are loved by the red spider. A regular spray program must be maintained. Roses should be sprayed with a fungicide every ten days and with an insecticide when needed. Pruning requirements are similar to standard roses—back to the leaf with five leaflets.

The varieties most highly rated by the American Rose Society are as follows:

REDS
Starina (a fabulous outdoor rose)
Beauty Secret
Scarlet Gem

MAUVE
Lavender Lace

PINKS
Kara (a moss rose)
Judy Fischer
Chipper

BLENDS
Toy Clown
Mary Marshall
Magic Carrousel

WHITES
Cinderella (a favorite indoors and out)
White Angel

YELLOW
Yellow Doll (There are not too many good yellows)

Photo: Charles Marden Fitch

Miniature roses thrive under broad spectrum lamps. 'Magic Carrousel' is a busy mini with white flowers edged deep pink.

Miniature roses are very vigorous and often outgrow their allotted space. Don't be afraid to use pruning shears. Blooms repeat much faster than regular roses—usually around thirty days after pruning.

Feeding should be light and often. More trouble can come from over-feeding than from under-feeding. Use a water-soluble fertilizer and a fish emulsion. Alternate the feedings every two weeks.

Miniature roses require very little winter protection because they are grown on their own roots and are more cold tolerant than hybrid teas or floribundas. Only in the coldest areas do they require protection by covering with pine needles, marsh hay or hilling with soil. Tree roses, however, do require winter protection either by burying or growing indoors.

Miniatures can be grown in the greenhouse, under fluorescent lights or in a sunny window. You can pot your open ground roses if you dig carefully and give them a dormant period before bringing them indoors.

The potted roses require very good drainage and should not be allowed to dry out. The pots should not be placed in water, but should rest on stones with water maintained around the stones to increase humidity. In the New England area, they do not do too well in a sunny window. There are too many days without sufficient sun. But under fluorescent light fixtures they will bloom constantly. Miniature roses require about 2000 foot candles for sixteen hours a day. The light source should be placed six inches above the tops of the plants. I have found the combination of cool-white and a Grow-Lux wide spectrum lamp gives me good results.

Indoors, aphids, red spider mites and white fly are the most common pests. All can be eliminated with one to three sprayings of a good insecticide used every few days. Use a rose dust if mildew or blackspot appear or spray with Benlate if you have more than a few plants. The ideal temperature is 70 to 75 degrees F. during the day and five degrees lower at night, if possible.

Plants when received from a nursery come in 2½-inch or 3-inch pots and should be repotted into 4-, or 5-inch pots. Propagation is done by cuttings. If care is taken, you will have a good blooming plant in a few months.

Ralph Moore of the Sequoia Nurseries, Visalia, California 93277 has hybridized many new varieties including miniature moss roses. They ship by mail order throughout the United States. Other mail order houses with a large assortment of plants are: Nor' East Miniature Roses, Rowley, Mass. 01969 and Mini Roses, P.O. Box 4255, Station A, Dallas, Texas, 75208. These firms are specialists in mini-roses with many varieties on hand, and catalogs on request. Most rose nurseries and garden centers have mini-roses but the choice is limited.

The Wild Vegetables of SouthEast Asia[1]

Ruben L. Villareal & Romeo T. Opena[2]

It is difficult for modern man to realize that the most significant achievements in plant and animal domestications took place before the dawn of recorded history. Of the quarter of a million species of plants known, man has made use of nearly 3,000 species. Perhaps only 150 of them have been extensively cultivated. Only a handful of these economic plants were domesticated during the historical period to serve man's needs, beginning 2,500 to 3,000 years ago. Certainly, very few serve mankind directly. A great number of plants lifted from their wild existence during this period belong to the forage grasses and industrial crops.

In a sense, modern man continues to parallel the pattern of the historical period. Major emphasis is still focused strongly on the domestication of forage crops with little if any attention directed toward the domestication of additional species for food. Interestingly, much of the efforts expended towards the latter has taken the more sophisticated form—that of domesticating genes from the wild forms to improve the cultivated types.

Perhaps mankind may never again attempt to domesticate major food crops unless special circumstances occur, but it is beyond any shadow of doubt that time is quickly changing. Today, we are at the forefront of the struggle for survival. The world population is approaching nearly 4 billion and only faint rays of hope for a stabilized number appear on the horizon. A situation of limited agricultural resources grimly faces us. Environmental stress often plagues the earth's ecosystem further diminishing potential production output. Yields in countries with high production per unit area are leveling off. North America's largest grain reserves of the last few decades have virtually vanished. The latest United Nations estimate reveals that the world grain reserves are precariously low and at best we have approximately a 4-week supply. It is clear that man and his food must be brought into a better equilibrium to abate major famines and international conflicts.

Among food production specialists, it is generally agreed that there are three conventional ways to increase food supply and meet the dietary requirements of the people within any country: (1) increase the amount of land under cultivation; (2) increase output of food crops per unit of cultivated land (includes multiple cropping) and decrease postharvest loss and (3) purchase of food from outside the country. One other avenue which remains unexplored is the full understanding and utilization of wild plants as food.

For those living in the more prosperous temperate regions, it is difficult to appreciate the importance of vegetables in the tropical diet. But in these traditionally destitute countries, meat, milk, eggs, and other animal products are luxury items. In Southeast Asia, traditionally well-known vegetables suffer seasonal fluctuations in supply. In these regions scarcity is a rule rather than exception. People, born with an instinct for

[1] Paper presented at the symposium, "Discovery of Tropical Plants" held at the Horticultural Congresses (ASHS-AHS-AABGA) in Hawaii, September 9-15, 1975.

[2] Respectively, Plant Breeder and Associate Plant Breeder of the Asian Vegetable Research and Development Center, Shanhua, Tainan, Taiwan, Republic of China.

Photo: Murray Keene

survival, have learned to diversify food resources. Herein also lies a slow but gradual recapitulation of man's history—that of domesticating plants to serve his desperate needs.

Definition

In Asia, there are numerous wild and semi-domesticated plants which are used as vegetables in the common diet. These 'vegetables' are not grown commercially but are readily available in the markets after they have been gathered from their wild existence (or even in immediate backyards where they grow unattended). We shall refer to these plants as *unconventional vegetables*. In contrast to this group, by our definition, the *conventional vegetables* are those that are grown commercially and/or raised in home gardens and are popular in many parts of the world, e.g., cabbage, tomato, lettuce, potato, cauliflower, etc. These vegetables were long ago lifted from their wild state and improved for human culinary habits.

Selected Examples and Parts Used

Some of the well-known unconventional vegetables of Southeast Asia and their principal parts used are given in Table 1. As may be noted, the young succulent leaves and tender shoots constitute the essential edible portions in many of these plants. The usage may extend to other organs as well: the flowers, fruits, seeds, stems, and even the entire young plant itself.

Table 1. Some unconventional vegetables and their principal parts used[a]

Common Name	Scientific Name	Part(s) Used
Edible Fern	*Athyrium esculentum*	fiddle heads
Lotus	*Castalia pubescens*	leaves, flowers, stalks & seeds
Wild Celosia	*Celosia argentea*	young plant
Swamp Taro	*Cyrtosperma merkusii*	leaves and stems
Rattan Palm	*Calamus mollis*	growing point or palm cabbage
Moon Flower	*Ipomoea alba*	young shoots
Swamp Cabbage	*Ipomoea acquatica*	young shoot & leaves
Roselle	*Hibiscus sabdariffa*	young leaves & calyx
Fishtail Palm	*Caryota cumingii*	palm cabbage
Kapok	*Ceiba pentandra*	young leaves
Giant Bamboo	*Gigantochloa levis*	bamboo shoot
Madres Cacao	*Gliricidia sepium*	flowers
Ipil-ipil	*Leucaena leouco-cephala*	young leaves & mature seeds
Banana	*Musa sapientum*	flower buds
Sesbania	*Sesbania grandiflora*	young leaves, flowers & pods
Tamarind	*Tamarindus indica*	flowers, young leaves, seeds & pulp of pods
Eel Grass	*Vallesneria gigantea*	leaves and flower stalks
Wild Eggplant	*Solanum ferox*	young fruits
Bitter Melon	*Momordica charantia*	young leaves and fruits
Parkia	*Parkia speciosa*	immature pods and seeds
Eel Grass	*Vallisneria gigantea*	leaves and flower
Horseradish Tree (Malunggay)	*Moringa pterygosperma*	Fruits, flowers and leaves

[a] Adapted from J. E. Knott and J. R. Deanon, Jr. "Vegetable production in Southeast Asia." (1967)

Benefits

Like most conventional vegetables, these wild, unconventional vegetables are rich sources of vitamins and minerals. With reference especially to two major leafy vegetables (cabbage and lettuce), they are substantially even richer in vitamin A. Jute and spineless amaranth contain at least four times as much iron as the highest iron-containing lettuce. Considerable differences are also noted in vitamin C content.

Since little capital is involved in making these unconventional vegetables market commodities, they are relatively inexpensive. Wild vegetables provide a cheap and often more abundant source of vitamins and minerals than normally derived from the conventional vegetables.

The pharmacological and therapeutic potentials of some of these unconventional vegetables must not likewise be overlooked as an added benefit from using them. For instance, kangkong or swamp cabbage has been known and believed to have purgative and antidiarrhetic properties. Sweet potato tips serve as another outstanding example. In a 1972 study conducted by medical researchers of the Manila Central University, it was noted that they possess unique diuretic (increased amount of urine) and saluretic (increased elimination of sodium salt) properties. These medicinal qualities are reported to be good for individuals suffering from high blood pressure.

Apart from being used as vegetables in the diet, some of these unconventional vegetables are better known for other economic uses. Some serve primarily as exquisitely beautiful ornamentals, some as livestock and poultry feeds while others function as live fence posts, windbreaks and shade screens.

Recipes

Following are popular dishes involving a number of the unconventional vegetables and instructions on how to prepare them (Philippine Publishing House, 1971). We have taken the liberty, in certain instances, to suggest substitution of some exotic ingredients with more readily available food items of the temperate countries.

Fried Squash Blossoms

2 cups yellow squash male blossoms
2 eggs, beaten
Margarine or oil
Bread crumbs

Cut off ends of the blossoms. Wash very well and lay them flat. Dip in beaten eggs and then in crumbs and fry in margarine or oil. Bauhinia flowers maybe used instead of squash blossoms.

Tinola

2 beaten eggs
Green papaya or potato cut into small pieces
Onion
Ginger
Garlic
Salt
1 teaspoon vetsin

Sautee garlic, ginger and onion and add the beaten eggs. Cut into pieces. Add enough water to cook the papaya or potato; cook until soft. Season with salt and vetsin. Serve hot.

Adobong Kangkong (Swamp cabbage)

2 bundles of kangkong
3 tablespoons soy sauce
1 teaspoon vetsin
½ teaspoon sugar
1 tablespoon lemon juice
1 clove garlic

Wash and sort kangkong. Sautee the garlic. When brown, add kangkong. When partially cooked, add lemon juice and bring to a boil. Season with soy sauce, salt and vetsin. Sweet potato tips, edible amaranth leaves, and okra may be used instead of kangkong.

Kangkong-Tomato Salad

2 cups kangkong, steamed
2 big tomatoes, sliced
½ cup malunggay leaves, steamed
2 sweet red and green peppers
1 cup shredded singkamas (yam bean) or green papaya
½ cup French dressing

Soak ingredients in half of the French dressing for a few minutes and chill if possible. Arrange on a plate, putting kangkong and malunggay mixture at the center, sweet peppers, singkamas or green papaya and tomatoes alternately. Pour remaining French dressing and serve.

Banana Blossom Kilawin

2 banana blossoms
1 cup fried tokwa (beancurd) cubes
1 tablespoon crushed garlic
Lemon juice, salt
1 teaspoon vetsin
1 onion, sliced
4 tablespoons oil
2 cups water

Remove tough covering of the blossom. Slice thin, crosswise. Squeeze it with salt and then rinse. Mix tokwa, sliced onion and lemon juice. Sautee garlic and add the tokwa. Add water, salt, vetsin, pepper and continue cooking. Then add the blossom. Turn over constantly till tender. Serve hot.

Banana Blossom Adobo

Remove tough cover of banana blossom. Chop fine. Squeeze with salt to remove puckery taste, and wash. Sautee garlic till brown, add water, lemon juice and salt. Bring to a boil, and drop the chopped banana blossom. Add vetsin and 2 tablespoons oil. Cook till tender and juice is almost gone.

Sauteed Mungbean

2 cups boiled mungbean
3 tablespoons oil
4 tablespoons garlic
4 tablespoons onions, chopped
½ cup tomatoes
1 cup malunggay leaves
Salt to taste
1 teaspoon vetsin

Boil the mungbean. When soft, remove from pan and set aside. Sautee the garlic until light brown, add the onions, tomatoes and leaves, then add the boiled mungbean. Add 1 cup of water. Season with salt and vetsin. Let it boil till done. Serve hot. Squash tender tips, edible amaranth leaves, ampalaya leaves (bitter melon) may be used instead of malunggay leaves.

Continued on page 29

New Lilies are Garden Plants

Crimson Beauty

Moonlight

While browsing through Bailey's *The Standard Cyclopedia of Horticulture*, a trick useful for passing time in a library, I happened on the entry *Lilium*. The author filled several paragraphs wondering why such virtuous plants as lilies are (or were) absent from so many American gardens. Although noting that some of the species lilies are difficult, the author wrote that "Their culture has been entirely too much neglected in this country, but we are confident that, as their merits become better known, they will be much more largely grown." My copy of this basic horticultural reference was copyrighted in 1928.

The author of this prophesy, whether L. H. Bailey or not, would be gratified with the popularity of lilies today. Over the past 20 years lilies have moved from the sanctuary of the specialist into the everyday garden. An indication of this change is the larger, more spectacular section in mail-order catalogs devoted each year to lilies. Was our prophet right? Is the increased popularity of lilies today due to a greater appreciation of their merits? I think not.

Fifty years ago the lilies being grown in the gardens of America were largely species. True, the seeds or bulbs often came from horticultural or botanic gardens, but the plants were little different than those collected from the wild. Wild plants make good subjects for those gardening where the plants grow naturally. Change the soil type, the pattern of rainfall, the timing of the seasons, or the temperature, and you have trouble. Why? Because the growing conditions (together, the environment) play a major role in making a species.

In the development of a species, a group of plants becomes separated from related plants and, over long periods of time, some repeatedly adapt to the environmental conditions they experience. The best individuals of each generation live to produce the next generation. Plants unable to cope with the growing conditions either die, are barren, or produce few seeds. These unfit plants and the genetic blueprints they carry gradually disappear from the population. With succeeding generations, the remaining plants are more adapted to the particular set of environmental conditions and less able to survive in other conditions.

Not Wildflowers

Pete Ascher
Associate Professor of Horticulture
University of Minnesota,
St. Paul, MN 55108

Pink Glory

Golden Splendor

For example, consider a group of lilies living in sandy, acid soil on a slope. Only the plants able to grow normally in fast draining, acid soil and capable of withstanding some droughty periods will produce seeds. Lily plants bearing genetic blueprints specifying structures or growth patterns requiring a steady water supply, or intolerant of acid soil will die. In each generation, the lilies possessing the genetic information to grow best under these conditions will produce the most seeds. As long as the environment remains the same, each generation will be better at growing and reproducing in sandy, acid soil on a slope.

Fine, you say, the lilies grow well in sandy, acid soil on a slope, but why not in my garden as well? Because in the process of selecting, the environment not only saves the genetic blueprints conferring the ability to grow well under the particular conditions, but also removes all other blueprints. Therefore, a well developed species is adapted to its native growing conditions but has lost the genetic information necessary to grow well under other conditions. To cultivate the species, you must recreate the natural conditions.

The genus *Lilium* is composed of well defined species. Many are restricted to narrow geographic areas and others, of wider geographic distribution, are adapted to narrow environmental conditions. For example, *L. grayii*, a tiny spotted lily, is native to a very restricted area in Virginia while *L. superbum*, a turkscap lily native to the northeastern quarter of North America, grows in well-drained hummocks at the edge of swamps, moist woods, or in wet meadows. The combination of well-drained and swamp results in a rather narrow growing area. Although you can grow these lilies in your garden, it takes effort to make them persist and do well.

Some lilies, native to sparse, lean soils literally grow to death in the fertility of the garden. *L. auratum*, the gold-band lily, is an example. The first year from planting, bulbs of the gold-band lily often produce a large plant bearing several huge, flat or bowl-shaped white flowers studded with pink or red spots, each petal banded with gold down the center. Seeing this, the gardener rejoices and begins imagining what next year will bring. Usually the next year brings

nothing, or at best a few grass-like leaves. The gold-band lily grows so luxuriant the first year that its succulent tissue falls prey to any one of several common diseases.

In my mind, a major reason for past neglect of lilies by American gardeners stemmed from the fact that all of the exciting ones were species and therefore difficult to grow. Easy lilies, like the tiger lily, exhibited little variation, thus, seeing one you had seen them all. Surely, gardeners of past generations were well aware of the merits of lilies. However, the available lilies were wild species and not suitable, permanent garden subjects.

New lilies are not wild species. They are cultivated plants—new species—if you will, selected for their ability to perform in the garden environment. Plant breeders created the new lilies by reversing the process of species formation.

When two or more wild species are hybridized, the genetic factors selected by the growing conditions for each of the parent species are mixed. This mixing actually reverses the development of a species so that the hybrid population is more like the primitive group of plants which existed before the species came into being. With the genetic factors necessary for survival in several environments stirred together in one pot, a plant breeder can select individuals for growing conditions alien to those of the parents. Crossing two interspecific hybrids, that is, combining four species of diverse environmental requirements into one hybrid, allows the breeder to select recombinations of genetic blueprints suitable for growth in an even wider range of environments. The more species added to a hybrid, the more variations possible.

Many newer lilies available today combine the attributes of more than five different lily species. Interspecific hybridization has provided the mixing pot with plenty of variation. Gardeners or commercial breeders working in garden situations select from this variation. Therefore, the development of new lilies parallels the development of a species except that the selecting environment is the North American garden rather than a spot in the wild. The result is lilies that not only survive in the garden but actually become better every year.

The potential for new combinations in the interspecific hybrids is true for characters other than those involving growth and survival. An obvious one, as apparent in hybrid lilies as their garden vigor, is the variation in flower color, shape, and position. You may select flowers from white to nearly black, sharp colors or pastels, blends and even bi-tones; lilies with spots or lilies without. Flowers may be recurved like turbans, flat like plates, bowl-shaped, slender trumpets, and anything in between. They may point up, out, or down.

Hybrid lilies also vary in size. Plants may be as short as two feet or as tall as seven and flowers may vary from a dainty diameter of two inches to a dinner-plate nine. However, one thing the plant breeders have not been able to change is the lily's demand for good drainage. All lilies require well drained soil. If your garden abounds with heavy soil, clay or silt, your lilies will grow best in raised beds of modified soil. Raise the bed about 6 inches and amend the soil with plenty of humus, either peat moss or compost, and coarse sand or a sand substitute. Lilies also need a cold period. Southern gardeners often lift the bulbs at the end of the growing season, pack them in slightly moist peat moss, and refrigerate them for two to three months.

Although most lilies grow best in full sun, some of the pastel hybrids attain better color in light shade. Hybrid lilies require no more than routine garden care including an occasional spraying for insect and fungus diseases. Some of the new lilies are remarkably resistant to most lily diseases. However, one disease still causing problems is virus. Once a lily has virus, like any other virus-infected plant, it should be destroyed. To keep virus problems to a minimum, control insect populations, especially aphids and leafhoppers, and do not plant lilies near tulips or tiger lilies, as both are carriers.

The accompanying pictures illustrate some of the major groups of hybrid lilies. Many variations occur within each group so check your supplier. Should you become addicted to growing lilies, you will find added challenge in the many beautiful species. But, unless you are an expert, avoid lily species and choose hybrids, for they are garden plants.

Sunkissed

Continued from page 25

Asian Vegetables

Native Pickles

1 cup green papaya, sliced in strips
1 green pepper, sliced in strips
1 small carrot, sliced in strips
1 small ginger, cut in strips
1 bunch native onion, cut 2 inches long
2 cups pineapple vinegar
1 cup sugar
Salt to taste

Blanch all vegetables. Drain and put in a bowl. In a pan combine vinegar, sugar, salt, ginger. Boil, then pour over vegetables and cool. Put in a jar, and store until it is needed.

Future Outlook

Although many unconventional vegetables have persisted in the Asian diet for generations, they have been pathetically neglected in most research undertakings. Most remain in the wild or are only semi-domesticated. This contributes to the relegation of their importance to a minor rank in any research priority analysis.

The potential of these unconventional vegetables as a human dietary supplement must be given more consideration. Their continuing existence in the Asian diet will never be ephemeral. Investigations along the following areas should be undertaken:

1. Evaluation of palatability, tenderness, and other eating quality parameters that are normally undertaken for the more important conventional vegetables. Consumption of sweet potato tips serves as a good example. It is a popular vegetable in the Philippines, Vietnam, and some parts of Indonesia and Thailand, but little effort has been exerted in determining the best possible variety for the consumer's palate.

2. The quality of the nutritive elements of these unconventional vegetables must be determined. The amino acid balance especially in some of the potentially protein-rich vegetables deserves major attention. There is a definite possibility that some of the protein-rich unconventional vegetables may provide certain amino acids deficient in many of our basic staple grains.

3. Complete bioassay for some chemical constituents and other unknown principles that may be harmful or in similar token, beneficial to human health must also be determined. Although no known or reported cases of poisoning due to ingestion may be cited, such possibility from excess intake alone must not be ignored. For example, it has been reported that the addition of 20-30% ipil-ipil *(Leucaena leoucocephala)* leaf meal in the chicken diet can suppress maturation of the ovaries and therefore could serve as a useful dietary constituent for controlling ovulation. In some parts of Indonesia, Thailand, and the Philippines, the seeds and leaves of this tree legume serve as a popular vegetable. Whether such effect could be found in human beings with relatively excess intake of this unconventional vegetable is not yet known. Of course, such side effects may or may not be beneficial depending upon how one looks at the demographic problem.

4. Productivity evaluation and identification of other key elements involved in raising unconventional vegetables must be undertaken. It will be interesting to see how they compare with the more popular conventional vegetables in terms of fresh and dry matter production as well as the basic nutrient yield.

Conclusion

Vegetables whether they are conventional or unconventional do not constitute a prime panacea to combat malnutrition among millions of Southeast Asians. However, with more research and the proper channeling of research information to the farmer and consumer, we believe the threat of malnutrition is not so insurmountable.

Clematis

Marinus Vander Pol
Nurseryman, Fairhaven, MA

The conspicuous flowering Clematis has been an interest of mine for over sixty years. As a boy in Holland, I grafted many of the large flowering hybrids on selected roots of *Clematis viticella*. At that time, the lowlands of Holland were the concentrated propagating center for ornamental plants in Europe. In fact, interest in Clematis there probably goes back longer than the one hundred years it has been popular in America.

About twenty species are native to the United States, with many additional species native to the alpine countries of Europe and the Orient. On a recent trip to Holland I observed propagating beds with hundreds of thousands of rooted cuttings and one-year-old seedlings, deftly planted in long rows, each plant attached to its own four foot stake.

Because of the great interest in Clematis, both in Europe and in the United States, many excellent ornamental varieties have been produced. The most popular groups in America are hybrids (as well as some species) of *C. lanuginosa, C. Jackmanii, C. viticella, C. florida* and especially *C. patens*. All of these are large flowering hybrids of the widest range of color, many capable of blooming a second and even a third time if handled properly. Such bloom is produced by judicious pruning. One starts as early as new growth reaches 2-2½ feet in height, by pinching off less than half the number of growing tips on the elongating vines.

This causes a second crop of flowers to be produced three to four weeks after the first bloom has gone by. As one works with these

Photo: Murray Keene

Clematis

interesting plants, one gains experience in how to handle them properly. In the first place, diseased plants should be eliminated at once. Shears and hands should be scrupulously clean in order not to spread disease. No water should be sprayed on flowers or foliage, as this may also spread disease. Plants should be watered at the ground level only.

Insect prevention is perhaps best accomplished with systemics such as tobacco dust and nicotine compounds. A heavy mulch of an organic material like sugar cane, salt hay or peat moss keeps the soil cool. This is most helpful to the plants. Their growth habit does not provide sufficient shade for their own root systems.

Clematis is an elite thoroughbred in the kingdom of plants. If well-drained loam soil is amplified with phosphate, lime, iron, boron and other trace elements, it has been my experience that excellent plants will result.

Clematis hybrids are divided into different "groups", that is, groups of plants associated with the principal species involved. For instance, the Montana group consists of plants with white, pink and reddish colored flowers, the most striking of which is the variety 'Tetrarosa'. This group is sometimes referred to as the dogwood-flowered clematis. It is sweetly scented and blooms only once each year. It is native of southern Europe and can grow 15-20 feet in height.

English growers have shown great interest in the Texensis group, and I have seen a number of excellent hybrids in South Mundheime. *Clematis texensis* itself is a strong growing species, with small, deep red, bell-shaped flowers.

The most beautiful of this group is the variety 'Dutchess of Albany' with pink, lily-type flowers in great profusion over a long period of bloom. It is semi-herbaceous, dies down to the ground in winter but in ten weeks' growing time it can produce 10-12 foot vines with many flowers.

Another very interesting group of the smaller flowering clematis is the *C. alpina* hybrids. Also, *C. macropetala* is outstanding with its pale azure blue flowers that may be 2½-4" in diameter. *Clematis heracleafolia davidiana* is very popular in mass effects in flowerbeds. In-

dividual plants are three feet high, pyramidal in shape. In late June and July they produce hyacinth blue flowers that are very fragrant. These, too, are produced on the new growth each year.

Closely related is the hybrid 'Mrs. Robert Bryden' with soft, blue, inch-wide flowers, produced in great abundance and shaped like a cross. It can easily be trained on north walls or fences to shield a space up to six feet wide and six feet high. Both varieties of *C. heracleafolia* are extremely coarse in foliage and can be used as ground covers.

Of all clematis, the easiest to grow, and widely popular, is the Sweet Autumn Clematis, *C. paniculata*. It is widely grown in New England where it adapts to many growing conditions. It is often considered the most rewarding of all, growing 15-20 feet tall. It produces thousands upon thousands of small, pure white, fragrant flowers in September, and can be found growing vigorously in places where other clematis have failed.

Some clematis species are grown as ornamental plants. In this group I include *C. diversifolia, C. durandii, C. recta, C. crispa, C. flammula, C. orientalis* and *C. virginiana*. *C. armandii* is the only semi-hardy, strong growing, free flowering, fragrant evergreen clematis. It does well from Washington, D.C. southward. *Clematis tangutica* is one of the best, if not the best, of the yellow-flowered clematis. I have seen (in England) a plant of tremendous proportions, 35 feet tall, and in July and August it was covered with thousands of yellow, bell-shaped flowers, three inches in size. This was truly a spectacle, and when the seed clusters are fully developed in October the display is almost as spectacular as when it is in bloom. No other clematis has provided such a display.

Sometimes certain varieties of clematis are grown for their cut flowers. 'Prins Hendrick' is one of these, with an outstanding superior blue flower, which in the summer in Holland can bring as much as $1.00 per bloom. Greenhouse-grown blossoms on three foot stems have brought as much as $3.00 per bloom in the off-season. 'White Majesty' is perhaps the finest white of all. 'William Kennett', a deep lavender blue, and a few others are used in the cut flower business.

America has contributed its share of introductions complementing the English effort. Several Japanese clematis growers have introduced some new varieties, but Holland, I believe, has produced the finest without question.

It is unfortunate that some of the clematis offered in garden centers were grown in two and a quarter inch pots, packaged, shipped in March but maybe not made available until June. Such plants have a hard time getting off to a good start. The same plant in a six inch pot, with soil about the roots, shipped in April, has a much better chance to grow and give the owner satisfaction.

Clematis make excellent terrace plants, grown in tubs. The tub should be at least 12 inches in diameter and 12 to 18 inches deep. Remember they like good drainage, so there should be sizeable holes in the bottom of the tub. I have found that a good potting mixture is 50% soil, 25% peat moss (since all clematis like to grow in a medium that is slightly acid), and 25% perlite or vermiculite. It should be remembered that to each ten quart pail of soil should be added one cup of slow release fertilizer and a half cup of bone meal. Two to three year old plants are the best to use in tubs, they are quickly off to a good start.

A proper planting hole for clematis is 2 feet deep and 12 inches wide. The soil should have some perlite (or vermiculite) and peat moss mixed with it. One should be extremely careful not to twist or break the stem base where the roots are attached. Most important of all is to protect this area from direct sun, that is the bottom three inches of the stem after it is planted. A mulch of sugar cane or hay, or a shaded shelter of shingles—anything to keep out direct hot sunshine, for it is this area that most amateurs neglect. Given proper shade here, a moderate amount of moisture and the proper soil, the plants should thrive. If they can be brought through the first 90 days satisfactorily, the chances are they are on their way to becoming colorful ornamentals.

Finally, since most of them are climbing plants, they should be given something to attach themselves to. They do not twine, but climb by attaching their leaf peticles around some means of support, like a thin trellis, bamboo stake or even a #16 plastic coated single strand electrician's wire. The support that you select should be kept at least an inch from any wall. If a lattice is used, the openings should be no more than 9 inches wide.

Some of the other good garden clematis are:

Lanuginosa Group: 'Mrs. Cholmondeley' blue, 'Elsa Spath' blue with a dark center, 'Lord Neville' plum pudding purple flowers with ruffled edges, 'King Edward VII' royal violet petals with crimson bar, 'Pride of Fairport' medium blue double flowers, 'Pink Chiffon' deep shell pink, and 'Ramona' blue.

Jackmanii Group: 'Comtesse de Bouchard' pink, *C. Jackmanii*, most famous of all with deep purple flowers, 'Gypsy Queen' rich velvet, 'Mrs. George Jackman' white.

Viticella Group: 'Ernest Markham' red, 'Huldine' white, 'Ville de Lyon' carmine red.

Patens Group: 'Nelly Moser' pink, 'Lasurstern' purplish blue.

Florida Group: 'Duchess of Edinburgh' double white, 'Belle of Woking' silver-lavender and double.

What to do with that bank

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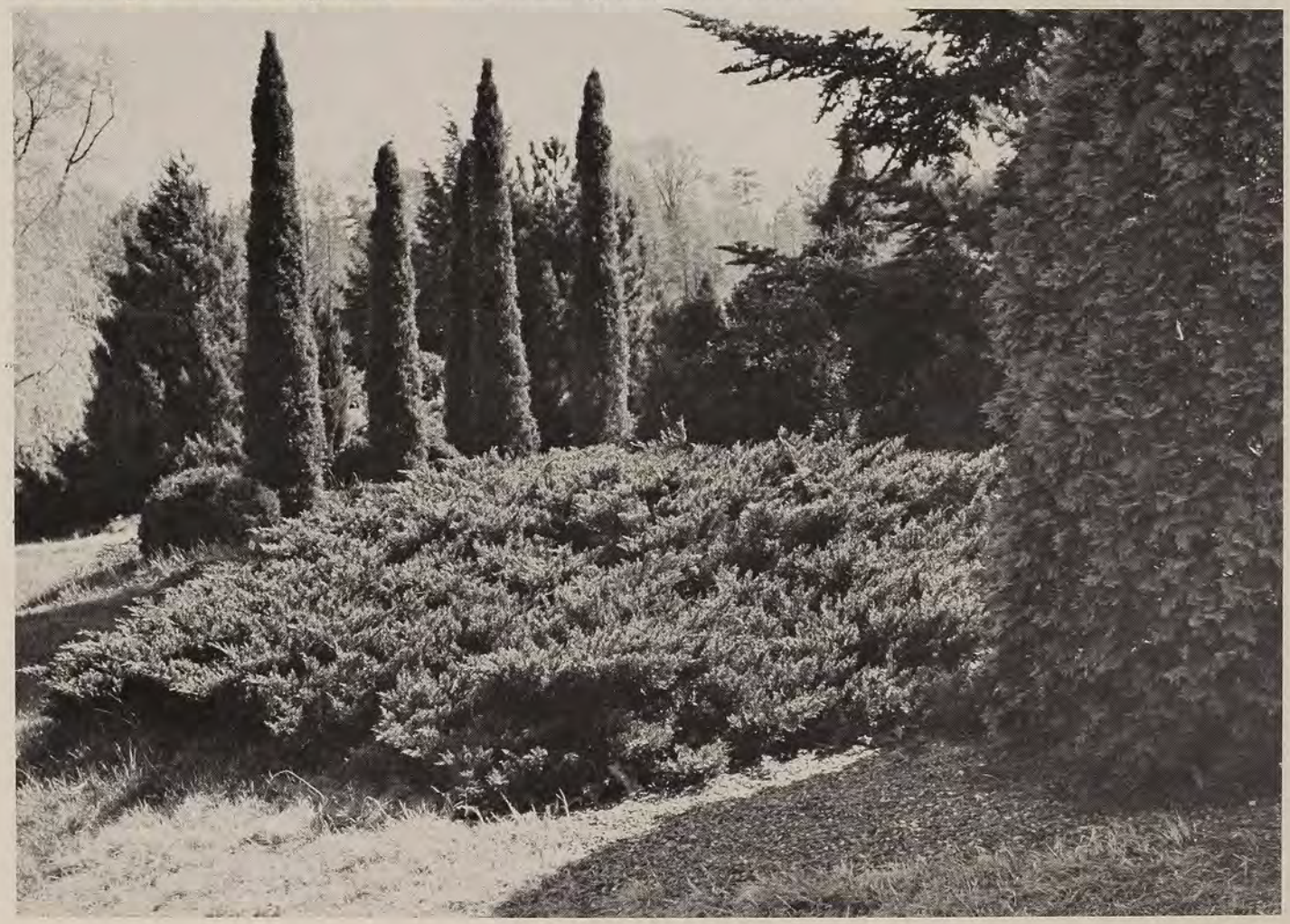
A bank planting in the garden or near the home can be an asset. On the other hand it can also be a disreputable part of the home landscape if it is not planted properly and is always grown up with weeds and tall grass that just can't be cut. What to do?

There are several methods of handling the situation, depending on the steepness of gradient, nearness to the house and whether you really like a challenge or just want to plant the thing and forget it. Ever thought of a walled garden? This needs a lot of labor and know how, but the result is delightful, if executed properly. If the wall is not too high, planting trailing plants just inside the back edge so that they will hang over the wall, can result in a beautiful addition to the garden. Such plants as alyssum, myrtle, sedums, ivies, bearberry, thyme, aubretia, dianthus and similar plants create a thing of beauty throughout the growing season.

If the wall is not over three feet tall, one might try one's hand at planting certain small plants in the rock crevices themselves. Sedums and various types of hen and chickens can do well in such places, but the rocks in the wall should be laid in such a manner that they slant slightly backwards towards the bank. The pockets of soil must be large enough to sustain the plants properly.

If the bank is in the shade, ferns, hostas, pachysandra, myrtle, English ivy, lily-of-the-valley and ajuga are some of the plants that might be selected.

There is always the possibility of making a rock garden, especially if the rocks are already there. This is not easily accomplished, for it is not just a matter of throwing in a few rocks and planting about them. Rock gardens are ideally suited for placing on banks, and there are many, many plants that can be used in such a planting. But—and it is a big one, there is



maintenance to think about, and unless it is weeded properly, mulched occasionally, and some of the plants replaced when they die out, it, too, can become an unsightly problem.

When there is a bank problem, many of us are looking for an easy solution, one that doesn't create work. If the gradient is low enough, possibly grass can be planted and mowed without undue exercise in keeping the mower (and its operator) upright. On the other hand if it is steep, or if it has a rugged outcropping of rocks, one should investigate the many kinds of plants that could be used to cover the bank.

If there are rocks, especially large ones, feature them if at all possible. If they are very large, try planting a clinging vine like English ivy, or one of the several small leaved euonymus at the base, not to cover completely, but to climb up the rock surface and show off interesting foliage. It might be possible to plant some bearberry at the top of the rock, and let the graceful strands of evergreen foliage hang over the rock surface for the same purpose.

The first group of plants to think about in covering the soil itself would be vines, for these grow the fastest. But don't get over enthusiastic like many people in the South and plant kudzu vine *(Pueraria lobata)*. This has been known to elongate 60 feet in one growing season—truly exceptional, but it is a vicious spreader and can quickly become a pest, climbing trees, strangling every type of upright growth within its reach.

Select a vine with ornamental qualities of good foliage, flower or fruit, one that can be kept within bounds when necessary. English ivy, climbing hydrangea, Virginia creeper, myrtle or even the sweet clematis are some suggestions. Bittersweet has been used, but it, too, can soon grow out of control and create an unkempt mass of woody stems.

The evergreen *Euonymus fortunei* 'Colorata' or its close relative *E. fortunei* 'vegeta' are also possibilities. The semi-evergreen *Lonicera henryi* also has merit. Very similar in growth habit to Hall's honeysuckle, it is not as vigorous, nor does it become such a vicious pest as Hall's. Driving through parts of Virginia, Maryland and Pennsylvania where Hall's has become a vicious pest everywhere, it is hard to realize that it was not even in the United States until slightly before 1860 when it was first brought here from Japan. True, the flowers are fragrant, but planted in a well kept garden the branches root wherever they touch moist soil, and long underground stems are being continually sent out from the base of the plants to encroach on other garden space. Henry's honeysuckle on the other hand is not such a rampant grower and can be kept within bounds.

The five leaf akebia *(Akebia quinata)* is another vigorous growing semi-evergreen vine to consider. Trained on a trellis it quickly grows to the top of a three-story house. Planted on a bank it not only increases as much as three to fifteen feet a year, but it also sends out long, running underground shoots that can quickly get out of hand, especially if a woods is adjacent and a "few" runners are allowed to take off forthwith. Such vines are quick growing all right, but unless the garden is to be overpowered with them they had best be used only in situations where they can be properly controlled.

A really good vine to use for bank planting, is the memorial rose *(Rosa wichuraiana)* brought to America in 1891 by the Arnold Arboretum of Boston, and one of the parents of the modern rambler. This has shining, semi-evergreen leaves (even as far north as Boston), fragrant white flowers at the end of the summer and dull red fruits. It spreads flat on the ground and wherever the shoots touch moist soil, they root. This tendency can be augmented by throwing a shovel full of soil over the stems here and there when the plants begin to elongate. This, of course, aids materially in keeping down erosion on any bank, for the more roots, the less the erosion.

The evergreen bearberry *(Arctostaphylos uva-ursi)* is a native ground cover from coast to coast across the northern United States, but unfortunately it is a very hard plant to transplant. It should be purchased when grown by the nursery in pots, although some nurserymen, where the plant grows naturally in quantity, have made a practice of transplanting it in sods. It might best be considered only for growing in sandy soil situations, in the full sun or the shade. Its small, shining evergreen leaves and its bright red berries in the fall are certainly an asset but one should restrict it to small areas for there it is easiest to get started. Single plants might be spaced a foot or eighteen inches apart at planting time.

Myrtle is always good for small banks or humps of ground and its bright purplish, white or pink flowers (depending on variety) are colorful in the spring. Its semi-evergreen leaves are excellent in the late fall and winter. Normally it grows in clumps, and can be started in small bunches eighteen inches apart. As it increases, its shoots also readily root in moist soil, so it also is an excellent plant for erosion control.

As one drives along Pennsylvania's highways in the summer, one sees many extremely steep cuts that are thoroughly covered with crown vetch *(Coronilla varia)*. A variety that has been widely advertised, and is now probably grown by the millions, is 'Penngift' with white to pink, pea-like flowers that start to open in June and continue throughout the summer and into the fall until the plants are cut down by frost. This is a perennial, especially for poor soil areas. It spreads rapidly, and again, in gardens with good soil it quickly

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PARSLEY, ITS LIFE AND TIMES

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Contemplate this scene, if you will. Hercules stands in triumph after one more success. He stands handsome, smug, and smiling as the cheering crowds mill raucously at his feet. On his head is the symbol of his success—a luxuriant wreath of parsley. Parsley? Just so—according to the ancient Greeks. We know that the winners at the Nemean Games of the Panhellenic Games of Greece were given wreaths of parsley to signify their victories.

When another famous general requested his triumphant wreath be made of parsley like the legendary one of Hercules, his troops rebelled; they preferred one of pine needles. Parsley at least would have been more comfortable.

When Hercules wore his triumphal wreath of parsley, he may have had an ulterior motive. Parsley has long had a reputation for being helpful for the headache. Parsley may have been what Hercules did for a headache—what with all that cheering and such. Or he may have had still another even more ulterior motive—which we'll look into later.

The medicinal uses of parsley have been many and varied. In 164 A. D. the great Galen noted that parsley was "sweet and grateful to the stomach." In 1525, Bancke's Herbal states that "It comforteth the heart and the stomach." In 1653, Culpeper states that it was of service to children and "upgrown people" who were bothered with "wind in the stomach." Gerard in his herbal goes even further and calls parsley effective for "torments of the guts."

Of all the uses of parsley mentioned in the early English herbals, the most widely accepted use was as a soother of stomachs. This has had a long history of good results, both for children and "upgrown" types. Medicinal parsley tea is made very simply by boiling the leaves a little and allowing them to steep in hot water. The resulting light green liquid is then sweetened and sipped slowly. If something not unduly dire is causing your torment, parsley tea is a pleasant way to sooth your system.

Parsley tea also has a very long history as a soother if not a cure for rheumatism. Would it were true. Parsley is, however, so rich in vitamins—A (as much as cod liver oil), B1, B2, niacin, and C (as much as three times more than oranges), as well as minerals, calcium and iron—that it will help to make anyone feel a little better. The high iron content also helps relieve anemia, and so accounts for parsley's reputation against "the lethergy." The Bancke's Herbal reference to comfort of the heart probably refers to the use of tea as a diuretic in cases of dropsy arising with heart trouble. Parsley is still used as a medicinal herb for stimulating the kidneys.

The high chlorophyll content of the leaves makes parsley an excellent natural breath sweetener. It is recommended by some vets as a cure for "doggy halitosis." The trick works as well with human beings. The Romans realized this, but they relied a little too heavily

on it. They thought parsley could remove intoxication. It can't. It just removes some of the evidence.

The use of parsley in medicines for the eye may have had an empirical beginning when someone made use of the element in parsley we now call Vitamin A, or carotine. This vitamin is necessary for eye health, especially in night vision. Many of these eye medicines were applied externally and probably made more use of the cooling properties of the leaves.

Vitamin A is valuable applied externally as well, however. You can find parsley in recipes for skin creams from Elizabethan England and Colonial America. Now usually extracted from other sources, Vitamin A still is an important ingredient in many soothing lotions—from "enriched" emollients for ladies' faces to comforting ointments for baby bottoms.

Not all the early medicinal uses of parsley were solidly grounded and successful. It was used to revive sick fish—with questionable success. It was considered an aphrodisiac as well. To serve as an aphrodisiac, parsley was usually given as parsley wine. There is some doubt as to whether the parsley or the wine was the active ingredient. Records of its success are somewhat vague.

In some parts of England, the parsley bed in the garden served in lieu of cabbage leaves and storks in evasive fables for children. Witness this from a poem from the family records of the Earls of Marchmont. It was written by a young boy on his older brother's birthday.

"This day from parsley-bed, I'm sure,
Was dug my elder brother, Moore,
Had Papa dug me up before him,
So many now would not adore him."

Baldness was once thought to be cured by parsley. Baldness may be hidden but not cured by this versatile plant. You have to be willing to wear it on your head—as Hercules did. There were those in the noisy crowd who gossiped that Hercules had chosen parsley because it could be counted on to cover a little premature balding.

Consider the good use you can make of parsley. Pliny comments in his discussions of Roman cuisine that no sauce or salad was served without parsley. In the 16th Century, John Parkinson mentions parsley as being served boiled, roasted, fried, and stewed—as well as "being green it serveth to lay upon sundry meates." Too many cooks today are still just laying it upon sundry meates—and neglecting its many other possibilities. Henry VIII, famous for his gourmandizing, among other things, was served parsley in a sauce much like our parsley-butter sauce. The modern recipe is simple—being mostly fresh parsley and butter. For some forsaken reason, this is called Maître D'Hotel Butter—probably to conceal the ease with which it is made.

½ C butter melted
½ t salt
2 T chopped parsley
1 T fresh lemon juice.

Combine the first three over gentle heat. Slowly add the lemon juice, stirring gently. Serve over a wide variety of meats and vegetables. Unless you have one of the special choppers made for parsley, the easiest way by far to render it into small pieces is with the kitchen scissors. The important thing, as always with simple but elegant cuisine, is that the few ingredients be absolutely fresh. If they are, the preparation is simplicity itself, and the results delightful.

Today, parsley is not credited with the culinary honor it deserves. Probably this is true because to most people parsley is neither fish nor fowl—neither herb nor vegetable. The taste is stronger than we are used to in our vegetables, although certainly no more so than kale or collards. On the other hand, it often takes a great deal of it to flavor a stew or sauce. The answer is obvious and simple. Go ahead and use a great deal of it. Parsley is best used with a generous hand.

If you are not yet at ease with the delights of cooking with herbs, parsley is an excellent beginner's herb. It is a casual, comfortable herb you can rely on. It is also the basis for many extremely sophisticated and subtle herbal concoctions. The French Fines Herbes is only one of the simpler of these more sophisticated combinations. Sauce Bearnaise is another elegant combination you might want to try. The point is this—simple or sophisticated—many dishes gain mightily by the thoughtful and generous addition of parsley.

If you would like to try the ancient parsley tea, the recipe is extremely simple. Wash a handful of parsley and put it in a pot. I use a two-cup Pyrex measuring cup. Pour boiling water over the leaves and let them steep until the tea is just pleasantly warm. Pour off a cupful and add sugar or honey to your taste. Enjoy. Herb teas can be very strong, even if they show little color—so sip first. The stronger the tea, the better for you, of course, but there are no hard-and-fast rules—just brew it to your pleasure.

There is a way you can cook parsley that I've never tried. You can dip it in a light batter and fry it. This is a very old recipe, and has been very popular from time to time. There is an old saying that goes: "Fried parsley will bring a man to his saddle and a woman to her grave." That has always put me off serving it, somehow.

The best way to eat parsley is absolutely fresh. The best way is also the easiest. Pick it and eat it. To do this best, grow your own. Parsley has been grown by so many for so long that no one can really say where it grew wild. It is

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'Sea Foam' A Breakthrough in Roses

R. J. Hutton The Conard-Pyle Co. West Grove, Pa. 19390

"I have misjudged two American bred roses, one was 'Angel Face' and the other 'Sea Foam'." Thus spoke Alain Meilland as we sat on the terrace of his home overlooking the vast greenhouses of his rose breeding establishment. Discussing roses with Alain is one of my favorite and most stimulating experiences. All the more so on this occasion with two 'Sea Foam' rose plants budded as trees off to the side of his terrace.

Alain continued, " 'Angel Face' was a color break and is still the most distinctive mauve. 'Sea Foam' is one of those yet to be appreciated genetic breakthroughs that is as important to the breeder as it is to all who plant and enjoy outdoor roses." I interrupted Alain to ask why he used the term "outdoor" when he is most accustomed to using "garden" roses. His answer, "Because 'Sea Foam' is so much more than a garden rose. It belongs most anywhere in the landscape. It doesn't lose its leaves to blackspot and it laughs at mildew; this alone gives it hardiness seldom seen in modern roses." All of this was not news to me, but when one hybridizer admires the work of another it is always interesting to find out why.

'Sea Foam' first appeared in our fields at West Grove as CP 6333 when we received budwood from Ernest Schwartz of Kingsville, Maryland. The buds were received July 17, 1957 and the plants grew and bloomed for the first time in July 1958. As a test rose CP 6333 did not stand up and shout, "Here I am!" At the same time it was one of those novelty cultivars which made itself known from the very beginning, but not in the custom-

Sea Foam

Photo: Star Roses

ary way of an 'Angel Face', 'Mister Lincoln' or a 'Sonia'. With most roses it is the flower which draws your eye—color, form, size and occasionally all three. 'Sea Foam' caught your eye with rich green foliage, almost like holly, covering long arching canes tipped with an inflorescence of fully double, pure white blooms. When we see such quantities of first year bloom on a plant of semi-prostrate habit we quickly take notice. In southeastern Pennsylvania blackspot is always a problem, so when CP 6333 still had all its foliage in September there was cautious excitement among us.

Eighteen years later this new cultivar which was named 'Sea Foam' and was issued U.S. Plant Patent 2463 is still a distinctive rose novelty and an unusual plant for a myriad of landscape uses. My own first uses of 'Sea Foam' were in the sand less than 100 yards from the ocean at Rehoboth Beach, Delaware. We wanted plantings which were as carefree as possible; among them were several juniper, tamarix, sophora, ilex, crape myrtle and 'Sea Foam' for all summer color. One plant caught drifting sand, another detoured boys and dogs, and a tree 'Sea Foam' became an eye-catching cascade of green and white.

Depending on conditions and treatment 'Sea Foam' grows two to three, at most four feet high with arching canes sometimes reaching six to seven feet. A single plant covering this amount of space can form an impenetrable barrier with wide application for control of animals, pedestrians or vehicular traffic. Several departments of highways have used 'Sea Foam'' as a bank cover to add interest and color accent in plantings. It is ideally suited to highway rest areas for control of foot traffic and to catch blowing litter that soon disappears under the lush foliage.

Used as a broad low hedge around parking areas, entrances and driveways of shopping centers, and landscaped industrial sites 'Sea Foam' fits perfectly. It can be used as a single specimen among other plants to add interest of texture and form in all seasons.

There are many uses for 'Sea Foam' in the home landscape. With tremendous effect it has use on country estate or city lot. I have seen it as a pillar or climber where controlled growth is necessary. Weeping over a terrace wall, nestled in a sunny corner, even in some foundation plantings 'Sea Foam' has value and fills a need. In shrub borders or as a specimen in open areas the dense foliage topped with mounds of white is almost perfect. In constant bloom there is nothing else to give so much and ask so little.

As a carefree all-summer show, I do not know another plant which can do so much. Add to this its hardiness to winter cold and wind, resistance to summer sun, drouth or gully-washing storms, you have a shrub for any of the fifty states and most of Canada.

'Sea Foam' was not an accident, it was produced by Ernest Schwartz after some very careful planning. Its parentage is 'White Dawn' x 'Pinocchio', which is at first glance not particularly impressive. Ernie's first crosses were good but not what he hoped for—they lacked the "quality" that sets the truly distinctive roses apart from all others. And in order for a new rose to be a success, he knew it had to be better than all the rest and yet distinctively different. Ernie then sowed self-seeds and they produced several hundred plants to watch. Out of these, one had the luxuriant holly-like foliage and growth he was looking for. This seedling showed no signs of mildew or blackspot; unfortunately the blooms just were not good enough. He then crossed this seedling (for its growth and disease resistance) with the best one from the original cross (for the quality of bloom he needed) and produced 'Sea Foam.'

An amateur hybridizer, now a retired automobile mechanic, Ernest Schwartz is a rose enthusiast and opera buff. His love for plants began very early in life. His parents were in the florist business, growing mums, carnations and other flowers for cut bloom. Ernie's main job was delivering flowers driving the Model T. At the time, all of the dirt was wheeled out of the greenhouse and replaced each year—naturally his interest turned to the truck rather than the work of carrying on the florist business. At the age of 26 he entered into a partnership and continued as a mechanic until retirement a few years ago. He now spends most of his time growing vegetables, fruits and hybridizing roses—he does them all well. When weather prevents some form of gardening he enjoys opera from records or radio and shares his hybridizing experiences with fellow members of the Rose Hybridizers Association.

SOIL TESTING

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Soil testing is done to evaluate the supply of elements in the soil available for plant growth. Plants require 16 elements for proper development: carbon (C), oxygen (O), hydrogen (H), nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), sulphur (S), boron (B), chlorine (Cl), copper (Cu), iron (Fe), manganese (Mn), molybdenum (Mo), and zinc (Zn). C, O and H come from carbon dioxide (CO_2) and water (H_2O). The other 13 elements come from the soil. Sometimes the concentrations of elements in the soil available for plant uptake are limited. Of the 13 soil nutrients, N, P and K are needed in greatest quantity for maximum crop yields. Repeated harvests of plants soon deplete the supply of N, P or K to below the point required for maximum growth. When this occurs, nutrients in the soil must be replenished by adding fertilizer.

The development of the soil quick-tests occurred mainly after 1930. Previous attempts to relate nutrient availability in soil to the total amount of a nutrient element present in the soil were not successful. Many of the early procedures were devised by M. F. Morgan at the Connecticut Agricultural Experiment Station. The Morgan Soil Testing System and modifications are still utilized by many soil testing laboratories. The Spurway system which serves as the basis for many present day soil testing procedures was also developed in the early 1930's by C. H. Spurway at Michigan State University.

The nutrients most frequently determined are P, K, Ca and Mg. Some laboratories also test for nitrate and ammonium nitrogen. Sometimes aluminum, sodium, sulfate-sulfur and boron may be determined in areas where these are particular problems. In the west, where saline or alkali soils prevail, chlorides and carbonates must also be determined.

Besides nutrients, most soil testing laboratories also determine the acidity or alkalinity of the soil by means of the pH measurement. A soil pH of 7.0 is neutral. Below pH 7.0 a soil is considered acid. Above pH 7.0, soil is said to be alkaline. The majority of crop plants grow best in slightly acid soils; pH 6.0 to 6.8. *Ericaceous* plants require soils with a pH around 5.0 to 5.5.

A test for total soluble salt concentration is often made. These are done by measuring the electrical conductivity of a soil-water suspension or saturated-paste extract.

The chemical tests may be done colorimetrically or by use of sophisticated instruments. Laboratories testing thousands of samples yearly make use of flame photometry or atomic absorption spectroscopy to precisely determine the nutrient elements content of the soil.

Taking a Soil Sample

Whether one tests his own soil or sends it away for testing, taking a sample representative of the area is most important for an accurate analysis. A soil auger is best for sampling. When using an auger you should remove the surface litter and at least a half-inch of top soil before inserting the auger to its full depth.

If a spade or trowel is used, a vertical cut to a 6-inch depth is made. Remove this soil to enable you to make a second vertical face cut of one-half inch thickness. This is the sample to be used for analysis. Several samples should be taken over the area being tested rather than relying on a single sample.

The samples can be mixed together after removing stones or other debris. From this thoroughly mixed composite, one cupful is all that is needed for analytical purposes.

For lawns or garden soils, a sample taken to a depth of 6 inches will provide sufficient information on the nutrient content. If large trees or shrubs are being planted, a soil sample from a deeper depth would be useful.

Avoid contaminating the sample with cigarette ashes, residues from previous samples remaining on the auger or other contaminants. Cleanliness is important. Follow the directions supplied by the soil laboratory if you are testing through a commercial laboratory. Soil test kits sold for home testing usually contain directions for proper sampling procedures.

For garden soils, samples should be taken prior to spring preparation of the planting area. This will allow for applications of fertilizers that can be incorporated by plowing or rotovating the soil. A second test, one-third through the growing season will enable the gardener to determine whether additional fertilizers should be added. Fertilizers should not be applied later in a crop cycle as there may be an adverse affect on the quality and

yield of the harvest. Late fertilizing of trees and shrubs results in the plants failing to develop proper winter hardiness. Subsequent winter injury may occur.

Where to Send Soil Samples

Agricultural experiment stations in each state analyze soil samples sent to them from within the state.

The laboratory requires the following information for each sample submitted: name and address of person requesting analysis; date soil sample was taken; place sample was taken (for example, garden, front lawn); whether the land is old or new; whether or not fertilizer or lime were used the previous year; and type of crop to be grown (for example, vegetables, grasses, flowers). Results are received in about two weeks.

It is important to place soil samples in containers that will not come apart in shipping. An ice cream carton is excellent. Some envelopes are useless because they become unglued. Strong paper bags can be used if packed in sturdy boxes. Clean plastic cans are preferred to glass jars. The samples must be placed in a durable cardboard box. The name and address of sender must be marked clearly on the package. Letters concerning the soil must be attached to the box and not sent separately.

Most state experiment stations have a fee varying from one to five dollars per sample tested. Commercial laboratories charge from $5 to $10 or more for each soil sample.

How to Interpret Soil Test Results

A test is of little value unless a proper interpretation is made of the results. Usually the laboratory testing the sample will provide an interpretation of their data. Also, extension specialists serving agriculture through the state agricultural experiment station can be contacted to assist in interpreting test results. They are able to tell the farmer, greenhouse grower, or gardener what type and quantity of fertilizer to use and when to add them.

The most common soil problem in the northeast and in many other humid regions is soil acidity. Soils in humid areas often are acid because soluble calcium, magnesium and other bases of the original soil material are leached out of the upper layer by rain water. In semi-arid and arid regions, leaching is reduced to a minimum and soils are usually neutral or alkaline.

Specialists must interpret soil-test results differently for various crops, soils, and environmental conditions. Laboratory tests provide only a relative measure of nutrient availability in the sample that is tested, not the total amount of a nutrient element that will be available to plants during a growing season. Various soil properties and environmental conditions influence nutrient availability to plants growing in a field, but do not influence the soil-test results. Extremely wet or dry, or hot or cold, weather affects nutrient uptake. The incidence of plant pests and disease infestations may also have differential effects on nutrient absorption.

Aubrey Glass, caretaker at River Farm tests soil in flower beds at AHS headquarters.

Soil Testing Kits

Soil testing kits available in different localities vary in the extracting solutions and test chemicals used. Sudbury Soil Test Kits, manufactured by Sudbury Laboratory, Inc., Sudbury, Massachusetts, are sold throughout the United States and in foreign countries. The laboratory is the largest manufacturer of soil test kits and has representatives in principal cities of the world. Sudbury was established in 1932 when the late Herbert J. Atkinson started selling soil test kits to farmers to help them grow productive crops. The kits range in price from $8.29 to $109.95. The least expensive kit weighs 9 lb. and provides materials for approximately 70 individual tests for N, P, K and pH. The most expensive kit weighs 38 lb. and has

supplies for 1,200 tests. Figure 1 illustrates the Horticultural Kit which costs $27.95. It weighs 22 lb., has solutions for about 200 tests, and is for the serious backyard gardener. Refills of test solutions for all kits cost from $0.90 for 0.5 ounce (15 ml) to $11.95 for one quart (940 ml).

Tests for N, P and K require 2 solutions for each test and from 1.5 to 3 ml of a solution are used in a test. The soil pH test requires about 3 ml of a testing solution. The test kits are easy to use and no knowledge of chemistry is required. Test results are obtained within minutes to a few hours, depending upon how long it takes the soil and solution to separate after they have been shaken. In sandy soils, this separation takes place in minutes. In clay soils, it may take several hours.

LaMotte Chemical Products Company, Chestertown, Maryland, has manufactured soil testing equipment since 1919. It makes test equipment for farms, ranches, greenhouses, nurseries, orchards, professional and amateur gardens, and educational purposes. Soil test kits cost from $389.95 (Figure 2), for greenhouse soil testing, to $11.95, for home gardeners. The greenhouse kit is a complete, self-contained soil laboratory and provides tests for pH, soluble salts, nitrate, N, P, K, Ca and Mg. The home gardening soil test kit measures pH, N, P, and K. Enough reagents are furnished with it for 30 pH tests, 15 N tests, 20 P tests and 15 K tests.

Many soil scientists do not recommend buying soil test kits for several reasons. Some test kits are useless because they do not instruct the user how to interpret the test results. (Both Sudbury and LaMotte soil test kits come with manuals for interpretation of test results.) The value of a test is limited by the qualifications of the person translating the data into amounts and kinds of fertilizers and lime that will promote high yields. Soil test interpretations are based upon experience. An inexperienced home owner may have difficulty in determining the test results and the proper fertilizers to add.

The soil kits and refill solutions are expensive. The buyer does not know the chemical composition of the test solutions. Therefore, he cannot mix new solutions and must buy refills from the distributor. A grower can send a sample of soil to his state agricultural experiment station and obtain results for five dollars or less. However, if he needs to analyze many samples, a soil test kit may be a wise investment. With experience, he can learn to accurately predict what to put on his soil.

Probably the major objection to home soil testing is the contamination of reagents that can occur very quickly when careless, improper procedures are followed. In commercial soil testing laboratories skilled technicians trained in analytical techniques manipulate the samples and make the tests. Reagents are stored under special procedures. Several of the reagents used are made up daily to ensure freshness.

The home soil tester may make one or two tests during a growing season, store his chemicals for a year and then expect them to perform as if they were freshly prepared. Of course they will not do this.

Contamination during the testing procedure may occur from the introduction of the smallest piece of fertilizer into the solution. Other contaminants may also find their way into the sample and thus cause erroneous results.

Soil tests yield valuable information concerning chemical characteristics of the soil. The results are helpful in advising growers the amounts of lime and fertilizer to use. Much research is being devoted to develop better test methods and to improve the relationships between laboratory tests and growth of plants in fields, greenhouses, and gardens.

Continued from page 33

What to do with that bank

grows out of control. But it certainly has its uses on steep banks.

There are shrubs that can be useful on banks, too. Such things as the fragrant sumac which can be kept under three feet tall by pruning it occasionally, sweet fern *(Comptonia peregrina)* which is used on poor acid soil banks in New England, New Jersey tea *(Ceanothus americanus)* which has been used similarly in New Jersey and does not grow much over three feet tall, *Rosa virginiana* which grows only about four to six feet tall and bears single, bright pink flowers in June followed by brilliant red to orange autumn color, red fruits in the fall and bright red stems all winter long. These are just a few in this group that grow underground shoots or stolons and increase that way, thus aiding in bank cover and controlling soil erosion.

But remember, it is never wise to plant shrubs and vigorous twining vines together, for the vines quickly grow up the shrubs and make the entire planting unsightly, even killing many of the shoots about which they twine.

Coralberry *(Symphoricarpos orbiculatus)* or *S. chenaultii* are excellent bank plants, growing about four feet tall with gracefully arching branches and simply covered with small red to pink fruits in late summer and fall. They, too, send out many underground runners.

Forsythis suspensa has been often used as a bank cover and its little variety 'Arnold Dwarf', though bearing not-too-conspicuous flowers, nevertheless roots wherever its branches touch the soil, making an ideal cover. So does *Stephanandra incisa* 'Crispa'. In fact, the latter might be considered

one of the best of all the shrubby bank covers for this very reason. The leaves are small; cut-leaved flowers are inconspicuous, but even very small plants spaced three feet apart quickly grow into one solid mass of shrubby thicket three to five feet tall. And, in my experience at least, it needs no maintenance care of any kind. I like a bank planted like that!

Rockspray *(Cotoneaster horizontalis)* and one or two close relatives have also been used for a long time on small banks, growing over walls, or hanging over rocks. Its use is well exemplified in many gardens throughout the country.

Finally, for evergreen cover in hot sunny situations, there is nothing like juniper. *Juniperus horizontalis*, Sargent juniper, Wilton juniper, Douglas juniper and many others are excellent. When using these one should be careful to determine their ultimate spread so they can be properly spaced at planting time.

Sometimes a bank is planted with many low spreading shrubs, and can be a thing of beauty all year long. No vines should be included in such a planting. It can not be considered a rock garden, either. But a close planting, of numerous, low growing shrubs can create much more garden interest, especially if the bank is easily seen from the house, than if it were covered with one fast growing vine. For many gardeners, this is what they like best. It takes a little more time to get started; mulching should be done at the start with hay, straw or pine needles or something that would prevent the soil from washing away; but once started, the end result is actually a display garden on a hill!

Among many other books Dr. Wyman is Author of "The Saturday Morning Gardener" Macmillan, 1974 $7.95, and "Easy-Care Ground Cover Plants" Collier Books, 866 Third Avenue, NY, NY 10022. Publication date April 29, 1976. $3.95 paperback.

Continued from page 35

PARSLEY

a remarkably easily grown herb—once its eccentricities are dealt with. These eccentricities gave rise to several folksayings in several languages.

One saying goes: "Parsley goes down to the devil 9 times before it comes up." Note 9—a magic number. Sometimes China is substituted for the devil—possibly by the same people who allegedly find their children in parsley plots. Another saying tells us to sow parsley "with much stomping and cursing." Both these old sayings point to a truth about parsley. The seed takes long to germinate and needs both firm planting and moist soil. Once you know it is going to take its dear sweet time, you can just plant it and ignore it. A watched parsley never sprouts. A good way to nudge it along is to soak the seed in water over-night before planting it.

Another old saying ominously warns that it is bad luck to bring parsley into the house, or to transplant it to another garden. There are two very good reasons for this ancient advice. First of all, parsley has a long tap root like a wild carrot. Imagine yourself trying to pot a full-grown carrot for the winter. Another problem for those trying to transplant or otherwise prolong the usefulness of their parsley is that the plant is a biennial anyway. After that second summer, the whole plant will die as parsley plants always do—and you must begin again with the stomping and cursing. You might just as well plan on it.

There are several forms of parsley—the differences being on a continuum from flat-leaved through curly to almost fernlike. Within the parsley family there are several other species enough alike to cause confusion. Italian parsley—the flat-leaved kind—is often substituted for Chinese parsley or cilantro. Leaves of celery and chervil are often used interchangeably.

The *Grete Herbal* of 1539 includes in its discussion of parsley a unique way to insure that the leaves of your parsley would be curled. It was the old tennis ball trick:

"If you will have the leaves of the parcelye grow crisped, then before the sowing of them stuffe a tennis ball with the sedes and beat the same well against the ground whereby the sedes may be a little bruised . . . ."

What a picture this brings to mind!

The Greeks used to edge their gardens with parsley. Years ago, a neighbor of mine used a variation on that theme—with beautiful results. The house had a long portico along the front, and the strip of ground between the edge of the portico floor and the backside of the foundation evergreens was carefully cultivated and devoted to one perfectly straight row of parsley. It made the perfect facing down for the shrubbery, and random leaves gave value and interest to many summer meals.

I strongly recommend using herbs and vegetables as decorative plants with only two caveats. First, avoid planting anything edible near a driveway. Plants take up pollutants systemically and can be hazardous to eat if grown too near driveways and busy streets. Also, avoid using those plants that must be pulled up whole in the harvesting. Otherwise, you begin to feel guilty for eating some cabbage head or carrot whose absence ruins the line of green along the petunias. Now—a row each of parsley and nasturtiums together could be pruned judiciously and give pleasure and salad all summer. Perhaps a clump of chives nearby to contrast both foliage and flavor.

Whether you are thinking of pleasant plans for your garden, or nutrition for your family, or interesting subtlety for your cuisine—consider the "comforting perseline."

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$9.95

This is Bebe Miles' third book by Van Nostrand Reinhold. Her first one, "The Wonderful World of Bulbs," was twice the monthly selection of the American Garden Guild Book Club; her second book, "Bluebells and Bittersweet," is a complete guide to gardening with native American plants. In 1969 she was appointed to the Executive Committee of Pennsylvania's famous Bowman's Hill State Wildflower Preserve in Washington Crossing State Park.

"I am sick of the sight and smell and feel of plastic," she writes. "its durability, once a desirable characteristic, has become a liability, for it cannot be disposed of without polluting the environment.

"Much of the plastic greenery I see nowadays looks sick even in the strictest sense of the word. The world has reached a nadir when one is offered for sale plastic flowers and leaves which look diseased or past their prime."

There is a satisfaction in making one's own decorations, says she, that answers a hunger in the least creative of us. And there is a warmth in bestowing a gift of one's own manufacture that is hard to beat.

If you are really artistically talented, the pages of this book will be merely a starting point for your own imagination. But I certainly empathize with those who are not so sure of themselves, and I have described the projects thoroughly, adapting them for beginners in many cases.

You will learn mechanical details to make your job easier, she says. I hope you will be inspired in the process to take a new look at the natural world around you and decide that it is well worth preserving in all its beauty and variety.

"A peripheral benefit will be that all of us will take a closer look at what God has provided."

Her book shows how to create simple, inexpensive but timelessly tasteful decorations with natural materials—flowers, leaves, seeds, nuts, cones, fruit and shells, many of which are readily available in the wild or from your garden.

Complete details are provided for their preparation, including gathering, cleaning, drying, dying, preserving and storing. It offers unlimited opportunities for craftsmen, hobbyists and gardeners to make gifts and decorations that will beautify their surroundings.

100 GREAT GARDEN PLANTS
Trees Shrubs Groundcovers
by
William H. Frederick, Jr.
Alfred A. Knopf
New York — 1976
207 pages,illustrated
with 109 full-color photographs,
$15

Frederick is a landscape architect of Newark, Del., specializing in custom landscape work and in rare and specimen plants. His own garden, now 10 years old, occupies a 25-acre stream valley in western Delaware.

The plants described in the book were chosen for their rich and often little-known beauty, and for their particular value in giving form and character to a garden, they are his own highly personal selection, the author says.

"This is a book for gardeners by a gardener, an attempt to share both a knowledge of plants and of design experience," he writes. "It is not an encyclopedia and not a textbook. It is meant to be a visit with you in my own garden, where the greatest of gardening joys is trading plants and discussing failures and successes in achieving landscape effects.

"Further, this book is an attempt to combat the schizoid tendency in American garden thinking, whereby trained horticulturists care nothing about landscape design and professional landscape architects know nothing about plants.

"All too frequently, the horticulturist thinks carefully about selecting the right plants for the right spot from a cultural viewpoint and rates highest that garden which has the most variety of plants—*horticultural zoo though it may be!*

"For his part, the landscape architect does a fine job of designing gardens that function well for the persons living in them; he designs spaces with good proportions and beautiful forms and shapes; he effectively balances shrub massings to specimen accents. Yet with a few exceptions the landscape architect knows little and cares less about what varieties of plants he

"Because of lack of discipline and control, the living picture painted by the horticulturist is as unsatisfying as a gourmand meal. And at the same time the landscape architect's picture is bland and without savor because he has missed the opportunity for full enrichment, failing to make use of all the excitement and stimulation available from our contemporary ornamental plant world. Both approaches are essential, the warp and woof of a fine garden."

"Good private gardens are more important today than ever before, the author says. We suffer anxieties from a world largely out of our control, a world overpopulated and daily becoming less beautiful due to various forms of pollution, a world where the possibility of nuclear self-destruction seems ever greater, and where there seems to be less and less communication between people.

"Opportunities for expressing our own originality (let alone our own personality) are seriously reduced.

"The private residential garden can be the one big exception to this rule. The space around our house is ours to do with as we wish. We can make choices and commitments and tailor this personal environment to satisfy our own needs, functional, intellectual, and aesthetic. Here is a part of our lives we can indeed control."

Gardening can be a civilized person's most rewarding and exciting activity, he says. As fast as our curiosity is satisfied by acquaintance with one plant, we discover five more we would like to know.

"While we are relishing with great satisfaction our own creation of a well-balanced landscape picture, a stimulating color combination, or a dramatic textural effect, almost immediately new possibilities creep into the mind and we're off again on a new project. A single lifetime seems too short for the richness of this experience. It is never ending, always expanding."

In his book Frederick includes 100 of the choicest plants he has come across, carefully arranged according to landscape function and illustrated with at least one full-color photograph each. He tells how to grow and use them in designing a garden, also something about their history.

GROW YOUR OWN VEGETABLES

by
Roger Grounds
Van Nostrand Reinhold Co.
New York — 1976
151 pages
well illustrated
$8.95

Roger Grounds is a well-known English garden editor. In his book he gives thanks to Ian G. Walls of the West of Scotland Agricultural College for reading the manuscript and making helpful comments, and to George A. Elbert, author and ex-president of the National Indoor Light Gardening Society for guidance on American vegetable growing practices.

"There is an old saying," the author writes, "a saying that goes back perhaps to the days when man first cultivated food plants instead of gathering his harvest at random, that there is only one reality, and that is hunger."

An acute food shortage is no longer a prediction for the day after tomorrow, or something that happens only in faraway lands, he says. It is a reality of today. Tomorrow will be worse.

Yet if you have a patch of land, an eighth of an acre or so, you can grow enough vegetables to keep your family the whole year round. The seeds to start will cost little more than you spend for bread in a week, and you'll save enough in a summer to pay for your vacation.

The author tells how to plan the vegetable garden, how many plants you need per person, how to prepare the soil, how to sow the seed, how to thin or transplant, how to cultivate, how and when to harvest and store the crop, as well as a few hints on mistakes beginners make.

Your state university Agricultural Extension Service may not agree with his recommendations on varieties to plant. Many are those adapted for England. They may or may not be suitable for your locality.

THE GARDEN MAKER'S ANSWER BOOK

by
Lorraine Marshall Burgess
Association Press
paperback $6.95

In The Garden Maker's Answer Book, Mrs. Lorraine Marshall Burgess has provided lively, pertinent, and personal-experience responses to selected realistic gardening questions. Each section of the book is introduced by comments which reflect some of her gardening philosophy on the problem at hand, and the questions and answers follow. This is a beginner's book and the author recommends beginning by spending time on learning about your property and about soils, climate, and plants. Plan for easy care from the beginning and condition yourself for hard work she cautions. But her emphasis is on a positive approach through dreaming and planning.

In the beginning you may be overwhelmed by your new sense of power in handling minor miracles of gardening, but also you may encounter technical difficulties and small annoyances. Hunting for the answers is "an unfortunate waste of time deserving correction," which she aims to do with this book.

Sections on design, structures, soils, ornamental plants, vegetables, and upkeep and irritations are followed by a comprehensive section on information resources to encourage further inquiry. Black and white photographs illustrate imaginative uses of plants and garden structures and paving, and sketches helpfully depict details of some suggested solutions to problems.

Her advice about organic gardening is that you must decide whether to be an organic or a chemical gardener. She urges—if you use chemicals, hold them to an absolute minimum; tolerate minor insect infestations; investigate natural repellants; grow healthy plants in well nourished soil and mulch them; use disease and wilt resistant varieties.

"With continuing attendance," she writes, "these cycles of pleasure (in gardening) recur year after year. Unlike the house and the car, your garden not only gets older but it also gets better."

Mrs. Burgess is a frequent contributor to American Horticulturist, as well as other gardening magazines, and with her husband follows the avocation of gardening as a hobby.

Books Received in AHS Library

FLOWER ARRANGING—150 illustrated concepts
by
Berninger, Miriam
Miriam Berninger–MABCO
637 Charles Lane, Madison, WI 53711
January 1975
154 pp. illustr. line drawings
$4.95

VEGETABLE GARDENING (revised'ed)
by
Editors of Sunset Books
Lane Publishing Co.
February 20, 1975
96 pp. illustr. b/w
$2.45

BASIC GARDENING ILLUSTRATED
by
Editors of Sunset Books
Lane Publishing Co.
February 20, 1975
128 pp. illustr. b/w
$2.45

HOW TO PLAN AND PLANT YOUR OWN PROPERTY
Ireys, Alice Recknagel, L.A.
William Morrow and Co.
January 15, 1975
182 pp. illustr. b/w
$4.50

THE COMPLETE FLOWER ARRANGER
Ascher, Amalie Adler
Simon & Schuster, Inc.
April 26, 1974
285 pp. illustr. b/w & color
$9.95

PLANT PROPAGATION PRINCIPLES & PRACTICES 3rd ED.
Hartmann, Hudson and Dale E. Kester
Prentice-Hall Inc.
Feb. 1975
662 pp. illustr. b/w
$17.25

PLANT A TREE—A working guide to regreening America
Weiner, Michael A.
Macmillan
May 29, 1975
277 pp. illustr. with duo-tone photos
$15.95

COMPOST GARDENING
Shewell-Cooper, W. E.
Hafner Press (Macmillan)
1974
119 pp. illustr. b/w & color
$8.95