American Horticulturist

Volume 57 Number 5 Fall, 1978

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American
Horticulturist

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For United Horticulture . . . the particular objects and business of the American Horticultural Society are to promote and encourage national interest in scientific research and education in horticulture in all of its branches.
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Education

Change of Pace

Travelog

Gardener's Notebook

My Favorite Plant

Color separations by CHROMAGRAPHICS INC.

Editorial

The Greenhouse

What is mostly glass, leaks heat, provides a habitat for plants (and white flies) and space for people to stand? You're right. It's a greenhouse.

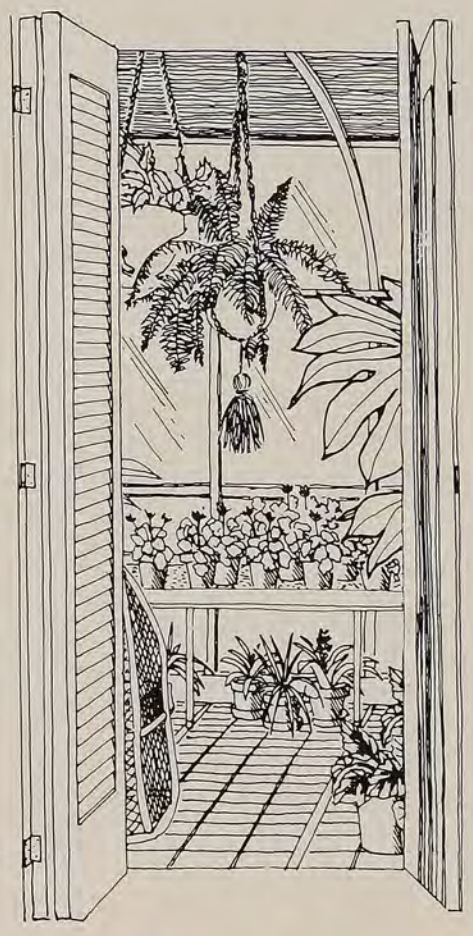
This structure is designed to accommodate the germination, elongation, branching, flowering and fruiting of plants. Here, the gardener must create an environment where light strikes the "green" in our plants at the correct temperature and moisture levels. Countless other cultural factors also come into play.

The word "greenhouse" encompasses all kinds of structures where we grow plants. All have a covering of glass or glass substitute. Greenhouses are constructed from thousands of pieces and are, at best, temporary structures. This means we can take them apart, move them for miles and reassemble them in other locations.

The greenhouses where I do my research at Beltsville, Maryland, were once on Constitution Avenue at the foot of the Capitol Building. The glass and cypress lumber are still useful after almost 90 years. This versatility also means that the structures are never air- or water-tight. They are always letting things in and out at undetected rates and concentrations.

We pipe in the heat in the winter, knowing that most of it is lost through the walls and coverings to our outer environment. We turn around and remove the heat with pad- and fan-cooling during the summer. We add light in the winter to control the photoperiod. We filter out the extra sunlight in the summer to try to reduce the temperature in the growing space. This causes me to wonder if there are many days in the year when the greenhouse is an "ideal" environment.

As alternatives to human-imposed environmental controls, we see commercial, cut flower growers seeking near-ideal conditions on mountain



tops in the tropics. We also see the great interest in gardening under artificial lights where many plants adapt and can be grown.

There is something about a greenhouse that has a great appeal to all gardeners. Perhaps it is the thrill of being in the middle of space of growing plants when the outer world is too warm, too cold, too windy or too dry. We only need to open a ventilator, close a valve and bring about a change. The plants continue to thrive.

Many of us are now concerned about saving energy in our greenhouses. The cost of heating transparent places becomes more expensive each year, yet any of the insulation methods advertised in magazines and catalogs are difficult to achieve. It's much like designing a slipcover for an antique sofa. We know what we want to do, but it's very nearly impossible to do it on a practical basis. Further, anything that we do to seal the greenhouse can cause serious problems to the plants.

We must recognize from the beginning that the greenhouse is an elegant, antique structure. Only a few things can be done to it and still insure the healthy growth of plants.

PLAN TO:

- Use the "greenhouse" effect to allow solar heating of your growing area.
- Cover plant area with thermal blankets (two layers of polyethylene with a dead area space in between) only at night. Remove cover during daytime.
- Install controls for the heating and ventilation systems that are accurate and sensitive to changes.
- Use inexpensive fans to circulate the air; operate 24 hours a day.
- Introduce fresh air through an opening to replace the carbon dioxide and to flush out ethylene and other pollutants.
- Insulate all walls, doors, ventilators. Make sure they fit tightly.
- Finally, run your greenhouse 5-7°F cooler at night than you did last year. The plants will be slower to grow, flower and fruit; but they will also require less frequent watering. This will also slow down the breeding of insects.

Remember to wear a sweater or jacket in the greenhouse. It's no longer the hothouse—it's become a house of "greening", which is a "cool" color.

Henry M. Cathey
President

The Royal Dutch Horticultural Society invites you to acquire

The Flowers of Holland Thimble Collection

For just $9.75 each—twelve exquisite collector's thimbles in fine porcelain, hand-decorated in 24 karat gold, portraying the best-loved flowers of The Netherlands.

Strictly limited edition.
Subscription deadline: October 31, 1978.

The flowers of Holland are admired the world over for their color, beauty and vigor. And, through the centuries, the great Dutch painters have created some of the loveliest of all floral art.

In this tradition, The Royal Dutch Horticultural Society has authorized from Franklin Porcelain, Amsterdam, a unique new series—*The Flowers of Holland Thimble Collection*—twelve collector's thimbles of fine porcelain, created by the internationally renowned artist Ronald Van Ruyckevelt.

The beauty of flowers—in fine porcelain

Each thimble is small enough to cradle in the palm of your hand. And yet even the tiniest, most delicate features of the flowers portrayed are captured in the living colors of nature. The botanical name of each flower—in elegant script—will be incorporated into the design. The finishing touch will be a 24 karat gold border—skillfully applied by hand. This extraordinary collection thus represents a veritable gallery of flower art in miniature—still further enhanced by the delicate translucency of fine porcelain.

Yours to arrange as you like

Merely to touch one of these graceful thimbles is to sense with subtle pleasure the rich smoothness of finely-glazed porcelain. To examine one with a careful eye is to see the familiar thimble transformed into an object of true beauty. As a subscriber to *The Flowers of Holland Thimble Collection*, you will be able to set out the thimbles one by one (or in small groups) on an occasional table, in a china cabinet—or in the special display frame provided—where you may enjoy their charm to the full.

Timeless loveliness in limited edition

These beautiful thimbles are available *only* as a collection—and *only* in limited edition. Each subscriber will receive a Certificate of Authenticity, attesting to the edition limits, and an informative folder on the flowers portrayed.

The Flowers of Holland Thimble Collection is available exclusively through Franklin Porcelain. The price of each thimble will be just $9.75. The thimbles will be issued at the rate of one per month, beginning in December.

The application below must be postmarked no later than October 31st to be eligible. When all eligible orders have been filled, no more of these beautiful thimbles will ever be created. So the number of collections in existence will never exceed the number of valid applications received postmarked by the official closing date.

This elegant wall frame will be provided to every subscriber.

SUBSCRIPTION APPLICATION

The Flowers of Holland Thimble Collection

Valid only until October 31, 1978
Limit: One collection per subscriber

Franklin Porcelain
Franklin Center, Pennsylvania 19091

I wish to enter my subscription for *The Flowers of Holland Thimble Collection,* consisting of twelve fine porcelain thimbles, hand-decorated in 24 karat gold. My thimbles will be sent to me at the rate of one per month, beginning in December, at the issue price of $9.75* per thimble. A special wall frame will also be sent to me, without additional charge.

I prefer to pay as follows: **Plus my state sales tax.*

☐ DIRECTLY. Bill me prior to shipment for the full price of the first thimble. I agree to pay the same amount for each subsequent thimble when it is ready to be sent to me.

☐ BY CREDIT CARD. Bill me after shipment of each thimble by charging its full price to my credit card.

( ) Master Charge
( ) BankAmericard/VISA

Account No. _____

Expiration date _____

Signature _____
ALL APPLICATIONS ARE SUBJECT TO ACCEPTANCE

Mr. Mrs. Miss _____
PLEASE PRINT CLEARLY

Address _____

City, State, Zip _____

60

Why Paint a Flower?

Martha Prince
9 Winding Way
Locust Valley, NY 11560

Watercolors by the Author

Sometimes, when I see a really fine photograph of a flower, I myself wonder what drives me to get out my brushes and paints, and work at "capturing" a plant in this way. The work is slow, meticulous, eye-straining. After all, I am a photographer, too, and consider photography a fine art form. Why am I not satisfied with the camera? I have found two answers. I think. One is personal, for myself, and one for the people who may see my work. My own reasons? Involvement. Knowledge. A love affair with a flower. It is much too easy to pass a plant and say, without stopping, "Oh, how pretty!" We see color, mass, general effect . . . but each individual flower has its special message to convey. Nature is so amazingly intricate; flowers I have "known" for years, but never painted, I find I don't know at all! How many petals? How are they arranged? How many stamens? Do the two side petals of this violet have hair on them, or not? Is there a spur? If I take a flower in my hand, I turn it round and round, wonderingly. I admire. I learn. Some flowers are too intricate for even the tiniest brush, and need macro-photography. But if I *can* draw it, I learn to love the ruffles on the edges of a petal, the curve of a filament, the lacework of the veining. I *know* the flower; it is now mine. Permanently and forever. With my brush I have worked caressingly on each petal, building up its color, puzzling over how to make the subtle shifts in shading. I have pulled off the petals, dissected the ovary, snipped the anthers in half. I *must* study my flowers in more depth than I can ever paint them. I must understand the structure far more deeply than my brush can show it. In a sense, to paint is to rebuild, with a far better personal understanding. I must know the plant so well *from within* that I can design its final arrangement to conform both to nature and to my two-dimensional sheet of paper.

And why should anyone look at

Left—Harebell *(Campanula rotundifolia)*
Right—Oconee Bells *(Shortia galacifolia)*

flower drawings? I cannot truthfully say that a drawing or painting is *better* than a photograph. Both may be good or bad, enlightening or unintelligible. But only the artist, not the photographer, can remove the flower from its background, focus on it to the deletion of all the extraneous world. An artist and a photographer both show you a private vision—the world as seen by one pair of eyes alone—but an artist's eyes have one advantage; my eyes see the *other* side of the flower. I can twist, reverse flowers, move around the plant, tip a flower up or a bud down. I can place a flower or a leaf where none exists; a stem can be where *I* want it. No, not improving on Nature, but fitting Nature into my small square or rectangle, so you may see all of it at once. A photographer, as a person, has my mobility, but his camera does not; once the shutter snaps, what *exists* in his rectangle is all there is. And there is another thing; the loveliest sunlight may blur his petals, cancel the edges, make a stamen-shadow look like another stamen. The sunlight (or the shade) cannot injure my flower, not if I have learned my lesson. My brush can delineate the lost outline, I can omit that shadow. They say "the camera does not lie," but oh, yes it does!

As you see, my work is "botanical,"—exact, precise, not "imagist." Flower painting of the kind Great Aunt Emma did (possibly well) does not interest me; neither do the suggestive images of the Impressionists. I enjoy looking at them, if sensitive and well done, but I have no wish to paint that way, any more than I want to do the dry, dead drawings of too many botany texts. You have decided that I am always a "realist" painter, have you not? You are wrong! My other work is abstract; I find no contradiction. I don't splash-dash, for I love shapes and forms. I think I have learned abstraction from flowers, in many ways. There can be no finer or more inventive teacher of design then Nature; nothing is more rhythmic, more perfectly structured than a flower.

I paint the flowers I love—but some are impossible. I *want* to paint the Rue Anemone (*Anemonella thalictroides*); I cannot. The filaments are so delicate only an elfin hand and brush could fasten them on paper. I have no brush so miniature, and my human hand is far too clumsy. Nevertheless, I may try, someday! No flower fails to teach me something by working closely with it, even when I fail. I hope my paintings help me share my own caring with those who see them. If there is a "message," it is just this; *look*, and really see. I don't wish you to catch *my* vision only, but to seek your own, whether or not you can put it on paper with brush or with words. Nature is too magical to see with unfocused eyes!

AUTHOR'S NOTE: For those of you who are technically curious as to how I work, here are the rough details. I use the smallest red sable brushes from England (Windsor Newton, #000 to #1), and Windsor Newton tube watercolor. I work under a X2 magnifying fluorescent light ring, on a flexible arm. I don't work at a desk, but in a comfortable reclining chair, work propped on my knees, so my hand is fully relaxed. Yes, it takes *time*! I clocked myself only once—fifteen hours of actual work (not counting the study and photographing that preceded it) for one five inch by seven inch painting. I don't draw first in pencil, except for the barest touches, to establish my spatial limits. The flower at my elbow (I try to have one, one bud and one leaf, say, in a jar of water) tells me where to put it on the paper. If this sounds strange to a non-artist, I can't quite explain. I have been painting flowers as long as I can remember, and design is something automatic—like walking. A blank piece of paper is just not blank to me! Most artists will give you as poor an explanation, I'm afraid. It must suffice. □

Today's Effort for Tomorrow's Timber

By Jack Wolff
Vice President, Land and Timber
Weyerhaeuser Company
Tacoma, WA 98401

The forest industry is unique on two counts. One, it is an industry that deals with a renewable resource. Two, the forest resource traditionally has attracted far more socio-political attention in the United States than any other resource. After all, Joyce Kilmer never wrote rhapsodies about Permian Basin petroleum or Mesabi Range iron ore.

While increasing debates have gone on in this country about how to manage—or even, whether to manage—America's public and private forest resources, Weyerhaeuser Company has an objective: to produce for an increasingly wood-hungry society twice as much wood per acre per year as unaided nature would grow on Weyerhaeuser's industrial forestlands.

We call it High Yield Forestry. It's a fully operational system of resource stewardship that we've been practicing for a decade. Despite the complexities, the basic concepts are simple ones, readily understandable by any gardener.

First, a bit of background. Historically, forest resources in North America have not been actually managed, on the whole. Public and private foresters until very recent times have been largely custodians or caretakers. Our civilization, while using a great deal of wood, has been living off a wild, naturally created forest resource, just as our prehistoric ancestors lived off wild fruits and grains before becoming agriculturists to actually manage the crop from planting to harvest.

Two factors have been changing that pattern markedly in recent years. One, as a nation we are both losing and withdrawing from production considerable amounts of our original forest land base. Land is lost when converted to other uses—cleared for agriculture, converted to housing developments, or transformed into huge rights of way for highways and transmission lines.

A tree planter can plant over a thousand seedlings per day.

The "wood basket" from which we all draw our supplies of building materials, pulp and paper is also reduced when we set forest lands aside for wilderness or exclusively for recreational purposes. Although America still has about 75 percent as much forested land as when Columbus landed, about one-third of these forest acres are set aside in parks, wilderness areas, watersheds, or

are not suitable for growing commercial timber.

The second factor is our civilization's growing dependence on wood fiber. Certain fundamental needs are filled better by wood fiber than by costlier, energy-gobbling materials which are not renewable.

Shelter and food are needs about as basic as you can get. Wood's role in literally putting roofs over our heads is well-known. Not as well understood is the vital role of paperboard packaging. Without it, food supplies simply could not be transported long distances from production sources to vast urban populations.

Also, it's impossible to imagine civilization without mass communications which are dependent upon paper. Just to publish one edition of the New York Sunday Times takes the equivalent of about 153 acres of pulpwood-sized timber. That's equivalent to clearcutting an area of a half-mile by a half-mile for one edition of one newspaper in one American city.

A graft is performed by a forest research technician.

The combination of less *commercial* forest land plus a rising demand for forest products, nationally and globally, means that our society must do a better job of growing more wood fiber on those lands, public and private, which remain in timber-producing status.

Weyerhaeuser's response to this need is High Yield Forestry, based on years of exhaustive research and experience, drawing on many scientific fields, and heavily dependent upon such space age technologies as the computer. It begins with a comprehensive forest management plan for harvest and regeneration of each acre, including appropriate emphases on soil conservation, water quality, and other environmental factors.

Weyerhaeuser foresters plant a new High Yield Forest (HYF, for following brevity) timber crop within a year or less after a planned harvest on a tract of forest land among the 5.8 million acres that Weyerhaeuser owns in Washington, Oregon, Oklahoma, Arkansas, Alabama, Mississippi and North Carolina.

The harvest area will have been clear-cut. This is man's most efficient, waste-free method of harvesting timber.* Equally important, clearcutting is the *only* way to provide the full sunlight that most commercial timber species need in order to grow properly.

All gardeners know that some flowers and vegetables need full sunlight to flourish. This is true of many tree species. Historically, these sunlight-loving species have depended upon nature's own spectacular methods of clearcutting by wildfire, insect and disease epidemics wiping out whole forests or massive storm blowdowns. Nature, in fact, is the greatest clearcutting expert in existence.

From one of the nine Weyerhaeuser tree nurseries and seedling greenhouses in the seven states where we operate, high quality seedlings will be on hand for planting. These will be either bare-root seedlings or plug seedlings growing in planting medium encapsulated in plastic tubes.

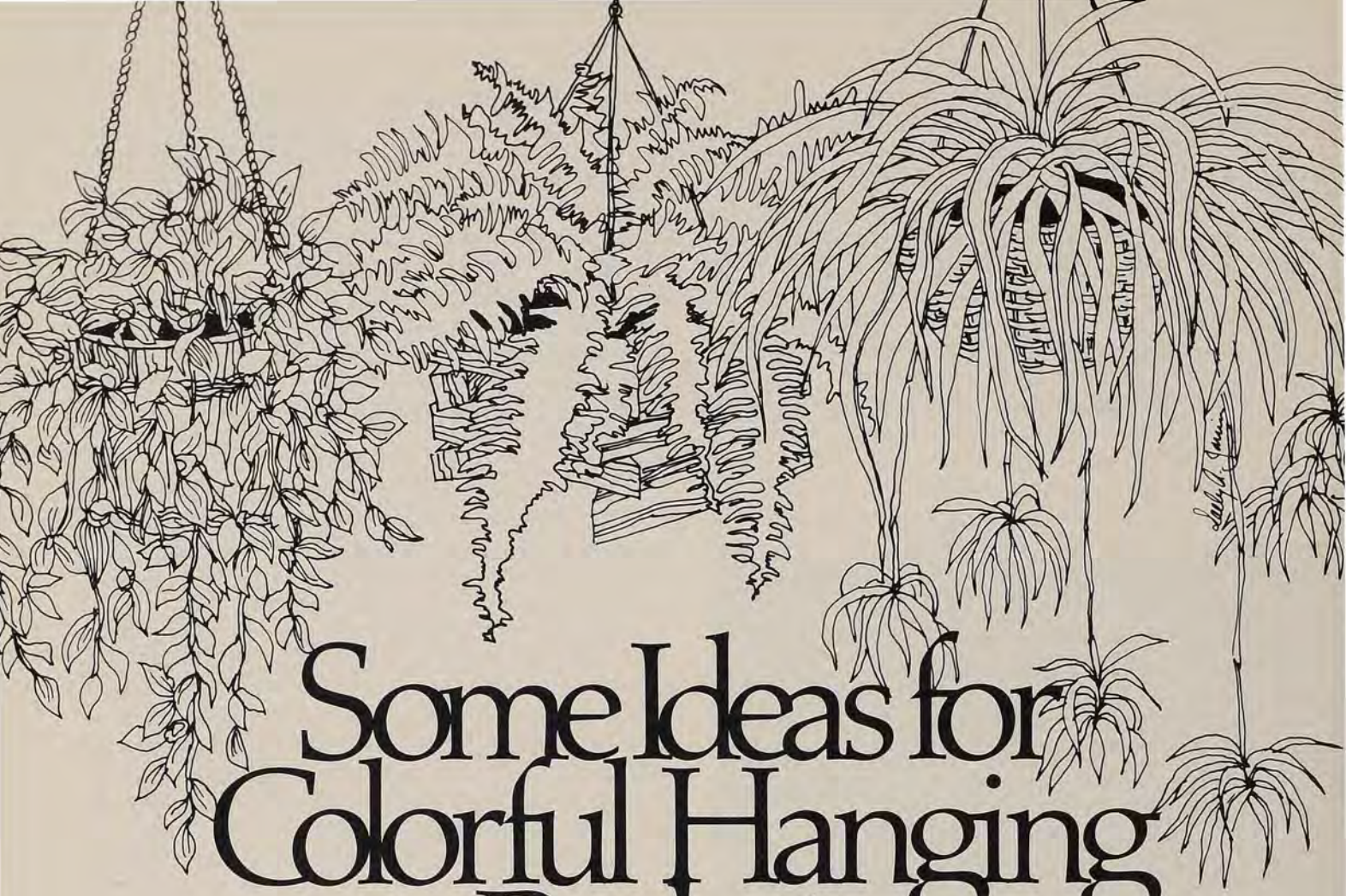
These will be planted at the rate of up to 900 seedlings per acre, depending on the site. On the most productive sites, we plant about twice as many seedlings as some other forestry standards call for. But it assures a good distribution of young trees for later thinning. In total, Weyerhaeuser in calendar 1976 planted more than 190 million seedlings. Although the company has about one percent of the nation's forest land base, we did approximately 16 percent of the nation's annual reforestation and 30 percent of the industry's last year.

The reality of big numbers is often hard to grasp. To give you perspective, those 190 million seedlings would, at standard eight-foot spacing used in planting, make a row of trees more than long enough to lap around the earth 11 times at the equator, or plant a forest half a mile wide from New York City into Illinois, almost one-third of the way across America.

All gardeners fertilize in one fashion or another. Forest fertilization is relatively new in this country. On selected

Continued on page 32

**Editors comment—This method of harvesting timber is a source of considerable controversy. In a future issue we plan to discuss the technique more fully.*



Some Ideas for Colorful Hanging Baskets

John D. Holden
George J. Ball, Inc.
P.O. Box 335
West Chicago, IL 60185

Anyone can design a colorful hanging basket. With the wide variety of modern containers, we are no longer limited to wire baskets lined with sphagnum moss.

All sorts of containers are now on the market—including brass, copper, pottery, woven baskets, redwood and colored plastic. You can use your imagination to improve the commercial designs even more. For example, macramé can turn a common pot into an attractive hanging plant container.

Whatever the receptacle, it should have adequate soil, moisture, drainage and nutrients. Containers with an equivalent volume of a six-inch pot or greater are most practical and require less frequent watering, especially if used in an outdoor location.

I use a mixture of 1/3 friable soil, 1/3 peat and 1/3 medium grade perlite for all hanging baskets except as a medium for ferns. Fern soil should contain 1/3 more peat. Soilless mixes composed of peat, vermiculite and perlite are equally satisfactory and available at complete garden centers.

In purchasing soilless mixes be sure to specify "growing mix" and not "germinating mix" as the latter is too fine. Some growing mixes contain bark which further improves the texture and drainage.

It is best to add a slow release fertilizer such as MagAmp or Osmocote to the planting medium and mix in before planting, unless the growing medium used specifies that fertilizer has been added. Additional feedings should be made by top dressing possibly once indoors in the winter and about every two months when plants are vigorously growing, especially if outdoors. This schedule is for northern culture. Some of the more vigorous growing annuals such as petunias may need feeding once a month during the summer. In the South, especially in the winter, one or more additional feedings may be necessary.

Liquid feedings of water soluble fertilizer may be used, if preferred, but more careful attention must be given to strength and frequency of application. Every four to six weeks

should be adequate depending on the maturity of the plant. Larger and older or more vigorous growing plants require the more frequent feeding. When using water soluble fertilizer, especially on soilless mixes, be sure to use one containing small amounts of trace elements.

Regardless of which method of fertilizer application is used, the soil should be leached about every two or three months. This can be done by placing the hanging baskets in a sink and thoroughly watering the plants so that the water runs from the bottom of the container freely. This should be repeated twice. Also be sure to provide proper drainage. Use a layer of broken clay pots or coarse gravel in the bottom of each container. If the hanging basket selected does not have a drain hole in the bottom, it is then wise to consider using a plastic or clay pot with drain holes of sufficient size as an insert in the hanging basket itself.

In general it is best to keep most plants uniformly moist but not wet, and allow the soil to dry out slightly between waterings. Newly potted plants do not require as much water as mature plants or those which have been root bound.

Depending upon the size of the plant material and container, one or more plants may be used. In any case, well-grown stock at least three-inch pot size will give more immediate and pleasing results.

To be effective in many of the attractive hanging baskets, the plants do not have to be pendulous or trailing. Often with more expensive, attractive containers it is well to have at least part of them exposed. This permits a wider range of flowering annuals to be used, especially when decorating balconies, eaves, patios and other outdoor areas.

Here are a few annuals for your consideration which are new for 1978. All can be grown from seed. For quicker results we recommend purchasing three-inch pot plants from your garden center or nursery.

Begonia 'Mars'—a richer red, with larger florets than most other red fibrous rooted begonias. The color remains vivid as the florets mature. 'Mars' has smaller leaves than most big-flowered begonias. It will thrive in sun or shade in most parts of the country except in the extreme south, where it requires shade. Given a sunny window it is also colorful indoors.

Browallia 'Marine Bells'—a new, intense deep indigo blue. A deeper color than 'Blue Bells' with a more compact habit and abundance of blooms. Ideal for outdoor shade but will tolerate a few hours of sun.

Coleus 'Saber'—a distinct new type of coleus with long, saber-like leaves, very closely spaced on dwarf, base-branching plants. Available in seven lively colors—Scarlet; Velvet (red); Pastel (salmon); Jade (ivory with green margin); Golden; Clown (red, salmon, yellow and green striping); and Pineapple (red blotches on yellow-green leaves). Suitable for shade or semi-shade outdoors. Can also be effective indoors if given a sunny window during the winter. Sabers tend to stretch less than most other coleus but may be pinched when necessary.

Cuphea platycentra (Mexican Cigar Plant)—reselected from the species, this is an attractive plant just for it's bright rich green foliage accented by lighter veins, but when dotted with tiny tubular bright orange-scarlet blooms it is really exquisite. Ideal for a sunny location outdoors.

Probably the most popular annuals for hanging baskets are Elfin *Impatiens* and Cascade petunias. For something a little different, why not let the cook have a hanging basket of parsley for winter use? It should thrive in a kitchen window and provide fresh garnish for food. Parsley and chives make an attractive and useful combination. Herbs such as basil and peppermint also work well.

Foliage plants make fine hanging baskets. Many of them will grow in subdued light and are effective year round in the home. Here are some recent introductions.

Aerva sanguinolenta—will stand full sun or shade. Leaves are round, somewhat pointed, maroon in sun, while a reddish cast on green in shade.

Cissus 'Ellen Danica'—fast growing with larger leaves than other *Cissus*. Branches freely.

Dracaena deremensis 'Warneckii'—this variety has ivory white wide stripes on green leaves. While a plant with vertical habit, it is effective in hanging baskets as a young plant. Suitable for situations with reduced light.

Maranta depressa—a small-leaved maranta which stays small especially when pruned. Tolerates low light.

Peperomia quadrangularis—a slow-growing, creeping plant with tough stems and leaves. Keep on the dry side and allow to dry out thoroughly between waterings.

Peperomia stolonifera—rounded leaves on hairy stems. Plants hang directly down over the side of basket—not a usual habit for peperomias but very interesting.

Piper ornatum—a tropical vine with large heart-shaped leaves beautifully marked with reddish silver veins.

Red Equator Plant (*Hemigraphis*)—dark green oval leaves with deep purple reverse. Plants spread and branch freely without pinching. Requires lots of water.

Red *Plectranthus*—hangs well and branches freely. Reddish purple leaves in sun fading to red green in shade.

A handy book on complete culture and featuring specific directions for growing more than 100 ideal hanging basket varieties of both foliage and flowering plants is entitled *Hanging Plants for Modern Living*, published by Merchants Publishing Company, Kalamazoo, Michigan. This book of 80 pages illustrated in color is available in many garden centers and bookstores, or see the advertisement in Volume 56, Number 3, Late Spring 1977, page 38, of the *American Horticulturist*. □

Autumn's Woodland Wildflowers

Martha Prince
9 Winding Way
Locust Valley
New York, NY 11560

Photographs by
Martha and Jordan Prince

Autumn wildflowers, to most of us, are the roadside ones—the yellow plumes of goldenrod (*Solidago* species) and the vivid blue of asters (especially the New England Aster, *A. novae-angliae*). We think of woodland color as leaf color. Lovely that is! What would fall be without the flaming maples, the deep winey red of the Sweetgum (*Liquidambar styraciflua*), the yellows, browns and reds of the oaks? We tend to view October from a distance, as a large, bright and sweeping canvas.

But come closer! Even the roadside flowers may surprise you, if you stop your car. When I drive along the neatly mowed Highway 76 in Georgia, I wonder if the workman in his big yellow machine realizes he is trimming orchids? He is. There are thousands upon thousands of little white Ladies' Tresses (*Spiranthes cernua*) forming the "grass" shoulder of the road. I introduce you to this lovely little flower first, not only because it is common from New England to Georgia, but because the sunny roadside is not its only location. Follow it into the woodland, and you have other surprises in store.

Fall blooming are members of the blue and purple Gentian family. There is a lovely little poem by Emily Dickinson which begins, "God made a little gentian." Look it up. Among these blossoms of "Tyrian" hue, as the poet calls them, the most famous is the rare annual or biennial Fringed Gentian (*Gentianopsis crinita*). You will find it more often in the rock garden than in the wild, however. My own favorite is one of several Closed Gentians or (Bottle Gentians), *Gentiana saponaria*. It is not really a rarity, but you must know where to look. Each October my husband and I take a picnic lunch to the stream-side rocks above an old and tumble-down waterwheel mill. Each October the gentians are faithfully waiting for us. There are only four or five plants (they are perennials) and during all the years we have visited them, they have not multiplied. I have only two other spots where the blue of *G. saponaria* is sure to be—both damp. One is by a little stream I've known since childhood, and the other below a small waterfall. There is another handsome Bottle Gentian, *G. andrewsii*, with wider leaves and a more tightly closed top. With my *G. saponaria*, you can open the flower with a finger tip, and find the white membrane between the blue petals; *G. andrewsii* is so tightly closed you must really tear it. What a problem

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Left—Cardinal Flower *(Lobelia cardinalis)* Above—White Turtlehead *(Chelone glabra)*

The Weston Story

William McElwain,
Director of Youth Commission
Town of Weston, MA 02193

Now entering its ninth season as a going concern in the western suburbs of Boston, is the Green Power Farm, located in the colonial town of Weston, Massachusetts, which until recently was a country village dominated by farms. Green Power is operated as a community farm, worked by young people, under the supervision of the author. Its purpose is to provide seasonal employment for local young people, while supplying low-cost, fresh produce of high quality to low-income people in nearby Boston.

How the farm got started is interesting, and an example of how a group of people with an idea can, with a little help from the right places, produce some surprising results. In spring, 1970, a group of local people came together on the site of the present farm, at that time owned by a college, but later bought by the town for conservation and recreation. The possibility of starting a farm on this land was adopted and the project began, with everyone in the group pledging support in the form of labor, equipment, and money.

We hand-cleared two acres of the land, which was overgrown with brush and weed-trees, then hauled in loads of manure from nearby stables by car and trailer; and spread it by hand, along with limestone and fertilizer. This was necessary for a good first crop, since the land had been idle for almost 20 years. We planted a variety of sure-fire crops like corn, beans, onions, tomatoes, watermelons, squash, and cucumbers, plus regional favorites like collards and okra. When harvesting began in July, we hauled the produce into Boston to be distributed gratis to needy families in a public housing project.

The first season, we estimated we had hauled and distributed about 12 tons by the time we got our last load of squash into the city in November. As we learned the conditions of life in the housing project, we got a better idea of the value of our service to the recipients. Their gratitude was apparent to us when they started making cash donations to help with our expenses the following year. Soon, as friendly relations developed, the people from the project started coming to volunteer their help at the farm, especially with thinning, weeding and transplanting. Many of them, mostly women, told us of their childhood on farms back in Florida, Alabama, South Carolina, and they invariably spoke with real nostalgia and love of the land that had not been obliterated by concrete city landscapes.

Each year we added to the size of the farm. We found the demand for our produce to be unlimited. As our project grew, so did our costs. We decided in our fourth year that the kids, who had put in so much time as volunteer farm workers, deserved to be paid for their work. When we started paying them the minimum wage, our costs jumped, and we had to start charging a flat rate of one dollar a crate for produce—a price we have kept to this day. With vegetables wholesaling at anywhere from three to ten times that rate, our customers were glad to pay the price, and that enabled us to pay our labor bills.

Our overall costs were ridiculously low from the start, since we had free land, free use of a town truck, town tractor, free manure, free crates from the local market, sometimes free seed and fertilizer, and even the gift of a portable, aluminum irrigation system, do-

Right– Maple sugaring in Weston

nated by a group of young people who earned the money with a hunger march. Citizens made unsolicited donations, often as much as one hundred dollars.

As the farm grew, more young people were attracted for summer work. This fitted in well with the efforts of the Weston Youth Commission to foster work for local young people.

In 1972, the farm was absorbed by the Weston Youth Commission as one of its main projects. One of our major goals was to get projects on a self-sustaining basis, so as to be no burden to the taxpayers—one reason why our projects have had a lot of popular support.

In the winter of 1972–73, the farm was joined by another major Youth Commission project—maple sugaring. We had been wondering why we shouldn't use some of the hundreds of large sugar maples lining the streets to collect sap and set up a small sugar house. As luck would have it, there was a Vermont family living in town, who had all the equipment needed for a start in sugaring. This hard-working family trucked all their buckets, along with evaporator, tanks and other equipment, to Weston. Having no official site for the project, we set it up in the driveway in front of their house in a temporary shelter.

Our luck held. There was a good sap flow throughout the season, and we produced about fifty gallons of syrup that pleased local palates—even though in Vermont it would not have rated "Fancy". We put on a sugar-on-snow party just

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Photo by Author

Exotic Ferns for Today's Home

F. Gordon Foster
P.O. Box 136
Sparta, NJ 07871

Ferns as house plants had their origin in England during the middle of the 19th century. Wild ferns were stripped from the countryside for use in cottage gardens while people of the affluent society purchased imported tropical species or "stove" ferns for display in their newly acquired Wardian cases. So enthusiastic were the English plant lovers that historians refer to this period as the "Victorian Fern Craze." Now, over a century later, this mania has reached America.

Ferns are strictly foliar plants and may be used in many ways throughout the home. Suggested uses as table plants, in hanging baskets, planters, room dividers, terrariums and pedestal mountings are but a few. Ferns displayed individually or in combination with flowering plants blend with just about every decor.

At the turn of the century, American plant lovers were more or less restricted in the choice of ferns to the Boston fern and some of its cultivars. Fortunately, growers have become cognizant of our desire for ferns and species almost unheard of a decade ago are now commonplace in today's market.

Contrary to popular belief, ferns are *not impossible to grow*. Rather, with a little basic knowledge of their culture and consistent care, ferns are as easy to grow as many flowering plants.

Most ferns prefer a loose, humusy soil, somewhat neutral to slightly acid, to which a few small shards have been added. Water is critical; many ferns die because of excessive water around their roots and insufficient water in the atmosphere around their leaves. Strive for a mildly damp soil and a room humidity in the 50-60 percent range.

There are many kinds of fertilizers available for ferns. I prefer to use a solution of emulsified fish oil, one tablespoon per gallon of warm water, every four to six weeks while the plant is in its active growing period. In all fern growing, do not feed when the plant is in its resting period.

Ferns are relatively pest-free plants but constant vigilance is the price of control. Quarantining newly acquired plants is always a good policy. Daily inspection is simple and, to keep an infestation from getting a foothold, is timesaving in the long run. In the early state a Q-tip in alcohol will be sufficient for aphids and mealy bugs. Spraying with a mild solution of nicotine sulphate and ivory soap flakes is helpful but care must be exercised with delicate croziers. Where there are not many turtle-back scales I still recommend handpicking as the safest; burning badly infested leaves or plants is the best therapy.

Photos by Author

Left—*Cyrtomium falcatum*, fertile area
Above—Bird's-nest Fern *(Asplenium nidus)*

Ferns having hard or glossy leaf surfaces are less critical of the atmosphere of modern homes and make good house plants for beginners. Best in this group are the Boston ferns and holly ferns.

Boston ferns are successive mutations of the wild sword fern of Florida, *Nephrolepis exaltata*, and have been derived from the first mutation discovered in 1895. At that time this fern met with immediate popularity, a position it has held ever since. Since the discovery of the original Boston fern, mutation after mutation has been produced in horticulture, with each mutation becoming more upright and bushy. Leaves two- to five-

Staghorn fern *(Platycerium bifurcatum)*

pinnate have replaced the original one-pinnate plant. Early among the names of these mutations were 'Bostoniensis', 'Piersonii', 'Elegantissima', 'Compacta', and 'Whitmanii'. Now the one most commonly found in stores is known as 'Fluffy Ruffles'.

The progenitor of the Boston ferns lived an epiphytic life mainly on the bark of cabbage palmettos, which suggests good drainage as a requirement in potting. When the plant becomes nearly dry it is best watered by soaking in a tub until the air is expelled. Ordinarily twice to three times a week should suffice.

Boston ferns do not produce viable spores but readily reproduce by wiry runners or stolons. Too many stolons can cause an untidy appearance; remove them if vegetative propagation is not desired.

Japanese holly-fern, *Cyrtomium falcatum*, a native of Japan and China, has escaped into many warm areas throughout the world. Leaves, 12-24 inches in height, are one-pinnate with dark, glossy green leaflets edged with spines, giving the appearance of a sprig of Oregon holly. Because of the harshness of the leaf tissue this fern can tolerate drier room conditions. The cultivar, 'Rochefordianum', has more deeply incised leaflets, giving the specimen a more pronounced holly appearance.

Polypodium aureum has leaves 24-48 inches long growing from a stout rhizome covered with chestnut-brown scales. It is from this "furry foot" that the plant receives its common name, "rabbit's-foot" fern. Grown in an eight inch shallow clay pot, the rhizome will in time climb out and cover the side walls, adding an unusual beauty to the plant. Try propagating a new plant by tying a damp jiffy pellet to an active growing rhizome. After rooting occurs, sever from the parent and establish a new, independent plant. Rabbit's-foot fern looks best when displayed on a pedestal or on a low bay-window sill.

There are more than 400 spleenworts growing throughout the world. Some of these have fernlike foliage; others are so different that they bear little resemblance to the fern family. A good example of this diversity is between the bird's-nest fern, *Asplenium nidus*, and the New Zealand mother fern, *A. bulbiferum*. Both of these spleenworts are excellent house plants.

Bird's-nest fern has long, strap-like leaves of brilliant, waxy green growing from a central crown. Heavy costas or midribs of purple-black make a contrasting pattern. The plant is an epiphyte of the old world tropics and has a shallow root system. Planting it in a fibrous medium assures good drainage so important for all arboreal ferns. If leaves appear to have scalloped edges, be on the alert for small snails and slugs while the croziers are still tightly coiled. The use of a powdered slug repellent will solve the problem.

New Zealand mother-fern has leaves both beautiful and unusual. In addition to reproducing sexually by spores, a time-consuming process, this species may also be propagated vegetatively from the "fernlets" which grow on the upper side of the leaf. Pin several of these leaves on a tray of growing medium and watch the new plants establish an independent root system within a few weeks. In the New Zealand bush this fern grows to six feet in height; in the home 12 to 18 inches is normal.

Most charming of all ferns are the delicate maidenhairs. Our native northern species, *Adiantum pedatum*, is commonly known but only a few people realize that there are more than 200 species of this fern growing throughout the world. Most of these ferns grow in tropical areas and several make ideal house plants. Fan-like patterns of leaflets of many maidenhair ferns remind us of the leaves of the ginkgo tree; all have soft texture and reflexed edges covering their spore cases.

My first choice is the Venus or southern maidenhair fern, *A. Capillus-veneris*. It's leaves are soft and flowing, ranging from a few inches to a foot in length. The exposed smooth, purple-black stipe and rachis give a pleasing contrast with the leaflets of apple-green. While the plant may be used as a potted specimen, it's true beauty is achieved when it is grown in a hanging basket.

Rosy maidenhair is entirely different. This species makes a vertical, bushy plant 6 to 12 inches high. Unfolding croziers are reddish-brown and as they unfold the leaves become dark green. Careful examination will show that the leaflets, stipes and rachises are *hispid* or covered with tiny spines; it is from this feature that the specific name, *hispidulum*, is derived.

Walking maidenhair, *A. caudatum*, is the curio of the genus. This fern has leaves that "walk" to nearby pots where the apical end will root and start a new plant. I use jiffy pellets to start these terminals for my friends.

There are many beautiful maidenhair cultivars now

available. Some of these appear very bushy because of their overlapping leaflets. Two in particular, "Ocean Spray" and "Pacific Maid" are worth hunting for.

Another little gem from New Zealand is their button fern. *Pellaea rotundifolia*. This is really a rock brake, and, while occasionally found in damp wooded areas, it prefers the faces of rock cliffs. Leaves grow from a tufted rootstock and have button-like leaflets alternately spaced along a scale-clad, wiry rachis. Leaves tend to grow horizontally, making it a good plant for either pot or basket. Young button ferns make good companions for rattlesnake-plantain, *Goodyera pubescens* and pipsissewa, *Chimaphila maculata*, when grown in a terrarium.

Some of the easiest ferns to find on the growers' tables are the stove brakes, different species and cultivars of the genus *Pteris*.

Victorian brake, *Pteris ensiformis* cv. Victoriae, has variegated leaves of dark green and silver. Leaves are *dimorphic*, the sterile ones low and bushy while the fertile ones are erect with narrow segments carrying spore cases beneath a continuous margin.

Trembling brake, *P. tremula*, is a native of Australia and Tasmania. Buy several small ones and use them as a foliar background among colorful flowers in the winter-planter arrangement.

Davallias have long been my favorites. These epiphytic ferns are at home in the beautiful South Pacific Islands. All have "furry" rhizomes that soon stray from their containers. Most beautiful of the group is *Davallia fejeensis* cv. 'Plumosa' with its feathery, light green leaves. I have had one of the Davallia ferns growing in a carved tree-fern planter for over 13 years. Each year it goes into a resting period when its old leaves drop off, soon to be replaced by tiny new croziers. The soil has not been replaced during this time but an application of fish oil emulsion has been given at regular intervals. Where tree-fern fiber containers are used drainage is excellent and overwatering is impossible.

Staghorn ferns are the most unfern-like of all ferns. Many of their leaves resemble the antlers of an Alaskan moose. There are about 18 species that grow in tropical Africa, Australia, Malay and South America. Large, beautiful staghorn ferns may be purchased mounted on plaques ready for hanging in the home. Since the larger ferns take time to get to market they command a high price. Smaller ones can be purchased and mounted on a piece of horticultural cork bark. It is fascinating and worthwhile to watch the "antlers" grow as well as the shield leaf tightly knit itself against the bark. These ferns are critical to temperature much below 60 degrees F. Allow them to come to near dryness before watering. Excessive watering will rot the roots. □

Rhodohypoxis-

Photos by Coulter Stewart

Virginia Stewart
155 Broadmoor Court
San Anselmo, CA 94960

In 1927 Susan Garnett-Botfield of England received a small package from a friend in South Africa. The box contained dry turfy matter, some soil and to all appearances little else. The mysterious contents of the package were put in a box of sand and six months later there appeared a flower of *Rhodohypoxis bauerii* and after one year another single flower of *Rhodohypoxis platypetala* appeared. It is from these two plants that the genus *Rhodohypoxis* was reintroduced into England after a period of approximately fifty years.

Not too much has been written about this genus, and possibly it isn't too well known, but certainly anyone who has grown these lovely little bulbs can attest to their beauty and value as a most desirable garden subject. Native to the Drakensberg Mountains of South Africa they grow at altitudes of 3,500 to 4,000 feet. Mrs. Garnett-Botfield was so intrigued with her plants that she later visited South Africa where she could see them growing. She reported never seeing the red *R. bauerii* growing in the same locality as the

Small Bulbs, Great Rewards

white *R. platypetala*; each maintained their own separate colonies.

Both the late Mrs. Garnett-Botfield and her daughter Mrs. Ruth McConnel of Farnham, Surrey are responsible for a number of lovely and interesting cultivars. Unfortunately there aren't many suppliers in this country. In our garden located in the central, coastal area of California they grow out-of-doors, planted in the garden. The soil is sandy with leaf mould added. They are said to dislike lime; however, in correspondence I have had with Mrs. McConnel she reports they will grow in limey soil although they do not look too happy.

Rhodohypoxis also do well in pots providing the drainage is excellent. In our garden we have found that they multiply and have a longer blooming period if not restricted by pot culture. In my experience I have never grown any bulbs that have a more extended blooming season. Beginning in early May they will bloom for three of four months. When planted out in the open they do not seem to require a resting period. Our plantings are watered along with other plants in the rock gardens and do not appear to suffer; however, those grown in pots are benefited by a brief drying out period during the winter months.

From all reports the bulbs are quite hardy. Ours went through a very cold winter in 1972 when they were frozen for five days both in pots and in the ground and survived to bloom in the spring. Propagation is by seed and by division when the bulbs become crowded. The best time to divide is in July, even though they may still be blooming, but never later than August. This seems unusual but it has been acknowledged to be the best time.

Left—*Rhodohypoxis* 'Fred Broome' Above—*Rhodohypoxis* 'pictus'

The genus *Rhodohypoxis* belongs to the family *Amaryllidaceae* and is closely related to *Hypoxis* in which genus they were originally included. In 1914, the South African botantist G. Nel, decided they should be in a genus of their own and so established the genus *Rhodohypoxis* of which to date there are only two species. *R. bauerii* with rose-red flowers and *R. platypetala*, similar to *R. bauerii* but with white flowers sometimes flushed pink. Some botantist regard this species as only a variant of *R. bauerii*.

In appearance *Rhodohypoxis* appear quite fragile but in reality they are very sturdy little plants. The leaves are hairy, blade shaped and two inches long. The flowers are an inch to an inch and a half across and are borne singly on slender erect stems two inches in height.

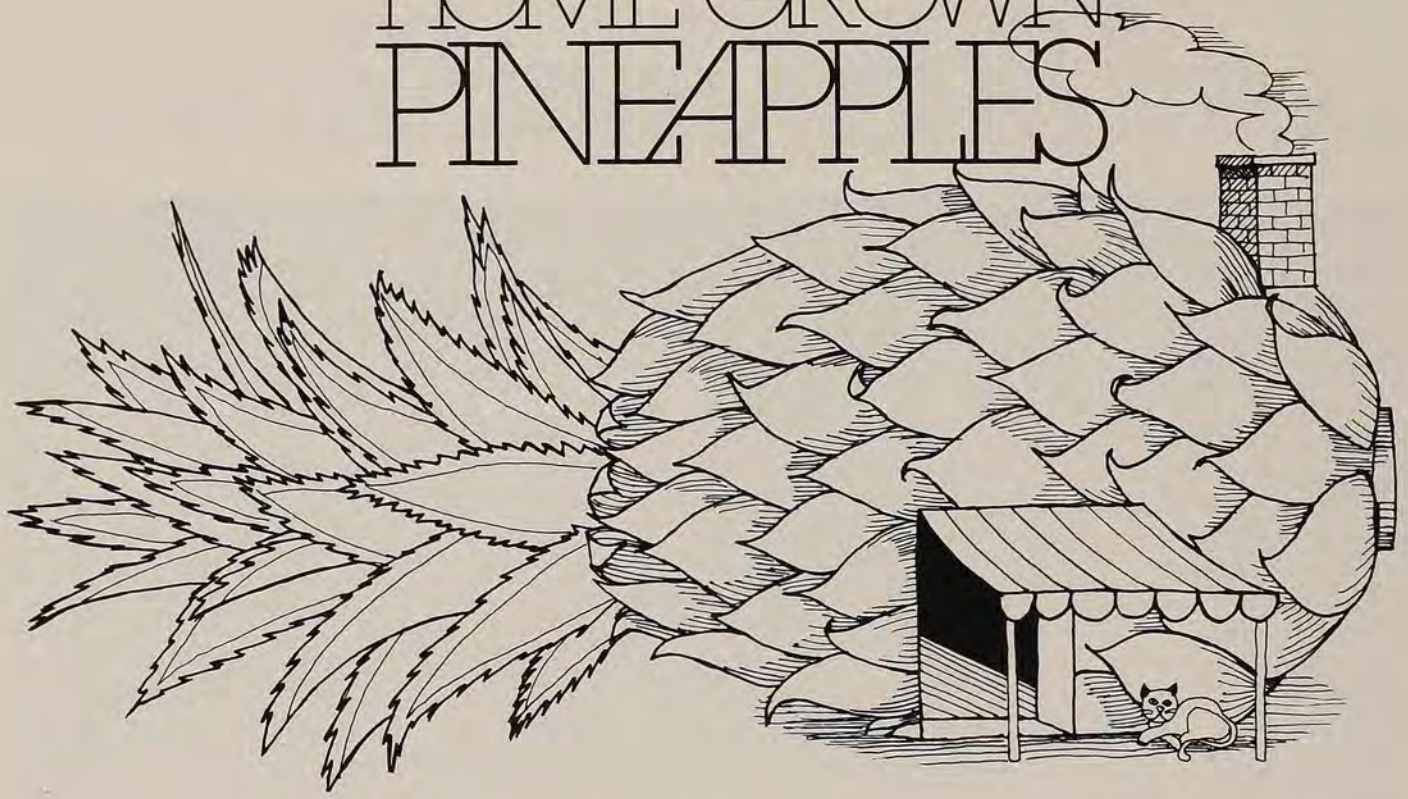
A word of caution from Mrs. McConnel on the handling of newly acquired bulbs. When received in fall or early spring do not put them in the ground immediately. First place them in pots or boxes with slightly moistened peat and place in a frost free spot. When green tips start showing, water lightly and plant out about April.

Some of the cultivars we grow and like are—

'Pictus' glistening white, pink tipped.
'Albrighton' red.
'Dawn' pale pink.
'Fred Broome' deep pink, large flowered, named for Mrs. Garnett-Botfield's head gardener.
'Great Scot' small flowered but intense red.
'Susan Garnett-Botfield' soft almond pink, large flowers.

An added joy in growing *Rhodohypoxis*, certainly a plus factor, is that they are disease and pest free. Even snails and slugs leave them alone! □

HOME GROWN PINEAPPLES



Dr. James Soule
Dept. of Fruit Crops
University of Florida
Gainesville, FL 32611

Pineapple [*Ananas comosus* (L.) Merr.] is the most important member of the predominantly epiphytic air plant family *Bromeliaceae*. Indians cultivated pineapples in tropical America in pre-Colombian times. Plants were taken to Spain about 1535 and gradually spread throughout Europe. Pineapple became a popular fruit in royal and private gardens in France, England, Holland, Germany and even Russia when greenhouses came into vogue in the 17th and 18th centuries.

Pineapple is regarded throughout the world as the finest of all native American tropical fruits. Nearly everyone is familiar with canned slices, chunks, crushed fruit or juice. Many people have purchased fresh fruit in the local supermarket. Visitors to Hawaii, Mexico, Caribbean area and other parts of the humid tropics have seen the plants and enjoyed the delightful fragrance and savor of freshly harvested fully ripe fruit. Increased acquaintance with the fresh fruit has led to growing interest in its culture. Indeed, the pineapple, although strictly tropical, is probably better adapted because of its size and other attributes to home or greenhouse production than almost any other fruit.

Pineapple was widely grown through the tropics to supply fruit for local consumption from home plantings until sizable commercial industries were established in Australia in 1840, Florida and South Africa (Natal) about 1860, and other countries. The modern era began in the 1880's and 1890's when improvement of marine transportation permitted shipment of fresh fruit and the first canneries were established. Hawaii's first cannery was built in 1906. Florida's industry grew to 5000 acres in 1908-09, but later declined. Hawaii supplanted Florida as the major U.S. (and world) producer about 1915.

Pineapple is a major commercial fruit crop in Puerto Rico (U.S.), Dominican Republic, Cuba, Jamaica, Martinique, Mexico, Costa Rica, Honduras, Guatemala, Venezuela, Columbia, Ecuador and Brazil in the Western Hemisphere and in the Philippines, Malaysia, Taiwan, Thailand, Australia, South Africa, Mozambique, Kenya, Ivory Coast, Guinea, Cameroons, Nigeria and Zaire in the Eastern Hemisphere.

Pineapple is a low herbaceous perennial reaching about four feet in height and spread. A mature plant will have 60 to 80 long, narrow, V-shaped, spiny or spineless margined, sharp-pointed medium to dark green leaves. There is a single terminal bud in the center of the rosette and a lateral bud in every leaf axil, including along the fruiting

stem and crown. Offshoots are named ratoons, shoots, hapas or slips according to their position on the plant and diminish in size from the ground upwards. The inflorescence contains up to 150 pale blue or lilac, sometimes purple-tinged flowers, with green or reddish bracts and a rosette of leaves (crown) at the upper end. Flowers open over a period of about 10 days to two weeks. Natural differentiation of flowers occurs about 10 to 16 months after offshoots are set in the field. The developing inflorescence is visible about three to four weeks after differentiation and fruit mature in about six to eight months.

Out-of-season flowering of pineapple can be induced by treatment with any unsaturated hydrocarbon, such as acetlylene or ethylene, or any of several growth regulators, including **a**-naphthaleneacetic acid, **b**-naphthaleneacetic acid, indolebutyric acid, indoleacetic acid and **b**-hydroxyethyl hydrazine. Best results are obtained when plants are treated at night.

There are probably 150 to 200 varieties of pineapple now in cultivation around the world. Only about 25 are grown on a large scale, with 'Smooth Cayenne' and closely related forms predominant. There are five fairly distinct groups, "Spanish," "Queen," "Abacaxi," "Cayenne" and "Maipure," separable on the basis of plant and fruit characters.

Present essentially seedless varieties of pineapple were originally possible mutations of seeded wild forms. Long continued vegetative propagation has perpetuated types which were and still are highly heterozygous in genetic constitution. Pineapple varieties not only exhibit frequent spontaneous mutations in virtually all characteristics, but are also highly self-sterile (self-incompatible). This necessitates continual rigorous selection and roguing of plant material to eliminate undesirable mutants, although desirable mutants do appear occasionally and are often the most feasible means for obtaining superior strains of existing varieties.

Pineapples are cultivated in frost-free areas. Leaf and root growth is nil below 60 degrees F, maximum at 80 degrees to 90 degrees and again nil at 105 degrees. Appearance of plants and fruit quality differ markedly with lower temperatures than the optimum; plants becoming progressively smaller, with shorter, more spreading leaves, and fruit smaller, with more pointed eyes and paler colored, more opaque flesh having poorer flavor. Optimum annual rainfall is 40 to 60 inches. Plants require at least four and one half hours sunshine per day. Most varieties are indifferent to day length but 'Smooth Cayenne' is a short-day plant.

Pineapple has a small, shallow root system and is very sensitive to excess soil moisture. Best soils are well-drained, well-aerated acid sands to manganiferous clays, with no free lime present. Proper pH range is 4.5 to 5.5 or somewhat lower.

Pineapples are propagated by shoots, hapas, slips or crowns, obtained from older plants. Ratoons are almost never used, nor are basal slips or shoots or slips from plants with multiple crowns or other aberrations, as these characteristics are undesirable. Plants are set in single, double or triple rows, mainly double.

High planting densities (up to 20,000 or more per acre) used in commercial pineapple plantings necessitate careful, continuous attention to weed control through use of plastic strips and application of post-planting herbicides, high fertilizing rates, fumigation to control nematodes and other soil-borne pests, and application of insecticide sprays to the plants for above-ground pests such as ants and mealy bugs, and irrigation as components of the overall cultural program. Pineapple fields are generally operated on a four- to five-year cycle, a main crop and one or two ratoon crops being harvested before the field is replanted. There are some fields, however, which have been harvested continuously for 30 to 50 years.

Pineapples are harvested when fully ripe for either cannery or home use or sufficiently early for fresh fruit that they will not ripen until offered for sale. Maturity is ordinarily based on rind color, which like flesh color develops first at the basal end. Rind color varies according to fruit weight, environmental conditions and variety for the same degree of flesh color. Fruit must be left on the plant as long as possible, since sugars increase and acidity decreases rapidly, thus raising fruit quality, as rind color changes from the initial dark green to lighter green and finally to yellow, orange or red characteristic of the variety.

Indoor or greenhouse culture of pineapples requires certain modifications of ordinary commercial practices. Fortunately, the root system is small enough so plants can be grown easily in a five-gallon can or other container of equivalent size in a mixture of peat and sand. The container should be perforated and set on bricks to provide good drainage. The most readily available plant material would be crowns saved from fresh fruit. Crowns of any variety may be used but those without spines (e.g. "Cayenne" type) would be preferable. The crown is cut or snapped off the fruit, adhering flesh trimmed away, and laid up to dry for at least 10 days to allow the cut surface to heal. The bottom leaves are pulled off and the crown is set as shallow as possible without toppling over in the container. A smaller container may be used at this stage, with a transfer to the permanent one later. Water lightly once or twice a week. Full sun and a temperature range of 80 degrees to 90 degrees F are necessary. Fertilizing can be started after the crown begins to put out new leaves. Soluble fertilizer should be applied about once a month in amounts sufficient to maintain a good deep green color. A plant grown from a crown should bloom

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Minor Bulbs for Great Surprises

A. Hamilton Mason
422-G Avenida Castilla
Laguna Hills, CA 92653

It has long been a policy to classify spring-flowering bulbs that are not tulips, daffodils or hyacinths as minor. This is hardly fair to all those flowers that so strenuously bid winter farewell. Surely, you don't think there's anything minor about that first crocus you see, do you?

And if you think crocuses are the only harbingers of spring, you have many surprises in store for you as you read along. Each of the numerous spring bulb-flowers has distinction in its own right and deserves planting for the special pleasure it affords.

These spring surprises fill a gardener's needs in many ways tulips and daffodils generally do not. The majority of them bloom very early. They fit into small areas for large splashes of color. Many of them grow only four to six inches tall, providing a charm that only the miniature can evoke. A lot of them increase rapidly, making a more impressive show each year. Most of them have small bulbs, which means quick and easy planting. And they are inexpensive—affordable regardless of your taxes.

You can plant these bulbs in any soil that's well drained. Prepare the soil, whether it be just a pocket or a large area, a couple of weeks ahead of planting time. Turn the soil over to a depth of six or seven inches, break it up well (no big clods wanted), and mix in bone meal. This is for fall, when bulbs must go into the ground if you want results in spring. By loosening the soil ahead of time, you can perform the actual planting at a good clip, with no resentment of the work involved. When spring comes around, feed the bulbs with a fertilizer high in nitrogen and potassium—essential if you want bulbs to persist for many years.

Right—Crocus
Above—*Allium aflatunense*

Alliums. What are they? Onions, Garlic, Chives. Fine for the vegetable garden, you say— and for cooking. Can't do without them. Right, and you shouldn't do without the ornamental members of this family in your flower garden. They're easy to grow. They increase annually. They have enough colors to suit everybody. They have a long blooming season. And they're good for cutting for enjoyment indoors. May bloomers are: *Allium aflatunense* with light purple flowers on two to three foot stems; *A. karataviense* with mottled foliage and pink, long-lasting flowers on eight-inch stems; and *A. rosenbachianum* with purplish flowers on three-foot stems. *A. rosenbachianum* continues into June when you also have: *A. albopilosum* with 12"-diameter heads of lilac starlike flowers on two-foot stems (let some fade on the plant, they make outstanding material for dried arrangements); *A. caerulem* with bright cornflower-blue flowers on two-foot stems; *A. giganteum* with globes of light violet flowers on three to four-foot stems that last two to three weeks cut and even longer in the garden; *A. moly* with showy yellow flowers and the virtue of rapid increase; and *A. ostrowskianum* with bright pink flowers on six-inch stems. Ending the allium season in July is *A. sphaerocephalum* which grows to two or three feet and produces crimson flowers. With this choice of heights and colors and time of blooms you have something for any location in your garden. Just let yourself go.

Anemones have flowers that measure two inches across and grow to only three or four inches in height. To be effective, they must make a mass effect. Plant them four inches deep in groups of a dozen or more. With plantings in different locations, you enjoy them no matter which way you turn. They're ideal for rock garden or along the edge of a shrub border where they bloom for several weeks from March into April. Like a number of others

among the early arrivals, their long flowering period is helped by coolness of weather at the season's start. You can select single colors or a mixture: blue 'Atrocaerulea', red 'Radar', white 'White Splendor', blue and pink Mixed. Although they are commonly named windflowers, there is nothing fragile about them. They weather temperature changes you don't like. That's why you plant them—to keep you cheered up and optimistic.

Chionodoxa is a big name for a small flower. Translated, it is glory-of-the-snow, a common name that is no shorter but easier to remember. So do remember to plant this in quantities this fall—four inches deep and three inches apart in a sunny spot in well-drained soil. Although each bulb sends up stems with multiple flowers of delphinium-blue with a white star-shaped center a few bulbs are not enough to produce the heart-warming display you want in early April. Even though the bulbs multiply rapidly, start off with a few dozen so you'll be impressed the first year. And plant them where they can remain undisturbed. That means a place where you won't be digging up the ground for summer planting. Glory-of-the-snow is not too long lasting when cut, but its brilliant blue adds immeasurably to a miniature bouquet or arrangement.

Although the crocus is usually associated with early spring, there are varieties and species to provide bloom during most of the year. Understandably enough, greatest affection is reserved for the ones that push through the snow in mid-March. These are the Dutch hybrids, and if you plant all the varieties you can extend the season of bloom and have a great range of colors: yellow, blue, purple, violet, white, brown, and bicolors. Plant bulbs three to four inches deep and three inches apart. Scatter them through the lawn (their grasslike leaves mature unobtrusively) or plant them in pockets in a rock garden or in groups to edge shrubbery. First flowers risk being nipped by cold, but buds continue to appear and open. No fear of their being frozen out. The showy, tough, persistent crocus deserves its long-enduring popularity, which goes back to 1600 B.C. You can see it in a Minoan fresco from Knossos.

Eranthis, or winter aconite, looks like a yellow buttercup which is not too surprising since it belongs to the buttercup family. Its warm color is especially welcome when the temperature is conducive only to shivering. It can appear as early as February, but more usually in March before, or concurrent with, crocus. This low-growing beauty (only three or four inches high) needs a woodsy well-drained soil in sun or part shade. Plant three inches deep and four inches apart in groups—and in spots where the tubers will not be disturbed. They are sometimes slow to establish themselves and increase, but they are well worth the wait. Once they're planted, let them alone and they will reward you handsomely.

The fritillarias provide two very different kinds of flowers. If you like something regal and imposing, plant a clump of the Crown Imperials (*Fritillaria imperialis*). If you enjoy opposites, plant the modest (but attention-getting) checkered lily (*F. meleagris*). Since they serve different purposes in the garden, you might well want both. They bloom at the same time in April-May, but the two- to three-foot tall Crown Imperials, with yellow, orange, or red flowers bearing a green leafy topknot, are for grouping alone in a sunny spot or combining with tulips and daffodils which are in abundance at the same time. Plant bulbs on their sides six inches deep. The checkered lily (also called guinea-hen flower) needs woodsy soil, fast drainage, and filtered light. The pendent bell-like flowers, on six-inch high leafy stems, fascinate because of their crisscross marking and various shades of chartreuse, purple, reddish-brown and white. Plant these only four inches deep and leave them undisturbed to assure perennial performance.

When it comes to "harbinger of spring," it was Wordsworth who used the expression to describe the galanthus, or snowdrop. The French have the logical name of *perce-neige* for it because it very often pushes up through the snow in mid-March. You might think that the frost-white flowers might not be conspicuous with a white background but they are, thanks to emerald-green markings on three segments. They also shine in a shrub border, a rock garden, or in any patch of unused soil. The joy of snowdrops is their adaptability, reliability and willingness to multiply rapidly. The single form of *Galanthus nivalis* will give you the most satisfaction, but there is a double form, 'Flore-Pleno'. Plant bulbs four inches deep and three inches apart. Mass them together, or combine with bright blue *Chionodoxa*—each a splendid foil for the other.

Snowdrops are excellent for cutting.

The iris is everybody's favorite, but not everybody realizes how early the iris season can begin. *Iris reticulata* is an enchanting dwarf that starts to flower during the third or fourth week of March, hardy enough to defy snow and cold down to at least 8°. The flower has a slight scent of violets and is available in various shades of blue and purple. Being low growers (only four to six inches tall), they offer more enjoyment planted at a slight elevation, as in a raised bed or in a rock garden. Either location provides the good drainage these iris bulbs need to go through a wet summer without rotting. By keeping them dry during summer, they multiply and repeat year after year. If you don't have either a rock garden or raised bed, grow them under a roof overhang where they are protected from rains. Or, you can dig bulbs up after foliage dries and store them in containers of sand in a sunny place away from rain and hose. Plant bulbs four inches deep and three inches apart this fall and you'll enjoy a four-week display in late winter and very early spring.

Iris danfordiae is similar in size to *I. reticulata* but is a radiant yellow spotted brown or olive. This is a true miniature, growing to only four inches in height with flowers two inches in diameter. It is just as resentful of summer moisture as *I. reticulata*, so plant the two together. They make a fine color combination, blooming at the same time, and then you don't have different locations to remember to leave undisturbed. Plant bulbs four inches deep and three inches apart.

Muscari, or grape hyacinth, is one of the most rewarding spring bulb-flowers you can grow because they increase like wildfire. Intense blue flowers on spikes resembling little pagodas appear in mid- to late April. They are particularly attractive edging a shrub border or a walk, or planted in drifts in the garden. To have drifts the first season think this fall in terms of quantity. Bulbs are inexpensive, small, and easy to plant—only four inches deep. They also contrast well with rhododendrons, and if you think you don't live in rhododendron-growing country, try P.J.M. rhodo, hardy to at least 20° below zero. If you use muscari along a walkway, overplant in late spring with sweet alyssum, verbena, or petunias to disguise bulb foliage as it matures. *Muscari* foliage returns in early fall, but don't worry; it's completely winter-hardy. Plant bulbs four inches deep and three or four inches apart. Your choice of blue lies between *M. armeniacum* and *M. azureum*; for white, *M. botryoides* 'Album'.

Puschkinia, the Lebanon squill, will form a carpet of whitish blue in a semi-shady area if you can manage to leave the bulbs undisturbed; if not, their reasonable cost allows for annual replacement. Each stem produces at least six flowers and they have a subtly spicy fragrance, enjoyable only on hands and knees unless you have a raised bed—they're only six inches tall. Plant in groups of one or two dozen, setting bulbs four inches deep, three inches apart. You'll welcome these milky white, blue-striped flowers in March and enjoy them into April.

Scilla siberica looks like a bluebell, but this common name is reserved for the May-flowering Spanish bluebell. "Spring Beauty" is the variety of *S. siberica* you want because it is so vigorous and obliging about multiplying. The blue bell-like flowers begin to appear in March and continue for several weeks unless there is a freak heat spell. You can plant these scillas anywhere. The intense blue is stimulating just by itself or it combines with any other color in a rock garden, beds, shrub border, or as edging for other plants. They grow to four inches from bulbs planted four inches deep, three inches apart, and have from one to three flowers per stem. Either sun or part shade suits them.

Here you have a great choice to add extra zest to your garden, and so many flowers to bring pleasure by stealing a march on spring. □

Photos by Author

EUCALYPTUS

Myra Hamilton
17 Yorna Road
Kalamunda 6076 West Australia

During the American "Invasion" of Australia in the 1940's preparatory to the famous Battle of the Coral Sea, a young seaman, walking in a Perth City Park, rapturously recognized an old friend and fellow Californian, a stately *Eucalyptus citriodora*.

His companion quickly pointed out that it was a Gum Tree and claimed it for Western Australia.

They were both wrong.

The end of this beautiful friendship was the beginning of a life-long love affair with the genus *Eucalyptus*, whose infinite variety, adaptability, usefulness and fascination can only be compared to that of the Genus Sailor.

Over 500 species give endless possibility for study and pleasure. Yet unnamed varieties pique the curiosity . . . about the trees . . . of course.

Eucalyptus citriodora, the Lemon-scented Gum, is a native of the Eastern Coast and the great desert in Central Australia discourages plant migration. This particular tree, however, with it's dappled limbs and graceful foliage, it's bounty of creamy blossom, has certainly travelled and could well have been established in California before it reached Western Australia.

Left—*Eucalyptus preissiana*
Above— *Eucalyptus tetraptera*

Diggers from our eastern goldfields, chasing the pot of gold at the American end of the rainbow, took and planted seed of those trees whose oil they had used in the flotation process for the recovery of gold particles . . . Eucalyptus oil.

The trees flourished. Australians now are welcomed by Eucalypts in most of the civilized world. Eucalypts have helped civilize many areas. Thirsty trees were imported to Italy to drain swampland. In northern Africa they grow to provide shade and water catchment in erstwhile desert. Russia, needing quick growing hardwood, planted Eucalypts which have not only fulfilled their task, but oriented so well to the extreme conditions they have become deciduous.

In climates from sub-temperate to tropical, on coastal plain and moun-

tain range, arid semi-desert and salt saturated swamp you will find Australian Eucalypts. With the exception of those in Transcaucasia, they are evergreen and hardy, and vary in size from stupendous giants to diminutive shrubby types, rather like large bouquets.

And what bouquets! The flowers of the Eucalypt are composed of a floss of filaments densely fringing the seed case or nut. Until flowering these filaments are neatly stowed under an operculum, or lid, which lifts to reveal, depending on type, colors ranging from scarlet, through all shades of red, pink, to white . . . or orange, yellow, lemon to lime green . . . and cream or coral, even mauve and lilac. From tiny blossom to teacup size, they are borne in clumps, clusters and solitary specimens.

The charm of the flower enhances, and is enhanced by the foliage, which may be large and tapering, slender and dependent, round and robust. In many cases, two or even three types of leaf follow each other during the plant development. Colors are from palest green through deep, dark green, or they may be gray, or pink, or silver, ribbed with red or gold. Plumes of new growth, burgundy, bronze, yellow or green spring after the fruiting.

Fruits of individual Eucalypts are the only sure-fire way of positive identification of specie and variety. Smooth or sculptured, hoary or lacquered, small or very large, they are all tough and woody, jealously hoarding the seed to maturity, usually adhering to the tree to dress it in yet another guise.

Eu means well . . . *calypt* means covered . . . a tree well-covered. For horticultural purposes they are among the most striking and beautiful in the world whether in leaf, blossom or fruit. There is a range of size, form and tolerance to suit almost any situation . . . suburban garden, city park, urban and rural plantings, even do-it-yourself forests.

There are those whose great shafts seem to pierce the sky, others which canopy to provide sublime shade, yet others, malleed, or many stemmed, to filter the sunlight. Some cast about in grotesque, and picturesque shapes. Again, many are tidy and discreet, growing just so high . . . so wide. Some have trunks like mottled marble, some are silvered, others powdered stark white. Others have smooth bark, papery bark, gnarled bark, bark that sheds annually in sheets, or slabs or strings.

But the value of the Eucalypt goes far beyond decorative purposes. It didn't take the old-timers . . . the first settlers . . . long to find out a multiplicity of uses. First, of course, timber for housing, furniture and fencing, bark for roofing. Wheeled vehicles needed were made to last and indeed, still may be seen. Fuel for cooking and comfort . . . wood. Some tanning . . . bark.

With progress, uses diversified. Eucalypt hardwood built ships, wharves and warehouses, provided sleepers for developing railways, great poles to carry electricity and telephone cables across the vast continent.

A thriving honey industry is supported by the high nectar and pollen yield; and Eucalyptus oil, besides its use in mining, is still the base of many homely remedies which used internally and externally with gay abandon, has greater or less success depending on the malady and the faith of the consumer!

Woodchipping, as a lucrative international trade, is still in its controversial infancy, but the long practice of forest management will, hopefully, avert damage to natural habitat.

Incidentally, the habitat is not the least of the interest in Eucalypt forests. Birds that laugh, mammals which hop, aquatic creatures like jigsaw puzzles and flying mice, are just a part of the forest pattern down under.

In the light of the foregoing unstinted praise it is difficult to admit shortcoming . . . but such there is. Whilst providing a generous number of the necessities of life, only the Koala, the Australian bear that isn't a bear but a fluffy, cuddly marsupial, finds it acceptable as a diet and dines exclusively on Eucalypt leaves.

The flowers of the forests, particularly in Western Australia, have to be seen to be believed and might well be seen too. Three Californian members of the Society for Growing Australian Plants were welcome visitors at the 1977 Seminar. Subsequent to the formal sessions, during extensive botanizing tours, they captured every available 'native' plant on film.

They captured the imagination and wholehearted admiration of Conference delegates, demonstrating their interest and extravagant success in propagation and acclimatization of dozens of specie.

Should I be so fortunate to visit with you all, I have a strong feeling it would be home away from home . . . along with the beautiful Eucalypts. □

The Weston Story

Continued from page 13

to see what would happen, on a sunny Saturday morning in March. Two hundred and fifty people descended on us to enjoy the traditional sticky maple candy, along with doughnuts and dill pickles. Since all the snow in Weston was gone, due to an early spring, our hard-working friends went to Vermont to get a truck-load of real snow!

The sugar project was more than just a lark. We soon saw that the strong demand for our syrup, at the good price prevailing in the suburbs, could make our coffers bulge. In 1973, we were able to build a permanent sugar house beside the Junior High School. Then, in the spring, the sugar project brings in cash that can be used to start up spring operations at the farm with funds for fertilizer, lime, and seed.

1974 saw us starting an experimental apple cider project, which was an immediate success. We couldn't begin to supply the demand for freshly pressed cider from local apples, made by the kids in an old-fashioned, hand-operated press. This had led us to start reclamation of the many run-down orchards in town. By heavy pruning, fertilization and insect control, we have an assured supply of apples merely for the picking. We have busloads of school-kids come to spend a morning picking up windfalls from lawns, and we pay kids to pick up and box apples in their neighborhoods. The cider we produced was good; good enough to make one man who bought a gallon come back the next day for two more, and tell us, "I'm from New Hampshire, but I never had cider this good in New Hampshire."

The farm is now stabilized at 20 acres on town land, and we are aiming to sell more of our produce to local people at a stand or pick-your-own, as there is a higher margin of profit in this to help us meet our payroll. We are also developing a way to join with other farm operations and city groups to conduct a farmer's market in the city, where people can buy fresh local produce, direct from the producer or through a co-operative. We are planning to extend the range of our projects outside the area of food production into such things as lumbering, cordwood, do-it-yourself auto repair, and hand crafts. In all these projects, our young people will play a central role.

Our program has developed from its modest beginnings. We have prospered by spotting the many unrealized opportunities for useful activity, and developed these in a way that stresses wide participation by people of all ages. I believe there is no reason why the general formula we have followed could not be adapted to the needs of almost any community. □

The Garden House

Lorraine Marshall Burgess
202 Old Broadmoor Road
Colorado Springs, CO 80906

Photo by Author

The Linnaean House at the Missouri Botanical Garden in St. Louis is a charming example of what a garden house can be. This 120 year old structure springs from a tradition of architectural design that dates back three centuries when the Louis' of France wanted winter protection for container-grown fruit, and especially oranges 'fit for a king'. First there were orangeries, and graperies, and soon fig, banana and pineapple houses. These houses were big and many-windowed. Some had glazed roofs. All were oriented to the south for the broadest sweep of the low winter sun, and most structures were outfitted with stoves or fireplaces to protect the tender plants from freezing temperatures.

In time, the old orangeries, figeries, and graperies gave way to less practical uses. The glazed areas became larger, the plant-emphasis shifted to ornamentals. Thus, the conservatory was born. The garden house at St. Louis was built in 1859 by Henry Shaw, the garden's founder, and named for Linnaeus, the world's most famous botanist. Today, a century later, the garden house is still a delightful retreat from winter. Space heaters overhead have replaced the charcoal-burning stoves used earlier. And when the weather is mild all the doors and windows are opened to give an easy flow of air. The idea was right for the 17th, 18th and 19th centuries, and should be right for us.

Left—In the fall, great mounds of impatiens and browallia decorate the Linnaean house.

Today we have at our disposal structural materials which would allow us to build with less weight and more grace. We can use greater expanses of glass with narrower supports, we can span a roof with aluminum and steel framing. We can make use of recent developments in solar heating, using reflecting panels to bounce sunlight into windows by day, and be repositioned over the windows to insulate the room further by night. We can explore some of the novel ways of using solar energy developed by scientists today, from the huge, outside, polyethelene bag that captures and warms air in the sun by day and returns it to the house by night, to a similar exchange of water moved in and out in flexible plastic tubes.

In this century we have learned the value of earth berms and dense stands of evergreens to protect a house from heat-stealing winds. We have charted and grouped plants so we know which ones can tolerate temperature minimums of 40, 45 and 50 degrees at night. We are now using plants that will tolerate considerable variation. This lowering of temperatures may generate slower growth, but the plants will be more firm and their blooms will last longer.

Today our prime goals should be to create a tolerable growing environment in a good location, to select plants which will thrive under these conditions, and to evolve a heating system that is efficient and economical. We will need maximum sunlight free from the shadows of buildings and trees, good soil and good drainage. We must be sure the structure can withstand high winds as well as heavy snows. (Snow weight is a greater threat in cool houses where the snow melts more slowly.) We must understand the value of painting interior walls white to magnify the light intensity, and recognize the merits of a central pool or tank of water to modify extreme temperature changes. We must design with enough air space above to allow for the gentle mingling of air from ventilators, knowing that chill air can shock plants and hot air dry them.

Before starting our own structure we should study plans available through the US Dept. of Agriculture, and know the relative advantages of a rigid frame with an unobstructed clear span over a post and truss design. If we do elect to use trusses we should choose lightweight aluminum designs to minimize the shade cast by these members.

So why not use all the information gained in this century, together with the know-how of our ancestors, to build a private garden house? Even if it is not 'fit for a king', it can be a joy to you for years to come. □

Today's Effort for Timber

Continued from page 7

sites where fertilization will pay for itself in added growth, we supply urea pellets by helicopter for slow-release nitrogen at five-year intervals. Care is taken to avoid streams and lakeshores, while monitoring for any change in water quality. Actually, we use only 18 percent as much fertilizer on these selected acres per year as the average corn producer and only about 9 percent of what you as an average homeowner apply to your lawn.

Any gardener knows the importance of appropriate thinning. Nature thins a stand of young trees by simply starving out the less vigorous or thrifty saplings. In High Yield Forestry practice, we do the same thing on a better systematic basis through pre-commercial thinning. That is, the trees at this time are too small to have commercial value; and those cut in thinning are left to recycle into the forest soil.

At a later stage as the young forest grows to commercial size, it's ready to be thinned again. However, now trees removed can be utilized. An essential part of our HYF program has been the construction of new mills capable of efficiently handling the small logs from thinning harvests. Typically, these are processed to produce dimension lumber (two × four's) from the center of the log, while the round-sided slabs of the log are chipped for pulp.

The famous American conservation leader, Aldo Leopold, defined conservation as being the wise use of resources. To us, that means, among other things, extracting the maximum amount of wood fiber from a harvested tree, with minimum wastage. Not long ago, market conditions and technological limitations made it possible to use only about 50 percent of a tree's available wood fiber. Today, Weyerhaeuser's utilization rates are more than 90 percent.

Even such residuals as mill sawdust and log bark are used. Sawdust goes into papermaking processes. While any gardener knows that bark makes fine mulch, not so well known is the increasingly important use of bark as "hog fuel" in powering mill boilers. This saves on the usage of nonrenewable fossil fuels and also solves a solid waste disposal problem.

Final harvest of a High Yield Forest timber crop occurs at different ages, depending upon species of timber, regional climate and site productivity. Typically, it would be age 40-60 years for Douglas fir in the Northwest or 25-30 years for a thrifty stand of southern pine such as loblolly. Harvesting calls for careful engineering to avoid soil damage through equipment compaction or erosion.

Discussion of forest management must include emphasis on the importance of soils. Soil, "the mantle of life," is the real arbiter of how successful the gardener or the forester can be. As in gardening, we've found it crucially important in High Yield Forestry to know the productivity and physical characteristics of our soils. Weyerhaeuser soils scientists have identified and mapped over 400 soils types in our tree farms. This information is used by Weyerhaeuser foresters and forest engineers in everything from establishing a new plantation to deciding how and when to log an area.

Those are the basic components of High Yield Forestry—planned harvesting, prompt and thorough regeneration with high quality seedlings, fertilization, thinning and harvest, both to utilize the crop and prepare the site for a new forest. But there are many necessary corollary activities. Protection of the forest from such

enemies as wildfire or insect infestation are among professional forestry's classic responsibilities and always will be.

Forest genetics is becoming an increasingly important tool in High Yield Forestry. Again, no serious gardener needs an introduction to the significance of Mendelian selective breeding to produce superior species. Forest geneticists work with grafted stock from parent trees selected primarily for their capability to grow wood faster. Desirable secondary characteristics include a straight trunk with no tendency to excessive limb growth or taper.

The revolution taking place in forest genetics makes a fascinating story in itself which cannot be covered in detail here. A wide range of scientific disciplines are involved. One offshoot of these endeavors are promising experiments in producing trees from tissue culture. This would completely bypass the normal flower/seed sexual process of the tree, since the plantlets are grown from living cells of the parents. The technique has been used in a wide range of horticulture, from carrots to orchids. But applying these techniques to giants of the plant world such as Douglas fir is a new frontier, presently being explored by Weyerhaeuser funding of an Oregon Graduate Center program.

Forest geneticists are inspired by the huge gains in crops productivity made possible by plant breeding. Corn grown today under intensive management has a yield per acre roughly 16 times that of the primitive Indian corn plant, part of which is due to genetics. A century ago, wheat production averaged 10 bushels per acre. Since 1940, it has increased to 22 bushels per acre. Intensive farming can boost it to 90 bushels. Forest geneticists chart a potential cumulative growth gain of 70-100 percent in trees. A gain of 20 percent is possible just in the first generation of timber grown from genetically superior stock.

The obvious drawback in forest genetics research and application of that research is the time factor. But such new techniques as cutting, tissue culture and parallel efforts to produce early flowering and seed from very young, genetically superior trees hold hopes of speeding up the forest industry's own "Green Revolution."

Although Weyerhaeuser's primary business is the growing and conversion of wood fiber into products for people, we are keenly aware that forests as a resource are more than just standing "timber factories." Hundreds of thousands of recreationists use Weyerhaeuser forest lands for a variety of activities. A study of people usage of one of our Northwest tree farms revealed more than 20 recreational activities were involved; hiking, camping, nature study, photography, fishing and hunting were among the more prominent usages. Weyerhaeuser maintains a limited number of parks and campgrounds.

Our wildlife resources work includes rearing ponds to help enhance public sport and commercial fisheries; and we carry on a number of wildlife research or protection programs, including some for rare species like the red-cockaded woodpecker in the South and the bald eagle.

But our biggest recreational contribution is the fact that our 5.8 million acres of land in several states is generally open to public travel and outdoor experiences (subject to local limitations during forest fire danger periods or the safety contingencies of active logging or equipment operating conditions). Commercial forest lands can provide as much or even more outdoor recreation for larger numbers of people than the "museum forests" of wilderness areas. For example, far more wildlife, both in species numbers and in aggregate, can be found in the variety of age classes in commercial forests than in the near-biological desert of an old growth "museum forest."

The plain truth is that intensive forestry and outdoor recreation are not mutually exclusive, "either/or" matters. They can and do co-exist. The synergism of commercial forestry and outdoor recreation are one of those rare cases in human experience where we can have our cake and eat it too.

And that holds happily true for the basic replenishability of forests, too. We can use them and still have them. Forests *are* renewable resources. Weyerhaeuser didn't invent that natural law. But through High Yield Forestry, we take strong advantage of it, working with and aiding nature in producing trees for tomorrow. □

Work Wonders with

HYACINTHS

A. Hamilton Mason
422-G Avenida Castilla
Laguna Hills, CA 92653

Although the hyacinth is one of our best known and most popular spring flowers, we never cease to marvel at its magical qualities. Even though we know very well that it is partly a natural creation, partly the result of long years of hybridizing by the Dutch, our enchantment each spring with the colors and fragrance dims reality, making us attribute it all to magic. And because there is always magic in myth and legend, we're not really far off base.

The hyacinth developed from *Hyacinthus orientalis*, native to countries of the eastern Mediterranean. But how did it get there? Why, by magic, of course. The Greeks, who seem to have had stories for everything, provided one for the hyacinth. The handsome youth Hyacinthus was loved by both Apollo and Zephyrus, the West Wind. It is told that one day, when Hyacinthus and Apollo were throwing quoits (or discs), Zephyrus, out of jealousy, blew a quoit back at Hyacinthus, killing him. Apollo, in his grief, memorialized Hyacinthus by turning the latter's blood into a field of purplish flowers—hyacinths.

The respect for Hyacinthus did not end there. It was perpetuated in a festival, the Hyacinthia, which took place for three days in May. On the first day, there was mourning for Hyacinthus; after that, rejoicing in his resurrection. It was an agricultural festival celebrating the life-death-life cycle—just as we find in the hyacinth bulb, or any bulbs for that matter.

The Greeks were not alone in their esteem for the hyacinth. The Romans also knew it and planted it in their gardens at Pompeii. But it was an Austrian ambassador, de Busbecq, to the court of Suleiman the Magnificent in Constantinople, who inadvertently set off the greatest excitement. In 1555 he brought back bulbs and seeds which, by honest means or not, Clusius managed to "borrow" from and introduce into western Europe. We can imagine the impact made by the hyacinth when we read the astronomical prices paid for bulbs and how they inspired so many Dutch and Flemish painters of the sixteenth and seventeenth centuries to paint so many pictures of them.

Left—Hyacinths and violas
Above— Hyacinths: 'Blue Giant,' 'Princess Irene' and 'Ostara '

We know from flower engravings of the garden of Henry IV of France that he had hyacinths in 1608. They were also known to the Elizabethans, probably brought over to England by people fleeing from Spanish oppression in the Low Countries. Madame de Pompadour encouraged the planting of hyacinths, giving them a note of class.

Fortunately, during all this migration, the Dutch clung tenaciously to the hyacinth and despite their own speculating eventually brought the hyacinth within everybody's reach.

The range of colors and shades, together with perfume varying from subtle to powerful, provides spring pleasure for every gardener, even if that pleasure is limited to only a bowl or pot indoors. Individual flowers seem delicate, but they are massed on strong stems that are more resistant to spring winds and rains than other flowers. However, if your soil is loose and sandy, stake the stems, or heavy rains will topple the flowers.

Because different varieties bloom at different times, it is possible to have a succession of bloom all through April into May, or later.

In order to have a spring display, you must plant bulbs in fall, eight inches deep and six inches apart. Spread a minimum of two inches of mulch of any locally available material in both very cold and very warm areas; in very cold areas to protect bulbs from heavy freezing in winter; in very warm, to keep the soil as cool as possible. Without this mulch, and if spring arrives suddenly, flowers will open down in the foliage. Should this happen, you can coax the stems upward by putting paper cones over them for several days to make them reach for light.

Where to plant? Hyacinths provide vivid light and color in any sunny location you have. Block-planting is the only use you might want to avoid. This is suitable for parks and large estates, but nowadays most of us must think in terms of small areas.

For most frequent enjoyment of hyacinth fragrance, plant at the edge of your patio or by the front and rear entrances where the flowers will scent the air for you as you go in and out. Entrance evergreens become almost a part of the house—stodgy and taken for granted. They need to be livened up and their presence always recognized. Multicolored hyacinths do a miraculous job in front of and around them—except for the darkest blues, which are better combined with white or yellow tulips or daffodils.

If you have a rock garden, plant pockets of five bulbs each at different levels to please the wandering eye. You can use different colors in each pocket or make a monochromatic scheme of shades of blue or pink, with a white accent here and there.

Hyacinths planted at the edge of a pool (not a boggy, natural one—bulbs rot in constantly moist soil) provide double pleasure with their

Continued on page 43

Book Reviews

by Tom Stevenson

The study of wild flowers can be a fascinating hobby. In fields and forests they bloom with beauty and charm, dwelling like people, in many kinds of surroundings. Many do not seem to care where they live so long as there is soil and moisture sufficient to sustain life.

An outstanding new book, *Wild Flowers of Britain, by Roger Phillips, published by Quick Fox, New York, NY; 190 pages, beautifully illustrated, $19.95 hard cover, $8.95 paperback,* can make it easy to learn a great deal about them.

Originally published in Britain, it provides photographic identification, in color, of over a thousand species, more than three-fourths of which also grow in the United States.

"I am a photographer," says the author, "and all my training has been in the visual rather than the academic. I have tried to make a book in which the visual is paramount.

"The prime object of this book is to create a system of visual identification that may be tackled by anyone, however slight or unacademic their knowledge.

"I have used a large format in order to give much greater space to the illustration of each specimen, and to facilitate identification, I have described the habitat and distribution of each plant.

"I have used photographs. When searching books myself to identify plants, I was continually amazed at the lack of photography used in plant books. I feel that for the newcomer to the plant world, a photograph gives a better instant feel of a specimen. My specimens are not idealized versions but normal ones in the typical condition that you might find them.

"I have tried to give some historical, medical, magical or other special details about each plant. I have also indicated whether it is edible or poisonous."

Growing plants indoors provides people with a welcome contrast from the pressures imposed on them by modern society, according to Dr. Dennis B. McConnell, noted house plant expert, researcher and teacher at the University of Florida.

"Observing the natural rhythms of plant growth makes us aware of the cyclic patterns of nature and creates a feeling of harmony," he says.

McConnell is the author of a very good new book on house plants, *The Indoor Gardener's Companion—A definitive color-illustrated guide to the selection and care of house plants, published by Van Nostrand Reinhold, New York, NY; 256 pages, beautifully illustrated, $16.95.* It is not only complete but easy to read and understand.

Cultural care for over 300 plants is outlined, including light, temperature, water, fertilizer and soil requirements.

With this book, almost anyone can determine which plants are suitable for a particular environment and how to take care of them successfully. It can make the difference between success and frustration.

How to create terrariums, dish gardens and totems as well as effective uses of hanging baskets, window areas, skylights and indoor greenhouses are covered. There is a chapter on how to grow plants in water.

"Although many people grow and use plants to enhance their interior decor," says the author, "too often creative uses of plants are overlooked. When you grow plants, you can also create with plants. Cuttings made when you prune and groom your plants can be used in floral and foliage arrangements.

"By using accessory pieces, you can create original centerpieces to accent your dining table or buffet when entertaining.

"Your artistic talents can be displayed in terrariums which can depict a variety of miniature scenes, from deserts to tropical forests.

"You can try your skill in miniature landscaping by grouping together small rooted cuttings that complement each other in dish gardens. The possibilities are unlimited and depend only on your imagination."

Almost everyone likes trees for one reason or another. Some like them for the cool shade they provide during hot summer days, others because they add to the beauty or to the value of a property, according to Dr. P. P. Pirone, plant pathologist emeritus, New York Botanical Garden, and formerly associate professor of plant pathology, at Cornell and Rutgers Universities.

"Trees have other beneficial effects," he says. "They cut noise pollution by acting as barriers to sound. Each 100 foot width of trees can absorb about six to eight decibels of sound intensity. They can help keep a house cooler in summer and warmer in winter."

Dr. Pirone is the author of a very fine book on how to take care of trees, *Tree Maintenance, published by Oxford University Press, New York, NY; 584 pages, well illustrated, $24.95.*

It is a completely revised 5th edition of his book first published in 1941 and revised in 1948, 1959 and 1972, updated to cover the ecological and environmental changes that have taken place since the 4th edition.

Featuring descriptions of all phases of tree care written in nontechnical language, the book still serves as a basic guide to tree care. It covers planting and transplanting, pruning and treatment of wounds, fertilizers, cavity treatments, care after storms and insect pests.

Special chapters deal with specific abnormalities of trees—diagnosing tree troubles, non-parasitic injuries, fungus diseases—and assess the suitability of different trees to various locations in all parts of the country.

There are people everywhere growing things their neighbors never heard of and they ask a lot of questions, according to the editors of *Organic Gardening and Farming.*

When we sought the answers to these questions, we found the information on growing and using out-of-the-ordinary

vegetables was sparse and scattered. Botanical libraries had surprisingly little information about growing vegetables like martynia and tomatillo.

"We decided the best way to answer all these questions would be to write our own book, to gather all the widespread information in one place."

They did: *Unusual Vegetables—Something New for This Year's Garden, edited by Anne Moyer Halpin, published by Rodale Press; 443 pages, well illustrated, $12.95.* It covers 79 vegetables you can grow when you are tired of tomatoes (if that is possible), bored with beans, sick of squash.

Included are vegetables from the Far East, Europe and South America, that can be grown here in the U.S.A., vegetables such as skirret and burnet, which gardeners of generations past grew and prized, but which have been largely forgotten today. These vegetables are not just novelties to grow for fun when you have extra space. They possess many valuable characteristics that make them worthy of a place in your garden.

The vegetables in this book, the authors say, will add variety to your menus, but at the same time they are not hard to use, and you don't have to learn a lot of new methods of cooking just to serve them.

The book tells where the seeds can be purchased; how and when to grow the plants; the parts used and their flavor; and, how to cook them.

People grow orchids for various reasons, the most important of which perhaps is their beauty, but there is also the mystery that surrounds them. With modern advances in technology, it is easier to grow them in the house, even on the windowsill.

An outstanding new book, *Orchid Care—A Guide to Cultivation and Breeding, by Walter Richter, published by Van Nostrand Reinhold, New York, NY; 212 pages, well illustrated, $12.50, can provide the necessary know-how.*

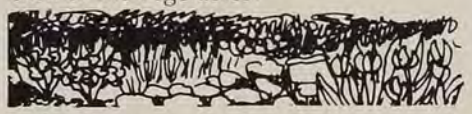
The book, originally written in German, by an eminent orchid grower, is principally directed toward the amateur orchid grower, but will be valuable also to the student of botany and to the nurseryman.

The key to the successful growing of orchids is a knowledge of their native haunts, particularly the microclimate in which each species grows best. The book provides this information. The important elements are light, temperature and humidity. Work with the plants that will do best with the environment you can provide, either on a windowsill, in a plant window, indoor mini-greenhouse or a true greenhouse.

A tiny garden plot, 20 feet long and 15 feet wide, can yield a tremendous volume of produce when pushed to the utmost. A very good new book, *The Practical Vegetable Gardener, by John Philip Baumgardt, published by Quick Fox, New York, NY; 192 pages, illustrated, $5.95 paperback, provides the essential instructions.*

Baumgardt, a former editor of *American Horticulturist,* lives in the Ozark woodlands where, in addition to his vegetable garden, he has an orchard, a bramblefruit garden, a wild garden and several indoor gardens.

It covers everything, in clear, easy to understand language: how big to make the garden, where and how to plant it, what vegetables are right for your soil and climate conditions and how to cope with pests and diseases. More than 40 vegetables are described and illustrated, there is information on how to grow vegetables in containers, how to make compost and an instant reference chart for each of the vegetables.



In the past, landscaping was commonly regarded in one of two ways: as a luxury for the wealthy, or as a cosmetic for mediocre architecture. In its purest and most modern sense, however, it represents a major defense against monotonous building styles, sprawling, unplanned suburban neighborhoods, inner city decay and destruction of land through misuse, according to Jack E. Ingels who coordinates the campus landscaping program at the State University of New York Agricultural and Technical College at Cobleskill.

Ingels is the author of a very good new book, *Landscaping Principles & Practices, published by Van Nostrand Reinhold, New York, NY; 210 pages, well illustrated, $10.95.*

In his book, he sets out the basic ideas behind landscape design, construction and maintenance. He tells how professionals plan a well-balanced landscape in harmony with its surroundings, and how they coordinate the "outdoor room" with the public, private and utilitarian sections of each house.

Ways to choose the best trees, shrubs, flowers and ground covers to meet different landscaping needs are clearly explained, with comprehensive charts that make it easy to see which trees are hardiest for each region of the country.

He details the proper times and techniques for pruning, and how to protect plants against winter injury. He also shows how to design shrub arrangements to reduce the time and expense of maintenance.

Four Hundred Year Old Advice for New Gardeners

Lorraine Marshall Burgess
202 Old Broadmoor Road
Colorado Springs, CO 80906

In the year 1563, London gardener, Thomas Hyll, wrote that he called THE FIRST GARDEN BOOK. Today his homely advice on how and what to garden is in public domain, but too few new gardeners venture into the back corners of old libraries and thereby miss seeing his wise observations.

Much of Thomas Hyll's horticultural wisdom is of value today. His knowledge of herbs must be measured in the light of other beliefs of his time. Some of his medicinal advice might be considered witchcraft, some humbug and a small portion pure nonsense. Nevertheless harassed gardeners in this twentieth century could still use a few magic cures. Hyll's counsel may be just what we need. His suggestions follow.

- Make garden beds no wider than you can reach. Beds that can be weeded from either side can be five × ten feet, side beds two-and-a-half × ten feet.
- Raise beds two inches above the path in watery places, one inch in dry places.
- Make little alleys or gutters to carry the water around the edges, and on to some other place that needs watering.
- If you must set young trees in salty ground, mire about the roots with sweet earth or river sand.
- First set out seeds and slips which you know will prosper. Then put in new kinds of seeds, but do not put thy whole hope in them, for it is always doubtful whether they will prosper or no.
- Seeds and sets seldom prosper in shadowy places. Seek out the sun.
- Sow seeds in the increase of the moon; cut down and harvest in the wain of the moon.
- Sow seeds in temperate weather, rather than on dry, cold days.
- Sow sundry seeds together, for oft times some do not spring up through some malice of the heavenly bodies.
- Pull weeds away from seedlings so they may grow to 'thyr full bygness'.
- Weed cleaner by hand. This is better than killing weeds by raking.
- Choose fat, loose ground that needs small labor. Fruitful ground is known by what it grows only with the doings of nature.
- For spring sowing, dig up the earth in the fall to be burnt and consumed by frost and thereby loosed in small parts. Dunge it in the spring and turn it so the earth and dunge are mired together.
- Soil to be sown in the fall should be turned in May so the sun may break up the clods and burn up the roots of weeds left in the earth. After fall seeding, cover the soil with dunge to defend it against the cold.
- Use the dunge of kyne, oxen, horse or sheep, less than one year old and hard and dry. Swine dunge is most vile, and pigeon and dove dunge most hot. Ashes added to dunge is good for pot herbs, having been finally sifted. It refreshes the earth and reduces the number of flies and worms.
- As consolation to those who must garden with soil that is not 'fat earth', and not sweet enough, if necessity so requyre, every sort of ground maye by dungyinge bee made more fruytful and bearynge.

Hyll recommends that gardens be well-fenced before anything is sown in them. He says, "There are many and sundry sorts of fencing as after shall appear."

- A natural enclosure set about with young trees, can be further enclosed with a quick-set hedge.
- Do as the Romans did. Use stakes and lathes set very thick in order, and with small rods wattled them together.
- Bore large holes through great stocks of trees, through which rails or poles might run, two or three together.
- Build a fence of dried stone or slate, laid one upon another, especially where a quarry is near unto.
- Or build of brick framed lyke the wall of a house.
- The most profitable hedge of all and the least cost is made of briars and thorns which endure for an infinite time. Ancient husbandmen commended this hedge most. Even after injury by fire it renews itself and springeth the better. Do as follows:
- Take ripe seeds of bramble, firs, gorse and thorn.
- Mire together with meal of

wheat, sprinkled and soaked, and lay in old ropes to keep through winter to the beginning of spring.

• Enclose the plot with a double row of furrows, one-and-one-half feet deep to lie fallow through the winter.

• In the spring lay seed-filled ropes in the furrows and cover with thin, light earth. The deep furrows protect the seed against the wind, hold rainwater, and direct the shoots upward.

FENNELL, sodden and eaten, doth ease the pain of indigestion as does the powder of its seed.

LEEK must be lifted up daily so the emptiness under the root may help increase the head. The juice of leek with vinegar oil and frankensence, put in the nostrils, will staunch a nosebleed. A raw leek, laid plasterwise on the bite of a serpent doth heal the same. Eaten raw it doth heal drunkedness. Its juice, drunk by young women, will help against barrenness.

ANISE, when the face is washed in it, doth much clear. Used with meat and drink, it increases the milk of the breasts and of the sperm, by opening the passages.

CUMIN powder with bay berries, heated and put in a little bag, helps a head cold. A poultice of cumin meal is a sure and perfect remedy for black and blue bruises.

MUSTARD seed, chewed and kept under the tongue will heal palsy of the same. Put in the nostrils the seed will provoke sneezing and thus purge the brain of superfluities.

DILL weakens and dims the sight.

MINT is good against the stinking of the mouth and rottenness of teeth.

THYME has the virtue of purging melancholy.

ONIONS, mingled with honey, get warts up by the roots. Eaten with salt and bread, it prevails against infection of the ear.

GARLIC, eaten, allows man to go into stinking places because the strong savor overcomes other stinks.

Photo by Author

Early garden principles of light and shade, and pleasant shelter still apply to today's garden.

• Another quick-set hedge is made with young elder trees, set three foot apart. Between these plant wild briar seeds in long loaves of clay, watering as required. Within three years this hedge will keep out thief or beast. This is the surest manner to enclose a garden.

Of medicinal advice on particular herbs, Thomas Hyll offered the following:

BORAGE hath the property of engendering gladness if drunk in wine. It cools the boiling up of the blood, and induceth sleep.

Hyll says herbs should be gathered with a sharp knife. Some herbs benefit from continued trimming, and remain green longer. All seeds should be gathered at full term on a dry day. Herbs gathered in the decrease of the moon have greater savor and keep longer. Gathered herbs should be kept in dry, dark places, in narrow-mouthed jars so their savor will not breathe out.

The originals of Thomas Hyll's writings are to be found in the British Museum, London, England. □

Upon Seeing a Sedum

Robert L. Staton
1515 Bissonnet, Apt. #8
Houston, TX 77005

I once saw a picture of *Sedum morganianum* that devastated me. It was in the Time-Life series on gardening entitled *Landscape Gardening*, and these glorious creations were shown in hanging baskets hung high in the trees and cascading down to at least a length of six feet. I was awestruck and determined to have some of my own. I was going to duplicate that picture.

I may have saved myself some trouble had I bothered to read that the picture was of plants grown to perfection in California. I was not observant enough to notice the location at which these plants were thriving. I soon discovered my mistakes. The Gulf Coast of Texas is *not* California, but, with a few tricks you can fool the Donkey Tail Sedum, (or Burro's Tail) into thinking that it has found a happy home.

Sedums are members of the *Crassulaceae* family, and, as such, have thick and fleshy opposite leaves. While most members originated in South Africa, *Sedum morganianum* is a Mexican species little known in the wild. While other members of the succulent family find a perfect home in rock gardens, Donkey Tail is far too delicate for such a situation. It must be placed in a protected location. The fleshy leaves break off at the slightest touch. Heavy rains and high winds can destroy a plant. They must have a sheltered spot, and thus their use in greenhouses is evident. But, a greenhouse is not required for such areas as atriums, enclosed terraces, and just any spot sheltered from prevailing winds will do. I found a spot where *Sedum morganianum* thrived; a three-sided patio with strong, indirect light and little air movement. I never lost a leaf unless I accidentally brushed up against the plant.

Automatically we think of succulents as being closely related to members of the *Cactaceae* family. While there are definite similarities, there are differences too. We think the more sunshine, the better. This is not necessarily true with Donkey Tail Sedum. My original problem with this plant was due to this kind of thinking. I placed it in full, open sun and watched it bleach to a pale, sickly green. The answer was that a strong, indirect light was a requirement, not full sun. Late afternoon shade was even desirable.

Sedums tend to like a sandy, gritty growing medium, and *Sedum morganianum* is no exception. I found that the plant thrived in a fairly large (10") clay pot filled with just builder's sand, with a little peat moss mixed in to hold moisture and nutrients. The increase in growth was dramatic using the slow release fertilizer. Mine particularly liked Osmocote 14-14-14, a three-four month formula that I applied once early in the spring and then again about mid-summer. Regular fertilizers tend to wash right through this well drained medium, but the slow release fertilizers made the plant respond. Growth was phenomenal, almost three feet in one long growing season. Watering was performed once, or twice a week. The plant was thoroughly soaked and allowed to drain dry. Occasionally, two weeks would pass without watering, with no ill effects. In this respect they are hardy; but even a light frost or freeze will kill these plants.

Sedum morganianum grown to perfection is a "Crassula" with class. It is pure elegance in silvery-green, softly flowing lines. It is worth the effort to meet its little idiosyncrasies. This can be done with no more effort than other demanding plants. While mine never attained the splendor of those breathtaking specimens from that picture that is imprinted on my mind, but they are better than reasonable facsimilies. I'm sure the same results can be achieved in almost any section of the country. □

Photo by Author

Pineapples

Continued from page 21

when it is about 16 to 18 months old, provided it has been fertilized and watered regularly, given plenty of sunshine and not subjected to temperatures below 70 degrees to 75 degrees F for any length of time. A well-grown plant should then have around 60 leaves and be about three or four feet tall. Treatment to acetylene may be necessary if the plant shows a reluctance to flower. Three or four small calcium carbide pellets (obtain from a hobby store) are dropped into a half pint of *ice* water, allowed to cease fizzing and then the solution, which should be no more than lukewarm, is poured into the center of the rosette. A stake should be driven in next to the plant as soon as it flowers to keep the fruit from toppling over when someone accidentally brushes against it. Offshoots which develop among the leaves or along the peduncle can be broken or cut off carefully and utilized as planting material, since the original plant will bear only a single fruit. Plants of spiny-leafed varieties will require more space since the leaves will shred clothing, flesh or anything else they contact.

Home gardeners may wish to grow more than one variety together. These will normally be seedless under indoor or greenhouse conditions unless flowers are cross-pollinated by hand. Pineapple seeds are about the size of a small canteloupe seed, brown to black in color, and flint hard. Scarification with sandpaper or acid will hasten germination. Seeds should be cleaned, surface dried and sown in sterilized soil. Germination requires about a month. Seedlings will fruit in three to four years and require the same conditions and care as plants grown from offshoots or crowns.

Pineapples are attractive plants with a beautiful bloom. The latter may be enjoyed with the expectation of a fruit developing month by month until it reaches full size and ripens. □

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Hyacinths

Continued from page 35

reflections in the water below.

Since shrub borders often follow a curving line, a foreground "river" of hyacinths would work out well. Or plant them in serpentine fashion in a bed with muscari on either side.

Soften a paved walkway with a border of hyacinths on one or both sides. Later, interplant with started annuals that will take over and counteract maturing bulb foliage.

For a romantic miniature landscape, plant hyacinths at the base of a flowering crabapple. Petals falling from the tree will carpet the ground around the hyacinths, their white and soft pink complementing the hyacinths both below and above.

If you have a split-level house, there is probably a narrow planting area along one or both sides of the slope going up to the front entrance. With hyacinths bordering the steps, you accomplish the feat of giving yourself an uplift even when you're going down.

Hyacinths are also extremely decorative in windowboxes or containers, but you must take steps to insure the bulbs against freezing. Plant them at least two inches from the sides of containers. In very cold areas, keep containers in an unheated garage until weather permits moving them into the sun. During periods of hard cold, wrap containers in foam, newspapers, or burlap.

Planted together, hyacinths create a stunning picture. But they are also good companions for other bulb-flowers such as tulips and daffodils as a backdrop, or grape hyacinths and scillas in the foreground. Or make a planting with other early spring flowers. Any shade of blue contrasts well with white pansies, violas or sweet alyssum. Temper the sharp pinks with white, but team the pastels with blue. White hyacinths are old dependables for use with any other color, but are especially effective with red or scarlet tulips.

Here is a list to help you determine when you want flowers where. There are no sharp breaks between the groups, but an overlapping, continuous show of bloom.

VERY EARLY

*'Delft Blue'—porcelain-blue

EARLY

*'Anne-Marie'—bright pink to salmon-pink
*'Bismarck'—porcelain-blue
*'Edelweiss'—white
*'Jan (John) Bos'—crimson-red
*'La Victoire'—carmine-red
*'L'Innocence'—white (also late)
*'Orange Boven' (Salmonetta)—apricot-salmon
*'Ostara'—dark blue
*'Perle Brillante'—ice blue
*'Pink Pearl'—clear pink
'Princess Irene'—silvery rose-pink
'Yellow Hammer'—creamy yellow

LATE

'Carnegie'—white
'City of Haarlem'—yellow
'Cyclops'—rose-red
'King of the Blues'—indigo-blue
*'L'Innocence'—white (also early)
'Queen of the Blues'—azure-blue
'Queen of the Pinks'—rose-red

Some final what-to-expect comments:

Bulbs forced in water indoors should be considered annuals. You can't make them give a repeat performance.

Bulbs forced in pots according to the old method of burying containers outdoors to chill the bulbs and start a root system will be good for the cutting garden. They will not make exhibition-size flowers, but they'll still have the same beauty and fragrance. After flowering, let the foliage mature, then take bulbs out of the soil and put them in a paper bag in the coolest place you have during summer. Plant in the ground at regular fall planting time.

So, be your own magician. Plant hyacinths this fall—here, there, and everywhere. Come spring, the trick you'll have worked will astonish both you and your friends. □

*Varieties that are easy to force indoors in winter.

Autumn's Wildflowers

Continued from page 11

it must give a bee!

There is another gentian I love, which is as much at home beside a highway as in the woods. This is *Gentianella quinquifolia*, or the Stiff Gentian. The flower guidebooks say "Woods and damp meadows"; true, but also packed tightly together on roadsides. The workman in his mower chops these, too, but they seem to thrive with adversity. I have noticed a striking phenomenon I can't explain—the higher the elevation, the darker the color. At 4000 feet, the flowers are a deep purple; at 1500 feet, a pale lavender-blue.

Incidentally, all three genus names may not be in your guidebooks; you may find all listed as *Gentiana*.

A sometimes-companion of the Bottle Gentian by the streamside is a rare white treasure, the *Parnassia* (Grass-of-Parnassus). There are several species, but the one I find with my *G. saponaria* is *Parnassia asarifolia*, in the Saxifrage family. Five white petals form a single uplifted cup, strongly veined in green, on each stem. A single leaf clasps a stem, and the rest of the leaves are basal, growing, almost in the water. I still have a half-finished watercolor of the blue and white flowers together, done when I was a little girl. Even today, finding them together is a complete delight. The one clump of *Parnassia* which we visited regularly in its watery home was washed downstream some years ago in a heavy rainstorm. This grew in the bottom of a steep ravine, a deeply shaded one, and it took patient visits in three different Octobers to find a single spot of sunlight on a flower, for photography.

The brightest of all autumn wildflowers is the Cardinal Flower (*Lobelia cardinalis*). Growing, too, along streams or in damp meadows, it is a brilliant red signal-flag one cannot miss. The flowers grow in a spike, but a single flower is somehow more exciting to examine. I know of few with a more jaunty personality! Nearby you may find its smaller, more delicate blue cousin, the Wild Blue Lobelia (*Lobelia puberula*) or a larger, though coarser one, *Lobelia siphilitica*.

All my fall wildflowers seem to be stream-lovers. Another such is the White Turtlehead (*Chelone glabra*). The white is just tinged with pink, but the real Pink Turtlehead was through blooming in late summer. Presumably *Chelone glabra* is about two feet "tall," but I have yet to see one standing upright. It may be *rooted* high on the bank above the stream, but it seems to be intent on falling headfirst into the water. Perhaps the stems are weak (or perhaps the turtles are thirsty?). The flower cluster reverses itself, and is upright—but down low. The blossoms really resemble their namesake, if one can imagine turtles in such colorative disguise.

My other surprise for you is not a flower, but the berry of a spring one—the White Baneberry (*Actaea pachypoda*). In May or June the small and inconspicuous cluster of tiny creamy white flowers, above large compound leaves, is easily ignored. In October, there is a transformation to Dolls'-Eyes. Startling white china eyes, large ones, on red pedicels, stare at you from hundreds of feet away. I'm not sure where the name Baneberry came from, but take the "bane" literally; they are quite poisonous and would be attractive to any children. One common name is Necklace Weed—an obvious but dangerous use for them. If I were two years old, I would certainly pop a handful into my mouth. . . . One of Nature's crueler tricks, I think.

Though I have now mentioned most of the flowers at our October picnic places, there may be others where you spread your lunches by other streams. You may find late-blooming species of purple or lavender *Lacinarias*, or pink *Gerardias* or yellow *Chrysopsis*. And don't forget that the roadsides are worth much more than a quick glance from your car window, no matter how glorious the maple leaves on the hills. □

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