

American

Horticulturist



Volume 56 Number 2 Spring, 1977

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Introduction by A.H.S. President,
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COVER PHOTO BY: John Armen—Yellow Lady's Slipper (*Cypripedium Calceolus*)
This yellow beauty is a favorite of many wild flower enthusiasts. Mr. Armen has prepared an article "Gathering Wild Flowers—With a Camera" which is scheduled to appear in a subsequent issue of *American Horticulturist*.

An Editorial

“Dear Dr. Cathey...”

Letters, inquiries, referrals, and conversations often request the same recurring information:

“I want to become a horticulturist! Is it a profession with a future? Where can I receive good training? Will there be a job for me when I am trained?”

Thirty years ago these questions could be answered easily and confidently. Then most people viewed horticulturists as commercial growers of cut flowers, container (then pot) plants, nursery stock, vegetables and fruit. The full intent of the training in the state-supported schools was to teach you to become a small businessman or (if you were very lucky) a grower for a large commercial firm. Enrollment in horticultural classes was small with emphasis on general training in agriculture with a major in a particular aspect—such as Agronomy, Poultry, Animal Husbandry, and Horticulture. The smallest classes were in what we now call Urban Horticulture—house plants, bedding plants, and teaching new gardeners the basics. It took a great deal of interest to relate some of the courses to what you wished to do professionally. Often working for a local florist or nursery was more instructional than receiving a wide range of credits in required agricultural courses.

I was fortunate to find a career in horticulture. It was due to several factors:

- A strong need and experience instilled in me by my family and community.
- An opportunity to talk on a one-to-one basis with gardeners (down the street and around the block) who shared their knowledge, observations and enthusiasm by the oral tradition.
- Exposure to growing, marketing and instructional situations which permitted me to become familiar with thousands of plants and gardening problems.
- Years of trying to grow all kinds of plants—with many failures and some great discoveries. I earned money to buy plants by selling several hundred watercolors of plants and birds.

Later, professional training with a science orientation became necessary if I was to work with plants as a Research Horticulturist.

Horticulture, today, is a vastly different profession. Every aspect is bigger and more varied—career opportunities, enrollments in classes, locations offering training, and identity. The competition for jobs is greater than ever. We are fortunate that people/plant/environmental considerations have been incorporated into the “new horticulture”. From a mathematical view—where we once had nine main professional lines—we now have twenty-seven career specialties because of the broadening of the field.

Yet, many of the traditional steps are still required to become a qualified horticulturist:

- Interest
- Experimentation with plants
- One-to-one exchanges with others
- Monitored work experiences
- Study of horticultural literature, including seed catalogs
- Visits to gardens and shows
- Involvement in community (and national—AHS) horticultural activities
- Focus on a specific career—molded to your basic interests

There is much help available to give the training and work experiences you require:

(1) *The Directory of American Horticulture* (1977 Edition Revised)—available for \$7.50 from AHS, Mount Vernon, Virginia 22121. It gives a complete listing of organizations, schools, correspondence courses and locations of display and research facilities. (WAIT! Don't send for the Revised Edition until June—we are making the revisions now!)

(2) Professional organizations have career brochures available to send you:

American Society for Horticultural Science
Mount Vernon, VA 22121

American Association of Botanical Gardens and Arboreta

Department of Horticulture
New Mexico State University
Las Cruces, NM 88003

Garden Writers Association of America
101 Park Avenue, Room 607
New York, NY 10017

Society of American Florists
901 N. Washington Street
Alexandria, VA 22314

American Association of Nurserymen, Inc.
230 Southern Building
Washington, DC 20005

(3) Publications (*American Horticulturist*, *Horticulture*, *Flower and Garden*, *Popular Gardening Indoors*, *Plants Alive*) often list job opportunities and discuss the new areas in gardening which are unfolding. (Blossoming may be a more appropriate term.)

(4) Shoe leather and door banging activities are still the way to find a career. Prepare a good one-page statement of training, skills, interests and career goals. Leave a phone number and call back to hear if changes in the need for personnel have occurred.

(5) Venture to become a better gardener.
Horticulture needs you!

Dr. Henry M. Cathey
President

Pasadena Preview

An Excursion to Sunny Southern California



President Cathey and I have just returned from a trip to Pasadena, California, to firm up arrangements for the 32nd Annual AHS Congress, which will be held there October 25-29, 1977.

This year the Huntington Sheraton will host our annual Congress. This showcase hotel was opened in 1907 and has been modernized without the use of vinyl and plastic so often associated with convention establishments. It is a blending of early California with generous reminders of both Europe and the Orient. Its 20 acres of sweeping gardens contain flowers, shrubs and trees intertwined with numerous pathways. A lanai overlooks the pool gardens and the famous picture bridge is a specially welcome addition—adding a new look to the hotel. Visitors will enjoy the Horseshoe Gardens and charming gazebo, which are in close proximity to the splendid Olympic-size swimming pool.

The theme for the Congress is "Plants and People". The emphasis is truly educational. This year seventeen leading horticulturists will present programs on bromeliads, ferns, proteas, begonias, cycads, cacti and succulents, and California natives. Other presentations include "new indoor plants", "indoor gardening", "the All-America Selections", "horticultural nomenclature", "rhododendrons", and a special look at "plant photography".

We do not plan to spend all of our time indoors getting educated, however. Twelve of the area's finest private gardens will be on display for AHS members.

Dr. Francis Ching, Director of the Los Angeles State

and County Arboretum, has offered to serve as this year's Congress Chairman. He has organized tours of Huntington Botanic Gardens, Descanso Gardens, and other local arboreta. The Huntington Gardens features a 10-acre desert preserve, Japanese gardens and over 1,500 varieties of camellias. Visitors may also view the famous "Blue Boy" painting and a Gutenberg Bible.

Descanso Gardens is a floral showplace nestled amidst a forest of California live oaks. Its rose gardens bloom from May through December and a serene oriental teahouse offers visitors a pleasant pause.

We will have lunch at The Los Angeles Arboretum one day and at Lawry's famous Garden Center the next. A fascinating evening including dinner in Los Angeles' famed Chinatown is also planned.

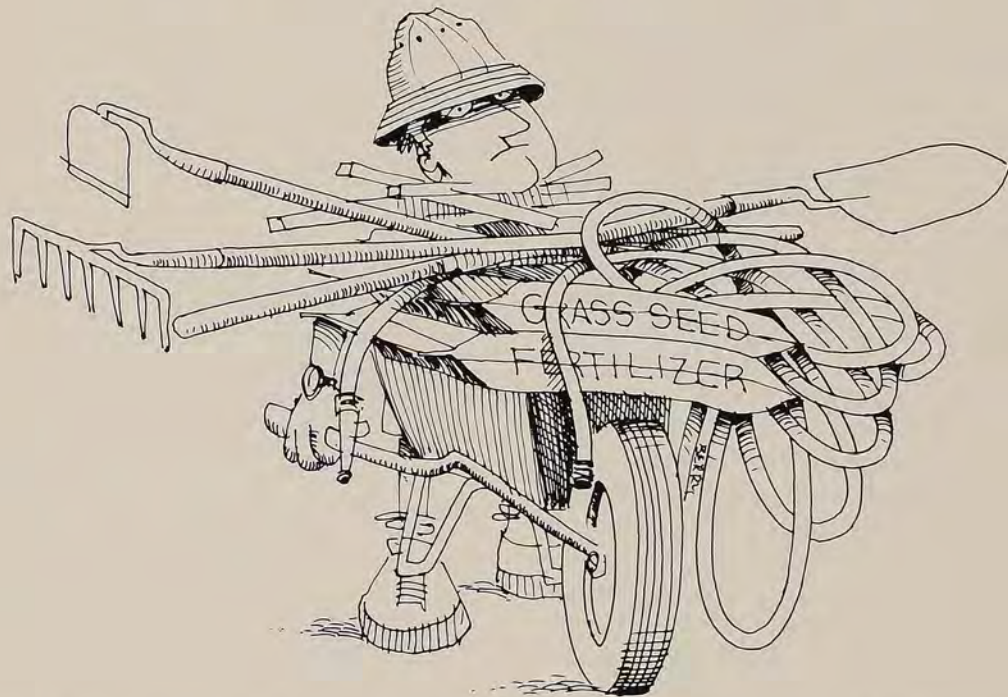
Post-Congress events include tours to the ancient Bristlecone Pine Forest, where we will visit Methuselah, not only the oldest tree but the oldest living thing on earth. Additional 2-day trips are planned to Santa Barbara and San Diego. For the more adventuresome an extended trip to the Orient will be offered.

Although the final details for this year's convention are not completely firm at this early date, I thought you would like to be given a sneak preview so that you could plan to join us. Pre-registration material will be sent to you soon. Please mark your calendar and reserve October 25-29. Plan to join with your fellow members of the American Horticultural Society in a truly fascinating and educational look at the plants and plantsmen of Southern California.

M. C. K.
Editor

LAWNS

By Tom Stevenson



In the spring many home owners get an urge to patch up the lawn and logic suggests it should be the best time to do so. It is a good time to put down sod and go after the weeds but it isn't for seeding cool season grasses such as Kentucky blue. Most lawns north of the Mason-Dixon line are bluegrass.

The best time for seeding Kentucky bluegrass is late summer. The new grass has a longer time in which to establish a good root system before having to cope with hot, dry summer weather. In late summer most weeds are coming to the end of their growth cycle for the year and thus will give the new grass less competition than in the spring

when they start to become active again.

But seeding can be done successfully in the spring. Professionals do it and so can amateurs. The secret of success is to keep the seed bed slightly moist (sprinkle it lightly two or three times a day) to speed seed germination and then to water faithfully when needed in order to give the grass the maximum chance to survive.

The first decision is whether to do the whole lawn over or just patch it up. If you have grass fairly well distributed over 50 per cent of the lawn, it is probably better to repair than to start over. Try to figure out why there are bare spots. Seeding or

sodding bare spots alone will not be a permanent cure. The new plants will die for the same reason the old ones did.

A female dog can cause bare spots. In such cases, the old soil should be removed to a depth of three or four inches and replaced with good soil.

Too heavy a salt concentration, from winter use of salt for deicing, can kill grass. Usually leaching will take care of the soil in a year or so.

Hard packed soil could be the problem. Raw soil from lower depths could have been used in spots to fill in the lawn, soil mostly heavy clay, poor in nutrients, humus and microorganisms. This

can be improved by mixing lime, fertilizer and organic matter with it. Heavy foot traffic, especially when the soil is wet, or use of a heavy roller or other heavy equipment, can cause soil compaction. If there is constant heavy foot traffic in a particular area, perhaps a hard-surfaced walk is the answer.

An easy way to fill bare spots is by sodding. Chunks of sod can be taken from inconspicuous places and used to fill the bare spots. Or you can buy a few rolls of sod and cut it into pieces of the required size.

To seed the bare spots, use the same mixture that is prevalent in the rest of the lawn. If you don't know what you already have, make a guess.

Don't waste seed by just throwing them on and hoping Mother Nature will do the rest. It isn't as simple as that. First get rid of the weeds. Use an iron rake to scratch up the soil. Sow the seed and press them down into the soil with your feet or a roller. If buried in the soil, the seed will not germinate. Unless in good contact with the soil the seed may dry out rapidly and perish.

Moisture is a critical factor in grass seed germination and survival. A mature seed contains a small living plant that is dormant. This miniature plant is the embryo. When conditions (temperature and moisture) are favorable, the embryo starts to grow. This process, including bursting of the seed coat, is germination.

If the embryo dries out at any time after it starts to grow, it dies. That is why it is important to keep the seed bed moist. After the plant is up and growing, water instead of sprinkling, if rainfall is inadequate. The grass needs about an inch of water a week. New grass, with a limited root system, cannot survive drought as well as established grass.

Kentucky bluegrasses will not survive for long in soils too acid. Most soils in the east are naturally too acid for them. This is also true of fescue, zoysia, Bermuda, and St.

Augustine. Exceptions are carpet, centipede and bahia which need moderately to strongly acid soils. The only way to find out for sure about your soil is to have it tested. In almost all states a soil test is available at the state university free of charge. For information on how to take the soil samples and where to send them, contact Cooperative Extension Service, listed under the County Government, or write direct to the state university.

Lawn grasses with a good root system have the ability to crowd out weeds and keep them from becoming established. Mowing has a profound effect on the root growth of the grass. One of the worst mistakes is to let the grass get too tall and then cut it back too far.

The green blades of the grass produce the food of the plant. The raw materials come from the soil and the air. Only the green part of the grass blade makes food. If most of the green part is removed, root growth stops for several days or even two or three weeks.

Suppose, for example, you cut your grass at two inches in height. You go away for a week or two and the lawn does not get mowed. When you return, the grass is four inches tall. If you mow the grass at the regular height of two inches, too much green matter will be removed.

No more than one-third of the grass blade should be removed at one cutting. If the grass is three inches tall, remove one inch, cutting it back to two inches. If the grass is six inches tall, remove only two inches the first mowing. Then four or five days later, remove another inch. Keep this up until you have it back to its normal height.

The grass should not be cut when wet unless it is absolutely necessary. Dry grass cuts more easily, does not ball up and clog the mower, and the lawn looks better after mowing. Tests have shown that mowing dry grass takes less time than mowing wet grass.

If clippings are heavy, they should be removed. If they are light,

they can be left on. They should decompose in a few weeks and provide some nutrients for the grass.

Zoysia and Bermuda grass clippings do not decompose readily and if left on may lead to thatching. Thatch is the accumulation of dead leaves, stems and clippings that build up at the soil surface of the lawn. Thatch can increase the disease hazard, interfere with movement of water and fertilizer into the soil and weaken the grass root system. Research has shown that thatch also lowers the turf's tolerance to drought, heat and cold.

The single cause of thatch buildup is the fact that the accumulation rate of dead organic matter on the soil surface is greater than the decomposition rate. Removal of clippings is the way to prevent thatch problems.

In the old days clippings were rarely removed. But newer varieties of grass are used today, not nearly as much fertilizer was applied and the grass did not grow as fast.

It is hard to grow grass in heavy shade. The trees creating the shade compete with the grass for nutrients and water. Trees with shallow, fibrous root systems such as the maple, ash, and willow, are most competitive and can create extremely dry conditions on the soil surface.

A canopy of trees can screen out as much as 98% of the incoming solar radiation. Light quality is also affected in comparison to the normal distribution within the visible spectrum. The light quality under a canopy has a spectrum low in blue and red wavelengths, and a predominance of green and far-red wavelengths. The blue and red wavelengths required for photosynthesis (food production) are the wavelengths screened out to the greatest extent.

A number of other important environmental factors are also involved, including a moderation of temperatures, both air and soil; restricted air movement; increased intensity and duration of dews; and, a

Ivies

Henri and Rona Schaepman
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Elkwood, VA 22718
Mr. Schaepman is President
of the American Ivy Society



Our task at the Research Center has been to collect as many different cultivars of *Hedera* as are extant, to observe them, and to verify their names and descriptions. "Cultivars" is a more proper descriptive term for *Hedera* specimens than is "varieties". We have been given hundreds of different cultivars by various arboreta and nurseries throughout the world—in fact, one can take a tour of the world's horticultural centers by walking through our greenhouse and reading the labels! This is because we note the sources when marking our ivies so as to distinguish between, say a 'Needlepoint' that came to us from Longwood Gardens and a very different 'Needlepoint' from California. Nevertheless, the plants are more interesting—and more varied—than the labels.

This work was well established when in Fall 1975 the American Horticultural Society granted the National Registration Authority for the genus *Hedera* to the American Ivy Society. Since then it has been our obligation to register all new cultivars of ivy grown in the United States; additionally, we have taken on the responsibility of ascertaining correct names of ivies that are handled throughout the world, and of providing information and consultant service to all growers, dealers or amateurs who request it.

Many of the ivies we identify and grow come to us through members of the American Ivy Society, or others who have become familiar with our work. Some of the cultivars are brand new—that is, they are not identified or described in any literature that we have been able to obtain. If the plant remains viable and retains its characteristics in new growth over a period of time (usually about two years), it will then be entered as a new registration.

Seven of our new *Hedera* registrations should be of particular interest to members of the Ameri-

Hedera rhombea 'Pierot'

Someone is finally organizing the ivy! The plant has been around for centuries, brought to this country by our English ancestors (as evidenced today at Williamsburg's gardens). But except for a brief rekindling of interest in the 1920s and 1930s, no one has paid much attention to ivy's adaptability to widely diverse climates, its ease of care, and versatility. Certainly there has been no attempt to systematically classify and register all its varieties.

Varieties? Indeed! Ivy, or *Hedera*, is not simply the pedestrian vine (no doubt so described because of our habit of walking all over it) that trails obtrusively over lawns of Govern-

ment and private buildings, or that climbs unhampered up the walls of Eastern colleges.

Ivy is not always green. It is not always small leaved. And it doesn't always vine.

At the American Ivy Society Research Center, the "research and development" sector of the three-year-old American Ivy Society, we have perfectly healthy ivies with white leaves; plants of *Hedera canariensis* ("Algerian Ivy") with leaves eight inches across; and several different cultivars of *Hedera helix* that bush or grow erect. (*H. helix* is "English Ivy", the name of a species not of a single variety.)

'Cascade'



H.nepalensis 'Suzanne'



'Cockle Shell'

can Horticultural Society, because of their appearance and hardiness. These ivies represent three of *Hedera's* five species; as yet no new cultivars of *H. colchica* or *H. canariensis* have established themselves sufficiently to rate entry in our Register. We're working on it!

**Registration # 751—*Hedera helix*
'Dragonclaw'**

This ivy is a curly, somewhat like 'Manda Crested'.* It differs in that the plants are larger in all their parts. Leaves are curled downward like 'Manda Crested', but the margins are usually strongly undulate.

'Dragonclaw' was named by W. Leo Swicegood of Rescue, VA, who found it growing in southeastern Virginia. Hardiness has not been tested north of zone 7.

**Registration # 752—*H. helix*
'Cascade'**

This was also found in southeastern Virginia by Swicegood. It is a pretty, grass green ivy, abundantly selfbranching—much more so than either 'Pittsburgh' or 'Hahn Selfbranching'. Leaves are five-lobed, somewhat undulate at the margins, which makes a lively impression. 'Cascade' should do well in hanging baskets since it is a vigorous grower. Also as a potplant.

It is hardy in zone 7, but hardiness has not been tested north of Maryland. Swicegood has grown 'Cascade' for more than 20 years, and he has not observed a strong tendency to sporting or reversion. The name adequately describes the way the thickly clothed vines drape from the plant.

**Registration # 753—*H. nepalensis*
'Suzanne'**

This ivy was found growing on oak trees and moist rocks, in shade near Dhaman, Nepal, at an elevation

of 8,000 feet. It was introduced by the USDA Plant Introduction Station, Glenn Dale, MD, under Number PI 285496; material was collected by an expedition led by Dr. John Creech of the U.S. National Arboretum and Dr. Francis de Vos of the Chicago Botanical Gardens.

'Suzanne' differs from the *H. nepalensis* described and figured by botanists George H. M. Lawrence and Arnold E. Schulze in their 1942 article, "The Cultivated Hederas," in that its leaves are much darker green. Undersides, especially of the young leaves, are purple. The leaves are five-lobed, the terminal lobe quite long and pointed. Hairs are large, as in all *nepalensis*, and give the dark green leaf surfaces a somewhat velvety appearance.

This ivy was named for Mrs. Suzanne Pierot, founder and first President of the American Ivy Society; they have a great deal of charm in common. 'Suzanne' is elegant in hanging planters and hardy in zone 7.

**Registration # 754—*H. rhombea*
'Pierot'**

This ivy differs from typical *H. rhombea* described by Lawrence and Schulze in that it is much smaller in all parts. Stems of 'Pierot' are wiry and thin, and creep closely to the ground. Leaves are heartshaped, $\frac{3}{4}$ -1 $\frac{1}{2}$ inch, dark green, and paper thin. They are not at all leathery or waxy, as is usual in *H. rhombea*.

Plants were grown from runners collected along the road to Cheju, 16 km from Sogwipo, on the edge of some woods at an elevation of 495 meters, on Cheju Island, Korea. It was introduced under Number PI 318540 by the Plant Introduction Station at Glenn Dale.

'Pierot' was named for Jacques Pierot III, in appreciation of his indulgence while his wife and her successor were so involved in *Hedera* research that every second word in her conversation around him was "Ivy"! It is a useful plant in terraria and bottle gardens because of its diminutive size and clinging nature. Hardy probably in zone 7.

**Registration # 761—*H. helix*
'Goldcraft'**

This was found by Curren Craft, Jr. of Cayce, SC, in a garden on Shull Island in South Carolina's Lake Murray. It was named by W. O. Freeland of Columbia, SC, who has sold this cultivar in a small way as 'Craft's Golden'. It is an ivy with unusual coloring—edges of leaves are variegated gold, especially brilliant on the young leaves. Leaf centers are dark green. This is a pretty color combination, in a range found only rarely in ivies. The few cultivars with yellow color usually have speckles of gold all over the leaf surface ('Gold Dust', 'Luzzii', 'California Gold') or a central blotch ('Gold Heart'); but this one has a marginal variegation.

'Goldcraft' is hardy in South Carolina (zone 8), but chances are good that it will perform as well as most other ivies in zone 7, and probably to zone 6. It is an extremely attractive plant for pot culture or in hanging baskets.

**Registration # 762—*H. helix*
'Cockle Shell'**

This is a sport of 'California', found by Paul Taylor of Rosemeade, CA. The name was suggested by Freeland. The plant was registered by Mrs. Marian Vincent of La Habra, CA, President of the California Chapter of the Society, with the reluctant permission of its finder.

The name says it all: Leaves resemble cockle shells, slightly cupped and veins with palmate pattern reminiscent of the ribs on ocean shells. In habit of growth, this ivy is much like 'Fan', which is also a sport of 'California'. It has the same strong stems, branches out easily. Color and venation are similar to 'Fan'. The only distinguishing feature is the shape of the leaves: in 'Fan' they are broadly palmate, with five to seven small lobes; in 'Cockle Shell' leaves are cupped with hardly any lobes. Sometimes three toothlike protrusions appear on the leaf where one would normally find the lobes.

* All cultivar names, botanical descriptions, and horticultural references used are explained in *The Preliminary Checklist of Cultivated Hedera*, available from the American Ivy Society, National Center for American Horticulture, Mt. Vernon, VA 22121, for \$5. The 46-page listing contains descriptions and histories of more than 400 *Hedera* cultivars.

'Cockle Shell' is hardy in zone 7. It is a lovely plant for indoor culture as well as a goodlooking groundcover.

Registration # 763—*H. helix* 'La Plata'

This cultivar came to us from Longwood Gardens, accession number 71904, under the name 'Needlepoint'. Longwood obtained it from the Cumberland-Perry County Agricultural, Vocational, Technical School at Mechanicsburg, PA.

'La Plata' is strongly selfbranching and small leaved. Leaves are predominantly three-lobed; basal lobes, when present, are very small. Leaf base is obtuse. The terminal lobe is extremely long, usually about 2/3 of the entire leaf blade. Tips of both lateral and terminal lobes are obtuse, the margins weakly undulate. Color is dull light green. The stems are quite slender, reddish brown; veins are whitish and slightly raised.

This plant was one of four distinct cultivars received under the name 'Needlepoint'. It differs from Graf's 'Needlepoint', which has darker green leaves, five-lobed, broader, and with acute tips. 'La Plata' appears to be more densely haired, which gives it a softer, almost velvety appearance. As there was no descriptive literature regarding this cultivar, it was renamed by the Registrar after the site of the Research Center.

Hardiness has not been tested, although it is probably hardy in zone 7. Since it appears a rather tender plant, 'La Plata' might not be hardy north of Maryland. It makes a lovely miniature potplant, with its densely set tiny leaves that curl gracefully upward. In the classification used by Pierot in *The Ivy Book* we would classify it a miniature birdfoot. It makes a lush growing basket, but would be dwarfed if set in a container larger than eight inches in diameter. It fills quickly because of its density. This graceful plant is one of the nicest ivies for culture in small pots.

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A Refresher for Gardeners

Milestones-Seedlings Terrestrial Gardening

Prepared by Dr. Henry M. Cathey
Continued from February 1977 issue

Holding Plants: Plan to prepare your seedlings for transfer to the gardening area. Remember they have been growing under relatively dim light, controlled day and night temperature, and with adequate moisture and nutrients. This plant may not survive the transplanting shock in your garden. *You can prepare the plant by altering only one procedure—the way you water it.*

Begin 2 weeks before planting date to lengthen the watering intervals. Water as much as you did before *but permit the plants to begin to wilt* before you water them again. The plants will slowly stop growing—the bottom leaves will curl and show the first signs of turning yellow. These signs mean that the seedlings can be transplanted to your exposed site with minimum loss. As a final step prior to planting, drench the root system with a solution of liquid house plant fertilizer. This will insure that the roots will rapidly knit into the surrounding soil.

Site: There are three basic sites for gardening:

1. Full sun—6 hours of direct light daily;

2. Partial shade—3 to 6 hours of direct light daily;

3. Shade—less than 3 hours of direct light daily.

In selecting your site—plants which produce fruits such as eggplant, tomato and pepper require full sun to be productive. There is no substitute for this requirement. Most shade plants, however, may be grown in full sun if they are watered frequently and mulched with moisture retaining covering. The site should also provide adequate air and soil drainage. Trees, shrubs, fences or buildings may inhibit the natural movement of air and moisture. Their roots and foundations may sap or block the moisture in the soil. If it is too restricted, you may have to remove some of the obstructions or relocate your gardening site. Previous use of the site should also be considered—areas where buildings or roads were located may permanently damage the site. It is best to determine what the site has been used for and avoid any questionable spots. No amount of preparation can restore the utility of some sites.

Soil Selection: Assume that the

site possesses few of the desired cultural characteristics. It is up to you to modify the soil to insure adequate nutrient supply to sustain growth. First, dig a hole about the size of a bucket in the center of the garden site. Fill it with water. Note how long it takes to drain out:

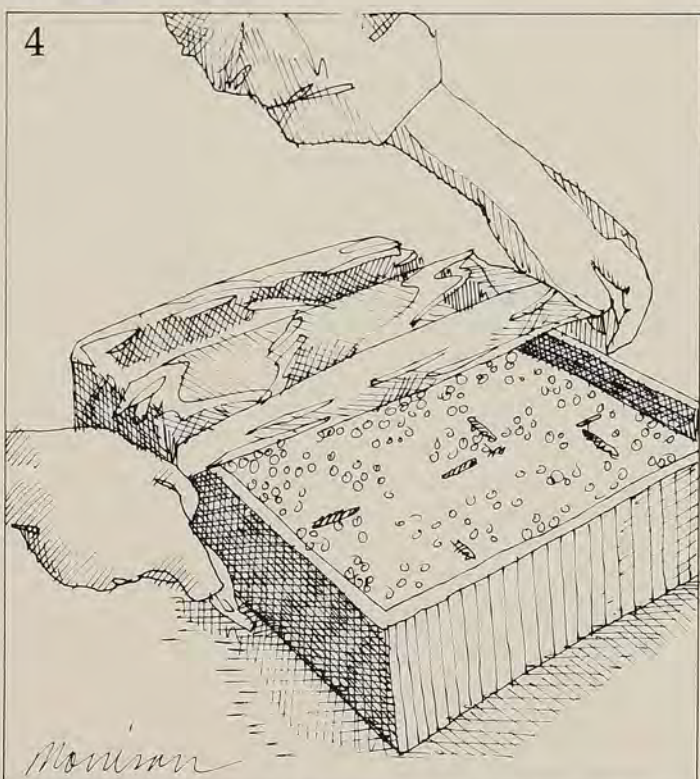
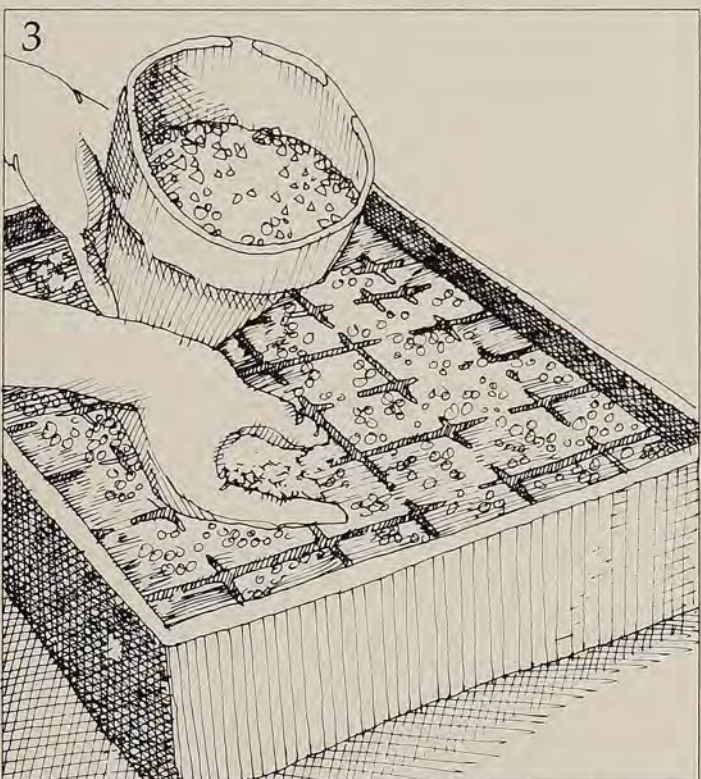
- If it drains in less than 1 hr: Soil is apparently very sandy—you will need to add a great deal of organic matter to provide moisture retaining capacity.

- If it drains in 8 hrs.: Soil has adequate drainage for the growing of most plants—preparation of the soil will be relatively simple.

- Water stands in hole for 24 hrs: Soil has little drainage capacity—planting in this soil will be difficult. You will need to add both coarse particles (sand) and organic matter (leaf mold, wood chips, peat) to alter the structure for at least the top 6 to 8 inches of the soil.

Soil Preparation: At any time of the year, wait to dig the soil when it has dried sufficiently—it should crumble in your hands. Mark out the edges of your site—dig with a spade to define the edges of the space. Dig, lift, and turn 2 in. slivers of soil—

Starting Seeds



Illustrations by Pat Morrison

1—Gather your materials—wooden or fiber flat potting strips or peat pots, potting soil (equal parts of garden soil, vermiculite, and sphagnum peat moss or bagged soil mix from garden or variety store), vermiculite, watering can, polyethylene film for cover, and seeds.

2—Put seeds on top of soil; plant two or three large seeds or a pinch of small seeds in each pot. Firm the soil (you can press lightly with an empty pot without disturbing the seed).

3—Cover the seeds with fine vermiculite and firm it. Water thoroughly and allow to drain.

4—Cover the flat with polyethylene film and put it in warm (65° to 75°) place. The flat needs no further water until after the seeds have germinated. Nor does it need light. Do not place the plastic-covered flat in sunlight; heat buildup under plastic could kill emerging seedlings.

breaking up the adhering turf and root systems. Remove only the large stones—leave all roots, twigs, and leaves in the turned-up soil. Plan to dig an area at one time—leaving the surface exposed with soil which was previously in the ground. All of the debris should be buried. Let the soil sit for at least a week. If it does not rain, sprinkle the surface of the soil to prevent drying. Seven days later turn the soil again, continue to break up the roots, stems and leaves. At the end of the second digging, you are ready to mix in organic matter: 2 inches for adequately drained soil, or 4 inches for too well or inadequately drained soil. The organic matter may be well decomposed leaf mold or compost, wood chips, sawdust or bagged or baled peat. If the soil is poorly drained, add a 2-inch layer of coarse sand or perlite. Turn the soil, organic matter and drainage material until it is completely mixed. If the mix is dry, add water to maintain adequate moisture. Continue to add water at regular intervals. Just before planting—add 10 lb. of agricultural limestone and 5 lb. of garden grade 5-10-5 per 100 sq. ft. to supply calcium and the nutrients to sustain growth.

Soil Finishing: All of the preparatory steps were designed to modify the structure of the soil—provide drainage, improve gas exchange between soil and air, supply nutrients, and maintain available water to the root system. It may be necessary to moisten the surface of the soil mix, allow it to soak in, and redig the entire surface. The soil level should be at least 2 inches above the surrounding area with well drained soil and up to 6 inches above the soil line of too-well or poorly drained soil. To keep the raised beds in place, bricks or lumber may be framed around the area. Expect the soil mix to compress at least 2 inches as the components shrink and organic matter decomposes. The level of prepared soil mix should never be less than the surrounding area. Excess rain or drainage water should always be channel-

led out of the area—an elevated surface insures adequate drainage.

Planting: (1) Seed: Proper soil structure and moisture have already been discussed in Volume 56 Number 1, February 1977. Determine from the table the proper spacing between rows and the distances between the plants within rows. It is a waste of seed to crowd in more plants than those which can be productive within the space. Make a 1-inch trough (furrow) in the growing mix to mark the space. Plant seed thinly by tapping them individually out of the packet. Seed tapes with a water-dissolving covering are also available for many kinds of plants. Cover the seed with a soil layer about 3 times the diameter of the seed. Press in the growing mix. If you expect dry or windy weather in the days following planting, cover the soil with newspaper to maintain adequate and uniform moisture conditions. Water the entire area when cracks begin to appear in the soil mix. Remove the newspaper when the seedlings begin to appear.

(2) Plants: Plants started indoors or purchased from garden stores are handled in much the same way as those grown from seed. Remove them from their containers, avoid stretching the root system. Cut off any damaged roots or leaves and remove any tightly bound root systems or drainage material. Plunge the root ball into the prepared soil mix—so that there is a perfect fit. Press your fingers around the root ball to avoid any air pockets. The plant should be planted at about the same level as it was growing previously. If you consider the plant too tall or spindly, you may plant it on its side, at the same depth as when you plant it upright. Cover the stem in a trench alongside the root ball. The exposed green tip will reorient itself and develop perpendicular to the soil line. Water the entire area. Cover with newspapers during the first days after planting to help maintain uniform moisture conditions. Water again when small

cracks begin to appear in the soil mix.

Thinning: Crowded gardens are a favorable environment for diseases and insects. Crowding also reduces the light, water and nutrients available to the individual plants. It is best to provide as much space per plant as possible—the recommended spacings are listed in the table. Thinning of seedlings can be a tedious job—you should remove only the tops of the unneeded plants, while leaving the desired ones intact. For a small garden plot, cutting out the unneeded plants with scissors is fast and simple. Chopping out the unneeded plants with a hoe requires a great deal of experience—it also can rupture the surface of the soil mix and damage the root systems of surrounding seedlings.

Water: Decide right from the beginning that you will economize on the amount of tap water you will use to help maintain vigorous growth of your plants. A rain gauge will help you keep track of the amount of water to apply. Most plants grow well with only 1 inch of water every 10 days. Determine the rainfall received and make up the deficit with tap water. Use an oscillating sprinkler to apply the water during daylight hours—water sufficiently at one time to apply the desired amount of water. Avoid having any water standing on the foliage or ground at nightfall—this saturated situation encourages leaf, flower and root diseases. Alternative methods of watering are the use of soakers (long canvas or coarse mesh tubes), individual micro drippers, or ooze dew hoses. These methods are used by commercial growers and can be readily adapted to garden plots. Although the initial investment is great, economy of water use and labor and the reduced incidence of diseases is beneficial to the gardener. At no time should you stand and sprinkle your garden with water from the hose. Some of the water evaporates into the air and is lost; it

Continued on page 16

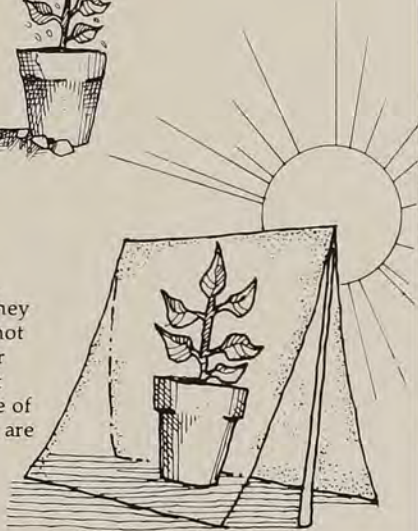
Transplanting Small Plants

1. Care of Plants Before Planting



A—Thoroughly water plants. All surfaces must be moist.

B—Shade plants from direct sunlight until they are transplanted. Do not hold plants any longer than necessary so root development and time of growth and flowering are not delayed.



2. Preparation of Plants For Planting



Plants in Peat Pots or Peat Pellets

Tear upper lip off the pot.

Remove bottom of pot or insert a stick to open bottom. Keep pots moist.

Plants in Clay or Plastic Pots

Knock plants out. Do not pull on stem.

Make fine cuts $\frac{1}{4}$ in. deep in surface of soil ball if roots are matted.

Remove all drainage material from bottom.

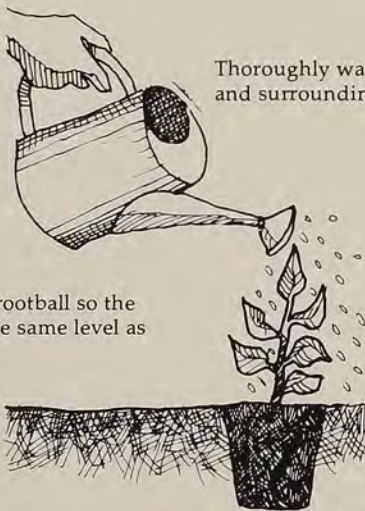


Plants Balled and Burlapped

Keep burlap moist at all times. Do not pull on stem more than necessary. Balled and burlapped plants have many fine root systems that are easily damaged.

3. Inserting Plants in Soil

Do not make a pocket or depression around the plant. A depression allows excess water to stand.



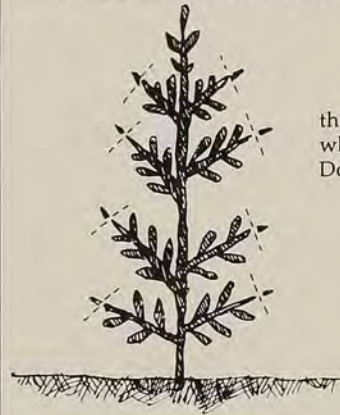
Thoroughly water rootball and surrounding soil.

Insert the rootball so the top is at the same level as the soil.

Growing Media

Apply a liquid fertilizer at time of planting to help the plants develop roots. Use 1 tablespoon of 16-52-10 per gallon of water.

4. Care of Plants After Planting



Hand pinch $\frac{1}{2}$ in. off the tips of the plants when they start to grow. Do not remove leaves.

Shade plants for the first several days if they are exposed to direct sunlight. Remove cover in the afternoon to help plants adjust to the new environment.



The Flowering of Spring

Judy Price
Box 111A
Deerfield, Virginia 24432

Spring is the season of conception; of plants and animals, of that spark of life in man. The cottontail comes naked, the hepatica in a silk-threaded cloak. Man's visions, those fantasies and dreams drawn by the forces about him come strong and vivid and equaled in design only by those of nature, by those creations of nature conceived millions of years before, in another time, in another ultimate vision of spring.

It was winter upon the earth, as it had always been. Storms raged, sweeping the barren land, the barren passages of time through years and centuries and eons. There were some greens, as there are in the winters known now, but small creeping greens, greens progressing slowly inland from the oceans' edges, slowly inland along the water courses to clothe and hold the earth. There was life, but life without promise, without seed. There was not yet spring.

And then, through the passages of millions of years, by the persistence of nature's vision of spring, a flower bloomed. Perhaps nature, a true goddess of vision, a genius of planning and perseverance, had guided life, from the ocean edge to the great green forests of the interior, through the Age of Dinosaurs and that land of giants, to the bud. Or perhaps it had simply come to her in a moment of release, as answers have come to men throughout the ages of man, in that instant before sleep.

From that time life seemed to move toward man as he is today, carelessly at first, and then with more direction. From that first flower, that subtle, inconspicuous bloom, there was a sudden turn, there was spring.

Charles Darwin called the flower "an abominable mystery," because of its coming, and because of its success. It grew and multiplied, throwing seed to the winds in the beginning; later developing color and form to charm the birds and insects that would spread the seed.

Flowers have come through the centuries with man, contributing to his myths and superstitions, to his arts, and to his diet. They have become symbols of months, of states, of holidays, and of affections. They dominate fashion and decor more than any other thing, from the wardrobe to the windows, even to the paintings on the dinner plates.

Today they flourish throughout the world. Only in regions of extreme climatic conditions are they unknown. They flourish, and embellish, and renew the spirit.

Continued on page 33



Above—Birdfoot Violets (*Viola pedata*)



SAVE your plants from DROWNING



Root Rot may be killing your plants! Water standing in the bottom of the pots causes the delicate roots to rot. LEAF LIFTS save your plants from root rot.

Plant roots require oxygen for healthy growth. In wet, soggy soil water replaces the air in the growing medium. LEAF LIFTS provide an air space under the pot eliminating saturated soil and allows the roots to breathe.

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Continued from page 12

Milestones

is also easy to ruin the structure of the soil.

Mulches: Plan to apply a mulch to cut down water loss and weeding. Black plastic, in large sheets, may be applied over the entire area; slits are made in the surface for the planting rows. It can also be put down in between the rows after the seedlings emerge. In areas with cool nights, black plastic aids in elevating the growing temperatures. During periods of intense heat, the black plastic should be treated with a coating of whitewash to reflect some of the heat. Aluminum coated paper is also being used as a mulch. It does all that the black plastic does but it reflects visible light to the growing plants and the soil temperature during periods of intense heat runs 10-30°F cooler than plants in a similar situation under black plastic. Organic mulches, such as composted leaves, sawdust, chips and straw may also be used. Extra fertilizer may be necessary to insure proper nutrient levels in the soil. Every small garden plot should be mulched—the type used is up to the gardener.

Cultivation: With mulches and no cultivation, the few weeds which grow can be removed by hand. Avoid disturbing the soil because cultivation may destroy the upper surface of fine feeding roots. Following each cultivation, the roots regrow, but mulching allows the surface roots to develop unmolested.

Fertilizers: During the preparation of the soil you added a garden fertilizer (5-10-5 or 10-6-4) and limestone. Additional fertilizers should be applied during the growth stages of the plant. I find that monthly applications of a fine dusting (5 lb. of 10-6-4 per 100 running feet) is usually sufficient to maintain moderately green growth of the plants. There should be little or no run-off of unused fertilizers to contaminate the surrounding streams and lakes.

The minor elements should be supplied in the additives made at the beginning of the season and their effectiveness should persist throughout the growing season. Once the plants are established it is extremely difficult to correct deficiencies or excesses. Proper planting procedures insure a successful growing season. Fertilizers may also be applied as a soluble concentrate in the watering systems. Although as effective as dry fertilizer applications, the cost of a unit of equivalent liquid fertilizer is much higher.

Pest Control: Losses of entire plantings can occur when they become infested with pests and diseases. General recommendations for pest management should not be made. I suggest that you observe closely what is happening to your plants—consult your garden urban extension agent, botanic garden, or horticultural society for specific control measures. Most problems can often be identified from the brochures displayed in garden centers. Everyone has mildew, aphids, spider mites, caterpillars. Each pesticide label states which pests it controls, recommends rates and methods of application, and which plants it can be used on safely. Read the entire label, follow directions precisely. Misused pesticides may injure the foliage, contaminate the environment, and waste your time.

Fall Bonus: Harvesting flowers, foliage, fruit through the growing season is usually the ultimate intention of the gardening season. Often these plants do not have to be left out of doors and freeze in the fall. Many—as listed in the table—may be grown in the home the following winter season as a tender perennial. We often forget that the plants can be trimmed back, lifted, and grown as a container plant. Review the table and consider saving some of the more interesting plants.

NEXT ISSUE:

JUNE, Milestones—Seedling to Portable Gardening

TABLE II: MILESTONES FOR SEEDLINGS

Species	Location	Soil Preference	Spacing between plants (inches)	General Comments	Fall Bonus
Ageratum	Sun, partial shade	Any type, sandy, loam, clay	9-12	Remove faded flowers, avoid letting water stand in crown of plant. Plant is easily infested with spider mites.	Lift plants, trim back to 6 inches—can become flowering plant in sunny window.
Alyssum	Sun	Sandy, well-drained	Clumps, 6-8	Avoid over-fertilization, overwatering, and crowding from other plants. Does not compete well in flower bed.	Discard
Aster	Sun	Any	12-18	Requires staking to keep upright in garden. Grow only wilt-resistant varieties. May use cheesecloth screen cages to ward off insects. Excellent summer cut flowers.	Discard
Balsam	Sun, partial shade	Sandy, well-drained	12-18	Often neglected in garden, easy to grow, massive flower display. Keep on dry side to avoid soft, easy-to-break stems. Should be removed from garden as soon as flowers begin to fade.	Discard
Begonia (fibrous rooted)	Sun, partial shade, shade	Any, prefers sandy, well-drained	9-12	Absolute winner in all gardening locations—bronze, green and variegated foliage goes with many other kinds of plants. Long flowering season.	Dig up plants, put in containers—will continue to flower inside.
Browallia	Partial shade	Any—prefers moist	9-12	Excellent blue and white star-shaped flowers—continuous over growing season if in a shady, cool location. Give plants a trim (cut at any position) to retain compact growth habit.	Dig, put in container, will continue to flower in a cool, sunny window.
Cabbage	Sun	Any	12-18	Add extra limestone to soil to prevent root diseases. Successive plantings for continuous harvests. Remove remaining part of plant when head is harvested.	Discard
Celosia	Sun	Any, prefers well-drained	12-18	Does not transplant well or tolerate water or nutrient stress. Do not pinch plants to promote branching, delays flowering and reduces size of inflorescences.	Discard — save flowers by stripping foliage, hanging upside down in a dark, dry location.
Coleus	Sun, partial shade, shade	Moist	12-18	Two basic types: from seed—forms flower stalks which must be removed at frequent intervals, or from cuttings—remain in vegetative growth throughout summer. Trim all plants to keep height down and maintain compact growth.	Dig, put into container, trim to any size top—will regrow in any sunny window.
Dahlia	Sun	Any	18-24	Requires staking to avoid cracking of brittle stem. Trim plants only once to promote development of multiple stems. Remove all flowers, leaving as much foliage as possible. Sear (with heat) to cut stem to insure water uptake of cut stem.	Allow tops to begin to die back—lift roots and store in a cool, dry, dark environment. Start next spring.
Eggplant	Sun	Any, prefers sandy	18-24	Tough plant with large lavender flowers—decorative in all stages of growth. Avoid handling foliage, long spines can injure hands. Do not trim. Naturally branching with the formation of the first flower.	Harvest fruits, wrap in paper and store in cool spot. Can be saved for several weeks.

Continued on inside back cover

Top Left—*Cornus alba* 'Argenteo-Margmatee'; Bottom
Left—*Cornus stolonifera*; Right—*Cornus alba*



In Search of the Elusive Redstemmed Dogwood

Michael A. Dirr, Assistant Professor of Ornamental Horticulture, University of Illinois at Urbana-Champaign, Urbana, IL 61801

Perhaps no woody plants are more confused in the nursery and landscape trade than the appropriately named "Redstemmed" dogwoods. Yet the exact horticultural nature of this group presents questions to most woody plant people. At various times this "Redstemmed" plant has been afforded the scientific names of *Cornus alba* L., *C. amomum* Mill., *C. baileyi* Coult & Evans, *C. sanguinea* L., *C. sericea* L., and *C. stolonifera* Michx. Harriet Keeler, in *Our Northern Shrubs*, first published in 1903, wrote that "Dealers of acknowledged standing are extensively advertising the Redstemmed Dogwood as *Cornus sanguinea* and the public is just as extensively buying it under the same name . . . but after all it is not quite so pleasant that so gross an error should be so widespread; or that it should be so strongly entrenched among those who ought to know better." Little has changed since 1903 for this group of dogwoods continues as the acknowledged leader for misidentification.

Admittedly, the redstemmed dogwoods are not the easiest to separate but there are differences in habit, disease and insect susceptibility, cultural adaptability, stem color and cultivars to warrant distinction between and among the various types.

Cornus alba, Tatarian dogwood, is often given the name "redstemmed dogwood". This species is distinctly erect in youth, the branches slightly arching with age, and the long shoots developing lateral branches only in the upper reaches. Ultimate height is between 8 and 10 feet with spread about two-thirds the height. The winter stem color is usually a blood-red. The intensity of stem coloration coincides with leaf drop in the fall, when it increases, and leaf emergence in spring when it decreases. These color changes occur over a short time span (7 to 14 days). The flowers are an off-white (due to presence of yellowish stamens), borne in 2" diameter flat-topped cymes in mid to late May, after the leaves have matured. Their ornamental effect is minimal compared to the tree dogwoods. The fruit is $\frac{3}{8}$ " diameter, white or slightly bluish-tinted drupe which ripens in July and August. The birds enjoy the fruits and effectively clean the shrubs. Fall color is variable but often develops to a good purplish red. Several cultivars which are common and often seen in cultivation include:

'Argenteo-marginata', 'Elegantissima', 'Variegata'

These three names have been mis-applied to a clone whose leaves have an irregular creamy-white margin with the center a grayish-bluish green. The winter stems are red but not to the degree of the species. 'Elegantissima' is the preferred name according to a number of authorities but has often been mis-applied and used as a specific epithet to form the species *Cornus elegantissima* of selected nursery catalogs. According to Bean, in *Tree and Shrubs Hardy in the British Isles*, 'Elegantissima' and 'Variegata' are two distinct cultivars while the name 'Argenteo-marginata' has been applied to both clones. 'Elegantissima' differs from 'Variegata' in that it is a less vigorous shrub.

'Aurea'—The leaves are suffused with soft yellow.

'Gouchaulti'—The leaf margin is yellow and rose, the center of the leaf green and rose. This combination is difficult for any garden to digest. Hillier's *Manual* suggested that there is no difference between this cultivar and 'Spaethii'.

'Kesselringii'—The stems turn dark brownish purple in winter.

'Sibirica'—The stems are bright coral-red and the fruit a bluish color. This cultivar is often offered in the trade but what is being sold is anyone's guess. 'Sibirica' differs from the species in the two characteristics mentioned above as well as having more rounded leaves with a short apex and a less vigorous nature. The bright stem color is best on stems of the current season's growth and this should be kept in mind during pruning.

'Spaethii'—The foliage is strongly bordered with yellow. I have seen this used in the hedge collection at the Royal Botanic Gardens, Hamilton, Ontario, in August, and would rate it the brightest yellow of any hardy, yellow-leaved type. This clone maintains the bright yellow color throughout the summer and does not show any signs of scorch. The story goes that the cultivar originated on a stem of the species, on which was grafted a white-variegated scion. The scion died and just beneath the point of union a yellow-

variegated shoot developed. It could be that some callus formation had taken place before the scion died and the resultant yellow-foliaged form was, in fact, a graft-chimera.

The species thrives in most soils but those of moist, well-drained constitution are best. Excess fertility results in rampant growth; however, based on observations of plants in our nursery, stem color is just as vivid on highly fertilized, if not more so, than on unfertilized plants. In a single growing season, strong rooted cuttings when transferred to the field grew 3' to 5' high and were uniformly branched.

Once the stems (applies to following two species) become larger than $\frac{1}{2}$ " to $\frac{3}{4}$ " diameter they lose much of the good color. Anything over an inch usually has developed brownish fissured areas. Pruning one-third of the oldest wood every year will keep the plant in reasonable shape or a total rejuvenation in early spring will result in a denser plant with excellent stem color the following fall and winter. The only significant pest that I have noticed on this species is scale and, at times, it can wreak havoc on an entire plant. The leaf spots, crown canker, and twig blights which prove so troublesome to *Cornus stolonifera*, red osier dogwood, are not as prevalent on *C. alba*. *C. alba* is native from Siberia to Manchuria and northern Korea and closely allied to *C. stolonifera*, which some authorities consider merely a variety of *C. alba*. This plant is considered hardy from -40 to -50°F which means that the Eskimos can use it quite effectively in their snowy scapes.

The second member of this elusive group is *C. baileyi*, Bailey dogwood. This species is similar to *C. alba* and *C. stolonifera* in many respects. The stems turn reddish brown (according to the literature) in winter although various plants which I have seen labeled as *C. baileyi* had the blood-red color of *C. alba*. At our ornamentals research center there is a large planting of *C. baileyi* which, when I looked them over in January, had the stem color of *C. alba* planted 100 yards away. The habit of Bailey dogwood was a bit more open than the *C. alba* but did not offer a sufficient characteristic that really separated the two. This species was once considered a variety of *C. stolonifera* but now appears entrenched in the species category even though it is difficult to separate from *C. alba* and *C. stolonifera*. It is native in sandy soils along lake shores as well as in moist soils and ranges from Ontario and Minnesota to Pennsylvania and Indiana. The plant is hardy to Zone 4 (-10 to -20°F). *Seeds of Woody Plants in the United States* lists *C. baileyi* as a synonym for *C. stolonifera*.

The last of the true redstemmed dogwoods is *C. stolonifera*, red osier dogwood. This species varies from 3' to 10' in height over its native range and is wider than high at maturity. The habit is that of a loosely spreading to ascending shrub with osier-like, deep red stems, some of which are prostrate. The differences in habit between *C. alba* and *C. stolonifera* are quite obvi-

ous especially when viewed in close proximity. The flowers are similar to those described for *C. alba* while the fruits differ only in being consistently white. It performs best in moist, cool soil and in the wild is found in wet, swampy situations. Cultivars include:

'coloradensis 'Cheyenne'—I have seen this cultivar only once but was quite impressed with the good blood-red stem color. The shrub is slightly lower growing than the species but does show the propensity to develop almost horizontal, spreading branches. The variety *C. s. coloradensis* has brownish red stems, smaller leaves, bluish white fruits and is native from the Yukon and Manitoba to New Mexico and California.

'Flaviramea'—A yellow-stemmed type, which is often infected with canker and twigblight. Its use should be tempered.

'Isanti'—A small, compact form with dainty, bright red stems which does exhibit leaf spot on occasion.

'Kelseyi'—A low-growing, neat, compact form about 24" to 30" high which contracts leaf spot as thoroughly as any dogwood. Nonetheless, this cultivar is effective as a facer plant or in masses in selected situations when maintained properly. The stems are blood-red in youth but gradually change to brownish red or brown in the second and third years. Older plants are scarcely recognizable for the stems are almost totally brown.

'Nitida'—A type with glossy leaves in summer and green stems in winter.

Cornus stolonifera was, in recent years, listed as *C. sericea* but this is no longer considered a valid name and *C. stolonifera* is again in vogue. The native range extends from Newfoundland to Alaska, south to California, New Mexico and Nebraska; in northeastern United States from Wisconsin to New York. Hardy in Zone 2 (-35 to -50°F) and used extensively as a test plant in cold-hardiness studies. The mature height is listed as 10' to 20' in *Seeds of Woody Plants in the United States*, however I have rarely seen plants larger than 10'. Over the wide geographic range significant variation in size, no doubt, occurs.

All the true "redstemmed" dogwoods are easy to propagate from soft and hard-wood cuttings. I have had excellent success with *C. alba* and *C. stolonifera* but have not tried *C. baileyi*, although it is reported as easy to root as the other species. Seed of all species should be stratified in a moist medium for 60 to 90 days before planting.

Another dogwood with a name which indicates affiliation with the above species is *Cornus sanguinea*, bloodtwig dogwood. The name bloodtwig is a distinct

misnomer for the stems are, at best, dull reddish-purple on the upper surface and green on the lower. In the second to fourth year the stems develop a gray-brown color. Height varies from 6' to 15' with a comparable spread. Several old specimens on campus are 12' to 15' high and as wide but have suckered profusely from roots and developed an unkempt, straggly appearance. One plant located in our woody ornamental evaluation trials has a deeper, more uniform blood-red stem color and outstanding wine-red fall color compared to campus plants. It has not shown the propensity to sucker but has only been in the ground five years. I have attempted, unsuccessfully, to root cuttings collected in August. Reports have indicated that *C. sanguinea* can be rooted from softwood cuttings collected in June. It is easily separated from the true "red-stemmed" species for the creamy white flowers arrive in early to mid June and the fruits are purplish black. The leaves are also smaller and, as mentioned, the stems are not as bright or uniformly red-colored. Native to Europe and considered hardy in Zone 4 (-10 to -20°F).

Cornus amomum, silky dogwood, is a rounded to broad-rounded mass of stems growing 6' to 10' high and as wide. The first and second year stems are usually reddish purple while older wood develops distinct brownish fissures. Foliage is dark green in summer and has not been effective in the fall in central Illinois al-

though reddish purple is a distinct possibility. Flowers are creamy-white, borne in 1½ to 2½" diameter, flat-topped cymes in early to mid June. The fruit is a ¼" diameter, porcelain blue drupe, often blotched with white, which ripens in August. Interestingly, this species inhabits low woods, stream banks and borders of swamps from Maine to Indiana south to Georgia and Florida. Prefers partially shaded situations but will do well in full sun. Landscape use should be restricted to massing, shrub borders, and naturalizing in moist and wet soils. The fruit is quite handsome and the birds do an effective job of planting it in out-of-the-way places. Easily separated from the other species because of the distinct fruit and brown pith. Cuttings root easily without hormonal treatment.

The search has ended and perhaps the muddled taxonomy of this group is somewhat clearer. Undeniably, the differences between and among are not, and will never be, crystal clear but honest attempts should be made to offer potential customers the correct product. I have heard nurserymen admit that they cannot distinguish among the true "redstemmed" dogwoods and I cringe every autumn when my students are exposed to this group of plants for, invariably, they bring in stem segments and ask me to positively identify what they have collected. With a wry grin and a sheepish smile I respond with "It could be *C. alba*, *C. baileyi*, and/or *C. stolonifera*."

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What is spring? A robin and a daffodil, of course. A month ago, the chipmunk peeped from his hole to see if winter had gone, and retreated. The snowdrops were open, indeed, but as usual snow fell to hide them again. Spring cannot read the calendar, and makes false starts and stops.

For me, the first signal is the wispy yellow bloom of the Chinese witch-hazel (*Hamamelis mollis*). Our native witch-hazel is so early in winter (or so late in fall?) that I dismiss it as a real announcement of anything. The Chinese witch-hazel is a pretty shrub, with its golden blossoms (red at the center) starring on bare stems.

As though a competition were on for First Yellow in the garden, the tiny plants of winter aconite (*Eranthis hyemalis*, in the Buttercup family) hurry to open. "Eranthis" is Greek for "flower of spring", and if the little tubers were planted in a clump against a sunny rock, they might almost win the trophy for timing. The six bright petals and the handsomely segmented leaves are a gay delight.

In the race for yellows, the Cornelian cherry (*Cornus mas*) loses to the witch-hazel but precedes the forsythia by a week or so. It is a true dogwood (as a matter of fact, the genus name, *Cornus*, is the old Latin botanical name for *this* shrub), but the real flowers, not the bracts, are the attraction. Again, the flowers are on leafless twigs, and there is something rather ethereal about them. Cornelian cherry has one virtue few gardeners realize—the red "cherries" (bright, shiny and large) which ripen in late summer make abso-



Cornelian cherry (*Cornus mas*)



Chinese redbud (*Cercis chinensis*)



Anemone blanda

lutely delicious jelly, tart and beautiful.

With the forsythia, the yellow species crocus, and the early daffodils (such as 'February Gold' and 'Peeping Tom') the golden race for spring is over. Spring is no longer coming, it has arrived.

A garden spring is not all yellow. The blues, pinks and whites of *Anemone blanda* (again in the Buttercup family) brighten the ground

with drifts of color, peeping through a winter mulch of pine needles. The prettiest plantings are those that have been strewn with a generous hand. They have not the remotest relationship to daisies and asters, but one can't help thinking of Mother Nature storing last summer's white daisy heads, dyeing some pink and blue, and scattering them on earth to smile up at the gardener.

All winter I watch the velvety

Garden - it's Spring



Carmine crabapple (*Malus atrosanguinea*)

"pussies" of the Japanese magnolias (*M. soulangeana* and *M. stellata*), and even pet them. There is one special tree, a small *M. stellata rosea* 'Water Lily' which I visit regularly to find the first hint of an opening blossom. Even once open, I prefer this to all the others. There is something brash and bold about *M. soulangeana*; I'd call it handsome. I'd call 'Waterlily' lovely.

March changes to April. The wist-

ful fragrance of hyacinths is in the air, and my favorite trees are in pink and white dress. Redbud (*Cercis chinensis*—or native *C. canadensis*) hugs its branches with strangely pink "sweet peas".

Perhaps you know Houseman's lines:

"Loveliest of trees, the cherry now
Is hung with bloom along the bough"

and

"About the woodlands I will go
To see the cherry hung with snow".

The poet, of course, was not speaking of our garden-favored Japanese flowering cherries (*Prunus lannesiana*, *P. serrulata*, *P. yedoensis*, or forms derived from these. Higan-sakura and Kwanzan are two of the most used). They are white or pink, single or double, standing or weeping. I could sit contentedly for hours under a weeping cherry, its veil of bloom almost touching the ground, as I admire the flowers against the blue spring sky.

Another favorite tree of early spring is one of the flowering crab-apples, the Carmine Crabapple (*Malus atrosanguinea*). The buds are red and the flowers a delicious pink. To me, it displays a delicacy some of the other cultivated crabs simply do not have.

The shrubs are opening, one by one—the earliest of the rhododendrons, a deciduous one, is *R. mucronulatum*. You may have dismissed it as an "off" shade of lavender-pink, but among several clear colors is 'Cornell Pink'. Other of the smaller rhododendrons hasten after it, white, pink, lavender and the lovely little yellow, *R. keiskei*, from Japan. One spring shrub you may not know is a native American, Fothergilla (*F. monticola*); the flowers themselves are insignificant, but the puffs of white stamens make bright white balls which cover the plant.

By mid-April, the whole delightful circus of spring is on. Color is everywhere, and a bud one day is a flower the next. Miss one day in the garden and some treasure may have come and gone. T. S. Eliot's quotation may be "April is the cruelest month"—but I find April the happiest month of all.



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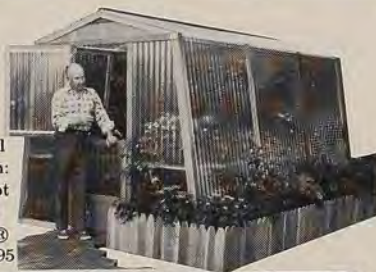
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Continued from page 5

Lawns

reduction in atmospheric carbon dioxide.

The increase in relative humidity and dew, plus reduction in wind movement under shaded conditions, considerably enhances disease activity.

Research has shown that red fescue is one of the best grasses for a shady situation. Pennlawn is a good variety. It has survived in the shade when other varieties did not.

Judicious pruning of trees may help grass to grow under them. Removal of low hanging branches to a height of 8 to 10 feet improves air flow and light penetration. If grass won't grow after pruning, use a shade tolerant ground cover such as English ivy (*Hedera helix*) or Japanese spurge (*Pachysandra terminalis*).

Removal of small tree roots will not keep them away permanently. Watering and fertilizing the area under the tree (for the sake of the grass) will stimulate new root growth.

Mechanical aeration provides an excellent, and perhaps the only, means of correcting or alleviating lawn soil compaction. Compaction occurs primarily in the surface area of the lawn. A compacted layer as thin as ¼ to ½ inch can greatly impede water infiltration, nutrient penetration, and gaseous exchange between the soil and the atmosphere. Compaction of this type can be corrected or reduced by the use of suitable aerating equipment.

Aerating machines remove plugs of soil from the turf area, thereby creating an artificial system of large or noncapillary pores by which moisture and plant nutrients can be taken into the soil. They also provide a breathing system through which carbon dioxide can escape and oxygen can enter the soil. A rapid intake in movement of water and air is recognized as a prime necessity in correcting damages to the turf caused by compacted soils.

Spring and early fall are the best times to aerate. Summer aeration of cool-season grasses is not generally recommended because these grasses are in a semi-dormant condition, whereas crabgrass is quite active.

The best time to fertilize cool season grasses is in the fall. The best and only time to fertilize warm-season grasses such as zoysia and Bermuda is during the growing season from May through August.

Zoysia needs to be fertilized only when the grass does not have adequate density or quality. If the zoysia is good enough to prevent weeds from becoming established, there are no bare spots and grass color is good, zoysia need not be fertilized at all. If zoysia is fertilized when it isn't needed, it is likely to build up a severe level of thatch. If fertilized later than August, it may be delayed in going dormant and suffer winter injury.

Tests have shown that fall fertilization of bluegrasses and fescue caused the grass to retain good color longer in winter and regain good color earlier in the spring without stimulation of excessive spring growth. Spring fertilization results in soft, lush top growth, no root growth at all, and makes the grass more susceptible to some of the diseases which affect lawn grasses.

Fertilizers containing natural or synthetic organic nitrogen (with the exception of urea nitrogen) release nitrogen relatively slowly. Consequently, they last longer and are safer to use at heavier rates than are materials with all inorganic nitrogen.

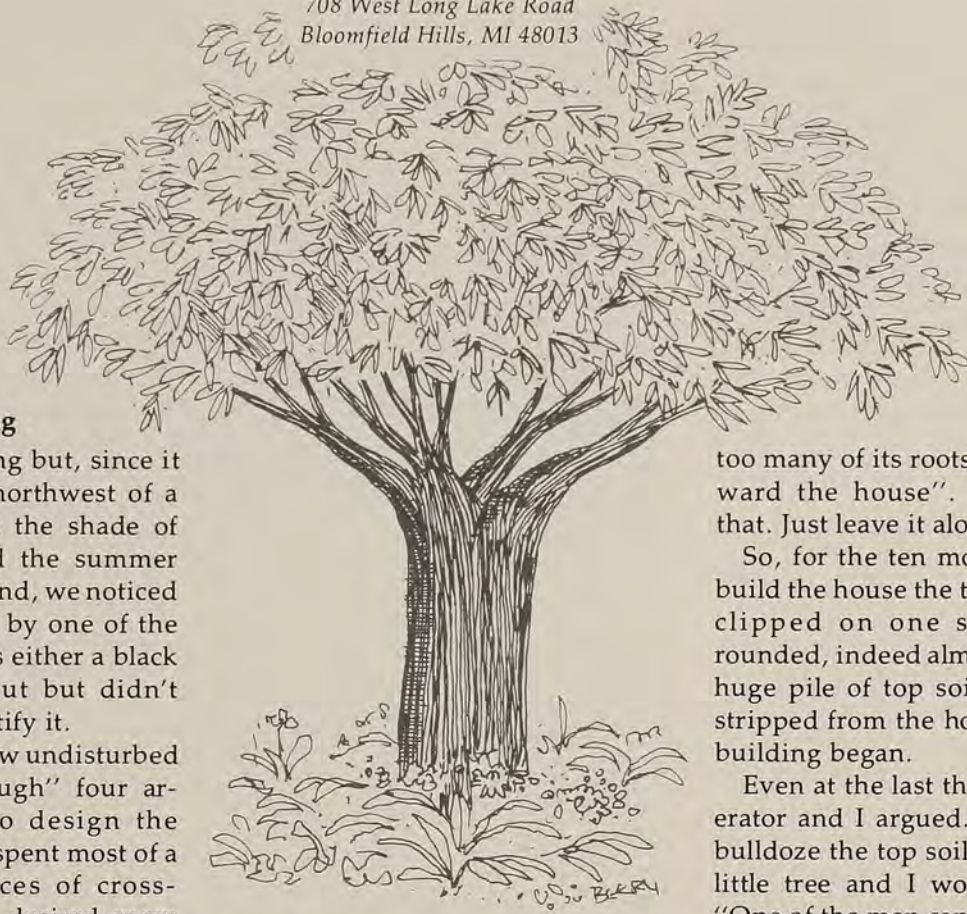
Fertilizer burn isn't always the fault of the material used. It may be due to a faulty method of application. A clogged or poorly adjusted spreader that doesn't spread the fertilizer evenly may cause injury to the grass. Starting or stopping the spreader with the trap open can cause uneven distribution. When you spread inorganic fertilizer, make sure the leaves of the grass are

Continued on page 44

Under the Spreading Black Walnut Tree

Where the plant by accident
no weed, no work garden grows

Isabel Zucker
Landscape Architect
708 West Long Lake Road
Bloomfield Hills, MI 48013



The Setting

It was only a sapling but, since it grew about 50 feet northwest of a full-grown poplar in the shade of which we picnicked the summer after we bought the land, we noticed it. When questioned by one of the children, I said it was either a black walnut or a butternut but didn't trouble to really identify it.

For four years it grew undisturbed while we "ran through" four architects, decided to design the house ourselves and spent most of a winter moving pieces of cross-section paper cut to desired room sizes around a piece of left-over ceiling tile into which we could stick pins.

The Tree

Once we had decided on a final house plan it remained to locate house on grounds. We had long since decided to build it into the hillside. But now, with house finally located, we knew that the maybe-black-walnut, maybe-butternut was important for it stood on the brow of the hill just east of where that would

have to be cut away to build the lower floor.

We staked the outlines of the house and I walked backwards from the little tree and announced, "Unless I am crazy, that tree, when full-grown, will shade the east windows of the master bedroom all summer".

It nearly didn't. For I arrived one day to find the bulldozer operator preparing to send it into oblivion. A scream stopped him and I explained that it was to be left in place. "It won't live", said he, "I'll have to cut

too many of its roots on the side toward the house". "We'll chance that. Just leave it alone".

So, for the ten months it took to build the house the tree stood, roots clipped on one side and surrounded, indeed almost buried, in a huge pile of top soil, one of three stripped from the house site before building began.

Even at the last the bulldozer operator and I argued. He wanted to bulldoze the top soil away from the little tree and I wouldn't have it. "One of the men can wheel it away, that tree's been abused enough".

Root cutting, half burying made no difference. It was autumn when we moved in and the following spring the little tree leafed out as if nothing had happened to it.

The land under the tree sloped down hill of course and the construction men had made a path between it and the house in going from front to back of the building. This left an awkward foot or so of slope at an odd angle. Our daughter, knowing this, arrived home at the close of

a large flower show bearing the bent grass sod from one of the exhibits, which she proceeded to lay over the small area. So, for some years, before the shade became too dense, bent grew on one side of the tree. Now a stone wall holds the bank.

Another path developed about four feet beyond the opposite side of the tree, made so that we could wheel things downhill, which we could not on the steeper path between tree and house, into which we had put several steps.

The Plant-by-Accident Garden

Between the two paths, under the tree, there developed the plant-by-accident, no-weed, no-care, all-season garden shown you in the accompanying pictures.

Thinking back, probably the first thing “planted” was the double-flowered hemerocallis, *H. fulva* ‘Kwanso’, pieces of which I was moving from our former garden. I know I divided these near the tree and, reconstructing my actions, probably threw leftover bits in that direction. For there is now a large patch in the no-care garden.

Then came the hosta border and I know how that arrived. When I moved *Hosta lancifolia* plants from our former garden there were seed pods on several and I scattered the seeds from these to get them out of the way—no soil preparation, no covering—but there the plants are.

Violets arrived under the tree, purple ones probably from a wild patch several hundred feet west, white ones obviously from a plant given me by a friend and set in a wild flower bed situated under our “picnic” poplar and a nearby silver maple.

About that time I took a moment to break a twig off from the tree to identify it—as a black walnut. It’s easy. Split twig top to bottom and look at the center, the pith. If it is light brown and the cross walls of the chambers into which it is divided are fairly wide apart, the tree is a black walnut. Butternut twigs have dark brown pith and

chamber walls are closer together.

Of course you can also tell by the bark, grey on butternuts, brown on black walnuts or the fruits, since butternuts are more slender and oval while black walnuts are round. But, our tree was not mature and, up to this time, hadn’t borne fruits.

Now a black walnut is the kind of tree that has the reputation of being inhospitable, if not downright poisonous, to other plants because of the juglone from its roots; yet, think of the plants already established under our tree because they evidently liked the situation!

One spring, to my surprise, there appeared under the tree a few plants of *Mertensia virginica*, Virginia bluebell, also from the wild flower patch where their roots had been planted with snow or white trilliums, *Trillium grandiflorum*, moved from our former garden, to duplicate as nearly as possible a sight I’d once admired along a bayou near Houma, Louisiana, where bluebells and white trillium carpeted a little grove.

Like the hemerocallis, the hostas, the violets, those bluebells s-p-r-e-a-d and today form the chief attraction in early spring.

“But she certainly planted those tulips”, you’re saying to yourself? Well, maybe—but only if you stretch the meaning of “planting”. For here’s what happened. I overbought bulbs, as usual, and in January found several dozen leftovers in the cold closet in which I keep them until planted. Soil frozen but bulbs still plump—what to do? There’s always a bushel of unfrozen compost in the laundry, in case I need to repot a house plant, so I took tulips outdoors, put them on, not in, the frozen ground in that nearest-to-the-house bed under the walnut, dumped half my bushel of compost over them—and they grew!

Some years back, at a garden club sale, I bought a plant of *Rudbeckia laciniata*, the green-headed cone flower, also wild and also planted in that wild flower area to furnish late summer bloom. It, too, jumped a lawn and a path with its seeds and

took up residence under the tree.

How the phlox plants got there I’ll never know. The occasional daffodils “just grew” too. But the *Lysimachia quadrifolia*, four-leaf loosestrife, was a gift from Prof. Whetzel of Cornell University, Ithaca, NY, after I’d admired a large planting in his garden. This was definitely and deliberately planted under the tree because it was near the house and I, arriving home from the trip, was in a hurry.

This, too, is the reason there are newer varieties of hemerocallis at the downhill end of the bed—the shipment came as we were leaving; the plants were set in the handiest free area.

Shasta daisies seed themselves, stay a few years, disappear and reappear. So does *Monarda fistulosa*, our native monarda in Michigan. And, almost every year there’s a new surprise—a new flower. The no-weed, no-care garden.

If this bed is weeded once in three or four years it’s a miracle. Weeds hardly can grow anyhow since the plant inhabitants crowd one another. It has never been cultivated or fertilized. It is watered occasionally in dry summers if I’m watering nearby. Yet, all spring, summer and fall it is colorful.

The black walnut once had a few caterpillars on the leaves. I cut off the branch and burned it. The red squirrels and chipmunks get all the nuts so they are no pick-up problem.

The morals of this story are that 1—contrary to the widely-held belief that “nothing” or “almost nothing” will grow under a black walnut, plants that *want* to grow there thrive. And 2—it isn’t necessary to spend a fortune on the latest varieties or work yourself to death to have a colorful garden. Relax and let nature take its course.

P.S. Yes, the black walnut now shades the east windows of our bedroom as predicted twenty-four years ago and is spreading so widely it soon also will shade those on the northeast.

Below Right- In springtime Virginia bluebells contrast with bright tulips under the black walnut. Bluebells seeded themselves; tulip bulbs were "planted" in January, compost dumped over.

Below Left—By summer hostas and phlox have taken over. Hosta seeds were scattered; phlox just "appeared".



Photos by Isabel Zucker

Sanguinaria canadensis multiplex and Trillium grandiflorum Plenum

Henry Teuscher
3289 Ridgewood Avenue, Apt. 16
Montreal, Canada H3V-1B8



company at Dayton, Ohio, where he served mainly as a trouble-shooter. When anything went wrong in the construction of new machinery, he was called upon. When he went into action, he worked furiously day and night through, hardly eating or sleeping, until he found the source of the trouble and had corrected it.

After any such mad exercise he disappeared, and nobody knew where he was, until he returned. This was tolerated because he had no equal in his work. Few knew that he was a great lover of nature. He had bought a piece of wild woodland in Michigan, where he had built himself a cabin, and to this he retired, when he felt in need of peace and quiet to regain mental and physical equilibrium. He lived there like a hermit, sometimes for several weeks.

At that time, I was the botanist of the newly established Morton Arboretum at Lisle, Illinois, and von Webern often came there for information on native plants. We liked each other and became good friends.

One fine spring morning, Mr. von Webern was walking from his cabin to the spring, to get water for his morning coffee, when he saw—close to the path—a plant of the Bloodroot with ten large, double flowers. This was so beautiful that—being a very emotional man—he sat down and cried. When he recovered, he decided to go immediately to me and to tell me about it. I also became excited at this rare and wonderful find, never having heard of a double Bloodroot before, and I told him to mark this plant right away by placing a number of sticks around it, so that he could find it again in the fall. Toward the end of August or early September, he should dig up the plant and divide it. It has a fleshy rhizome which can be cut into inch long (2½ cm long) pieces. These pieces must be dipped into powdered charcoal—to stop the bleeding and to prevent rotting—and should be re-

So-called "double" flowers are by no means always pretty, but there can be no doubt that these two are indeed outstandingly handsome. That they are superior forms of two of our most common native spring flowers, adds special interest. They deserve to be better known, to which I wish to contribute by relating their rather interesting history. I feel that this should be recorded.

Sanguinaria canadensis var. *multiplex* was named by E. H. Wilson in 1923 (*Gardener's Chronicle*, page 283). I described it in the German Magazine "*Gartenschönheit*" (June 1927). It was discovered by Mr. L. von Webern who was a rather remarkable person, with many interests, as well as somewhat of an eccentric. He was an engineer and was employed by a large engineering

planted right away, in a horizontal position and shallowly, in loose leafmold, covering the place lightly with dead leaves. They would sprout in spring and develop into new plants. He did this very successfully, and he also gave several pieces to me. I planted them in my garden and, when later I left the Morton Arboretum to go to New York, I took them with me. Eventually, I brought them with me to Montreal.

At Montreal, the plants quickly increased in size, forming large patches which every spring presented a beautiful display. The flowers, which have a diameter of somewhat over 6 cm, are sterile, because the stamens, as well as the pistils are transformed into petals, and they last much longer than those of the single-flowered Bloodroot. As everyone knows, it is useless to pick the flowers of the common Bloodroot, because they drop their petals within a few hours. The flowers of var. *multiplex*—when picked as they begin to open—last for several days in a vase.

Mr. von Webern gave plants also to the Arnold Arboretum, from which Wilson described the var. *multiplex*. I do not know, whether he gave plants also to others and, if so, to whom. I have distributed the var. *multiplex* rather freely, even sending plants twice to England and twice to Germany. I believe that most people, who do have it now, have received it through me, directly or indirectly.

Trillium grandiflorum var. *plenum* Hort. was discovered by Mr. W. A. Smith in an isolated piece of woodland not far from Rochester, New York. The species itself is the spring glory of the woods of northeastern North America, often occurring in large colonies of hundreds of plants which, in flower, may color the whole floor of the woods white. But, when one examines the flowers in detail, it will be found that they are all very much alike, with only minor differences in the size and shape of the petals. In some plants, the aging

flowers may be more brightly pink than in others, but that, usually, is all. The only place known to me, where *Trillium grandiflorum* actually mutates widely, is the woodland discovered by Mr. W. A. Smith. There, one may find plants with green-striped or entirely green flowers, others which have two whorls of leaves, or some which have more than the normal number of petals. Nobody knows why.

There is a possibility that the soil in this place contains some radioactive mineral, such as thorium, rubidium or actinium, which are rather frequently present in very small amounts. In decay, they emit alpha and beta rays, and it is just possible that one of these may be present in sufficiently large amounts to cause plant mutations. But, there is no proof.

I did once set out to visit Mr. W. A. Smith and his unusual woodland, but my car broke down, when I was about half way there, and I had to give up. I never got another chance.

At any rate, it was in these woods that Mr. W. A. Smith found a plant of *Trillium grandiflorum* with a flower which was so fully double that it resembled the double-flowered form of *Gardenia jasminoides*. He wrote a short article about it in a magazine, which I saw and which I found so interesting that I wrote him, asking whether it would be possible for me to get an offset of this plant. His answer was that he had only one plant and he did not know how to propagate it. He said, he had had this plant for almost ten years but, every year, it produced only one new tuber and one flower. He was rather tired of it and would be glad to give it to me. Of course, I accepted and when the plant arrived, I planted it in the shade garden of our nursery.

What happened now, looked like a miracle. After two years, we discovered that five additional small plants surrounded the old plant which now, suddenly, had produced extra off-sets. When these were removed, in fall, and planted

separately, they quickly developed into strong plants and flowered. Soon, we had well over 20 of them and this group was a wonderful sight in spring.

The only possible reason for this strange behavior can have been the change in soil, which in this case was to a fairly heavy, slightly alkaline clay soil. Unfortunately I do not know what the original soil was. Whether, possibly, some additional substance is present and had an influence, remains a mystery.

Treatment in cultivation

Trilliums, when planted in the garden, are often disappointing by failing to thrive. For this, there are several reasons. First of all, they can be transplanted safely only in fall—end of August or early September—not in spring, when they are in flower. Secondly, they do not like a sandy or pronouncedly acid soil. This applies also to *Sanguinaria*. But, there is still another factor which frequently causes trouble. The average gardener, when moving woodland plants to the garden, is almost sure to add peatmoss to the soil in order to improve its texture. This would be a serious error, especially as far as *Trillium* is concerned, because peatmoss acts like a poison to it. Only leafmold—still containing dead leaves—should be added. I know this for a fact, but I have never made a study of what peatmoss actually does in the soil, besides possibly causing a change in the degree of soil acidity. The chances are that it interferes with the availability of calcium which *Trillium* in particular seems to need.

When trying to establish woodland plants in the garden, one should remember also that, in fall, they should be covered slightly (not too thickly) with dead leaves. In spring, the leaves should not be removed but should be worked loosely in the surface soil. They do not serve as a protection but as food, and woodland plants do need them. They will not live long without them.



Euonymus likes our Illinois Woodland

Mrs. Ralph Cannon
5849 North Kostner Avenue
Chicago, Illinois 60646

Not every plantsman of nature can have a real woods, but there are many groves which have deciduous trees that provide a leafy canopy and whose fallen leaves year after year provide the same sort of soil as a forest.

Our woodland was virgin timber. At no time was it ever cultivated. It was filled with wild flowers of many species suited to the leafy soil, with hosts of small bulbs and carpeting plants diverse in form and color. April is the essence of spring: a profusion of bloom and a subtle refreshing fragrance. Spring time is wonderful in most parts of the world, but nowhere is it more exciting than at "Many Trees", Yorkville, IL. Focal points arise and disappear. Early hepaticas drench the hillsides, along with bloodroot (*Sanguinaria canadensis*). The carpets of rue anemone are so extensive that their blossoms light the woods like lamps. The meadows of *Mertensia virginica* are like a blue lake in the distance. The thousands of daffodils that have been naturalized wave to us as we pass by, producing splashes of fleeting color. Rising amidst the rich confusion are great shuttlecocks of the fern *Matteuccia pennsylvanica* and many other ferns decorating a big hillside and extending along the valley road. Hostas sprawl all over showing that horticultural plants can be used along with the indigenous material of the woodland to complete a harmonious picture.

In the fall, the arrival of cool mornings brings nostalgic remembrances

of the past season. One of the heralds of autumn is the turning of the leaves to many hues of red, orange, bronze or gold. The sugar maples (*Acer saccharum*) and the black maples (*Acer nigrum*) are indigenous to our woods, and since they grow so well it prompted us to try other acers. *Acer nikoense* is now about 25 feet high and colors magnificently in the fall. *Acer pennsylvanicum*, a snakebark maple, and *Acer griseum*, the paperbark maple, with its flaking dark brown bark curling back like wood shavings, are doing well. To complement the acers' fall colors we thought that *Euonymus*, both *E. alatus* and *E. europaeus*, should blend well.

Over the years these introduced euonymus plants have become among the most pleasant features at "Many Trees". Since they were among the first plants to be added to the virgin woods as they existed in 1935 they have been allowed to roam. Over the years the birds, wind and rain have scattered their seed, and the volunteer plants grow better than the transplants, living up to the old adage that: "Every plant has its own likes and dislikes".

These shrubs like to grow under a canopy of trees as well as in the open. This provides us with two periods of fall color. The first color arrives on the plants in full sun. As these sun-drenched shrubs lose their leaves and the colors fade, the leaves of the deciduous trees fall. Excitement mounts once more as this allows the sun to shine on the shrubs under the trees, producing another period of color. One might

say that "Autumn Fire" prospers right beneath the trees.

The *E. alatus* fall color is a brilliant rosy-scarlet with its millions of bright red berries. The texture of the stems is corky with wings. All of these characteristics please the eye and soothe the mind. These plants grow slowly at first, but if they can survive the attacks of rabbits and deer in the winter they will eventually reach a height of 8 feet with about a 6-foot spread.

The *E. europaeus* is a fastigate shrub growing in sun or shade. Its charming characteristics are that it grows to approximately 20 feet in height; in October it is covered with pale pink fruit over 1/2" in diameter, and later the capsules open, revealing the bright red seeds. It fruits heavily and the arching branches filled with the berries that hang like Christmas ornaments add to its exquisite charm. The berries remain on the branches long after the frost causes all the leaves to fall, which gives them extra ornamental value.

In autumn our hillsides ignite with gold from the maples and the dense scarlet of the euonymus. The reward is great. Hundreds of these shrubs have picked their own places and planted themselves. This natural proliferation is one of the chief values of euonymus in this environment. It is the masses of color over the landscape in the fall that give them exceptional force. These hardy shrubs with their beautiful stems, autumn colors and berries should give the potential woodland plantsman great stimulus to embark on a program of naturalization.

Shingle Oak

by Harrison L. Flint
Prof. of Horticulture, Purdue University
Lafayette, IN 47907



One of the least typical of the native oaks, yet one of the most useful and appealing in the landscape, is shingle oak (*Quercus imbricaria*). This tree's scientific name was given by the famous French naturalist and plant explorer, André Michaux, who explored much of what is now the Midwest in the last of the 18th Century. It is a direct translation of the English common name, resulting from the use of the tree's wood for shingles by early settlers in the Midwest in Michaux's time. Shingle oak ranges farther west in the wild than most oaks, to eastern Kansas and Nebraska, southward to South Carolina and Arkansas, and northward to Iowa, Wisconsin, and New Jersey. As is true for many other wide-ranging species, it probably varies considerably in climatic adaptation, but there is little or no direct evidence of this. Because it is considered a minor timber species, shingle oak has received little attention in forestry research, nor has it been the subject of horticultural investigation.

From its distribution in southern Wisconsin, it is evident that local material there must be hardy to USDA Hardiness Zone 5b (the warmer half of Arnold Arboretum Zone 4). It is questionable whether trees transplanted from native sources farther south would survive at the northern edge of the range.

Unlike most northern oaks, shingle oak has entire leaves, very different from the idealized "oakleaf" shape. Nevertheless it belongs to the red and black oak group, along with northern red (*Q. rubra*), southern red or Shumard (*Q. shumardii*), black (*Q. velutina*), pin (*Q. palustris*), scarlet (*Q. coccinea*), black jack (*Q. marilandica*), water (*Q. nigra*), willow (*Q. phellos*), laurel-leaved (*Q. laurifolia*) oak, and others. It can be identified as a member of this group by a small bristle at the leaf tip. In spite of its distinctive appearance, shingle oak hybridizes with several other members of the red/black oak group, providing some confusion for amateur botanists.

The tree's landscape interest begins with the emergence of catkins and young leaves, giving the tree

a misty yellow-green appearance in spring, and accentuating its characteristic horizontal to pendulous branching, suggestive of pin oak. As spring progresses into early summer, leaves develop their full size, 3 to 6 inches long and 1 to 2 inches wide, and turn deep green. Like other northern oaks, shingle oak completes its annual twig growth very early, rarely producing a partial second flush of growth in midsummer. But the foliage continues to produce chlorophyll, becoming progressively darker green until late summer. As the chlorophyll finally breaks down in late autumn, the leaves fade to a golden-bronze color and then dry to a warm brown color by early winter. Even though non-functional at this point, many leaves remain attached to the twigs well into winter, sometimes through January if the winter is mild. The dried foliage can supply a spot of warm color in an otherwise cold-looking landscape; its rustling in autumn and winter winds adds a subtle but distinctive landscape effect.

Because of its tolerance of calcareous soils, so-called because of substantial amounts of free limestone, it is a useful substitute for pin oak on such soils. In spite of the obvious foliage differences, the two trees are not greatly different in form, and shingle oak will often prosper in high limestone soils where pin oak trees turn yellow and grow poorly. Soils of the Midwest, in particular, have offered many opportunities for this tree in such a stand-in role.

Two factors most often blamed for limiting usage of oaks in man-made landscapes are slow growth and difficulty in transplanting. Nurserymen know that it is not accurate to generalize about transplanting ease and growth rate in oaks, as the species vary widely. White and burr oaks may have earned their reputations for slow growth, but red and pin oaks are relatively fast-growing trees. The same is true for ease of transplanting. Scarlet oak (*Q. coccinea*) admittedly is relatively difficult (although used in spite of this), but many other oaks are no more difficult than most other shade trees. Shingle oak usually will keep up with pin oak in growth, and sometimes exceed it. It may be slightly more difficult to transplant, but offers no serious challenge to the competent professional landscaper. The author (no expert at transplanting) moved a 6-foot wild sapling successfully 5 years ago, and it now stands 16 feet tall and 12 feet wide.

It is common experience to become enthusiastic over a new or different tree or shrub, and then grow frustrated trying to locate it in the nursery trade. Shingle oak is not available in every nursery, but several wholesale and retail nurseries in the East and Midwest do offer it for sale. The landscaper who is willing to do a little investigating should be able to find this tree without great difficulty. Once found and planted, this tree will function as an excellent shade tree, and will provide both sight and sound appeal for many years to come.

The Flowering of Spring

It seems that their numbers and varieties are unending, that they will go on forever, with man or without him, even in spite of him. It seems that they will always carpet the forest floor, and dominate the fence rows, and push through faults in the pavement. It seems, because they are so natural, so inherent to the earth, that they will never cease to be. But, for flowers, there is an end, a point of extinction, just as there is for every living thing. And for some species, that end is near. For many others, it is threatened.

It is not often because of malice that plants become extinct, but because of ignorance, because of that reckless shove of progress, that unthinking, many times uncaring, advance; it is that gaining of ground, ground lost then in the winning. And sometimes it is because of appeal, the attraction of the plant; because of its beauty, or novelty, or scarcity it is picked and uprooted, often with noble intentions, until it is no more.

As the danger grows, to plants, and so to man himself, concern grows, or perhaps it is not the caring that has increased, but the clamor, the resonance of that concern. And the concern has taken many forms to protect and instruct.

In recent years, a mass of information made in con-

junction with legislation, and apart from it, has been provided about native wild plants; about the possible dangers to them by picking, by destruction of their habitat, and about the pleasures—the plants' discovery in the forest, or bog, or on some sheer limestone cliff. There is an effort to inform, for legislation is helpful, and sometimes necessary, but it is not the solution to the problem; it will not save the earth, the plant life, the animal life.

The preservation of the earth is left to man, not to man as a billion indistinguishable forms united into one wreathing mass, but to each individual man, to that consciousness. Only he can assure the survival of the earth; for in the mass there is knowledge, a wealth of learning, but there is no sensitivity. And only with that response to the living, that understanding, that intelligence, can the forces of nature be held on course to prevent the mindless plunge backward to an earth caught in the web of winter, an earth of concrete mazes, barren of all life except perhaps man, barren then even of humanity.

The masses will continue to inform, telling of the threat to the endangered species; and to legislate, forbidding their sale, their destruction, promising punishment. But only the individual can come down from the bulldozer, and the dollar, and the passion to possess. Only man can free the sacrifice. Only man can save spring.

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Viola pubescens
The yellow flower whose three lower petals are purple-veined, grows on a softly-haired stem, springing from amongst heart-shaped leaves. Blooms May to June.

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Viola canadensis
In cool shady spots from May to July, this leafy plant bears long-stemmed whitish flowers with a brilliant golden eye and lavender-flushed upper petals.

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Viola pedata
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AH4

White is for a Wood- land Spring

Martha Prince
9 Winding Way
Locust Valley
NY 11560

April enters as a magic month. The trees are leafless still, although the snow has gone. A casual walker in our Eastern woods, not looking down, would call them brown, or dull, or grey. Nature is hesitant to call attention to her first shy offering of woodland flowers, and most are tiny, white and secretive. You must search for them in hidden places.

If there is a white pine grove, or the edge of an old road cut (a predilection, for some strange reason) the trailing arbutus (*Epigaea repens*) will have its flowers tucked under oak leaves. There may not be an oak tree overhead, but I have yet to find arbutus blossoms without first pushing away an oakleaf blanket. The low, oval arbutus leaves are tough, evergreen and leathery, but the five-petaled blossoms are delicate and sweet. To catch the elusive fragrance, you must put your nose almost on the ground. Some arbutus is tinged with pink, blushing for having arrived too soon for spring.

Emily Dickinson wrote:

*"Pink, small and punctual
Aromatic, low"*

as the first lines for a poem she sent to someone with a sprig of arbutus. I



think she used poetic license, at least a little bit. "Pink" and "punctual" sound special together, and "white" would not fit.

Arbutus can be somewhat difficult in a home woodland; it hates to be transplanted, and usually dies in frustration. Cuttings can be successful, but seed takes three years, at least, to flower.

Blooming with the arbutus is bloodroot (*Sanguinaria canadensis*). Although the open flowers are glisteningly white and pretty, the special time for bloodroot is when each lobed leaf still curls around its own white bud, protectingly. The underside of a leaf is a greyed green, and the veins stand out in a fascinatingly intricate pattern. Once open, bloodroot is not so unique. There is a handsome double-flowered form, but it is found in special nurseries, and you will never find it in the wild.

Shortia (*Shortia galacifolia*) is a treasure with a story behind it; it was discovered only to be "lost" for almost a hundred years. André Michaux, on one of his discovery tours, found the plant—in leaf only. His pressed herbarium specimen was noticed in Paris long years later by the great botanist, Asa Gray. Michaux had written the cryptic notation on the specimen, "From the high mountains of Carolina", and the search for it centered on the mountain tops. Michaux meant "among", not "on". Professor Sargent finally found it in the late nineteenth century, by a stream in the northwest corner of South Carolina. If the previous searchers had only read Michaux's diary, the place is pinpointed! It grows wild in a tiny adjoining part of Georgia, too, and in parts of North Carolina. (Unhappily, a power company lake is filling a large portion of the original South Carolina habitat.)

Shortia's romantic history is not the reason to cherish it. A tiny plant, with five dainty scalloped petals, showy yellow anthers, pink bracts and a pink stem, it is one of the most delightful small things native to

Eastern woodlands. The basal leaves are glossy, tough and evergreen. It blooms with the bloodroot and the arbutus, a trio of Nature's loveliest.

I have found rue anemone (*Anemonella thalictroides*) in bloom at the same time, but the bloom-time of this dainty plant lasts for weeks and weeks. It is at its most floriferous nearer the middle of the month. The clustered flowers (six or seven petals and too many stamens for me to count) grow on such fragile-looking stems it is hard to believe what a tough little plant this is. The leaves are thrice-compound, and resemble those of meadow rue. The "Anemonella" is because it is not too far removed in looks from the true anemone. As a matter of fact, *Anemone quinquefolia*, the white windflower (single flowers on a stem, rather than clusters) may be found in the same woodland.

Spring beauty (*Claytonia virginica*) joins the rue anemone when it is in full bloom. Nature sparingly uses a touch of pink here, too, as veining on the five white petals. The leaves are long and narrow, and the whole plant disappears for the year once the seeds are set. For our own "woods" we dug clumps at a roadside spot where cars parked on them. We parked on them ourselves! The flowers must have appreciated the rescue, for they come up faithfully year after year.

White violets bring a fragrance to the mid-April woods. There are two you may find: *Viola blanda*, the sweet white violet, has a touch of purple on the petal veins, but *Viola pallens* is pure white (and perfumed, too).

Foamflower (*Tiarella cordifolia*) is an end-of-April flower. Fluffy pyramids of small white blossoms stand erect above vaguely maple-like leaves. It is a member of the Saxifrage family, and one of the other members resembles it somewhat—bishop's cap (*Mitella diphylla*). Both can be used beautifully as a groundcover in your woodland garden, just as Nature uses them in hers.

Twin-leaf (*Jeffersonia diphylla*—named for Thomas Jefferson, of course) is a not-often-seen little woodland herb. There are eight petals and strange two-parted leaves. Another name for it is rheumatism root!

By the end of April there is some color on the forest floor. However, instead of the mahogany-colored wake robin (*Trillium erectum*), the white woodland has the white version of the same species. It also has *Trillium grandiflorum*, which becomes pinkish with age. As with all trilliums, Nature's arithmetic is carefully in threes. There is another, smaller white trillium, the snow trillium (*Trillium nivale*) but it would not like the same acid soil. If you want it in your wild garden you would have to use lime in some special area, for it to thrive.

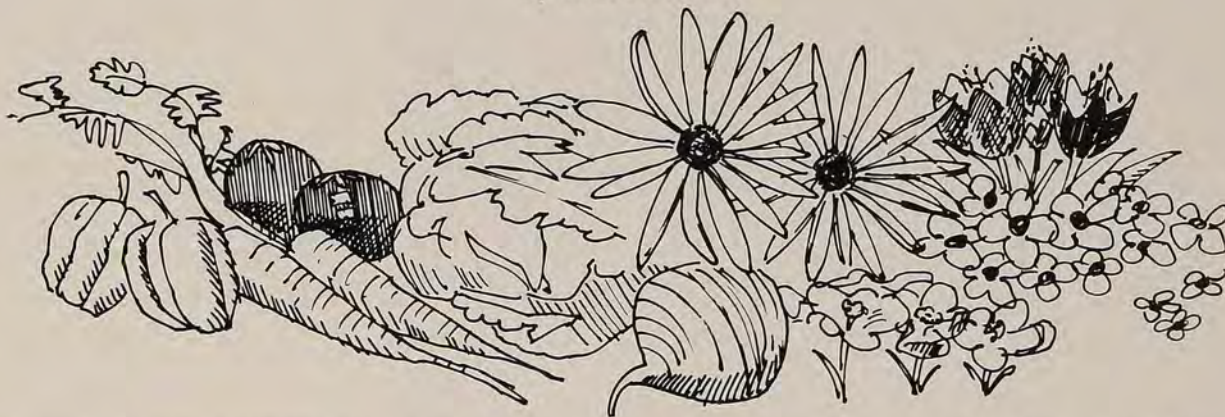
The common ladyslipper (*Cypripedium acaule*) is usually "pink" (a peculiar one), but *C. acaule* can also be found in white. It is more rare, and more northern than southern, too. The other little white ladyslipper, *C. candidum*, is also averse to the acidity of the soil.

The White Woodland I speak of can be almost anywhere; it is most naturally a mixed hardwood (oak, especially) forest, with some white pine. The arbutus and ladyslippers want the pine—the spring beauty wants more light. The acid soil is rich in humus and rather moist. It is an Eastern woodland, near the mountains, at least in its southern range. The blooming times given here are for New York; for Georgia make the dates about a month earlier. I know this forest well. I searched the woods for arbutus and spring beauties as a child in Georgia; now I am a New Yorker, and these photographs were taken in our Long Island garden.

When April ends in the woodland, the leaves are a fresh green on the trees, and the special subtlety of all-white is over. Nature exchanges her most delicate art for a brighter palette of color.

New Vegetables and Flowers for 1977

By Tom Stevenson



Some very fine new varieties of vegetables and flowers (1977 introductions) are available for this year's gardens.

There are four All-America vegetables and four flowers: 'Savoy Ace' Hybrid cabbage (gold medal), 'Melody Hybrid' spinach (silver medal), 'Scalopini' Hybrid squash (bronze medal), 'Spirit' Hybrid pumpkin (bronze medal), 'Show-girl' Hybrid geranium (bronze medal), 'Primrose Lady' Hybrid marigold (bronze medal), 'Yellow Galore' Hybrid marigold (bronze medal) and 'Blushing Maid' Hybrid petunia (bronze medal).

The All-America Selections were described in the January *News & Views*. It is a good idea to get your seed early. Some retail stores may have some of them, and seed catalogs will list all or most winners. In addition to the All-Americas, there are other outstanding introductions.

Burpee is introducing two new vegetables and six new flowers. 'Sugar Bush' watermelon produces luscious melons on compact vines in just 6 square feet of space. 'Triple Treat' pumpkin is the perfect shape and color for Halloween jack o'lanterns, has thick meat for making de-

licious pies, plus hull-less seeds with a rich nutty flavor raw, roasted or fried lightly in a little oil.

Burpee's flowers include 'Primrose Lady' Hybrid marigold, an All-America winner; 'Deep Orange Lady' Hybrid marigold, with carnation-type blooms on bushy plants 20 inches tall, 'Pretty Joy' marigold, a mixture of colors, clear light yellow, rich mahogany red and golden yellow, on bushy plants 7 inches high; 'Red Pygmy' marigold with fully double flowers on busy plants 7 inches tall; 'Color Carpet' alyssum, a mixture of fragrant flower colors, white deep rose and deep purplish shades; 'Liberty Bell' Hybrid snapdragon, semi-dwarf, about 17 inches tall, with round bell-like florets in bright clear colors including pure white and solid yellow.

The Burpee catalog will be mailed free. Send your request to the branch office nearest you: Warminster, Pa. 18974; Clinton, Iowa 52732; Riverside, Calif. 92502.

Park's is introducing two new vegetables and three new flowers. 'Short 'N Sweet' cantaloupe bears many sugary flavor fruits per vine, has bushy growth with no long vines to take up space, can be grown

in containers, is resistant to heat, drought and powdery mildew; 'Bush Whopper' cucumbers are dwarf, mound-shaped plants with no runners, cukes 6 to 8 inches long, deliciously crisp, profusely bearing and suitable for most climates.

'Ruffles' Hybrid begonia, a double semperflorens (wax) with individual flowers two inches across, on bushy 12 inch size plants, available in three colors, pink, white and deep red; 'Mini-Sins' sinningia (gloxinia), 4-inch plants with flower colors including deep lavender, purple with white throat spotted darker purple, fuchsia, peach, and lavender-pink, which make a very eye-catching display; 'Tie Dyed' coleus, plants grow to 3 feet, become bushy when pinched, at first purple is predominant color, with later leaves being decidedly green, each leaf has a creamy white midrib area and a narrow purple edging, with lovely red stems providing contrast.

For a free copy of the catalog write George W. Park Seed Co., P.O. Box 31, Greenwood, S.C. 29647.

Harris Seeds are introducing interesting selections of new developments including two vegetables and two flowers.

'Early Dawn' muskmelon is extra early and a big producer of fine,

larger melons. The flesh is thick, firm and juicy with a rich orange color, the plants are resistant to fusarium wilt, and have good tolerance to powdery mildew. 'Pacer' Hybrid cucumber is a heavy yielder, the cucumbers are delicious to eat, and the plants have good resistance to scab and mosaic.

'Blue Jay' Hybrid ageratum, extra dwarf 4-inch plants are covered with tight clusters of powder blue florets from the beginning to the end of the season; compact small plants are not affected by summer heat. 'Springtime' Hybrid pansies, a mixture of colors including azure blue, primrose yellow, bright yellow, orange, porcelain blue, red with blotch, yellow with blotch and white, start blooms at beginning of season and continue after the weather gets warm.

For a free copy of the Harris catalog write Joseph Harris Co., Moreton Farm, Rochester, N.Y. 14624.

Stokes Seeds is introducing nine new vegetables it developed itself and 10 new flowers. The outstanding vegetable is 'Golden Sweet' EH (everlasting heritage) sweet corn. The standard super sweet or extra sweet varieties require isolation from all other corn varieties to keep cross pollination from causing it to revert to tasteless field corn. This new corn does not require pollination, and all of the kernels are super sweet. It has excellent keeping qualities as the sugar is changed to starch at an extremely slow rate. Unrefrigerated corn cooked five days after picking still has virtually the same sweet flavor as freshly picked corn. The corn can be picked over a longer period of time due to a slower rate of maturity during the edible period and the kernels have extremely thin, tender skins.

All of the new flowers and vegetables are described in the Stokes Seeds catalog which will be sent free upon request. The address is 7156 Stokes Bldg., Buffalo, N.Y. 14240.

It's more difficult to breed a new vegetable and for this reason there

usually are more flower All-America award winners than vegetables. All-America Selections, started 40 years ago, has proved particularly valuable to vegetable breeders because traditionally it takes a long time for a new vegetable to gain acceptance. There was a time when most new flowers and vegetables were introduced by plant explorers searching remote areas of the world for new varieties.

The vast majority of new flower and vegetable varieties today, however, are produced by a small group of professional establishments headed by a few dedicated breeders who spend their time conducting thousands of experimental crosses, and waiting patiently for years to see their objectives materialize.

Among famous varieties still popular as All-America winners are 'Salad Bowl' lettuce, 'Bell Boy' pepper, 'Emerald Cross' cabbage, 'Cherry Belle' radish, 'America' spinach, 'Spring Giant' tomato, 'New Hampshire Midget' watermelon, 'Tokyo Cross' turnip, 'Ruby Queen' beet, and 'Jade Cross' Brussels sprouts.

Judges are the horticultural leaders of America. Entries are grown under a code number designated by the executive director, so the judges have no knowledge of who submitted the entry.

There are three All-America roses for 1977, 'First Edition', a floribunda with luminous coral flowers borne in masses throughout the growing season; 'Double Delight', a hybrid tea, described as one of the most outstanding produced in many years; and 'Prominent', a grandiflora, brilliant orange flowers shaded yellow at the base of the petals. The blooms often last 10 days when cut.

The All-America roses are listed in the catalogs of these rose growers and will be sent free upon request: Armstrong Nurseries, P.O. Box 473, Ontario, Calif. 91761; Jackson & Perkins, Medford, Ore. 97501, and Star Roses, The Conard-Pyle Co., West Grove, Pa. 19390.

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Gardeners' Questions & Answers

By Tom Stevenson

Q: What is a starter solution? My neighbor told me he gets ripe fruit much sooner by using a starter solution when he plants his tomatoes outdoors. I didn't ask him, didn't want him to know I didn't know.

A: A starter solution is a mixture of fertilizer and water applied when the tomato plant is being planted outdoors. Only completely soluble fertilizers should be used and the fertilizer should contain four times as much phosphorus as nitrogen. Dig the hole for the plant, put the plant in the hole and then apply one-half to one pint of the starter solution.

The importance of soluble phosphorus near the roots of the newly transplanted tomato plant cannot be over-emphasized. Phosphorus hastens early growth and increases the number of blossoms that set fruit. Phosphorus also tends to hasten maturity. The fertilizer should be chosen for its phosphorus content because phosphorus is the element most beneficial at this point.

A starter solution can be made by dissolving completely six tablespoonfuls of ammonium phosphate in one gallon of water. If a liquid starter solution is purchased, directions on the label should be followed. Research has shown that use of a starter solution can increase the yield as much as 40 per cent.

Q: Is it possible to start asparagus from seed? I'd like to try it.

A: The best asparagus plants often are the ones grown from seed. The disadvantage is that it takes longer to get a crop, three years instead of the two when roots are purchased and planted.

To grow your own plants from

seed, choose a variety like 'Mary Washington' that is resistant to a disease called asparagus rust.

Sow the seeds in early spring in the sandiest soil you have. When seedlings are 2 to 3 inches high, remove the weakest plants, allowing the sturdiest to stand about 3 inches apart. The following spring, after preparing a permanent bed, dig the 1-year old plants, discard thin, weak ones, and plant those remaining.

Since an asparagus bed should produce well for at least 15 years it is worth while to prepare it thoroughly. If you can get barnyard manure, the asparagus bed is the place to use it.

Most large seed stores should have asparagus seed. They are listed in most of the seed catalogs.

Q: I have been trying to locate reference material on growing plants from seeds, especially hardwood and evergreen trees. Do you know of any book or pamphlet that deals with this?

A: *Seeds of Woody Plants In The United States*, a publication of the Forest Service of USDA, 880 pages with illustrations, covers seed biology, principles and general methods of producing and handling seeds, seed processing methods, and seed data on 187 genera of woody plants, including flowering and fruiting dates. It can be ordered from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 for \$13.60.

Q: My bed of iris has been beautiful over the years but my oak trees have been getting bigger and bigger and now there is too much shade during the summer. I want to plant all of the iris in a new bed. When is the best time?

A: The best time to plant and transplant iris is during June and July, soon after the flowering period is over. However, it can be done successfully almost any time of the year.

Iris prefers full sun but will grow and bloom well if it gets sunlight only half a day. It will do well in light shade all day long. There is no research available on just how much shade iris can take and still bloom.

Slightly acid, neutral, or slightly alkaline soils are all right for iris. To prepare the soil for an iris bed, mix in plenty of organic matter such as well-rotted manure or compost. Add superphosphate and mix with the top eight inches of soil.

Q: I was given an arrangement of anthuriums for Christmas. It is a beautiful, beautiful flower. I know these are tropical plants. Can they be grown in the home with any success?

A: The anthurium (flamingo flower) comes from tropical areas of South America. The average rainfall in Colombia, where most kinds originate, is 390 inches per year.

The plant requires so saturated an atmosphere that it is almost impossible to grow it successfully in the home. It requires very good drainage, warm temperatures (80 to 85) and light shade. The flowers usually last a long time.

Q: Approximately one year ago we purchased a zebra plant. It was about one and one half feet high and had four stalks. At the end of summer all leaves fell off. Four bald stalks standing there. New leaves began to appear. Then again all leaves came off. I can find nothing on the care of these plants any-

where. How do we care for a zebra plant? At the place where I bought it they look beautiful but all I have at home is four bald sticks that do not seem to want to die.

A: The zebra plant, *Aphelandra squarrosa Dania*, is from tropical Brazil. It is a beautiful plant. It is too bad you did not go to a public library and ask for a book or two on how to care for house plants.

The zebra plant requires warmth. Best temperatures are 70° to 75° at night and 80° to 85° during the day. It will start to hurt if the temperature drops to 55°. At 50° the leaves will drop.

It needs humidity of 30% or more. It needs filtered sunlight. It needs soil rich in humus. It needs lots of water when it is growing and blooming. Water when the soil starts to feel dry, pour it on until water comes out at the bottom of the pot, wait 20 minutes for excess water to drain and empty the saucer. Do not let the pot stand in water for long.

The plant should be forced to rest after it finishes blooming. Do this by giving it only about half as much water for about six weeks. Fertilize lightly once a month during late spring and summer.

Q: What can I do to bring a dying lilac tree back? It has put out just enough blossoms so that I know it is a fine double white, but it gets smaller each year. I have tried digging in lime but that was not the answer. It gets a fair amount of sunlight.

A: The lilac is very subject to attack by oyster shell scale and by San Jose scale, either of which can do serious damage to the plant over the years. These insects might not be noticed unless you were looking for them on the bark with a magnifying glass. High populations of these insects devitalize the plant by sucking large quantities of sap. This is especially severe in dry

summers. The treatment for these scales is a dormant spray of Scalecide just before the plant breaks dormancy.

It may be you have given the plant too much lime. Too much is as bad as not enough. A soil test will help with this.

It may be the plant is not getting enough sunlight. Lilac needs full sun to do best. When weakened by poor light or other conditions, the plants are far more susceptible to attack by scale.

Q: I have a yew, *Taxus baccata*, 16 feet tall upright, which had about 40 fleshy fruits year before last and several hundred last year. I don't know where the male pollen is coming from. How great a distance will the male pollinate? If I plant a male to insure permanent sources of pollen, will any or all of the varieties of *Taxus baccata* effectively pollinate my obvious female?

A: There are many varieties or cultivars of the English yew, *Taxus baccata*. Some are low-growing, wide-spreading shrubs, others are trees up to 50 feet tall. They are dioecious, that is, the sexes are separate, plants are either female and bear flowers and fruit, or male and bear flowers which provide pollen for the female.

However, there is record of female plants sometimes bearing a few male (staminate) flowers, and of male plants sometimes having a few female (pistillate) flowers.

It should be noted that the fruit of the yew is edible but that the seed within the fruit is considered to be poisonous.


In his book "Poisonous Plants of the United States" (Collier Books—\$3.95), Walter Conrad Muen-scher says the weed, bark, leaves and seeds of English and Japanese yews are poisonous (alkaloid, taxine, a heart depressant), while the red pulp of the berries seems to be harmless.

To be able to count on pollination for the female, a male plant should be in the immediate vicinity. One male plant usually can provide pollen for about six female plants.

The pollen from the male Japanese yew (*Taxus cuspidata*) will also serve for pollination of the female European yew. All varieties of both the Japanese and European can be effective, provided they bloom.

Q: Every year my Irish potatoes go to vine, no potatoes. How do I get them to bear?

A: Too much nitrogen fertilizer could cause good vine growth but no potatoes. Too much shade would result in no potatoes. Potatoes won't produce well in heavy clay soil, but then the vines would do poorly also.



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Books

Reviews by Tom Stevenson

BRITISH BOTANICAL AND HORTICULTURAL LITERATURE BEFORE 1800

by

Blanche Henrey.

Oxford University Press, London, New York, 1975.

3 volumes in slipcase, 27.5 x 18.8 cm,
1,180 pages.

208 text figures, 30 plates in color, £70
(British)

In a major 3-volume work, Miss Blanche Henrey of London, England, brings to her readers the first comprehensive survey of its kind of British books and pamphlets on botany and horticulture published from the 16th to 18th centuries. The magnitude of the work can be appreciated at once from the vast amount of detailed and highly organized information on herbals, arboriculture, silviculture, gardening, floras, plant physiology and anatomy, botanical gardens, private gardens, gardening operations, garden design, planting, women authors, botanical drawing books, and economic plants. A considerable body of information is included on flower painters, artists, garden designers, book publishers, and on nurserymen, seedsmen, florists, and their publications. The detailed biographical information concerning the lives of the men, both great and small, and the facts about the books they wrote make fascinating reading. A half dozen women writers of the 18th century are also included. This prodigious work is the result of thirty years of diligent research.

The bibliography of pre-nineteenth century British botanical and horticultural literature achieves completeness beyond that of any previous bibliographer. Overall, 425 authors and 1,528 entries are listed. The author consulted 71 libraries in locating every book entry in the bibliography and most copies were personally consulted by her.

The 208 black and white illustrations of title-pages, portraits, figures of plants, head pieces, tail pieces, and printers' ornaments are elegant. The 30 full page color plates represent some of the finest examples of 18th century British books on botany and horticulture.

The earliest British book on plants,

an anonymous treatise on grafting and planting, was published about 1520. The two best known British herbals of the 16th century were by William Turner (1551) and by John Gerard (1597). Of the nineteen or so botanical or horticultural books published in England between 1500 and 1600, about eleven are concerned with horticulture.

The number of published books on botany and horticulture rose perceptibly between 1600 and 1700 to nearly 100. In the 17th century botany was firmly established as a study apart from medical botany of the herbalists, with Robert Morison, John Ray, and Leonard Plukenet, the leading exponents. John Evelyn established arboriculture and silviculture in England. Nehemiah Grew authored a famous treatise on plant anatomy, and John Parkinson wrote an equally famous florilegium on English garden flowers. Thomas Johnson's second edition of Gerard's herbal (1633) is the best known of all English herbals (now available in reprint from the Dover Press).

Botanical and horticultural books published in the 18th century numbered about 600, more than six times as many as in the 17th century. This was an exciting era in the history of British botany and horticulture. Reasons for this are fairly clear. The modern basis for scientific plant naming, established by Linnaeus, inspired the writing of floras, both domestic and foreign, and numerous other books on botany in the 18th century in England and Scotland. Finely illustrated books with hand-colored plates became the fashion. Writers abroad sought publishers in England, such as Walter's 'Flora Caroliniana', published in London, in 1788. The most profound influence on botanical and horticultural literature in the 18th century was the great influx of new plants brought to Britain by the thousands, as a result of foreign explorations, and from plants sent to England from various parts of the world. The Bartrams, for example, sent North American plants to Britain, both living and dried, from 1735 onwards. From 1730 to 1768, Philip Miller, of the Chelsea Physic Garden, was busy writing edition after edition of his famous

'Gardeners Dictionary' which became the standard British horticultural reference book of the 18th century, known also in this country by George Washington and Thomas Jefferson, who owned personal copies.

Books by the Oxford Press usually symbolize quality. These volumes are no exception. Lovers of fine books should not miss an opportunity to possess a copy of this scholarly and superb publication.

Frederick G. Meyer

HERB GARDENING IN FIVE SEASONS

by
Adelma Grenier Simmons
Hawthorn Books
New York-1976

353 pages, Illustrated, \$5.95

This book is a paperback reprint. It offers advice on every aspect of herb culture and lore including outdoor gardens, potted herbs indoors, planning, planting, harvesting and drying, more than 80 recipes, ideas for holiday celebrations, pot-pourris, pomanders, wreaths and sachets for gift giving, plus six garden plans, a 100-page dictionary of herbs and 77 drawings of herbs for identification.

The study of herbs touches all aspects of our lives, the author says, at all ages, under all conditions. What was a rigorous physical experience in youth and middle age may become an absorbing study for the armchair gardener who, halted in activities by age or physical handicap, can still enjoy a fascinating world of legend and history. Without moving far from a sunny window-sill garden or a cozy seat by the fire, you may plant a herb garden that knows no size, but may be as large or as small as your imagination reaches.

BORN IN THE SPRING A Collection of Spring Wildflowers

by
June Carver Roberts
Ohio University Press, 1976
159 pages with glossary, bibliography,
and list of Genera by families, Price
unknown

This collection of drawings and water color paintings done from living plants will introduce new readers to the delights of spring blooming wild flowers. Arranged in order of their blooming in Southeastern Ohio, most of the plants will be immediately familiar to residents of northeastern and north central states. In its meticulous detail and botanical accuracy of text, it is a learning tool as well as an artistic

creation.

June Carver Roberts writes in her preface that she wanted to "do a book that would describe in picture and word the wonder of these wildflowers . . . and serve as a plea for their protection. . . . I hope that . . . an interest may develop to preserve these and all our diminishing native wildflowers."

Dr. William G. Gambill, Jr., Director of the Denver Botanic Garden, in his foreword, compliments Mrs. Roberts on "reinforcing in words the images wrought by pen and brush" in bringing to conclusion a project initiated when Mrs. Roberts was a student of his in Ohio.

J. Steffey
February 2, 1977

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FERN GROWERS MANUAL

A comprehensive guide for every gardener to every aspect of fern cultivation—indoors and outdoors
by

Barbara Joe Hoshizaki
Alfred A. Knopf, Inc.
New York, N.Y.—1975

270 pages, well illustrated, \$15.00

The author is professor of botany at Los Angeles City College, curator of pteridophyta at the University of California, Los Angeles, and president of the Los Angeles International Fern Society, the country's largest organization of fern collectors and growers.

Some of the most beautiful and spectacular plants in the world are ferns, she says. Yet, almost nobody knows how to propagate and grow them.

The book includes a discussion of soil mixes, fertilizers, propagation, insecticides, and fungicides, how to grow particular fern groups, and importing ferns, along with the necessary background information.

Fern Growers Manual, says Barbara Joe, is intended to be a handbook or reference book, written in such a way as to be most useful to anyone cultivating these fascinating plants.

The book is illustrated with 8 pages of color plates, and 300 black-and-white photographs and drawings.

GARDENING WITH PERENNIALS

Month by Month

by

Joseph Hudak

Quadrangle/The New York Times
Book Co.

398 pages, well illustrated, \$12.50

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Lawns

dry. Even dry leaves may accumulate enough fertilizer to cause burn when dissolved in evening dew.

Watering is essential for the continuous production of all plant life. A lawn is no exception. A sufficient amount should be applied to ensure that the entire root zone will be wetted. Water should never be applied at a rate faster than it can be absorbed by the soil. Sprinklers that do not adequately disperse moisture, as well as those that deliver a large volume of water within a concentrated area, tend to cause surface runoff. Whenever water is applied at a rate faster than it may be absorbed by a given soil, the water is being wasted.

The first prerequisite for a weed-free lawn is to grow healthy, dense stands of grass. If your lawn gets to be full of weeds as the years go by, and if there is nothing but weeds and you kill them, the only thing you will have left is bare ground.

Under these conditions, if they don't look too bad, you can be thankful for having the weeds. At least they are green and keep your soil from washing away.

Entrance of weeds into a lawn usually comes when the grass is under stress conditions such as those caused by prolonged dry weather without watering, or cutting the grass shorter than the recommended height. Fertilizer, chemical or mechanical injury to the grass weakens it and allows weed encroachment.

Weeds become more difficult to control with chemicals as they increase in age. Thus, the best time to go after weeds with chemicals is when they are young and actively growing. Weeds vary in sensitivity to various herbicides, and the herbicides chosen should reflect the weed species present. As turfgrass areas may contain several weed species, more than one herbicide may be necessary to obtain the desired control.

A Plantsman's Colonial Williamsburg Volume 55, Number 6, Winter 1976.

At the time this article was written the writers believed that the *Metasequoia* trees on the campus of the College of William & Mary were planted in 1946. It was pointed out by Dr. J. A. Witt of the University of Washington Arboretum that this appeared to predate the original seed distribution by the Arnold Arboretum in 1948. It has now been ascertained that the trees were planted in 1948. This information appeared in a note by Dr. J. T. Baldwin, Jr. in *The American Horticultural Magazine*, Summer 1969, Vol. 48, pp. 137-8:

In *Arnoldia*, 1968, Vol. 28, pp. 113-23, appeared an article by Dr. Donald Wyman titled "Metasequoia after twenty years in cultivation", to which was appended a table showing the comparative heights of *Metasequoia* trees in forty-eight gardens in the U.S.A. and Great Britain. The tallest of these was one at Princeton University (60 feet in 1967), and the second tallest at the University of California Botanical Garden in Los Angeles (59 feet in 1966). This compares with the 69 feet of the tallest specimen at the College of William & Mary in 1969. So the William & Mary trees may well be the tallest—certainly among the tallest—of the *Metasequoia* trees in the U.S.A.

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Continued from page 17

Geranium	Sun, partial sun	Any	18-24	Often over-watered and fertilized, leading to losses in the garden due to soil-borne diseases. Excesses also promote development of tall, non-flowering plants. Do not trim, naturally branches at the time of the formation of the first flower. Remove all faded flowers immediately.	Allow plant to lose part of its foliage. Lift plant, plant in containers to resume growth. Keep soil on dry side.
Marigold	Sun	Any	12-24	Great variety of plant and flower types—successful in all gardens. Remove faded flowers on all plants other than new triploids (which cannot form seed). Trimming of branches will help maintain plants throughout growing season.	Dry flowers by removing foliage, hanging upside down.
Nierembergia	Sun, partial sun	Any	9-12	Fine-leaved plant—introducing blue (violet, lavender) into garden. Trim to retain compact growth habit. Continuous flowering over many months.	Discard
Onion	Sun	Sandy, well-drained	3	Keep soil evenly moist, grow on ridges (3-4 inches high) if water tends to stand in the area. Pull green onions as needed to allow other onions to mature.	Store bulbs in a cool, dry, well-aerated location.
Pepper	Sun	Any, prefers sandy	18-24	Sweet and hot types, must grow continuously to avoid yellowing of older foliage and dropping of white flowers. Harvest peppers as they mature to maintain productivity of plants.	Harvest peppers, store in cool spots for up to 3 weeks.
Petunia	Sun	Any	12-18	Wide variety of types and color. Must avoid over-watering and fertilizing. Remove seed pods and trim plants to prolong flowering season.	Discard
Portulaca	Sun	Sandy, well-drained	6-9	Major advancements in plant—extremely successful in sunny, well-drained soil.	Discard
Salvia	Sun, partial shade	Any	12-18	Rainbow colors in red, blue, purple and white. Avoid over-fertilization which delays flowering and promotes elongation of the plant. Remove faded flowers.	Remove foliage, hang flowers upside down to dry.
Snapdragon	Sun	Any	12-18	Grow rust-resistant types—stake tall types to withstand rain and wind. Side branches will develop at every node. Cut and trim branches to maintain flowering.	Discard
Tomato	Sun	Any	18-24	Apply extra calcium (limestone 10 lb./100 ft.) to soil to avoid premature dropping of flowers or cracking of fruit. Maintain even moisture and avoid high rates of fertilizer. Remove side shoots and some foliage.	Harvest green as well as the ripe fruits, wrap in paper, store in a cool, dry spot. Will ripen.
Verbena	Sun	Sandy, well-drained	12-18	Strong, intense colors. Prostrate and upright types. Remove all faded flowers to keep plants in continuous growth. Will not withstand periods of heavy rain—yellowing foliage will occur.	Discard
Vinca rosea	Sun, partial shade	Any	12-18	Environmentally tolerant plant—widely used for continuous flowering throughout season. Must be trimmed back to maintain compact habit of growth.	Discard
Zinnia	Sun	Any, prefers sandy, well- drained	12-18	Will not tolerate poorly drained soil or locations with poor air movement. Foliage is easily covered with mildew. Do not trim to promote branching, naturally branches with the formation of the first flower. Remove all faded flowers for appearance and continuous flowering.	Discard

