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Need for a National Center of American Horticulture

Up on your toes, you lift the rope swing out of the tulip tree. You alight in the swing, facing south.

On your left is a 1,000 foot sweep of the Potomac River. On your right is the Mansion of George Washington's River Farm; the bricks which began the building were placed there by Washington in 1757. The plants along the edge of the Potomac, the open meadow, and the accumulation of various buildings are in sight. Over your back, you can just see a 10-foot white dogwood which was planted by our First Lady during the dedication of the National Center for American Horticulture at 11:18 a.m. on May 1, 1974. Since then, no new significant plantings have been made. None of the buildings have been razed or thoroughly renovated. River Farm awaits plans, people, and plants.

Why the delays? There are many reasons. The overriding one, however, is the need for a long range and comprehensive plan. There have been several approaches suggested in the development of the grounds and buildings. Each had aspects which made it difficult to accept.

A want list of what should be housed at River Farm has emerged, however:

- A *new opening* to the Boulevard is needed to lead to a parking lot for cars and buses.
- A *reception area* should provide for the visitors' needs; information, comfort facilities, presentation theatre, and access to computerized material on plants.
- A *building* should be located on the grounds to house cooperating organizations. We are now 6 in number; several more could come if space was available.
- A *covered display area* should be built for staging horticultural exhibitions. A constantly changing display of achievements with plants must be a part of the attractions offered at River Farm.

- An *enhancement and restudying* of the existing plantings on the 25-acre site should permit the development of several special garden displays to demonstrate the seasonal aspects of plants.

- A *restoration* of the Mansion to a facility for holding unique and news-worthy events to make plants and gardening a vital force in our daily living.

Each of these needs requires extensive planning and funding to be realized. We cannot expect one person or group to help us accomplish the long range development; the American Horticultural Society Board is seeking ways to make the program one of national concern. We are organizing a "grass roots" committee to identify leaders throughout the USA who will help represent the national concerns for horticulture. They will help us communicate the opportunities for national leadership. The committee is proposing the expansion of industrial memberships. David Burpee will be sending letters of invitation to more than 100 horticulturally oriented firms who should become identified cooperators with our national plan. We will also be seeking a stable membership of 75,000 to 80,000 individuals. This level of participation would sustain interest and help expand all member services. Our 'Friends of River Farm' staged a very successful Benefit in April; Julia Child, the French Chef, gave two 3-hour cooking demonstrations to paid attendees. The money will be used to renovate the kitchen (a most symbolic benefit) in the mansion. An up-to-date facility should make the mansion more usable for holding symposia and other educational events. The Friends had 64 Patrons who sponsored this Benefit. Other events are being planned to involve people in the affairs of the Society.

The long range planning, the daily activities to involve all groups, and the gathering together of related organizations will leave little time for enjoying the swing at River Farm.

Dr. Henry M. Cathey, President

The Natural Look

FOUR YEARS AGO, John T. Anderson and his family moved to a house in Falls Church, Virginia that sat on a wooded lot of about one and one half acres. Sensitive to the beauty of the plantlife and the pocket of rural environment that they found, the Andersons spent time and money planting, pruning, beautifying, harvesting and otherwise acting as gentle stewards of their share of the earth.

The other day, though, the Andersons were told in a letter from the Fairfax County Health Department that they were lawbreakers. Their weeds were too high. An official, citing an 11-year-old ordinance, gave them 15 days to cut the weeds to a height of less than 15 inches. If the Andersons don't shape up, the official warned, the county's public works department will do the mowing, and assess a fee.

The mighty weed mowers of Fairfax County have yet to roll over the Anderson's property (for which the Andersons pay \$1,300 in annual taxes). But before Mission Anti-Weed is carried out, a few questions need answering. Mr. Anderson asked some of them when he replied to the county's weed man. How does the county define weeds? "Do you mean honeysuckle, which is food for the hummingbirds, as well as for members of my family; the same honeysuckle that provides a haven for the rabbits; and the honeysuckle whose aroma makes every spring a pleasure to anticipate; do you mean the wild blackberries that our whole family goes searching for in the 'weeds'; do you mean the wild grapes and wild cherries that the birds depend upon (cardinals, bluejays, mockingbirds, wax wrens, grosbeaks and the red-bellied woodpecker)? Do you include the dandelions which my wife uses in her preparation of homemade soups? Do you mean the wild florabunda roses along our driveway which my wife uses for rosehip tea?"

Mr. Anderson is making a determined defense of his land and his plants, and we wish him well. His case isn't isolated. Currently, a Fairfax judge is trying to settle a dispute about another tract that the county sees as a weed patch but which a Smithsonian botanist said in court is a scenic meadowland rich in plants and wildlife. Elsewhere, an Akron, Ohio, court recently ruled in favor of a citizen who let her lawn grow; the forced mowing that the city wanted was declared illegal. A Wisconsin court similarly allowed a citizen who, as a wildlife biologist, let his backyard flourish in "native vegetation." Local officials, with ideas of their own about lawn care, went to court but lost. Commenting on the case, the National Wildlife Federation, which sponsors a Backyard Habitat program, offered some useful thoughts:

As the Wisconsin case points out, there are numerous benefits to society from naturally landscaped, unmowed areas. Besides food and cover for native wildlife, natural vegetation is a tremendous energy saver because it requires no energy to maintain or produce. There is no need for expensive applications of fertilizer; natural vegetation is uniquely adapted to the ecology of its home area. And if it is desirable to remove certain unwanted noxious weeds, those not removed by plant succession could easily be removed selectively."

We like the idea of Mr. Anderson's philosophy of growth. And we think the county should let his garden grow unless it can really make a case that his land is a menace to the community's health or safety. If anything, an enclave of natural beauty, amid the cement, plastic and fumes of urban life, ought to be something county officials should be fighting to preserve

The Washington Post, August 31, 1976

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

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Pliny, The Plantsman

Thelma Abbott Box 25 Fulton, Ill. 61252

"The good husbandman does nothing out of doors in daylight that can be saved to be done indoors by lamplight," I read one bright September afternoon when there were dozens of things I could have been doing out of doors by daylight.

Caught in direct disobedience, though years out of the classroom and away from any mortal teacher's frown, I had a moment's impulse to slide my book out of sight, put on my gardening shoes, pick up my trowel and earn, again, my mentor's approval.

But my teacher had been dead for almost 2000 years and I could remain a truant in perfect safety. I got an apple from the refrigerator, returned to my big chair, and went back to my book: Rackham's translation of Pliny's *Natural History* (Vol. V).

Reading the appropriate volumes of Pliny is a humbling but delightful experience because, proving as it does that our "modern know-how" is not modern at all, it forces us to acknowledge the fact that when we do make a real step forward it is because we "stand upon the shoulders of giants."

Pliny, himself, while constantly referring to the importance of practical experience, hard work and observation, often refers, as well, to the findings of Cato

(dead almost 200 years by Pliny's time) and mentions farming practices told of in Homer, so as a student of theirs, he too must have abandoned outdoor work on occasion, though probably only on winter nights.

When Pliny died in the eruption of Mt. Vesuvius in AD 79, he had lived a busy 56 years, for he had been a soldier, a lawyer, a judge, a farmer, the foster father and teacher of his orphaned nephew (Pliny the Younger)—and the author of the ten-volume *Natural History*.

He was an early environmentalist, worried about deforestation, pollution, overpopulation and urban blight. He wrote: "We dye even the rivers and the elemental substances of Nature and turn the very means of life (the air) into a bane." So, what's new?

Having been a long-time provider of flowers, plants and produce to dainty-fingered friends and modishly pant-suited members of decorating committees who flatteringly ascribe my successes in these areas to a green thumb, I have developed a negative attitude toward any expression of the green-thumbery syndrome. (Gardeners' thumbs are usually grubby, not green.) In this I have now discovered a supporter in Pliny who plainly feels that success in growing things

is a matter of taking an abiding interest in plants and a willing acceptance of concomitant mud, sweat and tares. He tells of a farmer who was so successful and so envied by his neighbors that he was accused of “. . . using witchcraft to entice away other people’s crops.” Appearing before the court to answer the charge “. . . he brought all his agricultural implements . . . his iron tools of excellent make, heavy mattocks, ponderous plowshares and well-fed oxen. Then he said: ‘these are my magic spells, citizens, and I am not able to exhibit to you or to produce in court my midnight labors and early risings and my sweat and toil.’ This procured his acquittal by unanimous verdict. The fact is that husbandry depends on an expenditure of labor . . . the best fertilizer is the master’s care.

Eminently practical, Pliny has his poetic moments when he speaks, for instance, of the smell of good soil, the smell of rain and even the smell of well-rotted manure which is, he says, “almost attractive.” But most of his work is concerned with “how to” and it is so exact, so detailed, so complete, that it can be followed step by step today, with nothing left out to confuse the beginner.

In an early version of the advice not to plant a \$5 tree in a \$1 hole, Pliny gives dimensions for big holes based on the diameters of the trees’ trunks. Holes are best dug a year in advance, he advises, but should, at least, be dug enough previously to have received several rains. The topsoil is to be removed and placed aside; subsoil goes in another pile. Plants brought in from the wild should have been partially root-pruned a year in advance to develop good balls of fine hair roots; nursery plants, grown from cuttings, should be set in individual baskets, each basket then sunk in the soil to its brim; when time to transplant comes around, the little plant is to be reset, basket and all, in its new location after any broken or over-long roots are cut (not torn) so that they will not encircle the hole. (Small earth-filled baskets were also used in air-layering.)

The bottom of the hole received a layer of broken potsherds, round stones, or gravel (to provide drainage in damp areas) and then a layer of topsoil. Next the tree or shrub was placed in the hole, its south-facing side (as it grew previously) south-faced in the new location. All bark wounds or pruning cuts were dressed to prevent infection. Pliny cautions, however, that “Pruning must not be assault and battery; every part of the tree that is not actually superfluous is conducive to its vitality.”

The bottom of the transplant now in good contact with the soil, the sides of the hole were filled, first with the remainder of the topsoil and next with the subsoil and “rammed with light wooden mallets.”

Pliny doesn’t mention staking the newly-planted tree, so he must not have done it; there are arborists today who do not advocate staking, either, believing

that strong roots are developed when the tree has to resist wind movement on its own. He does advocate the use of tall protective “thatched hurdles” around the plant to protect it from “cold, heat, and strong winds.”

Pliny’s advice covers many categories, from the selection of land for purchase (and here he even asks you to consider what kind of neighbor you will have), types of soils for various crops, availability of water. He goes into the subjects of fertilizers (organic and inorganic), farm and garden management, labor, soil improvement, propagation of vines, shrubs and trees by seed or cutting, contour plowing, green manures, crop rotation, mulching, construction of compost pits, pruning, container gardening, and much more.

His basic philosophy is that a good husbandman must work from dawn to dusk; if he has workmen, he must work with them so that they “know him by his face and not the back of his head.” And he must learn to judge the quality and needs of his soil by feel, smell, and *taste*.

I read only recently, after more than 60 years of gardening, that human hair, added to the compost heap, adds to its supply of protein. (I guess you’re supposed to get it from barber and beauty shops.) Pliny recommends that animal hair from “currier shops” be mixed with well-rotted manure to improve the quality of soil but he adds “No manure is more beneficial than a crop of lupine turned in by the plow.” I looked up lupines; one encyclopedia states that lupines are rich in nitrogen and are still used as green manure in our own southern states.

On the subject of container gardening, of interest is a report on the growing of cucumbers for the Emperor Tiberius, who was said to be inordinately fond of them “. . . so that there was never a day when he was not supplied with them . . . his kitchen gardeners had cucumber beds mounted on wheels which they moved out into the sun and then on wintry days withdrew under cover of frames glazed with transparent stone.”

Old seeds may fail to be “pregnant,” Pliny warns us, but their rate of germination can be increased (and this, he claims, works with fresh seeds, too) if they are soaked in the juice of sempervivum which will also be helpful in protecting the resultant *seedling* from insect infestation. Systemic insecticide?

A sound horticulturist in nearly all respects, Pliny jumps to a few amusing conclusions. One: old cabbage seed turns into turnips and old basil seed produces thyme. What may have happened, one supposes, is that the old seed wasn’t viable, or the crows ate it or something, and some volunteers of turnips and thyme came up. Blurry after a night of writing by lamplight, he took this one-time fluke for a great natural law. Two thousand years later, we still jump to some pretty funny conclusions, ourselves.

Color Variations



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Top Left—Carousel. Bottom Left—Fruit of Ti.
Above—Johnny Noble. Right—Purple Prince.

in Hawaiian Tis



Color Variations in Hawaiian Tis

Ti (pronounced tea) is a common Hawaiian name for the many variations of *Cordyline terminalis* Kunth. Since growing new cultivars from seed was a popular hobby for over 50 years, hundreds of variations exist, especially in local gardens.

With the current explosion of interest in house plants, growers are showing great interest in some of these attractive cultivars; many are not well known outside of Hawaii.

The green ti, 'L'ai', has always been grown to use for luaus (Hawaiian feasts) as a garnish for food, to wrap pork roasts for cooking, and by florists as cut foliage. Both green and some of the other colored leaved cultivars are exported as cut foliage, especially to consumers during the winter.

Many of the colorful-leaved types may not exhibit exactly the same vivid pigments when grown under mainland greenhouse conditions, but when given plenty of sunlight they still make attractive house plants.

Some Cultivars

Plants grown from seed have provided hundreds of variations. Since new seedlings often exhibit only slight differences from existing parent plants, great confusion in nomenclature exists.

The following seven cultivars have been selected and identified by their Hawaiian names to represent variations in size, form and color of this plant.

'CAROUSEL' Blades 4½" x 7/8" Petioles 2"

Stiff, soft-green (1), lanceolate blades which seem to narrow as blade halves tend to fold towards midribs; leaves twist and swirl out to a full crown in clockwise fashion with pointed apexes that accentuate the swirl; narrow blade margins are cream-green (2); vertical, pale-green (3) petioles swirl closely on the stem; most unusual little plant.

(1) 137-C, (2) 145-C, (3) 141-D

'CERISE PIXIE' Blades 4½" x 1¾" Petioles ½"

Greyed purple (1) ovate leaf blades with red purple (2) margins and splashes; mature leaves tough; petioles red (3) slim, vertically arranged and closely set on stem; a startling color combination.

(1) 187-A, (2) 59-C, (3) 46-A

'JOHNNY NOBLE' Blades 21" x 4½" Petioles 4"

Large elliptic greyed purple (1) blades and veins, with leaves held vertically; a spreading plant that requires semi-shade and wind protection; an old cultivar named after a Hawaiian composer.

(1) 185-A

'DAVID KALAKAUA' Blades 12" x 5½" Petioles 4½"

Strong, smooth, elliptic blades of burgundy-red (1) with occasional underlay of dark, dull-green (2) especially in low light; mature blades tend to droop, less mature blades erect & apexes recurve slightly; vertical, fleshy petioles are a deep, muddy-maroon (4) and margins cerise-red (3) as in blades; petioles closely set on stem afford a full, broad plant habit; a robust plant.

(1) 187-A, (2) 131-A, (3) 47-B, (4) 187-A

'MAUNA KEA SNOW' Blades 9¾" x 3½" Petioles 3"

Glossy, clear green (1) & pale cream-yellow (2) stiff elliptic blades compactly arranged with undulating incurved margins; mature blades generally solid green or splashed with cream-yellow from margins; immature blades may be pale cream-yellow (2) with a gradual increase of green (1) splashing and striping; petioles pale cream-yellow, vertical at first then spread out at plant base; does best in shade or semi-shade.

(1) 137-B, (2) 154-D

'PURPLE PRINCE' Blades 8" x 2¾" Petioles 3"

Green (1) elliptic leaf blades striped, splashed, and edged with purple (2), immature leaves purple (2) with green (1) flashes, petioles slim, close and vertical with purple (2) margins; a slow grower.

(1) 138-A, (2) 71-A.

Culture

Ti is propagated from seeds, from stem sections, terminal stem cuttings, and air layers. Up to 16 seeds are enclosed in ripe, red berries of the red ti ('Johnny Noble') or in the ripe yellow berries of the variegated, yellow-striped ti ('Mauna Kea Snow'). Seed sown when fresh germinates rapidly and gives rise to great



Mauna Kea Snow

variation in size of plants, color and shape of leaves.

To root the woody stems, cut them in pieces 1 or more inches long. Place them vertically or horizontally into a rooting medium (sponge rock or vermiculite) so that $\frac{3}{4}$ of the length of the vertical section is buried. The horizontal section is covered to a depth one quarter the diameter of the stem. Keep the cuttings moist and in a partially shaded location so that roots and leaves will be produced in a few months.

A terminal cluster of leaves with 6 inches of stem will root quickly and make a well-shaped plant in 6 months.

Size and color variation, even within the same cultivars, is common. Leaf quality is probably a function of the amount of fertilizer, the quantity of water, temperature and the amount of sunlight. Some confusion exists in the optimum intensity of light required for the most luxuriant growth and best leaf color.

As long as plenty of water is available to the roots and the humidity is high, light intensity should be at a maximum. Red cultivars like 'Johnny Noble' tend to produce leaves with more green color when grown in low light intensity.

Brightly colored cultivars, as well as those with white-striped leaves, are easily burned when grown in full sunlight in Hawaii. The color of leaves is more intense during the cooler weather in the winter and spring. Young seedlings and small, recently propagated cuttings do not exhibit their true color until they begin to produce mature leaves.

Rich soil, high in organic matter, is ideal. Overfertilization may cause leaf injury. High nitrogen may cause greening of leaves of the red-leaved types.

Polynesian Use

Polynesians believe that the ti has divine power. Fresh leaves were worn around the neck, the waist, and the ankles and hung around the house to dispel evil. The feather kahili, a sign of royalty, was fashioned after the form of a tall ti plant. The stalk was also used as a sign of surrender. Masses of plants were planted around homes to ward off misfortune.

Roots were steamed in imus (ovens in the ground) and eaten as a sweet. One section of Honolulu, Kaimuki, (the ti oven) is named after a large oven in that area. The root was boiled and used as a laxative, fermented and made into beer, as well as distilled to make okolehao, a beverage of higher alcoholic content.

Fresh leaves were used to wrap food and packages, as well as to enclose food that was to be roasted in the imu. The ti leaf skirts worn for the hula were patterned after grass skirts from the Gilbert Islands. Leaves were used as thatch for houses, raincoats, sandals, plates, and food for horses and cattle.

Today fresh leaves are still used to make hula skirts, as wrappers for food, as sleds to slide down hills,

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while dry leaves are used to chase fish into nets at a hukilau.

Many kinds of decorations are made from ti. Stems are cut into 6- to 8-inch sections and rooted in water, thus producing new leaves for table decoration. Cut leaves are used instead of lettuce to garnish food or to cover floats in a parade, a stage, or a table at a luau. Large numbers of leaves are cut from the plant and used by florists, green as a basic foliage and other colored types to complement all kinds of tropical flowers. Cut foliage has a long shelf life.

Possible Ti Sources

Alii Gardens (Alii Chang), 59-550 Pupukea Rd., Haleiwa, Oahu, HI. 96712

Dodge & I, 59-556 Pupukea Rd., Haleiwa, Oahu, HI. 96712

Johnson, Ora, 2348 Tantulus Dr., Honolulu, HI. 96813

Moriwaki, Masuo, 48-166 Kam. Hwy., Kaneohe, HI., 96744

Tagami & Hart, 47-754 Lamaula Rd., Kaneohe, HI. 96744

Yamamoto, Howard, R.R. 1, Box 368-X, Kapaa, Kauai, HI., 96746

GOURDS

for year-around interest

Virginia Umberger 545 Glenwood Trail, Elgin, Illinois 60120

One spring, several years ago, we planted gourd seeds. It made a difference in our lives.

The seeds were of the small, bright-colored ornamentals, and there was a good harvest. We used some in an arrangement; we gave some away; but many remained. What to do with them? We knew that gourds could be cured, then used in different ways; we experimented, and eventually our gourds from that first harvest ended up as door swags, painted in bright colors and hung against greens for Christmas decorations. That was the beginning of our hobby.

We joined the gourd society, and that led to an invitation to participate in a display at the next Chicago flower show. We accepted. In preparing the display, we began to realize how much there was to know about gourds; the various kinds; their uses, ancient and modern; how they have been decorated in different countries; how they can be crafted into decorative and useful objects. We

have been involved ever since, a matter of 15 years, growing gourds, collecting, crafting, learning, talking about them, and (most important) becoming acquainted with other hobbyists, many of whom we meet at the American Gourd Society's annual show the first weekend in October in Mt. Gilead, Ohio.

It is well to make a distinction between the two kinds of gourds most commonly grown in this country: the ornamentals (*Cucurbitas*), generally small-fruited and bright-colored, having yellow flowers which bloom during the day and are pollinated by bees; and the hardshelled or large-fruited gourds (*Lagenarias*), generally green on the vine, with white flowers which open in the



evening and are pollinated by night-flying moths. Hardshells require a longer growing season, take more space, and are more of a challenge for us to grow here in northern Illinois. Both have various forms, the ornamentals bearing such names as Egg, Pear, Orange, Bell, Spoon, Warty, Finger (also called Crown, sometimes Sugar Bowl); while the hardshells have names like Dipper, Club, Canteen, Bottle, Bushel, Penguin—all of these names descriptive of their shapes.

If one is growing gourds for the first time we think it advisable to buy a mixture to have as many varieties as possible. But if particular varieties are wanted, there are at least two catalogues which list several choices in both genera: Park Seed Co., Inc., Greenwood, S.C. 29647 and Stokes Seeds, Inc., Box 548, Main Post Office, Buffalo, N.Y. 14240. We think it best to buy seed, knowing that each variety has been produced in a growing site far enough removed from another variety of the same genus to avoid the possibility of cross-fertilization and thus assure the form we want.

Gourds are warm-weather annual vines, requiring the same culture as other members of their family (such as squash, pumpkins, melons and cucumbers). We sow ornamentals in late May or early June. We plant Lagenarias a few weeks earlier, indoors, in peat pots or Jiffy-7's, to be set out without root disturbance when the soil is warm, the young plants having had about a week of hardening-off in a protected area before being planted in the open. For both kinds

germination can be hastened by soaking the seeds overnight before planting. Seeds should be planted $\frac{1}{2}$ " to 1" deep, depending on their size.

The vines are wide-ranging and should be spaced at least 4' apart, perhaps 6' to 8' for the Lagenarias. Space can be saved by providing a fence, trellis, or arbor for the vines to climb, which they do by means of tendrils, so that wire or string are the appropriate means of support.

The planting site should be in full sun, the soil well-drained, rich, supplied with organic matter, and having a pH of about 6.5. We usually prepare the site about a month before planting, adding fertilizer, sand, and compost, working it in deeply. We water only if drought conditions persist.

There are enemies. The squash vine borer is one, but we have had no trouble with this pest since we started planting radish seeds around and among the gourd seeds. For those other pests, the striped cucumber beetle and the spotted cucumber beetle, we use a rotenone-bearing dust or Sevin. We start early, as the plant is breaking ground, and keep leaves dusted (undersides also) until the growing season is well along.

Occasionally mildew is a problem; for this we use a commercial dust.

There is something of interest to watch during the whole gourd-growing season. We look for the first flowers on their long stalks; these are male flowers, staminate only. Later, on the same vine but on the lateral branches come the female flowers on their shorter stalks, the tiny fruit already formed under the bloom. Growth is rapid. From flower to ultimate size of fruit, the time is only 10 to 12 days. The forked tendrils, borne at the axils of the leaves, seem to be reaching for a support; the ends hook themselves around the support they find, and then the tendril forms a double coil, each twisted in

a different direction. Years ago, in Liberty Hyde Bailey's *A GARDEN OF GOURDS* we read that striped gourds have ten stripes, ridged ones ten ridges, and on smooth, single-colored gourds there are usually visible ten small grooves near the stems. We have counted—and counted; comes out TEN almost every time. This plan is accounted for, Bailey explains, by the fibro-vascular bundles which extend lengthwise through the fruit.

There are several ways to influence the shape or pattern of the fruits. We can scratch a name or design onto the gourd surface with some sharp instrument such as a nail or knife-point (this after the gourd has attained mature size); scar tissue will form, making the artistry permanent. We can, after the fruit first starts to enlarge, introduce it into the neck of a bottle, and if all goes well, it will grow and mature within the bottle, to the amazement of all who view it. We can enclose the gourd within a strong netting, and it will bulge out through the openings of the net. A more difficult process is to put the growing fruit within a plaster mold; when this is successful, we find that the matured gourd has reproduced all the details of the design. Varieties which have a neck or handle can be gently manipulated when the fruits first start to grow. If the gourd is hanging down from its position on the vine, its handle will be straight, but if the heavy part on the end is supported in some way, the neck can be curved either slightly or wound into a circular shape, or even tied into a knot. This is to be done during the warm part of the day—and (remember) *gently*.

We have found that the most frequently asked question is: "How do you cure gourds?" Most often the questioner is asking how to keep the bright colors of the freshly harvested ornamentals. The American Gourd Society has a

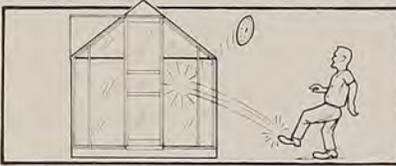
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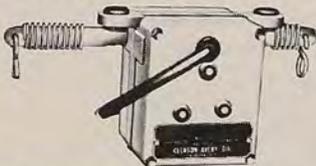
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recipe which has been used with success for some varieties. Prepare a solution of 1 cup 20-Mule Team Borax and 3 cups of hot water, mixing well; cool to lukewarm. Dip gourds in boiling water briefly, then place in the borax solution and leave for 15 minutes. Put the unrinsed gourds in a wire basket and hang in a warm place where it gets air circulation. When the gourds are dried (after several weeks), wash them, then wax with a paste wax. Keep them out of bright sunlight.

To harvest ornamentals for their best color, we gather them when mature, and these are the signs of maturity: when the gourd has become very firm; its stem has browned; the tendril next to the stem has browned. We use sharp clippers and cut the stem as long as possible. Often stems fall off later, but we save them to glue back on or to use in craft work.

To harvest gourds for crafting, we are not concerned with their

natural colors; those colors and designs are on the skin and we are going to remove the skins. What we are concerned with is the strength and firmness of the gourd shells, so we wait to harvest until after frost has killed the vines.

To prepare gourds for crafting, two things must be accomplished: they must be cured (dried), and their skins must be removed.

Lagenarias are the easier of the two types to prepare. Soon after harvesting, they begin to dry; the skin softens and it can then be easily scraped off with a knife. If, however, a Lagenaria has cured with its skin intact, it will have to be moistened in order to be scraped. Immersion in warm water is one way, but if the gourd is large and/or very dry, we drill a small hole in each end before immersing, to reduce the chances of its cracking. Another method we use is to wet an old towel and wrap it around the gourd until the skin is softened. The addition of deter-



Mr. and Mrs. Umberger display their harvest of gourds.

gent or ammonia to the water aids the softening process.

For the Cucurbitas, the rule has been to store in a dry place until moisture is lost, then immerse, and scrape. This is a safe method, but it sometimes takes a year for some varieties to cure with their skins on. To hasten the process here are two alternatives:

1. Drill holes in each gourd. Put them in water and boil for about a half hour. When they are cool enough to handle, scrape, using a knife, a scouring pad, or, in the case of the warties, a steel brush. Then set on a rack or screen to cure.

2. Leave the gourds outside in winter weather to alternately freeze and thaw, thus softening the skin—or simulate this method by putting the gourds in the freezer a time or two, then scrapè.

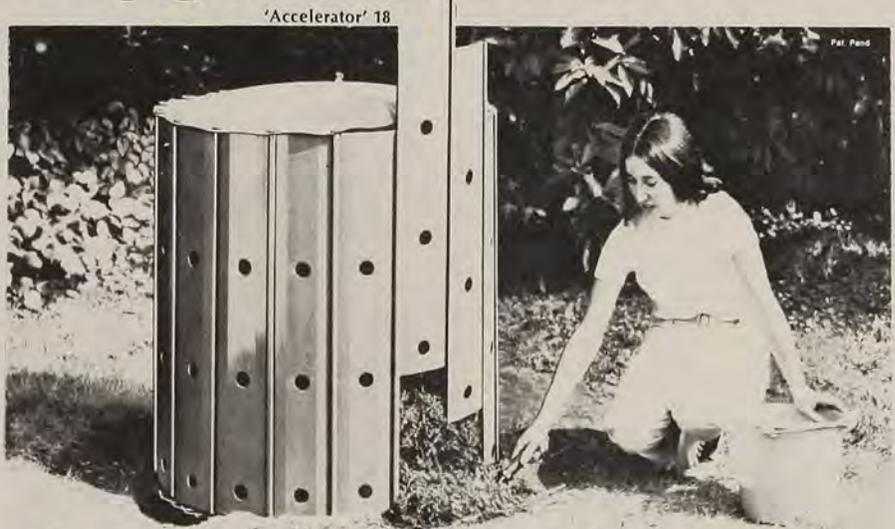
With the skin removed, gourds dry very quickly, within a week or so.

If, at any stage in the drying process, mold tends to form on the gourd surfaces, it can be removed or prevented by washing the gourds with an antiseptic solution. However, these molds create patterns on the shell which we think are interesting and desirable.

And now we have a wealth of dried forms, beige-to-tan in color, some patterned with mold, large and small, smooth or warted or ridged, no two alike, inviting our imaginations and our hands to use them in some way. Shall we make birdhouses? Dippers? Musical instruments? Bowls, baskets, vases? How about birds or animals? Wreaths? Gourds can be drilled; they can be cut or sawed or sanded, parts glued. They can be stained or painted, colored with any medium, designs burned upon them or carved into them.

Let the winter winds blow. Indoors, in our warm work shop, we create with gourds, sometimes thinking of that spring day we first planted gourd seeds.

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MISCELLANEOUS BULBS

EXOTIC AND VARIED

There are hundreds of bulb flowers which have fallen into a classification of "miscellaneous bulbs" for want of a better name. Many times they are called dwarf or minor bulbs but none of the names do justice to these diversified, colorful spring and early summer flowers.

They are a group which includes such strange-sounding names as *Allium*, *Anemone*, *Chionodoxa* and *Eranthis* and they have as many uses as their names suggest. They grow to different heights, bloom at different times and many will multiply and spread without special care. Most are well-suited to rock gardens, along borders, around shrubs and on terraces. Some are spectacular in clusters in their own beds and many planted in mass will provide a carpet of color. They comprise a complete range of color, from light, airy pastels to deep purples and scarlets and their blooming time spans a period from early spring, sometimes popping up through patches of snow, to mid-June and the beginning of summer. They are easy to plant, require very little care from year to year and thrive in most climates and soils in the United States.

Some of the brightest and most decorative of the miscellaneous bulbs are the *Allium*, members of the onion family, but a much more glamorous cousin with exciting



Fritillaria "Imperialis"

and beautiful blossoms. There are many varieties of *Allium* and they are quite diverse in form, height and color, with blooms that are usually round and covered with tiny flowers in shades of red, white, light blue, lavender, purple and yellow. They are easy to plant and look beautiful anywhere in the garden, in borders, around shrub-beries and in rock gardens. One species, called *Allium aflatunense*, is a magnificently large, showy flower which grows as high as three feet, and deserves its own special place in the garden.

Anemones are lovely flowering

tubers in many different varieties; some bloom in early spring, others in early summer. The range of colors of anemones rivals almost every other flower except possibly the tulip. There are blues, violets and reds with shades of each of these colors. There are pure whites, whites mixed with other colors, as well as yellows and pinks. In addition to the color selections, there are many shapes and sizes. Some resemble poppies, others have double rows of petals. Some have stems almost a foot high while others are barely six inches from the ground. A rock garden is the perfect setting for this bright spring flower but they must be planted in a sunny area to do well. The *Anemone blanda* varieties are suitable for northern climates while the others will do well in warmer areas.

The *Chionodoxa*, or Glory of the Snow, is aptly named because it often appears while there are still patches of snow on the ground. They make excellent carpets beneath spring flowering shrubs, in rock gardens, along woodland paths or at the foot of foundation plantings. *Chionodoxa* will cover the area in blue and white in the first year and in subsequent years will multiply forming a profusion of tiny small blossoms six inches from the ground. If you have enough in bloom cut some as early spring flowers for indoor use.

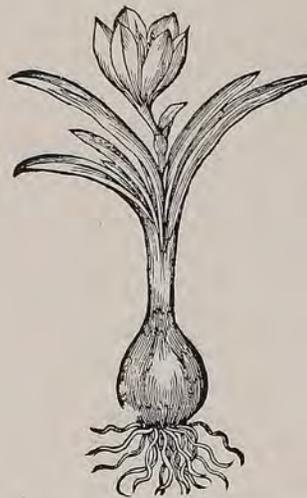


Another of the very early blooming spring flowers is the Eranthis or Winter Aconite. The low growing blooms have bright, yellow balls for buds, which when open, resemble buttercups. Framing the flower is a frilly green ruff which sets it off beautifully. Eranthis bloom as early as February and should be planted in clusters in shady, moist areas, woodlands or under tall-growing evergreens. Once in the ground they should be left undisturbed to multiply each year.

The headliner of miscellaneous bulbs is the Crocus. There are hundreds of Crocuses in many different colors and in many different sizes. Some will bloom early when snow is still around and others arrive on the scene with the tulips. Some varieties are striped while others have variations of mixed colors. There are shades of blue crocuses, pastels, pure white, countless yellows and some mauves and violets. Crocuses are probably the most adaptable of all bulbs. They fit in any part of the garden—in front of borders, beside terrace steps or around evergreens. They are ideal drifting in lawns. Search for a sunny sloping location on your lawn, then because crocuses are so inexpensive plant them by the hundreds. The effect will be a carpet of color long before the lawn starts its new growth.

Erythronium is sometimes called Dog's-Tooth-Violet, Adder's Tongue or Trout Lily and is native to the United States. Its tiny, bell-like flower, borne on a twelve-inch stem with a bushy foliage close to the ground, blooms during early spring. It is an excellent rock garden flower which has two colors from which to choose — yellow and white as well as mottled and spotted.

One of the most intriguing of the miscellaneous bulbs is the Fritillaria. There are two major members of this bulb family and both should be considered for the



spring garden. The *Fritillaria meleagris*, frequently called Snake's Head, or Checkered Lily or Guinea-hen, resembles a tulip flower bent over, and has unusual markings. Usually two or three flowers to a single eight-inch stem appear in early May. They should be planted in shady areas of the garden and their strangely mottled purple and white flowers will bloom year-after-year with a minimum of care.

The *Fritillaria imperialis* or Crown Imperial is the giant of the clan growing up to three feet high. Strong tubular stems support blossoms of five to seven bright yellow or red upturned tulip-shaped flowers with a green ruff on top. A colony of six or twelve will become a spectacular display in your spring garden.

The Galanthus or Snowdrop is another of the early bulbs which signify the end of winter. The little bell-like flower, a frosty white, nestles in between two green leaves and will bloom for several weeks. The Galanthus should be planted in cool, shaded areas and if left undisturbed will multiply each year, creating a white drift.

Iris reticulata is the smallest member of the iris family and is the perfect rock garden flower. It will grow four to six inches tall and have delicately shaped pale blue or purple petals with a splash of orange gold at the center.

The Muscari is almost a minia-

ture hyacinth. It reaches a height of only six to eight inches and when in bloom the tops of its tiny tubular stems carry clusters of small oval spheres in shades of blues, whites and purples. Muscari seem to mix with almost any plant and, when planted en masse, create a carpet for taller growing flowers such as tulips and daffodils. They can be nestled in a rock garden or used to line a path or border.

The Puschkinia is almost a combination of the hyacinth and the Scilla with lively bluish-white, tiny florets clustered around the top of a six- to eight-inch stem. They do best in rock gardens or wooded areas where they can be protected from sharp March winds. Puschkinia will produce new flowers and bulbs over the years and should be separated when the area becomes too crowded.

The last of the miscellaneous bulbs is the Scilla, but they are by no means the least. There are two types, the Siberian Squill, with intense blue flowers that bloom in early spring and the wood hyacinths or Spanish Bluebells which bloom in blue, white, or pink in late spring. The blooms of the Scilla family are often mistaken for bluebells. All Scillas are ideal plants for wooded areas, in rock gardens or between foundation plants.

The miscellaneous bulbs can make your spring garden a showpiece next year, but remember that all bulbs must be planted in the fall. Here are some tips on planting and a chart which lists all the bulbs described, the available colors, the depths they should be planted, the average flowering dates and the heights they will grow.

The information in the chart was developed through a four-year research program at Michigan State University. The flowering dates, heights and other data are averages for Michigan. There always will be variations due to specific

Continued on page 19

Guidelines for garden usage of "miscellaneous bulbs"

Flowering Period	Genus and Species	Basic Flower Colors	Average Plant Height (inches)	Depth of Planting (inches)	Spacing Between Bulbs (inches)	Naturalization Habit	Basic Garden Usage
Very Early (I) March 15—30	<i>Crocus chrysanthus</i>	Blue Yellow White	3-4	4	2-3	Perennial	Rock gardens, ground covers, lawns, borders, shrubs and trees.
	<i>Crocus sieberi</i>	Blue	3-4	4	2-3	Perennial	Rock gardens, ground covers, lawns, borders, shrubs and trees.
	<i>Crocus tomasinianus</i>	Purple	3-4	4	3-4	Perennial	Rock gardens, ground covers, lawns, borders, shrubs and trees.
	<i>Eranthis</i> sp.	Yellow	3-4	4	2-3	Perennial	Rock gardens, borders, shrubs and trees.
	<i>Galanthus</i> sp.	White	4-5	4	2-3	Perennial	Beds, rock gardens, shrubs and trees.
	<i>Iris reticulata</i>	Yellow Blue Purple	4-6	4	2-3	Perennial	Borders, rock gardens, lawns, trees and shrubs.
	<i>Scilla tubergeniana</i>	White	4-6	4	3-4	Perennial	Beds, borders, rock gardens, lawns, trees and shrubs.
Early (II) March 31— April 20	<i>Anemone blanda</i>	Rose Purple White	3-4	4	2	Perennial	Borders, rock gardens, shrubs and trees.
	<i>Chionodoxa</i> sp.	Blue	5-8	4	2-3	Perennial	Rock gardens, ground covers, lawns, shrubs and trees.
	<i>Crocus flavus</i>	Yellow	3-4	4	2-3	Perennial	Rock gardens, ground covers, lawns, shrubs and trees.
	<i>Crocus vernus</i>	Purple White	4-6	4	3-4	Perennial	Rock gardens, ground covers, lawns, shrubs and trees.
	<i>Muscari azureum</i>	Blue	4-5	4	1-2	Perennial	Borders, rock gardens, trees and shrubs.
	<i>Narcissus cyclamineus</i>	Yellow	10-14	6	4-6	Perennial	Beds, show, borders, cut flowers, ground covers, trees and shrubs.
	<i>Puschkinia libanotica</i>	White	4-6	4	4	Perennial	Borders, ground covers, trees and shrubs, rock gardens.
Medium (III) April 21— May 15	<i>Scilla siberica</i>	Blue	4-6	4	3-4	Perennial	Beds, borders, rock gardens, lawns, trees and shrubs.
	<i>Erythronium 'Pagoda'</i>	Yellow	8-12	4	3-4	Perennial	Beds, rock gardens, ground covers.
	<i>Fritillaria imperialis</i>	Yellow Red Orange	25-30	6	8	Perennial	Beds, show, ground covers.
	<i>Fritillaria meleagris</i>	White Purple	6-8	4	3-4	Perennial	Beds, rock gardens, ground covers, trees and shrubs.
	<i>Muscari armeniacum</i>	Blue	6-8	4	4	Perennial	Borders, rock gardens, trees and shrubs.
	<i>Muscari botryoides album</i>	White	4-5	4	1-2	Perennial	Borders, rock gardens, trees and shrubs.
	<i>Narcissus jonquilla</i>	Yellow	10-14	6	3-4	Perennial	Beds, borders, show, cut flowers, ground covers, trees and shrubs.
	<i>Narcissus triandrus</i> Thalia	White	10-14	6	4-6	Perennial	Beds, borders, show, cut flowers, ground covers, trees and shrubs.
	<i>Narcissus 'W.P. Milner'</i>	Yellow	8-10	6	4-5	Perennial	Beds, borders, show, cut flowers, ground covers, trees and shrubs.



Top Left—"Yellow Emperor," "Ostara Hyacinths," "Princes" Tulips, and "Carnegie" Hyacinths.

Lower Left—"Garanza," "Ostara" Hyacinths, "Cheerfulness" Narcissus and "Beauty of Apeldoorn" Tulips.

Right—*Chionodoxa* "Pink Giant"

Continued from page 16

Bulbs

planting locations and seasonal weather conditions.

Bulbs flowering in March and April are subject to weather changes. If spring is early they will flower early; if spring is late they will flower late. In general May and June flowering species are less affected by the season.

All miscellaneous bulbs can be used in a variety of situations. They can be planted in a perennial garden with plants such as

peonies, phlox or daylilies. It is possible to interplant as many as three types in the same garden spot. For example, the garden could start with *Crocus chrysanthus* followed by *Scilla siberica* and finally *Allium christophii*. The early flowering species can be over-planted with summer annuals such as marigolds, petunias, etc. Only a little imagination is needed to see the many possibilities for using these bulbs.

The planting area should be well-drained and reasonably fertile. Bonemeal is preferred, but as a

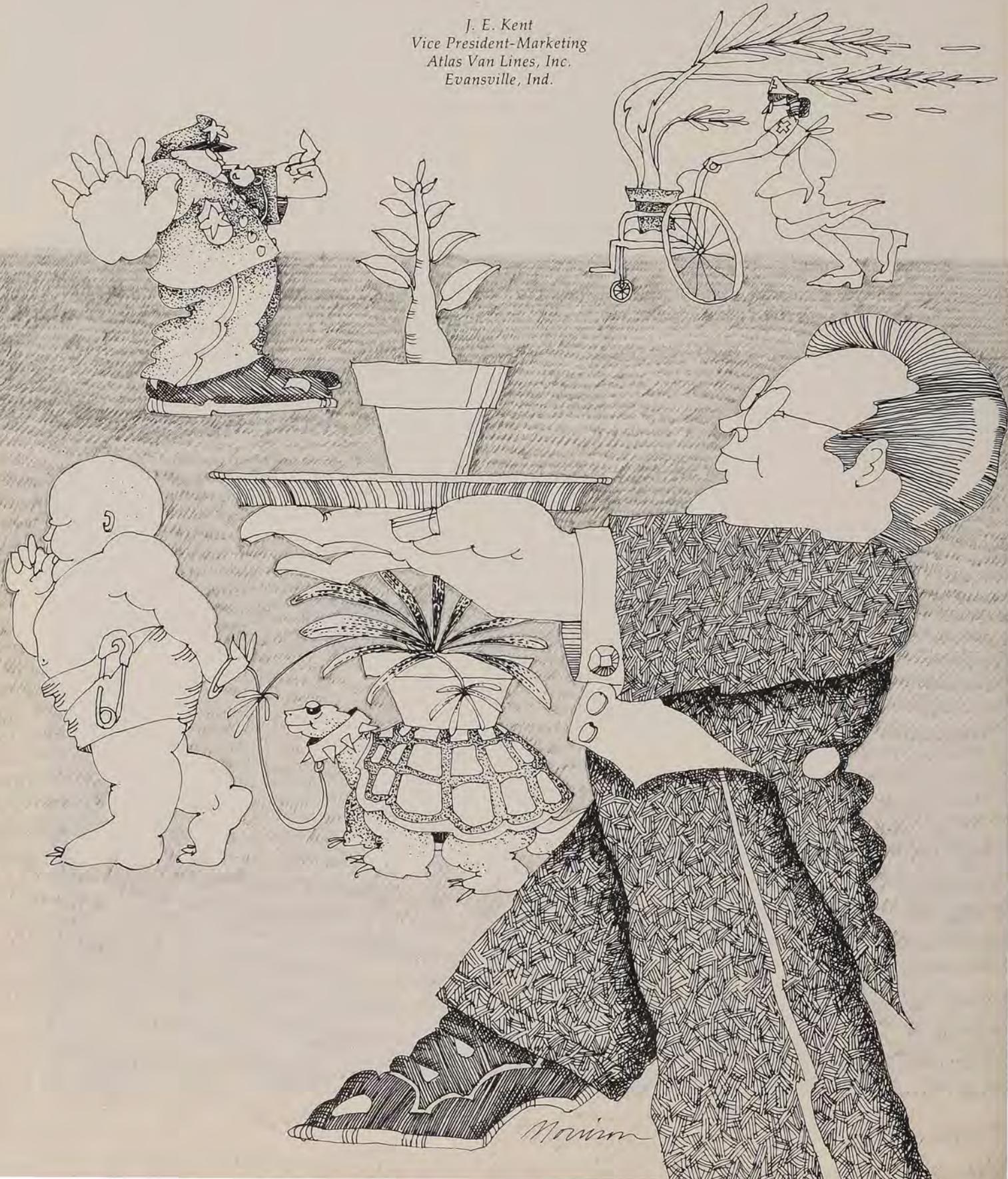
second choice use a high phosphate and potassium fertilizer mixed with the soil especially beneath the bulbs. After planting, the area should be watered thoroughly and then covered with compost, wood chips or other mulching material. In order to develop bulbs for the coming years, the foliage must be allowed to die naturally in the spring. Bulbs will not regenerate or enlarge sufficiently if the foliage is removed too early. In the spring the bulb area should be fertilized with a nitrogen and potassium fertilizer.

Guidelines for garden usage of "miscellaneous bulbs"

Flowering Period	Genus and Species	Basic Flower Colors	Average Plant Height (inches)	Depth of Planting (inches)	Spacing Between Bulbs (inches)	Naturalization Habit	Basic Garden Usage
Late (IV) May 16— June 5	<i>Allium aflatunense</i>	Purple	26-32	4	4	Perennial	Beds, show, cut flowers, and ground covers.
	<i>Allium elatum</i>	Purple	32-40	6	6	Annual	Beds, show, cut flowers.
	<i>Allium karataviense</i>	Purple	8-10	4	6-8	Perennial	Beds, show, rock gardens, borders.
	<i>Allium rosenbachianum</i>	Purple	40-48	6	6	Annual	Beds, show, cut flowers.
	<i>Camassia esculenta</i>	Purple	12-16	6	4	Annual	Beds, rock gardens.
	<i>Hyacinthus amethystinus</i>	Blue White	10-12	4	4	Annual	Beds, borders, rock gardens, ground covers.
	<i>Ixiolirion pallasii</i>	Purple	15-17	4	6	Annual	Beds, rock gardens, ground covers.
	<i>Narcissus 'Baby Moon'</i>	Yellow	10-14	6	4-5	Perennial	Beds, borders, show, cut flowers, ground covers, trees and shrubs.
	<i>Ornithogalum umbellatum</i>	White	8-10	4	3-4	Perennial	Borders, ground covers, rock gardens.
Very Late (V) June 6— July 1	<i>Scilla campanulata</i>	Blue Pink White	10-14	4	5-6	Perennial	Beds, borders, rock gardens, ground covers.
	<i>Allium caeruleum</i>	Blue	20-26	4	2-3	Annual	Beds, show, cut flowers.
	<i>Allium christophii</i>	Purple	20-26	4	6-8	Perennial	Beds, show, cut flowers, ground covers.
	<i>Allium giganteum</i>	Purple	40-48	6	6	Perennial	Beds, show, cut flowers, ground covers.
	<i>Allium moly</i>	Yellow	10-14	4	2-3	Perennial	Beds, rock gardens, borders, ground covers.
	<i>Allium oreophilum</i>	Red	10-14	4	2-3	Perennial	Beds, rock gardens, borders, ground covers.
	<i>Allium sphaerocephalon</i>	Purple	22-26	4	3-4	Perennial	Beds, show, cut flowers, ground covers.
	<i>Brodiaea laxa</i>	Blue	12-16	4	4	Annual	Beds, rock gardens.
<i>Iris anglica</i>	Blue Purple	18-24	6	6	Annual	Beds, show, cut flowers.	

How to Safely Move Your House Plants

J. E. Kent
Vice President-Marketing
Atlas Van Lines, Inc.
Evansville, Ind.



If you're planning on relocating and wouldn't dream of leaving your favorite plants behind, don't worry. With proper planning, your plants can be safely moved. But, it does take a little work and advance planning.

The "typical" home or apartment-dweller has been caught up in the plant revolution. Today, you'll find an average of five plants in a home. Because they are living things, and in many cases the result of long, hard years of cultivation—fertilized with love—special handling is required.

At first glance it seems almost impossible. Professional movers including my company, Atlas Van Lines, generally will not accept the responsibility for moving living things—including plants. The inside of a van on a hot summer day may be too warm for your plants.

Having moved 28 times myself—along with my pride and joy, an eight-foot, double-red Hibiscus—I've found the safest and best thing for plants is to move them yourself.

Three Weeks—About three weeks before the move, have your household goods mover estimate your overall requirements. Tell him you'll be moving house plants yourself and let him know you'll need special packing materials. Most van lines will help you pack your plants. Also, call your local U.S. Department of Agriculture to check on regulations for moving out of your old state and into your new one.

During the same week, any plants you have in clay pots should be repotted in unbreakable plastic containers. This allows your plant plenty of time to adjust to its new home. Keep in mind that the new pot must be big enough to hold the root system, but only large enough to hold the plant, as this should only be a temporary measure.

Two Weeks—Plants should be pruned as much as possible so that they can be comfortably packed. Even large plants can be cut back quite a bit without damage. Check your florist or a reputable plant book to learn the best way to prune. The smaller a plant the less likely it is to be top-heavy and fall over in transit, and since it takes up less space, it's generally easier to handle when loading and unloading.

One Week—One thing you don't want to move is bugs and common plant pests. Place your plants in a black plastic utility bag for about six hours with a bug/pest strip. This should kill all parasites on the plant. Be sure to put the bag in a cool, shady area so you won't damage your plant.

Moving Day—Plants should be packed on moving day—or, if necessary, on the night before. Conventional packing boxes are easily adaptable to moving plants. For example, a dishware box has separators for dishes and glasses that easily converts to hold plants.

Plants should be securely anchored so that they won't slip when the box is lifted or jostled in transit. Begin by dampening the newspaper or packing paper and wrapping the base of the pot and leaves. Place the

pot in the box, and make sure it fits snugly in the bottom; use more paper if necessary. Check to insure that the limbs are cushioned with paper. Next, place loosely, dampened paper around the top of the plant to further protect the leaves.

Plants should be watered normally before packing during the warmer months, only slightly during the cold months. If a pot is laden with moisture during the winter, it is more prone to freezing.

As a final precaution, punch air holes in the sides of the box and loosely fasten the lid. If you follow this procedure, your plants should be equipped to travel safely for up to four days before requiring further attention.

On the road—Now that the boxes are packed, set aside a special place to store them. Sit them upright and clearly mark the lids to avoid mistakenly putting them into the moving van with the furniture.

When you're ready to leave, pack the plant boxes in your car. If possible, make sure they are placed on top so that they won't be crushed in transit. Avoid putting plants in the car trunk, unless there is no other option, as heat or cold can cause damage.

While on the road, be careful where you park your car. If you stop for lunch, remember to leave a car window open and park in a shaded area in the summer, the opposite in the winter.

At Your New Home—When you arrive at your new home, you should unpack your plants as quickly as possible. Remove them from the bottom of the box to avoid breaking branches. More than likely, they will need water, time and special attention to acclimate to their new surroundings.

Plants you positioned in the window of your old house, where the sun was strongest, should be put in a similar environment in your new home. Take into account, however, that if you moved from Chicago where the sun is strong for only a few hours—and you now live in Denver where the sun is strong most of the day—your plants will need to adjust gradually to longer periods of sunlight.

Watch carefully for the first few weeks to make sure you aren't overexposing them. If your problem is not enough sun, a cool, white fluorescent lamp may be required to help out with additional light.

If you don't have space to carry some of your plants, give them away to your friends or to a nursing home where they will be most appreciated, and receive the same tender loving care as you gave them. But, before you part, take some cuttings.

Either place them in a sterile mix or put the cuttings in a plastic bag with damp cotton or paper towels. More than likely they will survive several days travel and be in good shape to take root at your new home.

If you still have questions about moving your plants, check with your local moving agent or florist. Some agents have illustrated brochures with tips and suggestions on how to best move a plant.

Drama with Dahlias

Summer into Fall

*Lorraine Marshall Burgess
202 Old Broadmoor Road
Colorado Springs, Colo 80906*

Photos by Guy Burgess

Bestow honor on Andreas Dahl, the Swedish botanist, by growing his namesake flower, the Dahl'-ya, or make your day with the dazzling day'-li-ya. It doesn't matter how you pronounce the word, just be sure you try the flower in your garden.

Most agree it is a magnificent flower, but some find its growing requirements too much work. There are some 2,000 varieties, and new forms are being produced each year by avid hybridizers. The flower's colors are vibrant and its structure sturdy. It is acknowledged as ideal for summer and fall borders and long-lasting when cut for indoor bouquets.

Early on you should decide whether you want to grow giant exhibition varieties, or be content with low-growing, home-spun bedding plants. The tall strains can give stature to floral beds, fill in a back border, or stand as a spectacular summer hedge. The shorter varieties can serve as brilliant, compact border plants or as fillers in a perennial border. Most are grown from tuberous roots planted out in the spring. A few of the miniatures (Coltness and Unwin) can be started from seed to bloom the first year. Then in the fall the seed-grown tubers should be dug up for replanting the second year. It is best to investigate the kind of blooms available to you and then concentrate on this variety. Clyde Doughty of Colorado Springs has made a specialty of super-sized, summer blooming varieties. As summer mellows into fall his garden dahlias put forth a remarkable display of 9 to 12 inch, dinner plate-sized blooms. Growers of smaller varieties have difficulty matching his impressive show.

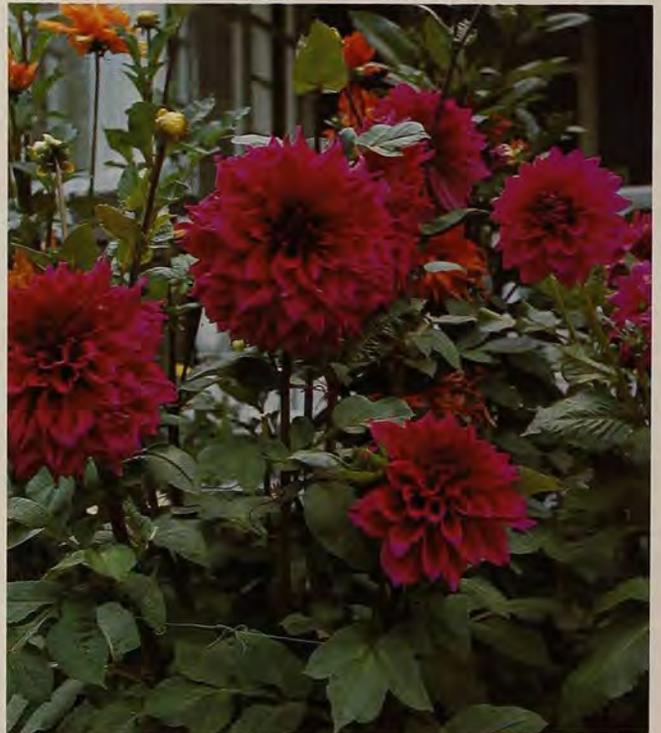
With dahlias there is one big problem. The tubers, in most climates, need special care. They need to be dug up each fall, sorted and packaged for storage in a cool room with moderate humidity. Some gardeners do not have the time or the extra storage space involved. For those that do, there are several ways to go. You can layer the tuberous roots between newspapers and store them in large cans, or you may prefer to pack

them in sand or peat in paper cartons and then spot check them periodically through the winter months for excessive drying. Some fanciers, lacking storage space, choose to bury the tubers outdoors in a hole 3 to 4 feet deep, again layered with newspapers, and covered with 10 to 12 inches of soil. Mr. Doughty suggests that each gardener find the technique that works best for his climate, and stay with it.

Doughty plants his tubers in early spring as the tulips come into bloom. He places the roots in enriched, deeply-spaded soil, in holes 6 inches deep. He lays the roots horizontally with the eye or sprout facing upward, near a tall stake. Initially he covers the

Continued on page 29

Below—Crimson dahlia
Right—The Autumn Blaze dahlia.





Maples & Fall

Plants for Autumn Color in the Berkshires

C. Roy Boutard
Berkshire Garden Center
Stockbridge, MA 01262

The finest and also the first tree to bring color in the New England countryside is the red or swamp maple, *Acer rubrum*, a wide-spread North American species. It is not restricted to swampy areas alone.

The coloring process begins in August and as Mr. Ernest H. Wilson states in his book "Aristocrats of the Trees", "The purple crown of Autumn is placed on the green brow of Summer." Seedlings of the red maple come in all colors imaginable, yellow, purple, scarlet and orange.

There are many cultivars available from nurseries. Rather than taking pot luck from the swamps, it is often better to buy a named variety which will remain constant. 'Red Sunset' and 'October Glory' are two of the best cultivars. They tend to hold their leaves longer than other maples.

The sugar maple, *Acer saccharum*, is another native tree which gives us brilliant colors of orange and yellow. With ample sun and cool nights it may turn a brilliant scarlet. This tree grows large and takes up a lot of room in a garden (even the columnar varieties).

There are several popular smaller maple varieties. The species with the most brilliant red leaves is the Amur maple, *Acer ginnala*. It has small three-pointed leaves which are relatively easy to rake up. This Manchurian maple will tolerate wind and rough conditions. It grows in almost any soil. It can be trained as a tree or used as a screen. Nearly all maples must be shaped and pruned if you want to grow good-looking trees.

Flowering dogwood, *Cornus florida*, is one of the finest shaped small trees. It is worth growing just for the sake of its beautiful red foliage. Where it gets wintry blasts such as we get in the Berkshire Hills, it will still flower, but often produces mis-shapen blooms. A dogwood will shape itself without interference; all it wants you to do is watch out for borers which can kill it eventually.

The Katsura tree, *Cercidiphyllum japonicum*, is so keen to show its pretty heart-shaped leaves in the spring that the tips often get whipped by frost. This does not seem to worry it much, however, for it soon produces new leaves and shoots to cover the damage.

The Katsura will grow extremely large but is nevertheless worth including in a small garden, as it grows very fast to a certain stage and then growth slows considerably. The leaves are beautiful the year round and turn yellow or red before they drop. It has an excellent root system and transplants easily. It is nearly disease- and bug-free.

This is not the case with the Washington hawthorn, *Crataegus phaenopyrum*, which needs some

attention. It may require thinning, dead branch removal, and shaping. The hawthorn's shiny leathery dark green leaves will turn red and orange during September or October. Clusters of red fruit will often stay until the spring for, unlike the other hawthorns, birds are not attracted to its berries.

Some years ago we received a plant of *Stewartia koreana* from the Arnold Arboretum for testing at the Garden Center. It has now grown to the height of seven feet and we are hoping that it will be possible for us to continue growing it here. It is very much of a "borderline" plant because of our hard winters. We sheltered it from the north-west winds. Because our soil is neutral, we need to mulch it with peat moss and put some sulphur or cottonseed meal into the ground to make our V.I.P. contented. I have always admired this member of the Tea family in its southern habitat, with its interesting camellia-like flowers and great fall coloring.

Do not forget the birches for coloration. We have a cultivar called *Betula pendula 'youngii'*, which we planted on a little island in the middle of a pond, where it has its "feet" in water all the time. Other trees which we planted there died, but Young's birch seems able to take the moisture and is now in its fourth year. Birches should be planted in spring only.

One of the most colorful shrubs is the Winged Euonymus or burning bush, *Euonymus alatus*. If placed in a sunny spot, it will attain as bright a scarlet as you will ever find illustrated in any nursery catalog.

Continued on page 28

Color Plants

Landscape Performance of Maples

R. L. Ticknor,
Professor of Horticulture
Oregon State University
Aurora, Oregon

Maples and fall color are synonymous from coast to coast and for most places in between. The Sugar maple—*Acer saccharum* and the Red or Swamp maple—*A. rubrum* provide the yellow, orange, and red colors for which New England and other eastern areas are famous. In the Rocky Mountains, two small growing maples are found: Rocky Mountain maple—*A. glabrum* develops yellow to reddish orange fall color while the Big Tooth maple—*A. grandidentatum* has the same color range as the Sugar maple. On the west coast, the Bigleaf maple—*A. macrophyllum* has golden yellow fall color during good color years but the Vine maple—*A. circinatum* colors yellow and red each year in the hills.

In addition to these native species many of the introduced species also have good fall color. These include: Japanese maple—*A. palmatum*, Paperbark maple—*A. griseum*, Purpleblow maple—*A. truncatum* and many others.

To determine how these trees would perform under Western Oregon conditions, a trial was

started in 1965 at the North Willamette Experiment Station of Oregon State University located near Aurora. Of particular interest were the many relatively new varieties of Norway maple—*A. platanoides* and Red maple—*A. rubrum*.

The performance factors measured or observed were rate of growth in height and width; timing of foliage, bloom, fall color and defoliation, and susceptibility to disease, insect and wind damage. Four trees of each clone or species were planted 6' apart in rows which were 30' apart. As the branches touched, alternate trees were removed so that growth was not slowed by competition.

Other cultural conditions which contributed to rapid growth were fertilizing, irrigation, and reducing weed competition. Nitrogen was used at the rate of 100 lbs. of actual nitrogen per acre per year applied in early spring. An average lawn fertilizer program would use 120 lbs. of nitrogen per year. Water was applied at approximately 1" per week during the dry summer months. The area around the tree trunks was maintained weed free with herbicides. An area 2-3' away from the trunk should be kept free of competing plants such as grass for a 3-year establishment period. This also prevents damage to the tree trunk with a lawn mower when trying to avoid hand trimming.

One of the objectives of the trial was to determine the performance in the first years following planting since the average American family moves at frequent intervals so is interested in short term results.

Records on the first four years in the trial for 237 types of trees are covered in "Landscape Tree Performance," Oregon Agricultural Experiment Station Circular of Information 633.

Under contemporary American conditions few trees, except in parks or arboreta, remain long enough to approach the ultimate size shown in "Trees for American Gardens", by Dr. Donald Wyman. Probably more useful to most people is an estimate of EMH—Expected Mature Height—as is used in "Shade Tree Evaluation Studies at the Ohio Agricultural Research and Development Center" Research Bulletin 1074, by Raymond C. Chapin and Philip C. Kozel. This is approximately the size expected at 40 years.

Table I shows the average height and width at five and ten years for 25 maples planted in 1965 or 1966 at the North Willamette Experiment Station. The size at five years is shown for 11 additional selections planted in 1968-71. Also shown is an estimate of the expected mature height.

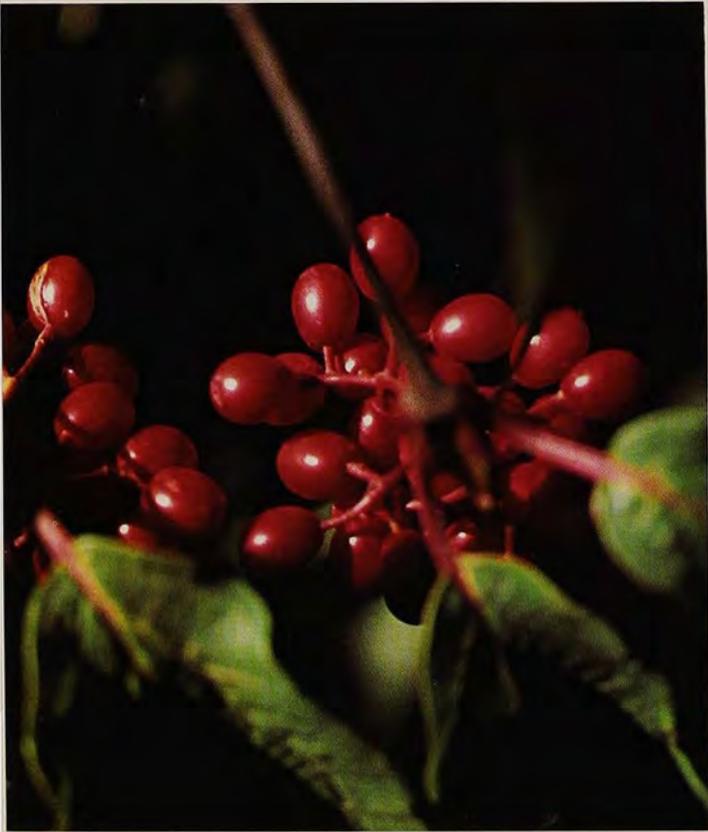
Among these 36 maples are one or more candidates for most tree uses. There are small trees and fast growing larger trees. There are trees with several different predictable growth habits. There are trees with colored foliage during the growing season and trees with exceptional fall color.

A useful group of trees around small homes are those that mature at less than 25'. This group includes *A. buergerianum*, *A. circinatum*, *A. ginnala*, *A. griseum*, *A. platanoides* 'Globe' and *A. truncatum*.

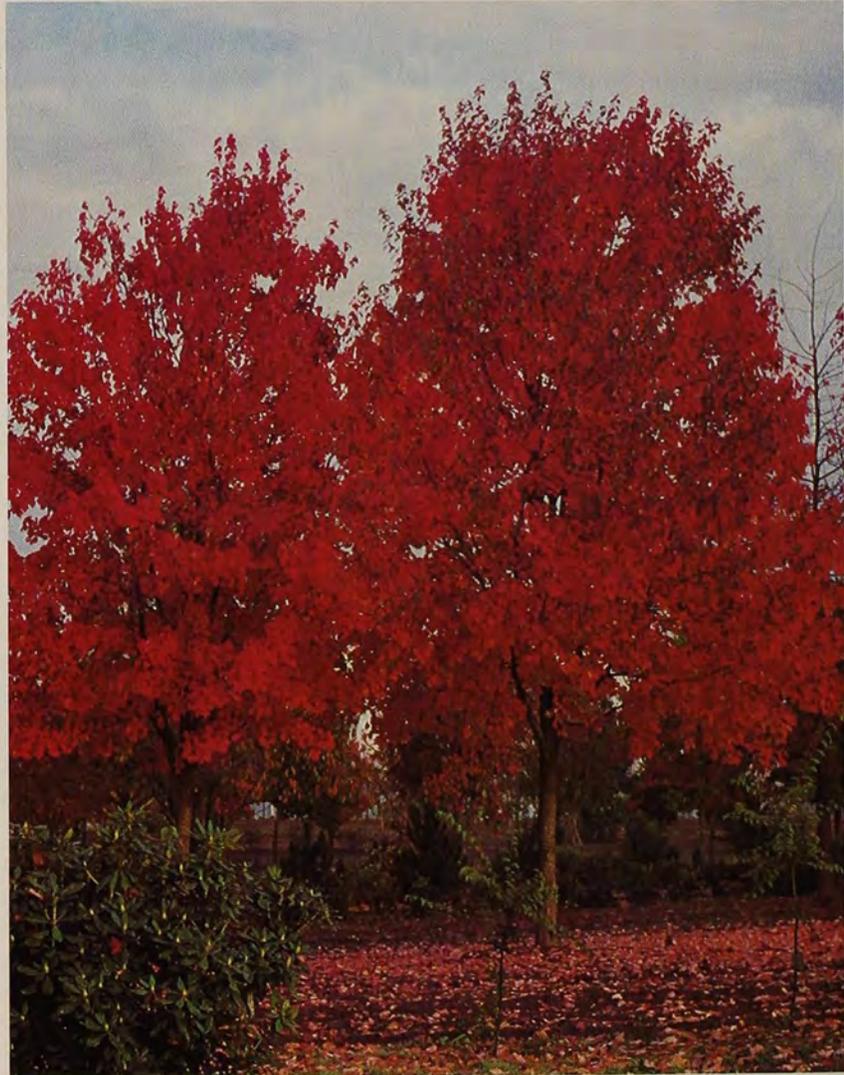
C. Lewis



C. Lewis



C. Lewis



R. Ticknor



Maples & Fall Color

Top far left—*Acer pennsylvan.* Top middle left—*Acer griseum.* Top left—Bark of *Acer griseum.* Bottom far left—*Viburnum setigerum.* Bottom middle left—*Acer rubrum.* Bottom—Fall color near Brattleboro, Vt.

R. Ticknor



D. Wyman

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Continued from page 24

Plants for Autumn Color

This shrub will grow up to nine feet, and can be used to make a great hedge. Its very dense growth lends itself to shearing. During the winter months the brown wings attached to the green branches show up beautifully. The dwarf form, *Euonymus alatus 'Compactus'*, grows four to five feet tall. This plant is excellent for small gardens.

We planted a group of three different cultivars of *Viburnum* near our greenhouse to make it look more attractive from the road. We chose *Viburnum sieboldii*, *Viburnum wrightii*, and *Viburnum prunifolium*, also called the black haw. All grow fast and have good fall coloring. The strongest grower of the three is Siebold's *viburnum*, which now towers above the rest. The black haw grows sturdy and wide with an impenetrable network of thorny branches. The prettiest is the Wright *viburnum* with red shiny fruit and beautiful waffled leaves.

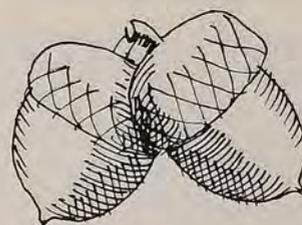
Siebold's *viburnum* has large grooved leaves which turn purple and then red. The black haw is an excellent shrub for the birds to nest in and the blue-black fruit is acceptable to a large number of our feathered friends.

The arrowwood, *Viburnum dentatum*, grows very quickly into a huge shrub and will keep you busy pruning. It has a glossy green foliage which turns red. Its clusters of blue berries are greedily devoured by birds. It is a plant which can very successfully be transplanted from the wild in common with other *viburnums*. Arrowwood transplants easily if you decide after a year or two it would look better elsewhere.

The Japanese barberry, *Berberis thunbergii*, was introduced to America by the Arnold Arboretum approximately a century ago. Any

New England farmer can testify only too well how it has spread since then. It has often become a nuisance but makes a good hedge plant, as long as you do not have to pick paper or trash out of it. The Japanese barberry turns a beautiful red in the fall and produces abundant hard red berries. The fruit is decidedly not for the birds and is usually left alone. For a more sophisticated hedge use *Berberis thunbergii 'Atropurpurea'*. This shrub has red leaves all the time if placed in full sun. A consistent variety called 'Knight Burgundy' will ensure that each plant is the same texture and color. This is important if you want a *de luxe* hedge.

The spicebush or wild allspice, *Lindera benzoin*, is a straggly shrub growing wild along the edges of swamps and rivers, where it



spreads all over the place. If this shrub is grown in the open as a specimen and fed well, it develops much larger leaves and attains a more orderly shape. In the fall it turns a beautiful golden color. In order to produce shiny red fruits there must be a male and female present.

It is possible to combine beauty with gastronomy by including some of the highbush blueberries, *Vaccinium corymbosum*, in a shrub border. Blueberries require an acid soil and heavy mulching with sawdust, bark mulch, or pine needles. Blueberries have beautiful leathery leaves all summer which will turn to brilliant orange and scarlet. As a bonus you will also get a good crop of fine juicy berries. To make sure they are well cross-pollinated, plant several varieties about five to six feet apart.

Drama with Dahlias

tubers with 2 to 3 inches of soil, adding more as the plants grow. "If you live in an arid climate," he suggests, "leave the hole slightly concave to catch a fair share of what rain does fall." At the time of planting Doughty installs bamboo or redwood stakes, 4 to 6 feet tall, as future support for the mature plants. Adding the stakes later can damage the roots. He also ties identification labels to each stake.

To grow big flowers he disbuds all the side shoots as soon as they become visible, thereby leaving the terminal bud as the sole recipient of all the plant's energy. He loosely ties the plants to their stakes, with a figure eight sling as they grow. This assures maximum support against weight and wind as the huge blooms develop.

"For spectacular flowerheads," he advises, "top dress the soil with wood ashes, bonemeal, or muriate of potash in mid-August. This encourages vigorous growth. Then repeat these applications at two-week intervals. Or add diluted liquid manure in a ring, one foot out from each plant, or in furrows between dahlia rows.

"Dahlias need plenty of water as they bloom, but the soil must be sandy enough for the moisture to drain away. My conclusion is they don't like wet feet. If you must start with heavy clay soil you will have a lot of preliminary doctoring to do. In the fall apply a layer of sand 4 to 5 inches deep, then turn and blend. Apply cow or horse manure in the fall, if your soil is thin. Add lime if your soil is too acid.

"When and where irrigation is necessary," Doughty says, "water deeply and well once a week instead of sprinkling every day. However, during hot weather when the leaves tend to curl, a light hosing can cool and refresh the plant.

"If your plants produce dense foliage growth, prune away half of the branches to let the air in and allow for freer flowering. If your season is too short for a full cycle of growth, you can start your tubers in a cold frame or in pots indoors in a sunny window. Then plant out your starters when it warms enough."

When dividing the root clumps in the spring include no more than one or two eyes in each planting. Give the roots some moisture and warmth to speed the sprouting. Timing is important. If, by chance, the shoots have grown too long, clip them back to 1/4 inch of the tuber. Select sturdy, medium-sized roots. If you must use large ones, cut away the lower half of the root before planting.

In the fall after the blooming season and the first frost, carefully lift the dahlia roots. Cut back the already-clipped stalks a second time to about 1 inch

from the roots. Dry them in the mid-day sun, coat the stalk stump with sulphur, and store tubers in a cool place, covered with burlap, sand, peat, or newsprint, whichever seems best to prevent excessive drying of the roots.

The above deals with the care and feeding of dahlias, but it gives only a hint of the rewards involved. The plant is available to you in single or double open-centered flowers, in anemone types, cactus and quilled varieties, ball forms and smaller pompons. Petals can be incurved, recurved, collared, or quilled. The colors and range are almost beyond description.

Become acquainted with this impressive member of the Compositae family now. You can begin in the spring when the mail order houses are shipping tubers, in the summer when the flowers bloom and you can establish your preferences, or in the fall when your fellow gardeners may be willing to share their tubers with you. Start preparing your flower beds now and get the tubers when the time seems best. You won't be sorry.

Consider, too, joining the American Dahlia Society, 163 Grant St., Dover, New Jersey 07801. There are 75 chapters around the country and perhaps one in your neighborhood. Membership is \$6.00 a year and includes a quarterly bulletin.



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Chionodoxa sardensis



Chionodoxa luciliae



"Yellow," "Snowstorm," and "Queen of the Blues" Crocus.



White *Muscari*

ALL THE WORLD LOVES BABIES

Alexander Irving Heimlich 77 Burlington Street Woburn, MA 01801

Someone made the remark that if you can have large 18- to 24-inch narcissus such as Mrs. R. O. Backhouse (white-pink) or 'Mount Hood' (pure white) that can be easily seen from a fair distance, why would you waste time and space on the small flowers of miniature bulbs? The answer is—for many reasons. In the first place, large clumps of tall varieties of narcissus or tulips are a garden feature, and not a ground cover. Secondly, small bulbs such as Chionodoxa, Scillas, Snowdrops, and many others can bedeck sections of the garden with a mantle of sheer enchantment. Large bulbs fail in this. Thirdly, small bulbs, when blooms are spent, wither away in an unobtrusive fashion whereas large bulbs perform their undressing far less than gracefully. The home owner who would have his garden a joy to behold in the glorious month of May will plant colorful perennials in front of large bulbs to partly conceal the long, tedious withering-away process. Fourthly, on account of their diminutive size, small bulbs are instant favorites because "all the world loves babies."

The bulb catalogs offer a bewil-

dering assortment of garden charmers that the home owner finds hard to resist and he finds it even more difficult to make a wise choice.

We will concern ourselves with small miniature bulbs, and selecting areas of the garden where they are to be planted will require some thought. The suggestions given below will give the garden a lift over a long period.

A home owner, encouraged by pictures of colorful groups of Crocus species in a bulb catalog, made his selection and then eagerly awaited the bulbs' arrival. When his order arrived and he viewed the tiny bulbs, he entertained grave doubts about a colorful performance. The worry was needless. Planted two inches apart, 20 to a clump, they performed beyond his expectations. With snow still visible, goblets of pure gold, drifts of soft china blue, and many other colors, heralded the arrival of spring. The drab landscape, with lingering traces of snow, was highlighted by drifts of color at the edge of a shrub border and peeping out from under overhanging sprays of taxus and junipers. The planting sites had been

carefully chosen so that the home owner would chance upon splashes of color as he strolled about his grounds. This method of planting may be followed whether the grounds be large or small.

At the end of March one home owner finds spring greeting him outside his large picture window with a golden drift of *Crocus E. A. Bowles*. A few more are:

If white is a favorite, use Crocus 'Snow Bunting'

For a creamy color, use Crocus 'Cream Beauty'

For a gay, frivolous number, purple and white, use Crocus 'Lady Killer'

There are many others. Planted fifteen years ago, they never fail to thrill. Squirrels don't bother them, perhaps because they are so tiny the effort to excavate them fails to provide the anticipated feast. This is not true of the large Crocus. When planting, dust with mothball powder, thereby frustrating the squirrels looking forward to a delicious meal.

The large Crocus follow the species by two weeks. They are so common and so easily available that a few words about them should suffice. When purchasing

them at a garden center, the home owner should insist on large, first-grade bulbs. A large corm will have 6 to 11 eyes, each producing a flower. A group of 10 bulbs spaced three inches apart in a staggered drift will last a good two weeks and produce from 90 to 100 flowers. A third-grade bulb, which is much smaller and with but one or two eyes, may bloom the weekend that the home owner is absent and the only reward for his efforts will be foliage withering away. This is the reason why ads exhorting "Compare prices! Our Crocus are X dollars cheaper!" should be ignored.



Crocus drifts that add charm are:
Crocus 'Little Dorrit I', Amethyst-silver

Crocus 'Mammoth Yellow', The best golden yellow

Crocus 'Peter Pan', A pure white

Crocus 'Negro Boy', The darkest purple

Crocus 'Remembrance', A good blue

There are others to satisfy whatever color the home owner has in mind.

The Purple Beech (*Fagus sylvatica Riversii*) is a majestic tree that dominates the landscape. A 50-foot high tree will have a base spread of some 40 to 50 feet. In summer, dense shade prohibits grass growth and weeds struggle to survive. An enterprising home owner reasoned that sun does strike the ground six months of the year and bulbs should grow. He planted thousands of tiny bulbs in

drifts of 20 bulbs each. He used:

Chionodoxa gigantea	
Light blue	4" tall
Chionodoxa luciliae	
Lilac blue	4" tall
Chionodoxa sardensis	
Bright blue	4" tall
Chionodoxa tivoli	
Clear blue	4" tall
Scilla sibirica	
Sky blue	4" tall
Scilla sibirica	
'Spring Beauty' Blue	4" tall
Scilla sibirica	
Tubergeniana	
blue-silver	3" tall

The home owner mixed these drifts so that an equal number of varieties and colors appeared. After a few years the drifts spread into each other, creating a fairyland in shades of blue. Viewed on a windy day in late April, it was a gay, dancing mass of color that suggested—Let's swing into Spring.

One home owner, observing the arching branches and the partial shade that his dozen *Cotoneaster horizontalis* offered, planted under them *Galanthus nivalis* in clusters of 20 bulbs, three inches deep and three inches apart. They are the first to appear in the spring—so early that occasionally they are covered by a late snowstorm, but they emerge safe and unharmed by heavy frost. It is delightful to observe these silvery snowdrops or, as they are sometimes called, Candlemas bells, before winter's fury abates. It must have been the sight of some during a walk that prompted a German poet to say:

"The snow will vanish, it tells,
With the ringing of tiny silver bells."

They are lovely in groups along the flower or shrub border.

The Narcissus family is a large one and the miniatures offer a variety to choose from. For his rock garden, the connoisseur will never be content until he has a collection of *N. asturiensis (minimus)*. They belong to the trumpet branch of narcissus and are the smallest of the

miniatures—perfect, exquisite golden flowers on 3" stems. This tiny trumpet is fringed at the rim and greatly enhanced by twisted petals; its leaves are very narrow, about 3" long. A group of these tiny trumpets delighted a home owner viewing them on a sunny day. Later, he was horrified when a sudden, drenching downpour buried his treasures in mud. A simple way to overcome this is to plant them under a mat of close-to-the-ground Thyme, the handsome *Thymus serpyllum lanuginosus* with gray silvery foliage, or *T.s. albus* with pale green foliage and a very low carpet. The minute minimus rising out of the ground cover of thyme is not vulnerable to the elements; a sudden deluge will only cause the tiny trumpets to bend their pretty heads and the thyme will wipe clean their exquisite faces. The thyme plants will also act as a good protector; the minimus can grow without fear of being torn out by a hand rake or of being decimated by a trowel.

Narcissus nanus (lobularis) is another trumpet that blossoms early. It has a yellow trumpet and a pale creamy-white perianth on 5"-6" stems. This reliable narcissus is a fast increaser, should be planted at least three to four inches apart, and divided every three to four years. It is colorful when planted in drifts of 15 bulbs or more in rock gardens, along the flower border, among evergreens in the foundation planting. When the rules for indoor forcing are followed, a pan will welcome spring weeks ahead of outdoors and will be a delight on the dining room table.

Among the Hybrid Trumpet Narcissus, *N. 'W. P. Milner'* is an exquisite small sulphur-yellow trumpet, in cultivation for more than 65 years. In a large ground cover planting of *Vinca minor 'Bowles Variety,'* the addition of this sulphur yellow in groups of six or eight bulbs presents a lovely blue and yellow combination, the

Vinca 6" in height and 'W. P. Milner', 8".

In the *Narcissus triandrus* group, *N. triandrus albus* (Angel's Tears) has adorable pure creamy-white flowers produced two to three per 4"-5" stem. The petals reflex and show the cup, which is globe-shaped. It is a good rock garden bulb, planted in drifts of 20 or more, three inches deep and two inches apart in a well-drained gritty soil. Plant under thyme.

In the *Cyclamineus Hybrids*, *N. 'February Gold'* is an elegant pale lemon-yellow with pointed petals and straight, delicately fluted trumpets of a deeper yellow-tinged orange. Growing larger, 6"-8" tall, it is a feature in the rock garden, flower border and foundation planting. The home owner annoyed at the decaying process of foliage, should plant them in groups of 10 bulbs, four inches apart, six inches deep, in back of Alyssum, Iberis, or other plants

8"-10" in height. 'February Gold' is excellent for early forcing in a cool greenhouse.

In the *Narcissus jonquilla* *N. jonquilla 'Simplex'* is a deliciously scented bright yellow for the flower border or rock garden. Flowers are produced three to four on stems 9" tall. Great quantities of these are grown in France for perfume extraction. They never fail to elicit admiration at flower shows. Plant three inches deep and three inches apart.

Among the enormous family of tulips, the wild *Tulipa* species are a very charming race of flowering hardy bulbs, called Botanical Tulips. *T. batalinii* is a very choice butter-yellow color. On sunless days the closed bud has fascinating charm; it is similar to a rosebud. It is free-flowering and 8" tall. *T. batalinii 'Bronze Charm'* is a hybrid form. Its color varies from apricot to bronze; it is 8" tall. Very desirable.

T. clusiana is the famed Lady Tulip, growing on thin stems and with narrow foliage. It has white flowers with outside petals of cherry red. In the evening and in dull weather it closes to a white bud with rose stripes. The time of flowering is mid-May. Planted in clumps of 15 to 20, three to four inches apart, four to five inches deep, the Lady Tulip is an arresting sight whether open in the daytime or closed in the evening.

Another mid-May charmer is *T. hageri*, attractive with interior petals a deep copper-crimson red with greenish black base; outside petals are a dull bronze orange. There are two to three flowers on branching 6"-8" stems.

There are many, many more bulbs to select from, but with this limited glimpse into horticulture's endless assortment, the home owner can add to his grounds a colorful mantle of enchantment possible only with nature's gift of miniatures.

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Selected Native Wild Bulbs



JACK-IN-THE-PULPIT
Arisaema triphyllum

This stately, shade-loving 'sentinel' keeps watch from spring through early summer. A brown or white-striped spathe forms the 'pulpit' and provides a hood for 'Jack,' the upright spadix inside. Shiny red berries appear in the fall.



SPRING BEAUTY
Claytonia virginica

Tender and delicate, these rapidly multiplying flowers appear as harbingers of spring. The petals open to 1/2" diameter and are white or pink with deeper pink stripes. They close at night and on cloudy days.



DUTCHMAN'S BREECHES
Dicentra cucullaria

Resembling rows of pantalons carefully hung upside down, the white and pinkish 3/4" flowers sport yellow waists. Hardy, long-lived perennials, they can form a rich carpet of flowers and lush gray-green foliage.



WHITE TRILLIUM
Trillium grandiflorum

A showy, brilliant white flower with yellow anthers, the waxy petals change to bluish-pink. All its parts are in threes: three leaves, three petals, three sepals, three-chambered pistil, and three stigmas.



WILD CALLA
Calla palustris

This hardy denizen of the northern swamp clusters many tiny white and green flowers on a 1-1/2" long yellow spike, framed by a snow-white open leaf. The plant tends to spread, as new rootstock is sent out to form next year's growth.



BLOODROOT
Sanguinaria canadensis

Like bright white stars with fiery yellow centers, this 1-1/4" spring bloomer likes filtered sunlight. As the flowers emerge, its leaves unwrap and expand. Indians used the root for insect repellent and warpaint.

The wildflowers illustrated as well as many others, are now in stock. Simply fill out the order form indicating which bulbs you wish and in what quantity, and we will ship them to you by parcel post. For the best results, wildflower bulbs should be planted in the Fall, thus allowing them their proper period of dormancy.

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Check desired variety:

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Total Bulbs \$ _____
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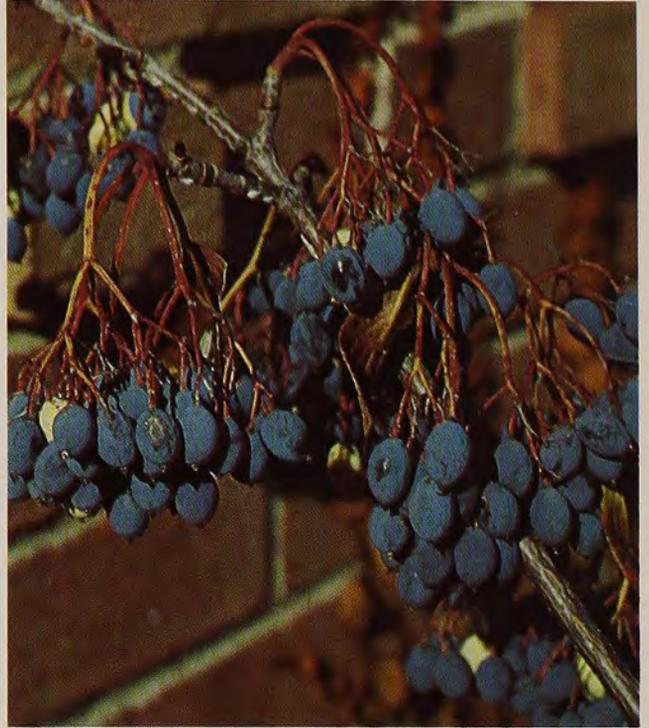
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Viburnum acerifolium



Viburnum rutidolum



IT SHOULD BE



Viburnum plicatum tomentosum



Viburnum trilobum

"If you can have only one shrub in the garden, it should be a Viburnum, and if you can have only one Viburnum, it should be *Viburnum burkwoodii*." That's a very positive statement. When I first heard an eminent horticulturist say it, I'll admit to a bit of skepticism. As experience has increased, however, I have come to look upon the Viburnum as closer to the all-purpose plant touted by my eminent horticulturist. Viburnums that are all commonly available and widely used provide the proof.

Shrubs for Bloom

Fragrance Of all the fragrant Viburnum, *V. carlesii*, the Mayflower Viburnum, is probably the best. A single plant on a warm spring day can be identified twenty feet away even if the bush is completely hidden from view.

much more showy, especially on those shrubs with only sterile flowers. The old-fashioned Snowball Viburnum, *V. opulus sterile*, is probably the most common. It is a very effective plant, but it is susceptible to aphids early in the spring, causing the leaves to become curled, and deformed. It is possible to avoid this problem by choosing the Japanese Snowball Viburnum, *V. plicatum sterile*. The snowball effect is the same as in *V. opulus sterile* but the plant is not nearly as susceptible to aphids. With this in mind, I have asked various people, "Why do you still plant *V. opulus* with its aphid injury?" The answers vary, but one of the more imaginative was one given by a neighbor, who said, "Whenever anybody asks me what's wrong with this plant, I can

able. I especially like the cultivars 'Mariesii' and 'Roseum' but there are others as well.

Shrubs for Fruit

Many Viburnums are known particularly for their fruit, or for their very effective fall color ranging from red to black to yellow to a multiple sequence.

Red Among red-fruited forms, several can be mentioned. *V. opulus* and its similar companions *V. sieboldii*, *V. trilobum* and *V. wrightii*. The fruit of some species will last on the shrub longer than on others. For example, the red fruit on *V. sieboldii* never reaches full color because the birds take it off before it is fully ripe. The plant, however, is still left with red twigs and the effect continues long after the fruit has come off. *V. opulus*, on the other hand, will hold its fruit

Owen M. Rogers,
Professor of
Ornamental Horticulture
University of New Hampshire
Durham, N.H.

VIBURNUM

The problem with this shrub is that *V. carlesii* is most frequently grafted and is subject to a problem called "graft blight." A whole branch or even the entire plant will suddenly die, sometimes many years after planting. There is no cure for graft blight. Therefore, a number of other fragrant forms have been suggested as replacements for *V. carlesii*, including *V. burkwoodii*, *V. carlcephalum* and *V. juddii*. They are all good, but none are so fragrant or so popular as *V. carlesii*. My own favorite is *V. carlcephalum* because of the size of the blooms. The clusters of blooms can sometimes be as much as five inches in diameter. I like it better than *V. carlesii*, but I do have to admit that the fragrance is not so great.

Snowball Bloom

There are both sterile and fertile florets in Viburnums. The fertile ones are necessary for fruit production but the larger sterile ones are

do at least ten minutes on aphids." If you need to do ten minutes on aphids, *V. opulus* has a conspicuous bloom and it will continue to grow in spite of the aphid damage. There is another one, *V. macrocephalum sterile*, the Chinese Snowball, which is recommended by friends in Philadelphia, but is not particularly hardy for those of us who live north of New York City.

Bloom Pattern All of the Viburnums that are grown for their blooms have, in fact, conspicuous bloom. One that I like particularly is *V. plicatum*, because the flowers are arranged in a horizontal branching pattern reminiscent of the flowering dogwood. The flower heads are ringed by a row of sterile florets making them very conspicuous. When one sees these large whorls of bloom marching in regular order along the horizontal branchings, the effect is quite different and, to my mind, very desir-

well into the winter, perhaps all winter. To my way of thinking, it is one of the kinds of fruits that ought to be provided for the birds. The birds do not particularly like it, but along in February when all of the good-tasting fruit is gone and the bird really needs food, these berries provide a means for survival. I do not suggest that people eat the fruits of *V. opulus*. They are particularly sour and quite unpalatable. The red fruits of *V. trilobum* on the other hand are well suited for eating and are available for use in preserves or as a straight condiment. Viburnum sauce is as good as raisin sauce with ham.

Black There are a number of species which have black or blue-black fruits at maturity. They frequently will go through the change from green to a bright color, in some cases red, before they become blue-black at maturity. The species would include the native *V. cassinoides*, *V. lentago* and *V.*

acerfolium, among others.

Yellow There are three yellow-fruited forms in *Viburnum*. They are all forms of species that normally have other colored berries. *V. opulus* 'Xanthocarpum', *V. sargentii* 'Flavum' and *V. dilatatum* 'Xanthocarpum'. These may not be readily available in all nurseries, but the larger ones will have them, and when they are used in combination with the red-fruited forms, it adds depth to the total planting variety (which frequently will improve the planting and give it considerably more effectiveness).

Multicolored Several of the species mentioned under the fruit colors above can be listed as multiple fruit colors because they go through a series of changes before maturity. *Viburnum sieboldii* goes from a green fruit to a black fruit, ultimately to red. As mentioned in many cases they never reach the red stage because the birds consume them. *Viburnum cassinoides* goes from green to pink, red, ultimately to dark blue-black before finally ripening. At certain times it is possible to find all of these colors on an individual bush in a kaleidoscope effect.

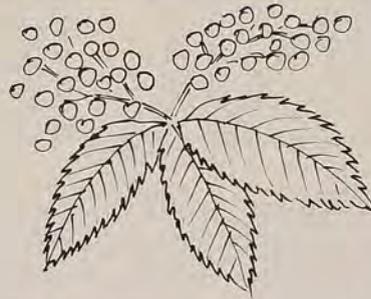
Shrubs for Foliage

In general, the *Viburnums* are known for good foliage. With the exception of the aphid injury on *V. opulus*, most of the leaves are free from serious insect and disease problems and are noted for their dark green, lustrous colors. Some are better than others, and some are evergreen. Most with evergreen foliage are for use in southern regions—from Zone 6 southward—but there is one, *V. rhytidyphyllum*, that is hardy as far north as Zone 4. The species *V. rufidulum* and the species *V. tinus* are perhaps most commonly mentioned for use in areas where the winters are not particularly severe. A number of deciduous forms are known for their brilliant fall color, including *V. prunifolium*, which is bright red, *V. dilatatum*, a russet

red, *V. lentago*, a sort of burgundy color and *V. dentatum* which turns a glossy red even in fairly dense shade.

Shrubs Large and Small

The *Viburnums* range in size from quite dwarf shrubs to shrubs that can be called trees, at least small trees to 30 feet, and are therefore useful in the garden all the way from the floor to the background and possibly even to the shelter elements in a landscape. The premier tree form is *V. sieboldii* which will reach 30 feet ultimately, but *V. lentago* and *V. prunifolium* will also attain a size that can be called a small tree. Whether a plant is a large shrub or a small tree depends on the habit in which it is trained. My own definition of a tree is a plant that has a single, or a small number, of trunks, and a crown, or a head



lifted up from the ground. A shrub, on the other hand, is a plant that has more than one stem and foliage all the way to the ground. Using this definition, *Viburnums* can be either large shrubs or small trees depending upon how they are grown, and this is a facet of *Viburnums* which adds to their versatility in any garden.

The shrub *Viburnums* exhibit a range of forms. Most of the shrubs are large—eight to ten feet—but there are smaller forms of some of these species. Frequently these are identified by the notation "compactum". *V. trilobum compactum* will go to only about 6 feet, and *V. carlesii compactum* is always something smaller than the standard species. *V. opulus nanum* generally will not grow above two to three feet and is often used as a low

hedge, a good use for it since it is a very shy bloomer. In addition, some of the species are useful in containers. *Viburnum rhytidyphyllum* is suggested as a container plant, and *V. tinus* is also one that has proven effective in containers in more southerly locations. I have never grown *V. tinus*. I rely on the advice of my friends in Philadelphia who suggest that it makes a marvelous patio plant. *Viburnum rhytidyphyllum* works well with us and thus provides an evergreen *Viburnum* even in areas where it might not be fully winter hardy. In the container it is possible to move that plant, container and all, to an overwintering area that is more protected than the display spot.

Shrubs for Problem Locations

Viburnums are useful in a number of problem garden locations, such as shady places. Most of the *Viburnums* will withstand moderate amounts of shade, but several are more tolerant than many other plants. *Viburnum dentatum* will stand heavy shade. *V. burkwoodii*, in those areas where it is winter hardy, will also stand a fair amount of shade. Add moisture to that shady area and *V. cassinoides* is an outstanding plant. If, instead of being wet, the area is dry, *V. lentago*, the native nannyberry, is a shrub that will produce, year after year, a good display of green foliage in areas where a great many other shrubs would not survive at all.

And so the list is not complete. If we are lucky, it will never be complete, and there will always be a new form with which to experiment and explore. So far, the *Viburnums* have done everything I've asked of them. I don't suppose I'll ever give up lilacs, roses, or even common forsythia, but it is clear that there is a *Viburnum* for nearly every purpose. Perhaps my eminent horticulturist friend wasn't so far off the mark in his dictum that "it should be a *Viburnum*."

Continued from page 25

Maples for Landscaping

Of course if you want a larger tree for shading the house to reduce air-conditioning costs, you may be interested in one of the selections which were over 30' in ten years. These trees were: *A. platanoides* 'Emerald Queen', *A. pseudoplatanus purpureum*, *A. rubrum* 'Armstrong', *A. r.* 'Bowhall', *A. r.* 'Red Sunset', *A. r.* 'Scanlon', *A. r.* 'Schlesinger', *A. saccharum*, and *A. s.* 'Sweet Shadow'.

If you wish to shade a patio, a tree with wide spreading branches will be needed. Those trees which had a branch spread of over 20' in 10 years included: *A. negundo*, *A. platanoides* 'Emerald Queen', *A. p.* 'Schwedler', *A. p.* 'Summershade', *A. p.* 'Superstrain', *A. pseudo-platanus purpureum*, *A. rubrum* 'Autumn Flame', *A. r.* 'Red Sunset', *A. r.* 'Schlesinger', and *A. saccharum*.

The named cultivars in this trial are reproduced by budding on



seedling roots and produce trees which are very uniform in growth habit when compared to seedlings of the species which also have been grown in the trial. Thus you may obtain narrow columnar trees such as *A. rubrum* 'Armstrong', *A. r.* 'Bowhall', *A. r.* 'Scanlon' or a flattened ball shaped tree such as *A. platanoides* 'Globe' or most shapes in between.

Although maples are not considered to be flowering trees, some varieties of *A. platanoides* such as 'Fassen's Red Leaf' and 'Cleveland' or *A. rubrum* such as 'October Glory' and 'Red Sunset' are colorful in bloom. The *A. rubrum* varieties are among the earliest blooming trees each year.

Colored foliage during the summer is the outstanding feature

of five selections. If you want a cool appearing white and green accent plant in your garden either the round spreading *A. negundo variegatum* or the tall upright *A. platanoides* 'Drummond' would be good. The three Norway maples which have maroon red foliage all summer are quite similar but there are differences. 'Crimson King' grew slightly taller, 'Fassen's Red Leaf' grew wider and 'Royal Red' was the least vigorous. There was also a slight difference in the rate of foliation and defoliation. The order for both processes was 'Fassen's Red Leaf', 'Royal Red', and finally 'Crimson King'.

Trees with exceptionally good fall color every year in our unfavorable climate were *A. griseum*—red, *A. platanoides* 'Emerald Queen'—yellow, *A. rubrum* 'Autumn Flame'—light red, *A. r.* 'Red Sunset'—red, *A. r.* 'October Glory'—red, and *A. truncatum*—yellow to red. A larger group of

trees will have good fall color most years. This group includes *A. buergerianum*—red, *A. ginnala*—yellow, orange, and red, *A. platanoides* 'Cleveland'—yellow, *A. rubrum* 'Bowhall'—orange-red, *A. r.* 'Scanlon'—orange-red, *A. r.* 'Schlesinger'—orange-red, and finally *A. saccharum*—orange and red.

The *A. rubrum* varieties 'Autumn Flame', 'Red Sunset' and 'October Glory' provide continuous fall color from late September or early October to November. First to color is 'Autumn Flame' then comes 'Red Sunset' and finally each November—'October Glory' becomes a star attraction.

Maples are one of the most adaptable groups of trees. They grow in a wide variety of soils and climates. They are one of the easier trees to transplant so are a good choice for the beginning gardener or the professional gardener.

Continued on page 38

Home Gardener, Redwood

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TABLE I—Average Height and Width of Maple Cultivars After Five* and Ten Years in the Landscape Tree Trial at the North Willamette Experiment Station

Cultivar	Average Height in Feet			Average Width in Feet			E.M.H. **
	At Planting	At 5 Years	At 10 Years	At Planting	At 5 Years	At 10 Years	
<i>Acer buergerianum</i> Trident Maple	1.3	10.4		1.9	8.7		20'
<i>A. campestre</i> Hedge Maple	9.1	17.2	25.8	3.1	10.8	15.0	40'
<i>A. capillipes</i>	2.6	12.9		1.7	8.8		30'
<i>A. circinatum</i> Vine Maple	4.0	10.4		2.2	6.9		15-25'
<i>A. ginnala</i> Amur Maple	9.6	12.9	20.8	2.6	8.7	18.3	25'
<i>A. griseum</i> Paperbark Maple	2.4	8.1		1.6	4.4		25'
<i>A. macrophyllum</i> Bigleaf Maple	3.6	20.7		0.8	17.9		50-60'
<i>A. negundo</i> Box Elder	11.9	17.8	28.2	3.0	11.5	20.5	50'
<i>A. negundo variegatum</i> Variegated Box Elder	8.0	14.2	23.3	2.5	9.9	17.1	45'
<i>A. platanooides</i> 'Cleveland' Cleveland Norway Maple	10.5	21.0	28.5	2.0	8.5	18.9	50'
<i>A. p.</i> 'Columnare' Columnar Norway Maple	4.2	17.8		0.0	7.8		50'
<i>A. p.</i> 'Crimson King' Crimson King Norway Maple	6.1	16.4	25.5	0.0	7.6	16.5	45'
<i>A. p.</i> 'Drummondii' Drummond Norway Maple	3.0	17.8	26.8	0.0	6.5	13.9	45'
<i>A. p.</i> 'Emerald Queen' Emerald Queen Norway Maple	7.3	23.0	33.5	0.0	12.2	20.7	50-60'
<i>A. p.</i> 'Fassen's Red Leaf' Fassen's Red Leaf Norway Maple	9.6	16.1	23.2	1.5	7.4	19.3	40-45'
<i>A. p.</i> 'Globe' Globe Norway Maple	6.3	11.1	14.8	1.0	6.9	14.0	20-25'
<i>A. p.</i> 'Green Lace' Green Lace Norway Maple	7.5	15.0		2.6	11.0		40'
<i>A. p.</i> 'Jade Glen' Jade Glen Norway Maple	9.7	17.3		0.0	10.2		50'
<i>A. p.</i> 'Royal Red' Royal Red Norway Maple	7.0	16.1	22.3	0.2	6.4	15.0	45'
<i>A. p.</i> 'Schwedler' Schwedler Norway Maple	7.5	16.6	24.6	0.9	8.8	21.9	50-55'
<i>A. p.</i> 'Summershade' Summershade Norway Maple	5.6	18.1	25.5	0.9	11.0	21.9	55-60'
<i>A. p.</i> 'Superstrain' Superstrain Norway Maple	7.0	20.7	29.6	0.5	15.4	21.5	55-60'
<i>A. pseudoplatanus purpureum</i> Spaeth Sycamore Maple	10.8	23.3	36.2	1.6	12.7	22.1	60-65'
<i>A. rubrum</i> 'Armstrong' Armstrong Red Maple	4.8	25.5	36.8	1.0	6.9	12.8	50-55'
<i>A. r.</i> 'Autumn Flame' Autumn Flame Red Maple	6.3	15.6	27.4	1.1	12.5	25.8	40-45'
<i>A. r.</i> 'Bowhall' Bowhall Red Maple	5.2	20.6	32.6	0.8	5.8	9.8	45-50'
<i>A. r.</i> 'October Glory' October Glory Red Maple	6.1	18.6	28.1	2.1	10.1	19.1	50'
<i>A. r.</i> 'Red Sunset' Red Sunset Red Maple	5.7	22.3	30.9	2.3	11.2	22.0	50'
<i>A. r.</i> 'Scanlon' Scanlon Red Maple	10.8	22.8	34.4	2.6	6.0	11.2	45-50'
<i>A. r.</i> 'Schlesinger' Schlesinger Red Maple	8.4	23.5	33.5	3.4	13.6	23.5	50'
<i>A. r.</i> 'Tilford' Tilford Red Maple	9.8	15.8		0.0	7.0		45'
<i>A. rufinerve</i> Red Vein Maple	1.4	10.6		0.7	7.2		25-30'
<i>A. saccharum</i> Sugar Maple	9.9	18.5	33.2	2.4	7.6	25.8	70-75'
<i>A. s.</i> Green Mountain Green Mountain Sugar Maple	8.3	18.6	28.8	1.1	7.7	18.5	60-70'
<i>A. s.</i> Sweet Shadow Sweet Shadow Sugar Maple	10.1	18.2	31.6	3.9	7.9	14.4	60-70'
<i>A. truncatum</i> Purpleblow Maple	2.7	9.3		1.5	9.8		20-25'

*Five year measurement only on Trees planted in 1968-71

**E.M.H. = Expected Mature Height

PLAN NOW FOR A SCENTED SPRING

The hyacinth is one spring flower which not only adds beauty to the garden but also adds the scent of the seasons and now, in the fall, is the time to plant this beautiful spring blooming bulb. No other flower is so delicate nor does any other have the soft sweet aroma of the hyacinth.

The hyacinth dates back to the early days of printed history. A Grecian myth tells how the flower received its name. As the story goes, Hyacinthus was a gifted and handsome mortal youth beloved by Apollo, the sun god, and also by Zephyrus, god of the west wind. Hyacinthus preferred to spend many hours with Apollo and, in a fit of jealousy, Zephyrus slew the youth. Apollo vowed that the beauty of young Hyacinthus al-

ways would be remembered and from the blood of the slain youth he caused a path of fragrant purple flowers to spring up.

Hyacinths are members of the lily family and are a dainty, yet dignified and stately flower. They can be purchased in a variety of colors and are one of the easiest bulb flowers to plant. If you spend an hour intermingling the hyacinth with other spring flowers, or plant complete beds of this lovely harbinger of spring now, they will delight you, your neighbors and friends next April and May. But you must plant them in the fall to enjoy them next spring.

Plan Your Hyacinth Bed

Hyacinths are suited to any garden, large or small and every plant-

ing situation. In formal clusters of six or eight, they are ideal in front of evergreens around your home, at your doorstep, in the foreground of a perennial border, along a path or in small groups among rocks with other early-blooming bulbs.

Through the efforts of Holland's expert hybridizers, hyacinths now come in a wide range of colors. In addition to the traditional blues, they bloom in bright red to soft pink, from lavender to sky blue, from yellow to yellow-white to various shades of orange. In making your selections remember to include some of the bright accent colors along with the pastels.

Hyacinths are fine for planting with other flowers, especially Species tulips, miniature daffodils and minor bulbs such as Grape

Continued on page 41



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Publications

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TURNER GREENHOUSES

Continued from page 39

Scented Spring

Hyacinth (Muscari), Scilla, Crocus, etc. Choose red, blue and purple hyacinth varieties to contrast with clumps of yellow or cream-colored daffodils. White and blue hyacinths blend beautifully with pink and red azaleas. For a most striking floral interplanting, group hyacinths together with the low-growing Species tulips which have large, brilliant blossoms. Also, consider planting hyacinths around light-leaved trees or beneath flowering crabapple or cherry trees. Plant them at the base or in between shrubbery.

Hyacinths are excellent planted in borders and along garden paths with pansies, violas and forget-me-nots. Select two or at most three color tones and choose companion plants from those you like best. Contrast purple and blue hyacinths with yellows, harmonize pastel shades with whites or combine varying pinks and rose with whites. Always remember, the simpler the grouping the more effective it will be.

The following introductory list should serve as a guide—however, expand your collection by checking your local supplier to see what he has available.

When to Plant

Hyacinths are exceptionally easy to grow. Plant in the fall before the first frost in well-drained soil. Set the bulbs six inches deep and six inches apart. A two-inch layer of mulch will protect the bulbs from heavy freezing during the winter. Remove it when spring arrives.

If you live in the southern part of the United States you can plant hyacinth bulbs in December or even as late as January. You should select a shady area where the soil will be cooler, water thoroughly after planting and make sure that the bed never becomes dried out. A mulch, consisting of a 2-inch layer of straw, salt hay, buckwheat hulls or similar material, should be placed over the beds to keep the soil cool and moist during the winter months. If bulbs are purchased in September they should be refrigerated until planting time in December.

HYACINTH COLOR GUIDE

WHITE

Carnegie: pure white, large broad spike, late flowering.

**Edelweiss*: creamy white, large fleshy bells, early.

**L'Innocence*: pure white, large truss, loosely set bells, early or late

YELLOW, BUFF, ORANGE, SALMON

**Orange Boven* (Salmonetta): apricot salmon, compact truss, early

City of Haarlem: primrose yellow, large truss, favorite yellow for bedding.

Yellow Hammer: creamy yellow, short sturdy spike, close set bells, early

BLUE, MAUVE, LILAC, VIOLET, PURPLE

**Bismark*: porcelain blue, early.

**Delft Blue*: clear shining porcelain blue, large spike, very early.

Grand Maitre: deep lavender blue, old favorite.

King of the Blues: rich, dark indigo-blue, compact spike, late.

**Ostara*: finest, darkest blue with almost black stem.

Perle Brilliant: very pale ice blue, large bells.

Queen of the Blues: clear azure-blue, old favorite, late.

PINK, ROSE, RED, MAROON, SCARLET

**Anne Marie* (Ann Mary): bright pink changing to salmon pink, early.

Cyclops: bright rose-red deepening as flower ages, large bells, late.

**Jan* (John) *Bos*: bright crimson red, early.

**La Victoire*: bright carmine red, well-filled, strong spike, early.

**Pink Pearl*: fine clear pink, broad spike, large close-set bells, early.

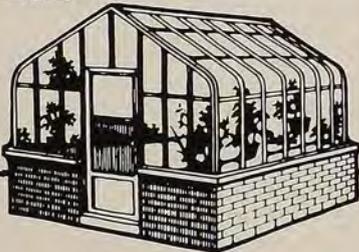
Princess Irene: silvery rose-pink, sport of Pink Pearl early.

Queen of the Pinks: bright rose-pink, compact spike, late.

*Varieties that are easy forcing indoors in Winter.

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BOOKS

Reviews by Tom Stevenson

HOW TO PLAN YOUR OWN HOME LANDSCAPE

by
Nelva M. Weber
Photographs by Molly Adams
Bobbs-Merrill

Indianapolis/New York—1976
285 pages, well illustrated, \$11.95

Nelva M. Weber is director of the Horticultural Society of New York. She earned an advance degree in landscaping architecture at the University of Illinois and has planned landscapes for many private homes, schools, city parks and playgrounds. Molly Adams' photos have been widely published in the New York Times Sunday Garden Section, House & Garden and Audubon magazines.

Landscape design makes use of the same principles which are inherent in all good art, says Author Weber, simplicity, good scale, balance, sequence and focalization.

"These principles are the guidelines in designing each outdoor feature—a flower garden, a shrub border, or a pool—but they also apply to the complete landscape design which represents the logical, unified arrangement of the individual elements comprising the whole.

"A good design should be simple—there should be no cluttered, or extraneous items, or unnecessary frills. Each part should be in good scale or proportion to the property.

"Plants are used to attain privacy and to enclose outside spaces; they give contrast between open sunny spots and the secluded shady ones. They provide cover overhead and their shadows add interest and detail. Plants modify the abrasive elements of the climate and play a part in noise and pollution control. Not the least in importance, plants add social and spiritual amenities available in no other way."

Part I of the book stresses pre-planning—the importance of analyzing the needs and desires of the family, and the wisdom of trying optimum solutions in advance of actual execution.

Part II gives guidelines and presents various solutions applicable to the design and layout of outdoor spaces: an attractive and workable public space for entering and parking, a small but efficient service space and, most important, private outdoor space associated with the good life—terraces, lawns, gardens, recreation areas and

enclosures with privacy.

Part III deals with practical improvements and refinements which add comfort, economy and safety to the landscape plan.

MUSHROOMS OF NORTH AMERICA

by
Orson K. Miller, Jr.
E. P. Dutton & Co.
New York—1976

360 pages, beautifully illustrated, \$19.95

Dr. Orson K. Miller, Jr. is an associate professor of botany at Virginia Polytechnic Institute and State University where he teaches mycology. Before that he was a mycologist for five years at the Forest Disease Laboratory, U.S. Forest Service, Beltsville, Md. He is also visiting associate professor of botany at the University of Montana Biological Station where he teaches a summer course in mycology.

For many years it has been my conviction that a mushroom book should be published to satisfy the needs of all types of possible users, says Dr. Miller, which includes the casual observer, the ardent amateur mycologist, and the student of biology.

The book contains an introduction on how, when and where to collect mushrooms with detailed descriptions of 422 species, usually including size, shape, texture and color of cap, stalk, gills, ring, veil and spores, and information about growth habit, chemical reaction of spores, edibility, hallucinogenic properties, frequency, distribution, special relationships, seasons of occurrence, alternate names, related species, tasters' experiences, and cooking notes.

There are 292 superb color photos, most of them showing several views of each species and a special section on mushroom toxins.

"For centuries the mushroom has been looked upon as a staple food by some and a gourmet's delicacy by others," says Dr. Miller. "Mushrooms, in fact, may be used for hors d'oeuvres, in soups, raw in salads, in sauces, relishes and gravies, as a garnish for meats and vegetables, as a vegetable, and as the major ingredient in casseroles, omelettes and main dishes. They may also be used as ingredients in bread and cookies, or in pickled or candied form. A selected group of recipes is included in the Appendix.

"Many people believe that all

toadstools are poisonous and that all mushrooms are edible. But there is no broad group of poisonous fungi. Toxins are found in many different families of mushrooms. The only safe way is to learn to recognize which are edible and which are poisonous.

"Most toxic species are not fatal to man. Even when eaten in quantity, they produce only nausea, act as a laxative, or induce mild hallucinations. Unfortunately, a small number of mushrooms have toxins that are fatally poisonous while others affect the central nervous system and are very debilitating.

"They are discussed (in the book). It should, however, be remembered that very few of the total number of mushrooms have been tested."

ADVANCES IN FRUIT BREEDING

edited by
Jules Janick and James N. Moore
Purdue University Press
West Lafayette, Ind.—1976
623 pages, illustrated, \$25.00

Dr. Jules Janick is professor of genetics and plant breeding (fruit), Purdue University, and Dr. James N. Moore is professor of plant breeding, University of Arkansas.

"It is our hope," they say, "that this book will be a useful reference source for professional fruit breeders as well as amateurs. We especially intend this for students of fruit breeding and for young plant breeders entering the important and exciting profession of developing new fruit cultivars for the enjoyment and benefit of mankind.

"To accomplish our aims we have solicited outstanding breeders of specific fruit crops as authors. These scientists have not only reviewed the available scientific literature but have included many observations and data of their own not previously recorded."

While the breeder's art is critically important, the editors say, knowledge of the laws of genetics has transformed plant improvement into a truly scientific discipline in its own right.

"Progress in crop improvement has brought tremendous changes in this century.

"The impact of this new discipline (genetics) on the fruit industry can be seen in the superior cultivars being grown in orchards, vineyards and plantations."

The book is dedicated to Dr. George M. Darrow, premier breeder of straw-

berries and blueberries, "whose research accomplishments, spanning a career of 46 years with the U.S. Department of Agriculture "are unparalleled in the history of fruit cultivar improvement."

"In strawberries," says Dr. John R. Magness, U.S. Department of Agriculture (retired), Takoma Park, Md., who wrote the dedication, "it is estimated that 30 per cent of the area grown in the United States is of cultivars introduced from the USDA breeding work which Darrow initiated and conducted for nearly 40 years.

"Another 40 per cent is of cultivars derived in part from breeding material originated in that program, but developed by others.

"Certainly, the accomplishments of Dr. Darrow in the field of cultivar improvement of strawberries and blueberries is without precedent."

The book covers all fruits, such as strawberries, grapes, blueberries, peaches, apples, pears, plums, citrus, avocados and figs and nuts such as pecans, hickories, walnuts, filberts, and chestnuts.

In an evaluation of the book, Dr. Cecil Stushnoff, associate professor of fruit breeding, University of Minnesota, says he had long wondered why there was not a comprehensive book on the subject of fruit breeding.

"Professional fruit and nut crop breeders, young plant breeders and students," says he, "will find this book a must in their library as a valuable storehouse of information, greatly increasing the convenience of assimilating crop knowledge and breeding perspectives. The literature citations are complete and up-to-date and are particularly valuable as a comprehensive collection in a single volume.

"The book is not intended to be a 'principles' of plant breeding textbook, although the astute reader can dig these out of each segment. On the other hand, it is a comprehensive, informative, well-organized and well-written book on fruit and nut crop breeding."

THE TREASURY OF HOUSEPLANTS

by
Rob Herwig and Margot Schubert
Macmillan Publishing Co.
New York-1976

368 pages, well illustrated, \$12.95

This book was originally published in Dutch as Het Grote Kamer Planten

boek. Rob Herwig is an internationally known plant expert and author. Margot Schubert is a leading horticulturist.

Donald Wyman, horticulturist emeritus, The Arnold Arboretum, Harvard University, had this to say about the book: It is tops . . . it should become a standard work on the subject.

Illustrated with more than 335 full-color photographs and 100 drawings, the book tells how to select the plants best suited to the light, temperature and humidity conditions of your house or apartment or office, and how to take care of them. More than 1,000 kinds of houseplants are covered.

The five factors, the authors say, are light, humidity, temperature, water and nourishment. Naturally, these also embrace the wider issues of situation, comparative room temperature, periods of rest and growth and other details with which one must be familiar to enable the plants to thrive.

"If one of these factors is lacking the plant may suffer, for instance, where we force a plant used to shade to live in a sunny window situation or another, whose origin was in a soft-water area, to endure hard and often excessively cold water.

"Another instance of cruel treatment is where a plant requiring cool surroundings during its dormant period is forced always to remain in a normal room temperature with its dry atmosphere."

Books Received in AHS Library

GARDEN TREES
by
Editors of *Sunset Books*
Land Publishing Co.
February 20, 1975
96 pp. illustr. b/w
\$2.55

WILD AND OLD GARDEN ROSES
Edwards, Gordon
Hafner Press (Macmillan Publishing Co.)
1975
162 pp.; 31 color plates; line illustrations
\$9.95

PLANTS IN TUBS, POTS,
BOXES AND BASKETS
Johns, Leslie
Van Nostrand Reinhold
Jan. 20, 1975
114 pp. illustr. b/w
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Barriers

Questions

By Tom Stevenson

Q: I am going to plant a small vegetable garden in the spring. The plot has been a so-so lawn for many years. Is there anything I can do this fall to help prepare this for planting in the spring?

A: Specialists at USDA Agricultural Research Service say it is better to dig the plot in the fall. Alternate freezing and thawing during the winter will help improve the condition of the soil.

If practical, have your soil tested to determine if lime and fertilizer are needed. Without a soil test, the general recommendation for the East, where most soils are somewhat acid, is to spread ground limestone and 5-10-5 fertilizer at the rate of about 10 pounds of each per 100 square feet before digging.

When spading, do not turn the sod completely upside down but rather at an angle. The sod will decay and provide organic matter for the soil. Many kinds of insects in the soil, such as cutworms, may be killed by fall digging.

Q: A busy highway is only 100 feet from our house. Are there trees and shrubs we can plant to reduce the noise?

A: A home near a highway has disadvantages if there is a lot of traffic. Eyes, ears and nose are offended by sight, sound and fumes of motor vehicles. There has been a lot of research on the problem in the United States, Canada, Great Britain and other European countries. In many cases, certain kinds of plants can be used effectively to get relief.

Barriers of vegetation will not completely eliminate sound, no

matter how tall, dense or wide. Trees and shrubs, however, can effectively reduce noise from a disturbing to an acceptable level.

Dr. Carl E. Whitcomb, associate professor of plant ecology, Oklahoma State University, tested four hedges of different woody ornamental shrubs and says he definitely found them to be effective in reducing noises.

Here are some of the evergreen shrubs that could be used for hedges to reduce noise:

Ilex cornuta Burfordi (Burford holly), *Taxus cuspidata Hatfieldii*, *Ligustrum japonicum*, *Eleagnus pungens*, and *Osmanthus ilicifolium*.

The hedge should be planted as close as possible to the source of the noise. Density, height and width are critical factors. In general, the louder the noise, the denser, taller and wider the hedge should be.

Extending the hedge (making it longer) a short distance beyond the protected area is best for maximum effectiveness. For best results, there should be 75 feet or more between the hedge and the house and this area should be planted in grass. A hedge planted close to the house is less effective and one midway between the noise source and the house appears to be the least effective in most cases.

Q: I have a black walnut tree in my yard around which virtually nothing will grow. It stands in the ideal spot for a vegetable garden. The question is, if I have the tree removed, how long will the toxin from the roots affect the soil?

A: Not all kinds of plants are adversely affected by the roots of a black walnut. Tomatoes and

and Answers

potatoes apparently will be damaged if the walnut tree roots touch their roots, also apple trees, rhododendrons, azaleas and mountain laurel, among others.

Beets, snap beans and corn apparently are not damaged by walnut tree roots, nor are peach, cherry, plum or pear trees, or most kinds of grasses.

It is believed that juglone is the toxic constituent of the walnut. Roots of susceptible plants must be in close contact with the walnut roots for damage to occur. The toxic substance is not generally distributed in the soil around the walnut roots but is localized in the vicinity of the walnut roots. There is no conclusive research available on how long the walnut roots remain toxic after they are dead.

Q: We have just had three trees cut down with stumps remaining. What can I buy or do to get rid of them?

A: Stumps can be pulled out (by a bulldozer), burned out, chipped out (by a stump axe such as the Bles Stump Axe of Alban Tractor Co.) or rotted out.

The easiest and cheapest method is to rot them. Cut the stump off at ground level or below, cover what is left with soil, and keep it moist. Nitrogen fertilizer applied to the soil can speed up the rotting process which also can be hastened by boring several vertical holes in the stump before it is covered.

The stumps can be destroyed by treating them with Stumpfyre, a mixture of four chemicals, in spring or early summer. The chemical is allowed to diffuse through

the wood for 2 to 3 months and then the stump is burned. Start the burning after a 10-day dry period in August or September. The stump may smoulder for 3 or 4 weeks. The time depends on the size of the stump, the weather and know-how. Obviously, it should not be attempted by those who do not know exactly what they are doing.

The stump axe will remove a large stump in a few minutes. The Tree Divisions of most large cities remove stumps with stump axes.

Q: We have a big oak tree in our yard and have been advised to have lightning rods installed on it to protect it from being struck by lightning. Is it a good idea? We would not want to take a chance on losing it.

A: Trees are struck by lightning and many trees die every year because of it. The general recommendation is to give lightning protection to valuable trees growing near homes and other buildings and on lawns. This means installing a loosely-woven copper cable from the tips of the main branches down the trunk and grounded deep in the soil 20 to 25 feet from the trunk. A bolt striking the tree would then be harmlessly grounded.

Some kinds of trees attract lightning more than others. Tall trees are more likely to be struck. Those growing in the open, singly or in groups, are in more danger than those in a forest.

Oaks are hit frequently. A beech is seldom struck. The elm, pine, ash, poplar, and maple, in that or-

der, follow the oak in being more susceptible as targets during an electrical storm.

Q: Two years ago I purchased a rose bush labeled 'Forty-Niner' and planted it near my other rose bushes. I have given it the same care as all the other bushes. The leaves and stems are the most healthy of any of my 10 rose bushes, but it has never bloomed. Is there a way to force it to bloom, or should I forget it and stop trying?

A: Almost all roses sold commercially are produced by budding. Forty-Niner, for example, was propagated by taking a plump bud from a Forty-Niner plant and inserting it into the stem (for root-stock) of a different kind (rugosa and multiflora are often used as root-stock). This is for the purpose of giving the plant added hardiness and vigor. Budded roses often throw up suckers or shoots from below the budding point. These shoots, if allowed to remain, will overcome the Forty-Niner part, because they are so much stronger, and the entire plant will then be of the root-stock variety.

In all probability, something happened to the Forty-Niner part of your plant and now you have a different kind, which may or may not produce clusters of small flowers as time goes by. This emphasizes the importance of removing all suckers or shoots that originate below the budding point. Inspect your plants regularly for such growths and remove them as soon as you see them. Remove them at their point of origin on the root-stock.

