

American

Horticulturist



Volume 56 Number 6 Winter, 1977

A Prelude to Spring

the American Horticultural Society visits Charleston

April 9-12, 1978



From the moment you are registered at the historic Mills Hyatt House you will witness a rebirth of antebellum elegance. Your headquarters hotel is the oldest in Charleston; it is also the newest. It opened its doors in 1853, when Charleston was the "Queen City of the South" . . . rich, sophisticated, urbane. The Mills Hyatt House served as a center of refinement and gracious living. Recently this landmark was reconstructed and preserved as a focal point in Charleston's historic district. You will find the Mills Hyatt House one of the most unusual and handsome hotels in America.

You are invited to join us and experience the charm of Charleston, a city that combines a unique gardening heritage, antebellum architecture, and modern facilities.

Charleston is in many ways unique, for she was the first American city to protect and preserve the fine old buildings and gardens which have witnessed so much history. Today many of the homes still remain with the families that built them. As Charleston enters the third century, reminders of the agricultural empire it ruled are still apparent, yet today it offers a new look at an antique way of life—one that encompasses the warp and woof of the entire history of America. We are going to sample its easy pace, its elegant culture and gardening excellence. Come experience it with us.

HIGHLIGHTS OF THE 3-DAY PROGRAM

- Walking tours of the Battery Area gardens, courtyards and historic properties, sponsored by the Garden Club of Charleston. Some of the finest Charleston properties will be open for your inspection.

- A visit to Middleton Place, America's oldest landscaped gardens, with its artistry of green sculptured terraces, butterfly lakes and reflecting pools and quaint wooden bridges. (Cocktails, dinner, musical entertainment and tour.)

- Drayton Hall, the finest untouched example of Georgian architecture standing in North America, located on the Ashley River and surrounded by more than 100 acres. (Lunch and tour sponsored by the National Trust for Historic Preservation.)

- Charles Towne Landing, 200-acre exhibition park graced with ancient live oaks flanked by azaleas draped with grey lace Spanish moss. Wander through the English park gardens with acres and acres filled with hundreds of trees and flowers arranged to provide interest and beauty. (Lunch, animal forest tour, guided tram rides.)

- Magnolia Plantation and Gardens. Since the Civil War, Magnolia has been one of the top garden attractions in America. There are miles of flora and birdwatching trails that wind through the 400-acre refuge.

- Educational discussions by Dr. T. L. Senn of Clemson University on the significance of horticultural therapy; Dr. Richard D. Porcher of The Citadel on the native flora of the South Carolina coastal plain; and Mrs. Frances Edmunds, on the history of Charleston, at historic Hibernian Hall.

You soon will be receiving a more complete brochure describing our "Prelude to Spring" in Charleston. If you wish a final schedule, accommodation card and rates, please write: AHS Tour Committee, Mount Vernon, Virginia 22121.

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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COVER PHOTO: Dogwood and Ice by Elizabeth Friedman

An Editorial

Tree Protection

Many parts of the country experience severe thunderstorms with considerable lightning damage to trees. When a valuable tree suffers serious damage, property values are adversely affected.

Although the cost of material and insulation often makes lightning rod protection on a great number of trees impractical, nevertheless the larger, more susceptible trees should be protected with a lightning grounding device. The most susceptible trees are softwoods, particularly the tulip poplar, poplar, willow and elm.

It is recommended that professionals be employed to install lightning rod protection. A poorly-engineered system or one with inadequate grounding can be more dangerous and cause more destruction than no protection at all.

In the photo (right) the Davey Tree Expert Company is installing lightning rods in the 110 ft. tulip poplar that protects and shades the east side of the Society's River Farm headquarters.

The protection of trees by means of lightning rods is brought about in two ways. In the first, the extension of a suitably grounded metal conductor above the tree tends to release the earth's neutral charge continuously into the air and neutralizes the positive charge from the clouds. When this is done, no violent discharge takes place.

The second function is to conduct the lightning spark into the ground with little or no damage when a discharge takes place. The grounding device does this by offering a path of least resistance from the top of the tree into the ground beyond the tree's roots.

We have all seen trees shattered by a lightning stroke. Damage is caused by the heat and mechanical forces generated in the woody parts of the tree which resist the passage of electricity. By using a properly installed grounded lightning conductor, the lightning stroke which would normally shatter a tree passes harmlessly to earth. □



Colonial Williamsburg invites you to take a fresh new look at gardening, April 2-5.



This year at Colonial Williamsburg, the 32nd annual Garden Symposium offers you an exceptional opportunity to learn first-hand many new and traditional gardening techniques while you experience the special springtime charm of our Historic Area.

During this exciting four-day event, presented in association with the American Horticultural Society, we invite you to participate in demonstrations of pruning, mulching and brick-work in our colonial gardens, as well as watch a master at work, the internationally-acclaimed English flower arranger, George W. Smith. You'll enjoy a special tour to nearby Norfolk featuring the Chrysler Museum and several historic houses, top speakers, award-winning films from the American Horticultural Society's film festival, an Early Risers' Birdwalk, a candlelight concert at Bruton Parish Church, and the delicious grand finale of the annual Gardeners' Banquet.

Since reservations must be accepted as they are received, we strongly recommend that you make plans now to attend what promises to be an exciting experience in gardening in the town where America grew.

Colonial Williamsburg's 32nd annual Garden Symposium April 2-5

Presented in association with the American Horticultural Society.
For a detailed program and registration information, write Mrs. Peggy W. Sabol, Registrar,
Williamsburg Garden Symposium, P.O. Box C, Williamsburg, Virginia 23185.
Or call (804) 229-1000; Ext. 2370.

TREES IN TUBS

Linda Yang
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New York, NY 10021



Grow a tree in a tub? Sure you can. We city folk have been doing it for years. And what we've learned on our rooftops, balconies and pent-houses can be put to good use in the suburbs as well.

Maybe you're thinking about the containers on your own paved patio or deck. But possibly you're also concerned with relieving the miles of desolate asphalt at parking fields and shopping center malls. Why not improve the quality (and quantity) of plants grown in containers there, too?

To begin with, we city slickers tend to be more original in the kinds of plants we use in tubs. We do our share of petunia and tomato growing, to be sure. But a wide assortment of woody plants have also

proven themselves suitable for tub culture.

How to decide which trees or shrubs to use? Important first are considerations of the species' local hardiness, the available light in the proposed planting area, available space and budget.

But I've found that these practical considerations often fall by the wayside since choosing plants for tubs is ultimately the same as for any other garden . . . strictly subjective.

To me, the important question is: *will the plant be of interest in more than one season of the year?* Here in the New York City area, several attractive trees for tubs are the Japanese dogwood (*Cornus kousa*),

autumnal Flowering Cherry (*Prunus subhirtella* 'Autumnalis'), sourwood tree (*Oxydendrum arboreum*), and mountain ash (*Sorbus americana*).

The dogwood and mountain ash both have flowers in the spring and berries and good color in the fall. The cherry flowers in the spring too, but is a special delight as winter approaches. For after the leaves have dropped, it flowers once again. (My own tree never fails to confuse the neighbors who come running to tell me that the plant's timetable has gone awry.)

Although the sourwood leafs out rather late in spring, it makes up for this by its lengthy summer display of flowers. These remain well into winter as graceful white seed pods . . . a spectacular contrast

with the crimson fall foliage.

While needle evergreens such as yews, arborvitae and junipers are certainly useful for winter interest, I prefer the *flowering broadleaved* evergreens. Plants such as rhododendron, azalea, leucothoe, and even mountain laurel, do very well in tubs.

A special treat is in store for the gardener with leucothoe when the leaves turn a bronze-red in the fall. This is true, too, for a hybrid rhododendron known as "PJM". The PJM is a particularly attractive container plant with leaves much smaller than the classic rhododendron and lilac-colored flowers which appear much earlier in spring.

Unusual specimen plants are particularly appreciated when isolated in tubs. Imagine if you will, a well-pruned Japanese cut-leaf maple trained to cascade over the side of an old oak barrel. Yet, even the humblest of species can be pruned and trained for visual delight.

Cotoneaster, firethorn, quince and barberry are a few of the many inexpensive, excellent plants which lend themselves especially well to container growing and pruning artistry. This can be a real advantage when the planting budget is minimal.

Vines and climbers, too, can be grown successfully in tubs. Some, like the silverlace or honeysuckles, are such rampant growers that frequent root pruning will be required to keep them content in a small container. So rather than struggle, it's better to select one of the less rapid growers, such as the climbing hydrangea (*H. petiolaris*). This plant supports itself with little rootlets which will cling to any rough surface. Once it's established, it will have early summer blooms of graceful white, flat-topped flowers.



(These, in no way, resemble the snowball puffs of the shrub hydrangea.)

If a riot of color in summer is more to your liking, consider vines of clematis. If you select wisely from among the numerous varieties, you can have flowers virtually non-stop from spring to fall. When the blooms are done, the spidery looking seed pods will remain as decorative mementos. Clematis vines are twiners, so be sure to give them some heavy cord to wrap themselves around.

For sheer color choice, however, roses can't be beat. And as long as we're considering climbers now, do think about climbing roses. They won't cling to the wall or fence without some help, but if you've no trel-

lis, you can keep them in place nicely with nails and plastic ties.

Are *all* of these trees, shrubs and vines *really* container plants, you ask? Absolutely! And what's more, growing them in containers enables you to have a lime-tolerant plant such as the clematis right next to an acid-tolerant plant, like rhododendron.

Once you've selected the plants that you like, which are hardy in your zone, the key to year-round survival of outdoor container plants is the *size of the tub* in which they are grown. It must be large enough to support root life comfortably all year long. Since the soil acts as a buffer against the cold, the more soil there is, the better off the plant. Thus, it's best to have as big a tub as you have room for.

Here in the New York City area, a minimum size tub is about 15 inches (measured in all directions). But *bigger* is definitely better! for the more soil in the tub, the more area in which may be stored an ample supply of both *nutrients and moisture* for the plant. Water especially is a critical factor in the health and life of container plants. (This subject was covered by me in detail in AMERICAN HORTICULTURIST FALL 1974, Vol. 53, No. 4) Suffice it to say here, that gardeners too frequently forget that the soil in containers will dry out much faster than if it were in the ground. Therefore, it's important to check the moisture of plants in containers the year round.

From the photographs on these pages, I think you'll agree that while petunias and tomatoes in containers are fine, it's more exciting to grow trees in tubs.

Linda Yang is author of THE TERRACE GARDENER'S HANDBOOK, Raising Plants On a Balcony, Terrace, Rooftop, Penthouse or Patio, published by Doubleday, Inc. □

Allium- The Flowering Onion

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The spring garden becomes more vibrant, more regal and more alive when allium varieties are interplanted with other bulb flowers or set alone in their own special areas. Sometimes, alliums are overlooked when gardeners begin planning and planting their bulb gardens. Perhaps it is because they aren't aware of the beauty and variety in the allium family—a truly spectacular spring and early summer flower.

Whatever the reason, the spring garden is more complete when alliums are included. And what a selection of sizes, shapes and colors this unique flower provides. The colors range from red, blue, lavender and purple to bright yellow and white and grow from six inches to a majestic four feet, with varieties to bloom in May, June and July.

For example, the *Allium aflatunense* is a lilac-purple globular flower composed of tightly-knit, star-like blossoms. Its straight stalk is leafless and stands almost three feet tall. This striking variety can be planted in beds or used as accents in perennial and shrub borders. In either case, it will be a conversation piece in the garden.

On the other hand, the *Allium moly* grows no higher than fourteen inches and its bright golden star-like flowers are a delight in any rock garden. *A. aflatunense* blooms be-

fore the end of May, while *A. moly* shows its golden head in early June.

Another interesting and tall *Allium* variety is *A. christophii*. Standing more than two feet high, its flower is a maze of star-like blossoms, loosely-knit so that each blossom appears to be a flower in itself. The globular whole flower is a bright lilac-pink and its decorative foliage—white hairs lining the margins of deep green leaves—enhances any early June garden.

Allium karataviense is an intriguing little member of the family. Its silvery-pink, circular flowers are reminiscent of snowballs resting on brilliant green straplike leaves. They grow six- to-eight inches tall and should be planted in rock gardens or along borders where they can be easily seen and admired in early June.

Two of the later blooming *Allium* varieties which will create an air of excitement in the garden are *A. giganteum* and *A. sphaerocephalum*. *A. giganteum* is true to its name, a giant, standing four feet tall on spike-like stalks with large blossoms of the richest lilac. The flowers, measuring six inches in diameter, burst into brilliant color about the end of June.

A. sphaerocephalum is one of the latest blooming of the *Allium* family, flowering in early July. Its rounded blossoms are the deepest reddish

purple, which rise more than two feet high and are surrounded by an abundance of lush, green foliage.

All alliums must be planted now, in the fall, to brighten the late spring and early summer garden. They are easy to plant and require very little care to sparkle in the spring and summer sun. Just be sure that the top of the bulb is four to six inches from the surface. *A. giganteum* requires six inches, all others four. Loosen the soil at the bottom of the bed and mix a fertilizer, such as bone meal or one high in phosphorus, calcium and magnesium, with it. This will place essential growth elements into the root zone, readily available to the bulb. The loosened soil will permit easier root growth.

The bulbs should be planted firmly with pointed end up and the bed should be filled halfway and watered thoroughly. Finally, add the remaining soil, cover with a mulch, and water thoroughly again.

In the spring, as soon as the shoots begin to emerge, fertilize with a high nitrogen and potassium fertilizer. Rains will leach these elements to the bulb roots. When the blooming period is over, let the foliage die naturally so that the food reserves from the leaves will be transported down to the developing roots.



Allium moly

Allium giganteum



Allium karataviense

Allium neapolitanum



Important Quotes from Knowledgeable Folks

Tom Stevenson

The venerable plow is steadily yielding ground to a more modern way of farming: minimum tillage and related methods, says R. P. Kaniuka, editor, "Agricultural Research," a USDA publication.

Indeed, a USDA study predicts that by the year 2010, American farmers will practice conventional tillage methods on only 5% of our cropland.

Many names have been coined to describe local variations of minimum tillage. By whatever name, this modern method of planting enables farmers to obtain good crop yields while providing a complete soil cover that retains moisture and prevents erosion.

Today's minimum tillage farmer plants a winter cover crop, typically rye, after the fall harvest. In the spring, he kills the rye with herbicides, then seeds the main crop into the resultant mulch with a special planter. Not a furrow is turned, nor does the farmer need to re-enter the field until harvest time, when he begins the cycle anew.

Minimum tillage methods are not without their problems, however. Insects once held in check by deep plowing tend to thrive in undisturbed soil and mulch. Farmers who fail to anticipate this problem and to select the proper insecticides court disaster. Furthermore, herbicide applications must be made on a pre-

cisely timed basis to establish enough mulch to check erosion, yet not smother the seedlings.

Minimum tillage unquestionably saves farmers time, labor and money. Its long term benefits, however, may well lie not in farm economics but in conservation. For the unturned soil, protected by its layer of mulch, can retain 50% more moisture than a plowed field, and cut erosion and runoff on sloping fields by up to 90%.



This is good news in these times of environmental awareness and consequent social constraints. Not only can minimum tillage help save a life-sustaining resource, it can also greatly abate the critical problem of pollution and siltation of our waterways. It is an idea whose time has come.

There is a striking relationship between no-till culture of corn in recent years and the upgrading of minor diseases into major problems, including anthracnose and gray leaf spot, says Dr. Frances Lat-

terell, USDA Agricultural Research Service plant pathologist.

No-till or minimum-till culture allows plant debris from the previous season's crop to remain on the field instead of being plowed under as in conventional culture. Disease organisms living in the debris may thus get a head start in spring, and can increase more rapidly, causing much more serious damage to the corn crop.

In the past some major plant diseases have spread north from the southern United States, Mexico and probably South America. Southern corn blight, a devastating epidemic which caused an estimated \$1.2 billion damage in 1970-71, probably migrated from southern regions as a mutant of a relatively minor corn disease.

No-till systems for growing corn have proved ideal for claypan soil that is typical of much of the Midwest, says Herman G. Heinemann, USDA Agricultural Research Service hydraulic engineer.

By managing the soil with no tillage, ARS scientists minimized erosion, saved fuel, and produced more corn per acre than with conventional tillage. Keeping a vegetative cover (crop residue or a living crop) on the soil surface throughout the year is a key to reducing soil loss.

No-till methods produced 4 more bushels of corn per acre than by

using conventional tillage, and we used less fuel. But more importantly, this method held the average annual soil loss down to 0.6 tons per acre.

At corn planting time, the researchers killed the cover crop with a contact herbicide. The living rye had helped the soil to dry and warm earlier in the spring than with stalk-residue cover. Later the dead mulch reduced surface sealing of the soil and sustained high water infiltration rates. The conserved water helped counter midsummer droughts that often occur during a critical period of the corn crop's development.



Using the system is an especially good practice in the Midwest claypan area. This area includes 10 million acres mostly in Missouri, Illinois and Kansas, but also in Nebraska, Oklahoma and Iowa. A compact layer of subsoil, normally about 15 to 20 inches below the surface, restricts air and water movement and retards deep growth of plant roots.

During the studies, rainstorms that occurred soon after soil was tilled produced runoff with high concentrations of sediment. Runoff from no-till plots contained only an organic stain and very little sediment. The soil cover had dissipated the rainfall's energy, eliminating splash erosion, and reducing runoff erosion.

Someone has said that tillage is following the horse as an outmoded element of Great Plains agriculture. The current trend to various systems of reduced tillage in row crop production indicates that prediction may come true before the end of this century, says Dr. Glover B. Triplett,

Jr., agronomist, Ohio Agricultural Research and Development Center, Wooster.



A major advantage of reduced tillage systems is that they provide new opportunities for double-cropping. Soil which has not been tilled is also firmer and thus will better support heavy machines during wet harvest seasons.

One problem with these systems in northern areas, however, is that soils which are not tilled do not warm up as quickly in the spring. No-tillage corn production may be used to advantage on these soils if, in a wet spring, it permits more timely planting of corn.

Much more research is needed, new herbicide systems must be developed, planting equipment must be modified, and varieties to best fit conservation practices must be developed.

Fuel shortages and spiraling production costs in recent years have made no-till doubly appealing to farmers searching for ways to assure full acreage production at minimum expense, says Dr. A. D. Worsham, North Carolina State University professor of weed science.

Agricultural engineers indicate that conventional land preparation and planting requires 5.5 to 7 gallons per acre. With no-till planting only 0.3 to 2.4 gallons per acre are required. Total cost savings with no-till planting can be \$4.15 to \$19.25 per acre.

Like any cultural system, no-till is better suited to some cropping systems and sections of the country than others. There are many examples of successful no-till use around the country:

1. Planting directly into a pasture or native sod in most states.
2. Alternating strips of meadow and no-till corn in Missouri.
3. Interseeding legumes into grass pastures in the East and North Central States.
4. Planting corn into small grain cover crops in the east from North Carolina northward. The grain crop may be left as mulch or utilized before planting as grazing, hay, green-chop or silage.
5. Planting in previous year's crop residues throughout the country.
6. Rotating wheat-fallow and winter wheat-sorghum-fallow in Kansas, Nebraska and Texas.
7. Following corn and fall-seeded small grain with double-cropped soybeans from the Southeast into the southern part of the cornbelt.



Leaving a mulch on the soil surface is important for top yields from no-till crops. Over several years in Virginia, continuous no-tillage corn has averaged 16, 21 and 25 more bushels per acre than conventionally planted corn on a Davidson clay loam, a Cecil clay loam, and a Lodi silt loam, respectively. In certain farm situations, however, it may be more profitable to use some of the vegetation for grazing or forage harvest before planting the no-till crop.

Certain soil conditions may limit no-till adaptability. For example, early studies in North Carolina showed that low pH and low phosphorus soils were not suited to no-till crop production. Later studies in other areas have shown that surface-applied phosphorus, potassium, and lime are effective in no-

Continued on page 38

HONEYBEES, FLOWERS & MAN



Photo by author

A visit to a water willow.

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The familiar adage "summer comes with flower and bee" is a reminder of what is certainly one of man's oldest and most familiar associations of plant and animal. Indeed, most paleontologists agree that flowering plants and pollinating insects evolved at about the same time, probably in the Eocene Epoch—some 40 million years before man.

The honeybee is believed to have originated in South Asia—probably in India or the Malay Peninsula. Bees said to be identical to modern honeybees have been found entombed in amber millions of years old. The honeybee belonged to the Old World—to Europe, Africa and Asia. Although early settlers and colonists found native bees in America, the honeybee was not among them. Prior to 1500 there were no honeybees in the New World (the Americas, Australia and New Zealand) according to Dr. Eva Crane of the Bee Research Association.

"Like the dog, the honeybee has accompanied man on most of his major migrations, and the early settlers in each part of the New World took hives of bees with them," Dr. Crane says. "Records of the establishment of honeybees in America are scanty enough, but we know that they were taken from Portugal to Brazil around 1530, and it seems likely that there were other importations into South, Central and North America in the same century. The first records of importations into North America are, however, over a hundred years later, from 1638 onwards."

Beekeeping as an art or profession is older than the pyramids; its origin is virtually lost in the mists of antiquity. Five thousand or more years before Christ, Neolithic man in what is now Spain left rock paintings of honey gatherers at work, and it is doubtful that this was the be-

ginning of man's relationship with the honeybee.

The dawn of written history found honeybees already kept in hives of a fixed pattern and in accordance with a well established system—our earliest information about beekeeping at this advanced stage of development coming from ancient Egypt.

Egyptians are generally credited with originating migratory beekeeping. Beehives were placed on rafts from which the bees flew to gather nectar. As the seasonal bloom advanced, the rafts were moved down the Nile River to Cairo where the honey was marketed.

It is not surprising that beekeeping in ancient times found its greatest enlightenment in Aristotle, the great 4th Century B.C. Greek philosopher and scientist. Many historians, in fact, separate development of scientific knowledge (including beekeeping) into "before Aristotle," and "after Aristotle." Aristotle's writings reveal his remarkable understanding of the life history of the honeybee—even suggesting awareness of the fact that drones (male bees) only are produced when the colony does not have a "ruler" (queen). Aristotle reported honey yields of up to 27 pounds per colony, this figure perhaps exceeding the average in the United States in recent years.

The 1st Century B.C. Roman poet Virgil was a beekeeper with a keen mind for colony management—including even the clipping of the queen's wings as a means of preventing the loss of a swarm. British historian Malcolm Fraser tells us that another Roman writer, Varro, published in 37 B.C. what is probably the most definitive work on the theory of beekeeping to emerge from ancient times. It included instructions for choosing and preparing the apiary location, construction

of hives, purchase of bees, colony management and harvesting the crop. Varro recorded that one beekeeper of his time produced 5,000 pounds of honey annually. There is evidence that both Virgil and Varro acquired much of their knowledge from Nicander of Colophon, and Nicander in turn appears to have derived his knowledge largely from Aristotle.

The relationship of the honeybee and flowering plants, despite several thousand years of beekeeping history, is seldom understood beyond the knowledge that orchardists depend on bees for cross-pollination of their fruit trees, and that clover of one kind or another is a major source of nectar for honey production.

The importance of fruit bloom and the clovers notwithstanding, the honeybee colony could probably not survive, let alone prosper, without great numbers of other species or kinds of flowering plants providing an array of bloom from early spring to late fall. In fact, "The Honey Plants of Iowa," an important publication of the Iowa Geological Survey in 1930, identified more than 600 plant species that were utilized by honeybees.

Known to beekeepers as supporting plants, or minor honey plants, these hundreds of non-agricultural sources of pollen and nectar that can be utilized by honeybees are of vital importance in making it possible for the honeybee colony to grow to producing strength prior to the season's first honey flow, and to maintain producing strength and morale in between the bloom periods of major sources of nectar.

Unfortunately for beekeepers, and for those whose agricultural endeavors depend on pollination by honeybees, many sections of the United States continue to undergo a



Above—*Zantedeschia albo-maculata* is best identified by its white spotted leaves, its creamy yellow blooms tinged with purple at the throat.

Right—*Z. rehmanni* is a beautiful more delicate rock garden plant having slender leaves and blooms ranging from pink through lavender to rose.



Give the Calla Lily a Whirl

Lorraine Marshall Burgess
202 Old Broadmoor Road
Colorado Springs, CO 80906
B/W photos by author

Try the beautifully-formed *Zantedeschia* in your garden or greenhouse, or both. This magnificent South African tuberous-rooted plant, known also as arum or calla lily can be grown under glass as a fine pot plant and cut flower source, or outdoors as a perennial in mild climates. In more rugged climates the tubers must be lifted before frost in the fall. After one or two months' rest, the tubers can be repotted in manure-rich soil to rebloom in late winter or early spring in a cool, sunny greenhouse. After this indoor flowering, withhold water gradually, and then store the tubers in a dark place until it is time for replanting outdoors.

The white calla lilies are grown from rhizomes, the yellows from corms. Both are propagated by offsets, and the yellows can be developed from seeds set out in beds where the weather is mild or in boxes to bring indoors in freeze areas. The seed should be dusted with a fungicide before planting to prevent damping off. Where callas flourish, they need to be lifted and divided every four or five years.

For greenhouse growing start the roots in pots and place in a cool, semi-dark place under the benches, and do not overwater. As growth appears in 2 or 3 weeks move the pots to a light, open bench and give plenty of water. Avoid direct sunlight, using whitewashed glass or a thin shade to prevent burning. Fish fertilizer, applied as a liquid semi-



The white Calla lily, *Z. aethiopica*, is the largest and perhaps the most impressive of these sculptural lilies.

monthly gives good results, after the roots fill out. Ideal temperatures through the winter are 65° by day and 55° by night. In the summer when outside temperatures match greenhouse conditions the pots may be moved outdoors and counter-sunk into the soil. The yellow and dwarf pink varieties prefer still warmer temperatures, and are best kept in the greenhouse, except in sub-tropical situations.

Seed should be sown in light soil in November; the same timing applies to rhizome divisions and offsets. For winter bloom indoors, pot in mid-summer, and leave outdoors until fall approaches, then move into the greenhouse to a warm corner at 68 degrees.

A native of tropical African marshland, the bulb can remain

dormant until proper growing conditions prevail. It is one bulb that will bloom in the wild with its roots submerged in water. The Calla is not a true lily, nor does it look like most lilies. It is also quite different from the water arum, an aquatic herb, also known as *Calla palustris*. It has spathes that are green on the outside and white within.

But the *Zantedeschia* or Calla lily has truly impressive form. Sculptural and of great substance, the flowers are popular favorites among commercial florists. We should use them more often for summer bloom. They make startling displays and a nice complement to the more popular dahlias, hybrid lilies, gladiolus, and begonias. In the winter greenhouse they are equally impressive. □

Wandering Through Winter

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A long ago gift still remembered nostalgically was the posy picked from the garden for my January birthday. Another birthday, my first in America, is also well remembered. Bereft of my garden I sought consolation in a "florist's" shop, to be greeted not by the longed for sight and scent of violets, daffodils, freesia, mimosa and other forced blooms, but by the sterile vulgarity of plastic flowers, only relieved by pots of stiff and unseasonal chrysanthemums, frilled in foil and replete with ribbon bow. My soul cringed. I had always valued winter flowers, now they became more precious. One snowdrop braving the elements at the year's low ebb does more to lift my spirits than a dozen May azaleas. What a pity the snowdrops which come earliest into flower sell at such very high prices. For those who can afford it *Galanthus corcyrensis* flowers for Christmas in sheltered nooks.

Autumn blends into winter with the crocuses. Scarcely has the last white chalice of *C. niveus* faded from the scene when, in December usually, the first purple feathered buds of *C. laevigatus fontenayi* peep through a mat of creeping thyme, wisteria blue when opened by the sun. This winter they came in November, got their noses nipped but went right on trying and finally managed to flower three months



Photos by author

Viburnum farreri 'Candidissimum'

later. Sometimes *Iris unguicularis* opens a flower or two in the old year but usually it waits until February. If a bud is picked it will open indoors within an hour or two, an ideal subject for time lapse photography. In thin, sandy soil, tight pressed against the south side of a pine tree trunk, it has remained undamaged at 5°F in ground frozen a foot deep. A new plant in a less protected spot

has lost all its leaves and may well be dead.

Bulbs which came from England as *Narcissus cantabricus monophyllus* invariably flower for Christmas and are increasing steadily in a fairly moist and partially shaded spot where snowdrops, *Anemone blanda* and *Hosta venusta* will succeed them. "The white *cantabricus* is a tender plant" writes Michael Jefferson-Brown in "Daffodils and Narcissi", and Alec Gray ("Miniature Daffodils") describes it as four inches high, which is indeed the height of the exquisite crystalline white hoop petticoats I have seen exhibited in pans under this name. Mine better meets the description of variety *foliosus*, much taller at nine inches with slender, floppy 18 inch leaves. The milk white flowers may be less beautiful but it is a better garden plant. This winter each flower was destroyed as soon as it opened but foliage and bulbs remained unharmed.

The tiny yellow trumpets of the three inch *N. asturiensis (minimus)* come in late January or February, unspoilt even when completely sheathed in ice. The bulbs tend to diminish, probably undermined by tunnelling moles, and replenishments will be planted in plastic berry boxes. The flowers lean away from the perpendicular and get mud-splashed. A ground cover pre-



vents this and I use *Sedum hispanicum minus*. *Cyclamen coum* also flowers now, chubby magenta shuttlecocks against glossy orbicular leaves. The flowers of *C. hederifolium (neapolitanum)* come in late autumn but the intricately patterned ivylike leaves are among the most long-lasting assets of the winter garden. So are those of *Arum italicum marmoratum*, appearing in fall and lasting into spring, handsomely marbled in white. If you grow this from seed don't discard little plants which come plain green; often the patterning only appears in the second or third year . . . sometimes, alas, it never does. Where Hall's honeysuckle stays evergreen, so will the much less rampant *Lonicera japonica 'Aureoreticulata'*, a bit jaundiced-looking in the heat of summer but in winter a welcome patch of netted gold leafage.

For me the hellebores don't go by the book and no one told my Christmas Rose that we celebrate that event in December. It is a rather unhappy specimen, hardly as yet worth calling a clump though I've had it for four years. It gets thrown out of kilter by the summer heat, dies away around July, resumes growth in September but then, I suppose, needs time to build up strength before it flowers in March. The Lenten Rose, on the other hand, has made a massive clump, stays evergreen most winters (but not 1976/1977), blooms with abandoned abundance in early February, plus or minus a week or two, and self seeds profusely. *H. niger* seems to be best in the north, *H. orientalis* in the south.

Fire-red foliage is mostly an autumnal theme, but southward of Maryland *Nandina* is evergreen, bright in copper, red and orange just when we most need color. When the mercury dropped to 5°F *N. domestica* sighed in an icy wind and laid down its leaves, but the dense one foot hummocks of the ill-named 'Nana Purpurea' refused to surrender, clinging tenaciously to chubby, trifoliate leaves, scorched though they now were. A low key green in

summer, the leaves turn brilliant red in winter, unchallenged star in the January garden. Plants on sale do seem to vary in leaf shape and coloring. Mine never flowers.

Two of the earliest shrubs to bloom wisely make their entry when competition is lacking. Undistinguished shrubs with little yellow flowers, Winter honeysuckle (*Lonicera fragrantissima*) and Wintersweet (*Chimonanthus praecox*) are valued nonetheless for their earliness and fragrance. *Chaenomeles speciosa* often bears flowers at the turn of the year—if only it were not such a dismal, near-leafless sight through most of summer.

The Asiatic witch-hazels come next, their twisted ribbon petals unmarred by frost. *Hamamelis mollis 'Pallida'* remains my favorite, but I cannot find it and settled instead for the hybrid 'Jelena', the four-petalled flowers with garnet red curled calyces close clustered in two inch spidery orbs, yellow suffused with red for coppery effect. The American witch-hazels are less effective shrubs but flower earlier, *H. virginiana* (the source of the soothing lotion) in autumn, *H. vernalis* often in January. Hilliers of England have selected a form called 'Sandra' with autumn foliage of scarlet and flame.

After seeing *Cornus officinalis* at the National Arboretum in February, the tatterdemalion bark most noticeable against the snow, it has gone on my "want" list, in lieu of (or as well as) *Cornus mas*, which lacks the interesting bark and flowers a bit later. The snag is, no nursery seems to sell it. The flowers of the two species are alike—yellow, massed and multi-stamened.

Could I have but one winter flowering shrub it would be a *Viburnum*; either the pink *V. farreri*, the white *V. f. 'Candidissimum'* or the pink *V. x bodnantense* hybrid 'Dawn' (the paler 'Deben' is nice too), all stiffly twiggy shrubs with little drumsticks of close packed flower, the scent much like that of the well loved *V. carlesii*. Watch out for suckers, one of mine is a grafted plant, for which there is little excuse when they root

so readily from cuttings. These viburnums need no pruning but winter jasmine, *J. nudiflorum*, half-way between shrub and vine, rarely looks well in neglect. I like to see it as a green and yellow tapestry on a wall trellis—not those fanciful, top heavy lawn rake affairs but an unembellished, unobtrusive lattice of wood or wire—the jasmine should be on display, not the paraphernalia supporting it. Stems need fastening, in with "twistems" or wire, and removal from the base of some old wood each year encourages young growth from low down.

The buds of the Japanese apricot, *Prunus mume*, are not damaged by cold, but once they open—and they tend to come all at once—the flowers are vulnerable to frost, still probable in February even in the south. So roughly one year in two it is a case of here today and gone tomorrow—or the next day. A week or two of bloom every other year is enough to justify the gamble. I have the single white form, extremely fragrant, the only one I could find.

"The ugliest shrub I know", wrote a friend about *Abeliophyllum distichum*. It does lack grace (so does *Forsythia*) and never looks really vigorous or healthy, but the white four-petalled flowers are pretty, early and slightly scented. Mine is three feet high after three years, tucked away in not too conspicuous a spot.

In an article in "The Garden" (September 1976) Roy Lancaster describes *Daphne bholua* as "shrub of the future". This Himalayan native was introduced into England early this century and received an Award of Merit from the R.H.S. Early introductions, however, (mostly evergreen) proved insufficiently hardy. A later introduction (1962) is now seven feet high and five feet through with tip clusters of fragrant flowers much like those of *Viburnum farreri*. This clone is now being distributed as *D. bholua 'Gurkha'* (previously listed as *D. b. glacialis*.) Hopefully it will soon become available in the U.S.A. *D. odora* is fairly well known and the very early *D. mezereum* is oc-

asionally offered. *Daphne x hybrida* (*collina x odora*) was tried in California but apparently failed to catch the public fancy. Perhaps where *D. odora* is reliably hardy the hybrid is not needed; elsewhere it certainly ought to be available.

I did finally track down one of the winter hazels, *Corylopsis pauciflora*, except that as the years went by it became increasingly apparent that what I have is not the comparatively dwarf species I ordered. I think it is the much taller *C. x veitchiana* but I am not too discontent. The pale yellow tassels of flower never look more delightful than when combined with the lavender butterflies of *Rhododendron mucronulatum*. They flower together in early March.

These notes reflect my experience in Zone 7/8 gardens. In the north nothing much happens before March, though usually at least a few sprigs of winter heath, *Erica carnea* and *E. x darleyensis*, can be picked in January. *E. c.* 'King George' (or 'Winter Beauty') is among the first, compact clumps with urn-shaped flowers exactly matching the bright magenta of *Cyclamen coum*.

Bark and berry must be the mainstays of the winter garden where below zero temperatures prevail. Red stemmed dogwood, *Cornus alba* 'Sibirica' heads the list, Zone 2 hardy and a B grade shrub even in neglect, A+ if thoughtfully sited and tended. Some shrubs look best backlit, but not those grown for their bark. This one in particular needs to be viewed from the sunny side. Left unpruned it will soon grow eight feet high, but only the newer wood—that at the top and sucker growth from the base—will be bright red. Coppicing back each spring and occasional removal from the base of some of the older wood ensures maximum production of new red stems, at the same time restricting the size to that of a foreground plant. Equally bright is the Coral Bark Maple, *Acer palmatum* 'Senkaki' ('Sangokaku'), too choice and slow-growing to be touched with pruning shears. If you can find

it (and so far I have failed) add *Rosa sericea pteracantha* for the translucent ruby red of the fierce triangular thorns zig-zagged along the stems. Light this from behind for the same effect as ruby red glass held against the light, and prune it hard each year.

From brilliance to the subtleties of peeling and polished bark, with silver birches of various species coming first to mind. *Cornus kousa* is now fairly readily available, but as yet one rarely sees outside of arboreta specimens of sufficient age to exhibit the white dappled bark of mature trees, similar to that of the sycamore.

Prunus serrula has mahogany bark with a brilliant shine. It rates low for bloom, the white flowers being small and hidden among the leaves. It can be bought top grafted with 'Hally Jolivette', one of the prettiest *P. subhirtella* cultivars, thereby getting the best of both worlds, or do we? Top grafting can result in a bumpy bulge ugly enough when undisguised by leaves to distract attention away from the beauty of the trunk. 'Hally Jolivette' flowers in April, but in the south it often puts on another effective show through October and November, as also does *P. subhirtella* 'Autumnalis'.

The most outstanding hardy tree for bark effect is *Acer griseum*, shaggy in cinnamon shreds. At least I used to think so. Lately I have much admired a young specimen of River Birch, *Betula nigra*, exfoliating in coarser curls of grey over beige. Though moisture loving, River Birch also tolerates drought.

In the south *Lagerstroemia indica* is spectacularly smooth and snaky in beige and green. *L. fauriei* is better still, with a big proportion of mahogany in the color mix. A fine specimen can be seen at the National Arboretum but this species has not yet, I believe, been distributed. Where *Lagerstroemia* is not hardy, much the same effect can be had from the Stewartias.

Continued on page 33

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A Little South of Paradise

Catherine and Shannon Smith
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If you have decided to attend the International Horticultural Congress in Sydney in August 1978, carry that decision one step further and come visit one of the most horticulturally diverse little countries in the world—New Zealand.

Situated on the air route from Los Angeles to Sydney, New Zealand is about equidistant from Fiji, Australia, and Antarctica. Although frequently pictured as that little island off the coast of Australia, it is in fact, an independent thriving Commonwealth nation that just happens to be near Australia.

The two countries are nothing alike geographically or botanically. Whereas Australia is a hot dry, semi-desert continent with little rainfall and flat terrain, New Zealand is a lush evergreen country of mountains and grass-covered hills where apples and oranges grow side by side. Here Norfolk Island pines (*Araucaria heterophylla*) tower over English oaks, camellias bloom all winter and the countryside sports its own gaily decorated Christmas trees (*Metrosideros excelsa*) in summer.

About the size of Japan, New Zealand is warmed and cooled by ocean breezes making the climate suitable for everything from Bird of Paradise (*Strelitzia reginae*) in the north to boreal coniferous forests in the south. Temperature variation is not great seasonally but there is a considerable difference from sea level to the alpine regions of mountain ranges. This difference allows both subtropicals and sub-antarctic species to thrive in various parts of the country.

Isolated from other land masses, New Zealand developed a unique flora with 85% of its species endemic. A mixture of sub-tropical Kauri (*Agathis australis*) forests, sub-antarctic beech (*Nothofagus* spp.) forests, tussock grasslands, flax (*Phormium tenax*) swamps, coastal palms (*Rhopalostylis sapida*), and alpine vegetation provide a botanical experience found few places in the world.

Mount Egmont as seen from Pukeiti Rhododendron Trust.



Photos by Shannon Smith



Esplanade, Palmerston North.

New Zealanders realized early in their history that they wished to preserve as much of the rich natural beauty of their land as possible. Thus they have set aside over 7% of their lands for national parks and reserves.

These parks offer diverse plant life as well as snow-covered mountain peaks, active volcanoes, crystal clear glacial lakes, and tropical ocean beaches. The parks service provides detailed maps and guidebooks for each park outlining leisurely nature walks, moderately taxing hikes, and proper mountain climbs, all introducing the visitor to unique plant life and spectacular land forms.

But the native plants and national parks are only part of the story. When English settlers came to New Zealand about 125 years ago, they brought their love of gardening and their familiar plants with them and turned New Zealand into a land of gardens.

By and large a single-family, home-owning populace, the Kiwis, as New Zealanders refer to themselves, are avid gardeners who spend a large portion of their time

New Zealand west coast beach.



making their front yards into gardening show places. Lush gardens full of roses, annuals, perennials, bulbs, and flowering shrubs and trees make almost every city street excitingly colorful. Because home sites are smaller than in America, one doesn't find large expanses of lawn but rather tidy little flower gardens with something in bloom every day of the year.

Instead of putting away his gardening tools in autumn, the New Zealander works hard to get winter flowers planted so his garden will not be bare. Primulas, pansies, cinerarias, poppies, camellias, rhododendrons, acacias, magnolias, and the spectacular proteas are just a few of the plants that brighten the landscape even when winter skies are dreary.

August and September, being the beginning of the Southern Hemisphere spring, are particularly beautiful months in New Zealand. Winter annuals and perennials, spring bulbs, flowering plums, almonds, apricots and cherries, along with magnolias, camellias, and rhododendrons are in full bloom. Several of the outstanding native trees like Kowhai (*Sophora tetraptera*), New Zealand's national flower, begin to open their golden yellow flowers.

The musical sounding names New Zealanders call their plants as well as their mountains and cities are part of the Maori language. The Maoris are Polynesians who came to New Zealand hundreds of years before Europeans and settled chiefly in the North Island. They are a friendly smiling people who have integrated into the European based way of life bringing many of their native words into common usage. Most native plants are commonly known by their Maori names—Kowhai, Pohutukawa, and Rewarewa.

Beginning where most international visitors begin, in Auckland, there is a tropical feel in the air. Here are the large urban garden centers, a lovely begonia conservatory and fernery, pocket inner city gardens, and an impressive racecourse where bird of paradise and Phoenix palms line the entrance.

To the north of Auckland are the remaining giant Kauri reserves. These magnificent forest giants rival the California redwoods but are not New Zealand's tallest tree. That distinction belongs to podocarps known as Kahikatea (*Podocarpus dacrydioides*) and Rimu (*Dacrydium cupressinum*), both reaching 160 feet.

To the west are the Waitakere ranges with vistas over Auckland and across the Tasman Sea toward Australia and to the east the Coromandel peninsula where native bush species vie with exotic tree species giving the area a look similar to commercial forestry in the United States.

Driving south through the rolling hills of the dairy, grape, and fruit growing country of the North Island, one approaches the volcanic ridge of mountains and geothermal region where naturalized broom (*Cytisus scoparius*) and lupines (*Lupinus* sp.) turn the countryside into a blaze of yellow and pastel pinks and purples in spring and summer. New Zealand's most active volcano

called Ngauruhoe can be seen steaming a continuous smoke cloud from its snow covered cone, while further south, the cold desert tussock grasslands cover volcanic plateaus watched over by Mt. Ruapehu, the highest peak on the North Island and also an active volcano.

Descending the plateau to the west, one eventually reaches the coastal city of New Plymouth, home of the internationally famous Duncan and Davies Nursery, the biggest export nursery in the country. Within the city are Pukekura Park and Brooklands Park, side by side. One devoted to the development of native bush wilderness and the other an old English homestead planned and planted in the garden estate manner, the combined parks offer a rich collection of natives, exotics, conservatories, ferneries, and lakes bordered by miles of walks.

Fifteen miles inland close to Mt. Egmont, the most beautiful volcano in the country, is the Pukeiti Rhododendron Trust. This reserve aims to have the most extensive collection of rhododendrons and azaleas in the Southern Hemisphere. New Zealand has a near perfect climate for growing rhododendrons but due to its isolation lacked these plants until the English settlers introduced them in the 1800's. Now there are well over 700 species, varieties and hybrids mixed into native bush at Pukeiti which will be at its most beautiful from August onwards.

The whole area from New Plymouth to Mt. Egmont National Park is rich in native bush and ferns. Volcanic activity destroyed much of the forest here 350 years ago, but the conifers Kaikawaka (*Libocedrus bidwillii*) and Totara (*Podocarpus totara*) survived and now form part of the second growth forest dominated by Kamahi (*Weinmannia racemosa*). The Kamahi forms a dense canopy providing a cool dark forest floor ideal for growth of ferns, mosses, and lycopods which cover the ground and most of the trees. The gnarled tree trunks covered with epiphytic mosses and ferns give the forest an eerie appearance and has led to the name "goblin forest" for this type of growth. Here too some of New Zealand's native orchids make their home, giving their location in the tree tops away by their delicate scent wafting down through the foliage.

Directly across the country to the east about 100 miles is the Hawkes Bay and Bay of Plenty fruit and vineyard growing region. Protected from cold and strong westerly winds, the area has a continuously temperate climate and plenty of sunshine. This is where citrus and Kiwi fruit (*Actinidia chinensis*) and fruit trees grow best and where New Zealand's young but excellent wine producing industry is developing.

Inland and southwest is Palmerston North, home of Massey University, the country's foremost agricultural and horticultural university. Modern landscape techniques as well as nursery, fruit, vegetable, and flower production are studied and taught here. The city itself, as well as boasting the beautifully landscaped Massey campus, has the distinction of being the rose capital of

New Zealand and contains within the large city Esplanade the national rose testing garden.

In Wellington, New Zealand's capital city, at the tip of the North Island, one finds the Otari Native Plant Museum with the largest collection of native plants. Wellington is a beautiful city sitting on one of the deepest natural harbors in the world. The hills surrounding the city are reminiscent of San Francisco. Wellington gardens and homes are perched on the sides of steep hills and the terraced plantings seem to hang hundreds of feet in the air.

Crossing the Cook Strait which separates the North and South Island takes a leisurely three hours on modern luxury ferries or just an hour from Wellington to Christchurch by air.

Christchurch, called the garden city of New Zealand, is built around the Avon River. This stream meanders picturesquely through the city's impressive Hagley Park located near the center of the city. Hagley is an enormous urban park on the English style consisting of sport fields for rugby, cricket and soccer, a golf course and many tennis courts. Situated beside the park is the Christchurch Botanical Garden which contains a superb collection of introduced plants rarely seen in other parts of the country.

The English arrived in Christchurch to find a treeless coastal scrubland, but they determined to make the city as much like their familiar English cities as they could. Today the residents pride themselves on being as English as the English. A city-wide annual contest to recognize outstanding gardens attracts many participants, as well as observers who just want to borrow some landscaping ideas. Home gardens and business establishments vie for the sought after awards bringing much beauty to the city streets.

Inland from Christchurch is Mount Cook National Park, containing the country's most popular scenic attraction, the Southern Alps, of which the 12,000 foot Mt. Cook is the tallest.

The perpetually snow-covered mountains attract climbers from all over the world. For less hardy horticulturists there is the unique alpine vegetation. Many of the species that grow here are found nowhere else in the world. The Mt. Cook lily (*Ranunculus lyallii*), really a large white buttercup, and the mountain daisies (*Celmisia* spp.) all abound here. Vegetable sheep (*Raoulia* spp. and *Haastia* spp.) cling to the rock bluffs and the wild spaniards (*Aciphylla* spp.) with their bayonet leaves better seen than touched are all accessible. A few alpine beauties like the yellow buttercup (*Ranunculus grahamii*), a gentian (*Gentiana divisa*), hebe (*Hebe haastii*), and forget-me-not (*Myosotis suavis*) can only be seen by the ardent mountain climbers who are willing and able to go to the rocks above the permanent snowline at 8,000 to 9,000 feet.

The largest national park in the country is south of Mt. Cook on the western tip of the South Island. It is called

Fiordland because the area is dominated by deep inlets bordered by the loftiest sea cliffs in the world, rising vertically to a mile above sea level. The landscape resembles the fiord country of Norway but on a larger scale and with entirely different vegetation. This area has the highest rainfall in New Zealand, 300 inches a year, creating some of the most lush bush in the world. At high elevations the New Zealand beech (*Nothofagus* spp.) predominates while nearer sea level the large podocarps called Rimu, Miro, Matai and Kahikatea displace the beech. Numerous understory trees and ferns complete this very southern rain forest whose species are generally unknown outside New Zealand. At Fiordland is the popular Milford Track called by many "The Finest Walk in the World".

The nearest city to Fiordland is Invercargill, the southern-most city in the world, and the home of the Queens Gardens, a beautiful English style park and arboretum of exotics and natives less than 2000 miles from Antarctica.

New Zealand is a lovely country whose natural beauty remains wild and unspoiled. The people are friendly, the accommodations first class, and the flora and fauna unique. Whether you can come for just a few days or a month, there will be beautiful things you will miss because a lifetime could easily be spent exploring this gem of the Southern Hemisphere. □

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Reflection on the Katsura-tree

Michael A. Dirr
Department of Horticulture
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Students in my plant materials classes at the University of Illinois are quick to question my one-sided, overly enthusiastic discussion of the katsura-tree, *Cercidiphyllum japonicum* Sieb. and Zucc. After being introduced to the attributes of the species through slides and face-to-tree confrontation they constantly ask if it is available from nurseries in Illinois and other midwestern states. I perused ten large wholesale and/or retail nursery catalogs and found seven listed this species. Six handled it in large sizes while one grower offered it in gallon containers. Nurserymen are growing the plant yet it is limitedly visible in the landscape.

Classification

Katsura-tree has confounded and confused botanists for they cannot decide the position of *Cercidiphyllum* among the flowering plants. The controversy is centered around the inconspicuous apetalous female flower. The most common interpretation places this species within the Order *Magnoliales* where it is perhaps most nearly related to the genus *Liriodendron*. Several authors' interpretations of the floral structure would make *Cercidiphyllum* a relic of some primitive type of flowering plant, not related to any other now living. *Cercidiphyllum* has been placed in a separate family, the *Cercidiphyllaceae*, and constitutes the only species of the family. There are



Photos by author

Very young leaves.



Semi-mature leaves.

two varieties (not cultivars) of the katsura-tree. Variety *C. j. sinense*, the Chinese form, differs from the Japanese type, which usually forms several trunks near the ground, in nearly always being confined to a single stem. E. H. Wilson, the great plant explorer, found trees up to 130 feet high and described them as exceeding the girth and height of all other deciduous non-coniferous trees known from China. The variety *C. j. magnificum* differs from the species in larger leaves; seeds slightly longer, winged at both ends; smaller in height; and the bark which remains smooth until the tree is of some age. This variety is native to the main island of Japan where it

occurs in scattered localities in the mountains.

Flowers and Fruits

The trees are dioecious with male and female flowers on different trees. Neither are showy and the males consist of a minute calyx (collection of sepals) and an indefinite number of one-half inch long stamens while the females consist of four larger, but still quite small, green, fringed sepals, and four to six carpels. They develop along the leafless branches in mid-April on short spur-type lateral branches. The fruits are small pods, one-half to three-quarters of an inch long, and are usually borne two to four to-

gether on a short stalk. The fruit is often persistent for I have collected it in April of the year following maturation.

Growth Habit

Katsura-tree can reach heights of 100 plus feet over its native range (China and Japan) but is considerably smaller under cultivation. The species can be grown single or multi-stemmed and will reach heights of 30 to 60 feet. Spread is difficult to predict for the male is supposedly of more upright, pyramidal habit than the female. However, two trees (15 to 20'), one male and the other female, growing side-by-side on campus, exhibit similar up-



Mature foliage.

right habits. Most large specimens I have observed show a distinct pyramidal to conical outline. There is a weeping clone, but this is rare in the trade primarily because it is difficult to propagate.

Foliage Colors

The ornamental attributes of this species are many and initiate in late April to early May in Urbana with the unfurling of the leaves which are tinged reddish-purple. Through gradual metamorphosis they change to bluish-green. The fall color can be spectacular, ranging from yellow to a beautiful apricot-red reminiscent of the excellent colors attained with service-berries. Although many au-

thorities list scarlet as a fall color possibility, I have never witnessed this. Perhaps W. J. Bean in *Trees and Shrubs Hardy in the British Isles*, Vol. I, best described the fall color capabilities of the katsura-tree when he wrote, "One never knows when *Cercidiphyllums* are going to turn or what colour they will assume. Here (England) they are seldom all red or all yellow, but generally assume shades of red, orange, pale yellow, pale pink, mauve, and green."

Winter Character

The winter habit is flawless for the tree is impeccably well groomed whether standing erect or reclining

in a more spreading form. The reddish buds contrast with the refined, slender, brown to reddish-brown stems while the brown bark of older branches develops a shaggy character similar to that of *Ostrya virginiana* Koch, American hornbeam. Katsura-tree is a four-season woody plant adding interest and quality where other trees (ashes, elms, honeylocusts) fail miserably. The tree can best be used as a lawn specimen although street, park golf course, and other large areas are well suited.

Culture

Katsura-tree is slow to reestablish after transplanting (newly

planted trees on campus attest to this), but eventually will grow 12 to 24 inches per year for the first 10 to 20 years. The tree will perform best in a slightly acid, rich, moist, well-drained soil, although tolerant of less than optimal conditions. Katsura-tree responds favorably to long photoperiods and grows continuously under 15 hour light: 9 hour dark regimes. The species is also extremely insect and disease free thus facilitating reduced maintenance. Katsura is quite hardy and will survive Zone 4 (Arnold, -20°F) conditions without any problems. Choice specimens in the Chicago and Moline, Illinois, areas attest to this.

Propagation

Cuttings from mature wood are extremely difficult to root. Cuttings taken in June and treated with graduated IBA (indole-3-butyric acid) solutions up to 2 percent (20,000 ppm) failed to root and, in fact, did not callus in sand under mist. Seeds collected in April from the same tree from which the cutting wood was taken germinated within two weeks at 90 percent plus capacity. Katsura-tree does not require a stratification period and can be directly sown after fall collection. Seed which I purchased failed to germinate, emphasizing the inherent problems when one does not know anything about the seed source. Cuttings taken from the young seedlings rooted 90 percent with 0.1 percent IBA (1000 ppm) under mist.

Production

Seedlings were transplanted to one-gallon plastic containers into a 1 soil:1 peat:1 perlite medium. Starting in late June they were fertilized three times per week with 200 ppm N (derived from 20-20-20 source). To say that the young seedlings responded favorably would be misrepresentation for they actually jumped out of the container. By early September when fertilizer treatments were suspended the

Continued on page 37 23

Poetry and Verse

Lorraine Marshall Burgess
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There's a touch of poet in many gardeners. They deal with small miracles, and big mysteries. They revel in the warmth of the sun, the benefits of soft rain, and the infinite ways of plant growth. They are so contented with their lot that they search for ways to share this contentment with others.

Some gardeners are able to convey their enthusiasms in one to one en-

counters with prospective converts. Others lack the skill of easy conversation; they resort instead to poetry and verse as gentle ways of advancing their own value concepts. If they are not poet enough to compose their own lines, they seek the words of past masters and record them on stone, or wood, or tile as articulate expressions of their own emotions.

They turn to old masters and echo their advice. British poet W. H. Auden once said that he considered poetry ill-suited to controversy. He believed that this gentle art should have no ulterior purpose, that it should be designed to aid the memory and to tempt one to dwell on pleasant things.

Most gardeners are willing to

forego the controversy, but some are prone to dwell on life's ironies or little whimsies. Not surprisingly, through the centuries, many of these findings appear on sundial legends. Some of the humor might make you wince at its corniness, but other passages delight. Even in a garden we look forward to the unexpected.

Consider the following literary gems:

"Let others tell of Storms
and Showers

I'll count only your sunny hours."

The rhythm is faulty and it doesn't quite rhyme, but we enjoy the message. Or sense the touch of bitterness in the following statement:

"Love makes Time go,
Time makes Love go."

I wonder too how many gardeners have prompted themselves into action with this age-old sundial inscription:

"Haste, oh haste,
Thou sluggard, haste!

The present is already past."

Even Shakespeare must have been intrigued with the opportunities for literary expression on sundials. In Henry VI he wrote:

"Methinks it were a happy life
To carve out dials,
Point by point."

-Garden Style

And in his 77th sonnet he said,
"Thou by the dial's shady stealth
May know
Time's thievish progress
To eternity."

Austin Dobson offered a more caustic version:

"Time goes, you say?
Ah no!
Alas, Time stays.
We go."

Yet the instinct to say it with words persists. In a southern California nursery we find a crudely-carved sign that tells of the wonder of gardening:

"all the flowers
of
all the tomorrows
are in
the seeds of today"

In the more formal Brookgreen Gardens of South Carolina there are inscriptions by Kipling, Kilmer, Dickinson, and Hiatt carved in stone and mounted on vine-covered walls. Joyce Kilmer's lines to 'Trees' seem to sing praises to a 200 year old live oak that stands nearby.

Rudyard Kipling's verse about Adam, the first gardener, reminds us that God sees to it

"That half a proper gardener's
work
Is done upon his knees.

So when your work is finished.
You can wash your hands and pray
For the Glory of that Garden.

That it may not pass away:"
Emily Dickinson's poem. "I'm Nobody! Who Are You?" seems just right for a garden. There is another verse of hers that would do as well:
"There came a day at summer's full
Entirely for me;

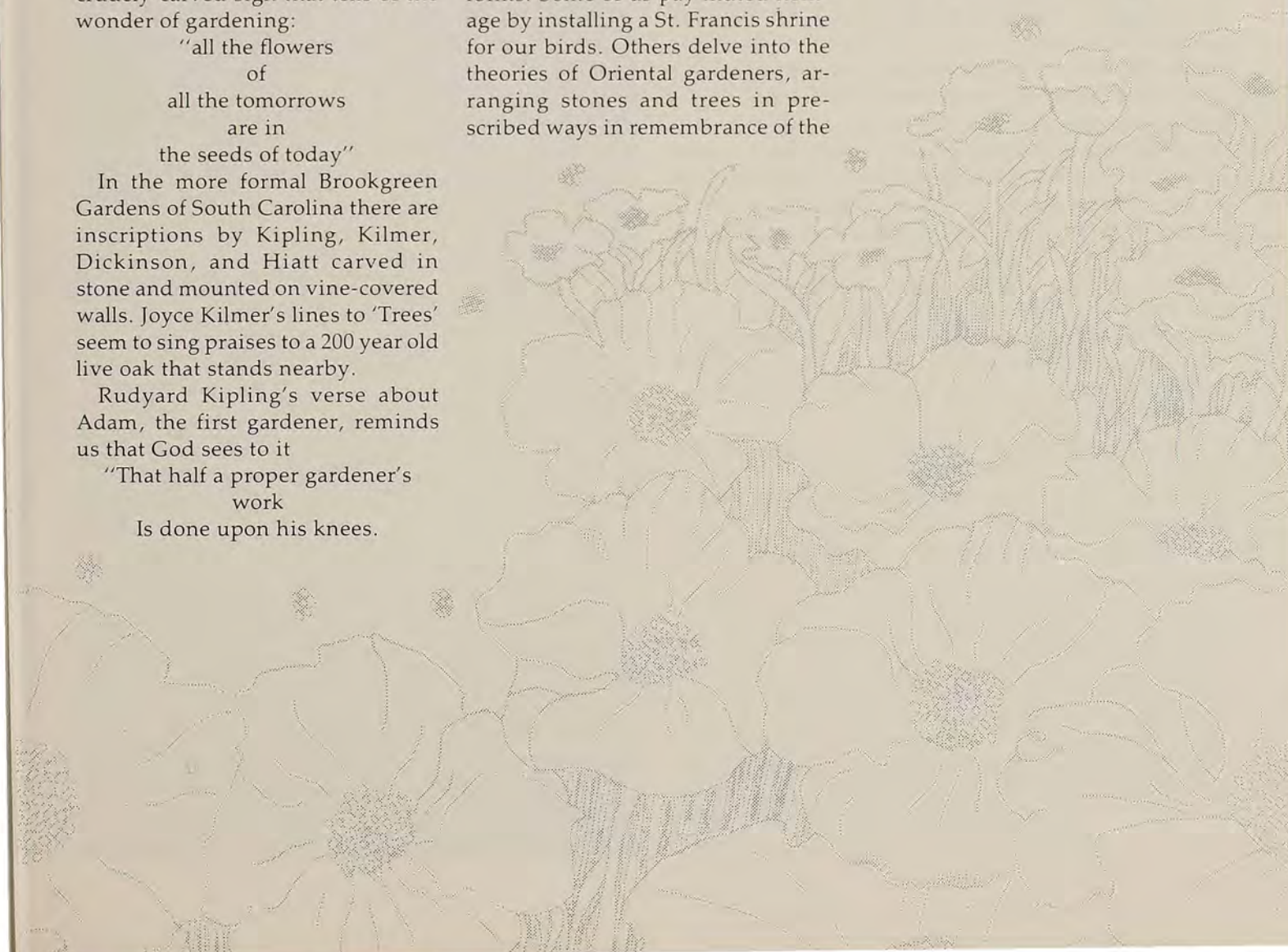
I thought that such were for the
saints,
Where revelations be."

Poetic expression comes in many forms. Some of us pay muted homage by installing a St. Francis shrine for our birds. Others delve into the theories of Oriental gardeners, arranging stones and trees in prescribed ways in remembrance of the

poets and artists of history.

One sensitive gardener of my acquaintance designed a vine-covered reading platform where she might study all the garden greats of history. Across the back garden wall she had mounted a row of ceramic tiles memorializing such men as Linnaeus, Sprengel, Michaux, Redoute, and Le Notre.

There are many ways of using poetry and verse in a garden. It is simply a matter of availing ourselves of the opportunity. □



Baja and the Boojum

Robert H. Savage
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Newburgh, NY 12550

Have you ever wanted to walk on the moon or visit a strange new world filled with mystery and magnificence? You can, and you won't need a space suit or a space ship for that matter. You need only take the AHS tour to the Baja and see for yourself the "out of this world" scenery you thought only existed in the mind of a science fiction writer.

Consider this 800 mile long finger of land as having assumed its present configuration rather recently, as geological time goes. With the movement of the continental plates and the birth of the famous San Andreas fault, this chunk of Mexico literally floated away from the mainland, forming the peninsula and the Gulf of California. With this movement of the land mass came the flora of the Sonora and California. Now, after a few million years, many of these plants are found in no other area of the world and are therefore called endemics.

These rare plants were my prime reason for wanting to visit the Baja, but this rugged, wild country has something for everyone who enjoys the simple beauty of nature.

Let's start in San Diego and motor our way into this fantasy land together. At San Diego our big, comfortable bus loaded with 24 eager souls, started the short 15 mile trip to the Mexican border at Tijuana. After a transfer to a Mexican bus, we were off to Ensenada via new Highway 1.

The new flora started almost as soon as we left Tijuana. Coastal scrub and some chaparral type vegetation persisted to Ensenada. The dominant plants were the Laurel Sumac (*Rhus laurina*), Buckwheat (*Eriogonum fasciculatum*) and the beautiful stout silvery grey rosettes of the Century Plant (*Agave shawii*).

The view of the ocean and the surf competed constantly with the new terrain, and heads swiveled as





though watching a tennis match trying unsuccessfully to see it all.

We arrived in Ensenada about noon. The new Hotel La Pinta proved that the Mexican Government is serious in its effort to provide excellent facilities for Baja visitors. Rooms were spacious and clean, well appointed and comfortable. A welcome Margarita was served with an excellent luncheon. The afternoon was free and most of the group wandered into the downtown area where the shops, full of curios, clothing and jewelry, lined both sides of the street. Our California friends from Encinitas had discovered a sea food restaurant just a block away from the beautiful bay, Bahia de Todas Santos. Cold boiled lobster, huge shrimp and abalone were relished with fine Mexican wines and crisp salad. After having travelled in Mexico just a few years ago, when it was the wise American who avoided raw vegetables, a complete dinner with no restrictions (and no repercussions) was a real treat.

Morning found the eager group in the lobby waiting for the dining room to open. There was just time for a quick look around the courtyard where a fine young specimen of the endemic Mexican Blue Palm (*Erythea armata*) was growing. We would not be going far enough south to reach the native area of the blue palms, so it was a great treat to see this handsome tree at the hotel.

After a big and delicious breakfast, our jovial driver got us all aboard and we headed on down Highway 1. The road cut inland a bit and we lost sight of the ocean. We were in pure chaparral now, and the mountains appeared much closer to our east. We turned off the main highway to San Telmo, four miles east, where we received a message from the Meling Ranch advising us that the road was passable for our bus and that they were expecting us for lunch. The 17 miles to the ranch took nearly two full hours and provided some of the most

spectacular scenery of the unspoiled country imaginable. A one lane dirt road, just wide enough for our medium sized bus, meandered through ranches and the foothills of the Sierra San Pedro Martir Range and on to the Meling Ranch. The curious cattle stood in the road and stared until the bus horn sent them running. Quail, rabbit and ground squirrels abounded and our driver had as much fun "herding" them as he did the cattle.

The Meling Ranch began at the end of the last century and was originally a camp for the father of the present owner, who mined gold in the mountains above the ranch. Today, it is a working cattle ranch with guest facilities. At about 4000 ft., the ranch is surrounded by magnificent mountains. The combined feelings of majesty and tranquility here reached us all.

After getting settled in our quarters, a big lunch of fried steak, tossed salad, fresh milk and much more fortified those who would go exploring and encouraged those who wanted to rest to get on with it!

We were to have tried to reach the new observatory at the 8000 ft. level, but a rock slide precluded our attempt. We did manage to get to the 6000 ft. level where our charming hostess took us to the site of the old gold mine. Quartz rubble from this operation provided many pretty rocks which were added to the memorabilia on the bus. At this level the most beautiful shrubs were undoubtedly the *Ceanothus*. Called Wild Lilac though no relation, the varied shades of blue and even pure white, were startling against the very dark green foliage.

Upon returning from the old mining site, we were greeted by a crackling fire in the big fireplace at the lodge. This was very welcome, as the temperature had dropped quickly as the sun disappeared here in high country. After a big dinner of succulent roast pork with all the "fixins", our hostess told us of the history of the ranch and the area. We were fascinated by the stories and the self sufficiency displayed by these nice people.

Huevos Rancheros (scrambled eggs with sausage mixed in), home made bread, hash browns and lots of steaming coffee comprised our final meal at the ranch before our early morning departure on down into central Baja. We looked for whales so often seen in the small bays, but did not happen to see any that day.

We drove directly to El Rosaria which marks the northern edge of the Vizcaino Desert. We were joined here by Mrs. Anita Espinosa. She is most knowledgeable of the local plants and has been of great assistance to the interested plantmen who wished to study the area. Mrs. Espinosa greeted us, told us of the history of the area, and said that she was taking us to see the Boojum Trees. This name is credited to Godfrey Sykes of the Desert Botanical Laboratory in Tucson, and refers to "a mythical thing found in remote places" as written by Lewis Carroll in his "The Hunting of the Snark". Upon seeing these strange trees through his telescope, Sykes exclaimed, "Ho, ho a Boojum, definitely a Boojum." The name stuck, grew and persists since that expedition in

The peninsula narrows below El Rosaria and we rode up and down the central mountain ridge and observed the immediate change in the plants and the terrain. Much drier here, we lost the carpets of Ice Plant (*Mesembryanthemum crystallinum*) and the soil appeared as barren gravel. A roadside stop quickly proved that abundant plant life has adapted magnificently to their harsh surroundings. The *Agave shawii* persisted in this area also, but was less robust with its reduced available moisture. Two tiny mammillarias barely showed their spiny tubercles above the soil level, thus conserving moisture in the other 80 percent of the plants below the ground. A much taller and more slender Red Barrel Cactus (*Ferocactus gracilis*) now spotted the slopes adding bits of much needed color.

Further on, with much excitement, we spotted our first Boojums. Called Cirio (taper) by the Mexicans, it is technically *Fouquieria columnaris*, but is still more commonly listed as *Idria columnaris*. This has to be one of the most unusual plants in the world. Extremely variable, some reach over 70 ft. without a major lateral branch. Others sprawl and twist in both grotesque and graceful ways. Short laterals give a spiny appearance to the smooth, diamond patterned, swollen trunks and bear tiny leaves which drop during dry periods.

Companion plants of the Boojums excited nearly as much interest, particularly the Cardón (*Pachycereus pringlei*). Reaching heights of nearly 50 ft., this enormous cactus resembles the Giant Saguaro (*Carnegiea gigantea*) of Arizona, although it appears stouter and more narrowly branched.

The flame tipped Ocotillo (*Fouquieria splendens*), spiny vase-shaped sister of the Boojum, was just beginning its showy bloom at the tips of the leafless stems. The Old Man Cactus (*Lophocereus schottii*) contrasted smooth grey-green stems with crests of hairy spines, looking like chin whiskers. Bright cantaloupe blossoms of the Apricot Mallow and profuse red-flowered Hummingbird Flower (*Beloperone*) formed mounds of color among these giants and created a beautiful natural landscape.

The fat trunk of the Elephant Tree or Copalquin (*Pachycormus discolor*) seems happiest when apparently attempting to split some enormous rock after having grown from a seed in the narrow crevice. (See *Contributions of the U.S. National Herbarium, Smithsonian Institution*, for 1916, Vol. 16, pages 344-345.)

Picture all of this pushing up from the granite gravel amidst enormous boulders scattered about in great profusion as though some shower of meteors had managed to pepper the landscape with hundred ton rocks.

Moonscape? Perhaps, but with the pleasant addition of the fascinatingly strange plants of the Baja.

A long trip back to Ensenada found a tired group agreeing that it was well worth the long journey to see this rare spectacle.

The next morning found us refreshed and ready to return to California, but we were already making plans to return to the Baja. □

The Beauty of Bark

Dr. Donald Wyman
59 Jericho Road
Weston, MA 02193



Castanea sativa, Spanish Chestnut

World traveler Donald Wyman, Horticulturist Emeritus of the Arnold Arboretum and Consultant to the American Horticultural Society, recently sent us a number of excellent photographs of tree bark. We decided to reproduce them to show our readers their beauty and diversity. One suspects a whole book could be written devoted to this interesting art form provided by common and not-so-common trees found throughout the world. □



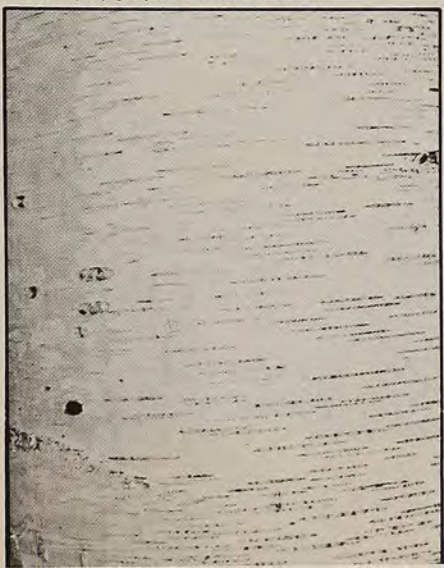
Zelkova serrata, Japanese Zelkova

Acer griseum, Paperbark Maple



Arbutus unedo, Strawberry Tree

Betula papyrifera, Canoe Birch



Broussonetia papyrifera, Common Paper-mulberry

Grow It from Seed

—or Hardiness You Never Know Until You Try

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There is too little known about the hardiness and adaptability of many trees and shrubs for any very particular climate, namely that of one's own garden. There are basic bread and butter plants, to be sure, that are considered reliable but for the choicer and rarer ornamentals, too little information is generally available. This is a field of study ripe for a contribution by amateurs. All one needs is to remember: "there is no substitute for close observation."

Grow a plant and keep notes on its behavior. Watch closely for signals of distress or well-being. Observing and comparing can give enormous pleasure and satisfaction to any gardener.

The elegant fir tree from Taiwan, introduced in 1930, is called *Abies kawakamii*. It is listed in *Hortus III* for hardiness Zone 8, yet it has been in the ground in Martha's Vineyard, Mass., in Zone 6, since 1973. In the fall of 1976 it was sturdy enough to move out of the nursery into its chosen position in the arboretum. *Hortus III* suggests Zone 8 "where summers are cool". Summers are cool on Martha's Vineyard and so are winters, cool to 5-10° below zero at Barnard's Inn Farm. Hardiness, I have concluded, is not always as listed in "authoritative" literature.

Anyone engaged in horticultural studies is indebted to a long line of people from the past who have been advancing basic knowledge of fine ornamentals. First of all, there are the plant explorers who brought in the seeds and plants from the four corners of the earth. Reading the re-



Photos by author

Rhododendron atlanticum

ports of the U.S.D.A.—Longwood plant exploration programs, one is continually struck with the theme: "known hardiness of a species may possibly be increased at its lower limit by introducing seeds and specimens from its northernmost native range". Growing and testing the new materials in different circumstances under different conditions builds each species' reputation for adaptability to a given hardiness zone. But clearly this is a guide and not a guaranty. So if the gardener wants a plant to thrive in a zone colder than it is listed for he takes the risk and finds out for himself.

Many experiments fail. For instance, a long-lived bristle-cone pine, *Pinus aristata*, listed for use in

Zone 6, had grown to 5' tall and very bushy, seemingly well adapted, for 16 years. 1976 was too much for it and it passed away without a clue. What could be the reason? The lack of altitude? Barnard's Inn Farm is only 50' above sea level. The hot April of 1976 followed by the freezing May with no rain? Drought? What conditions were unsuitable? From six plants in 1960, seemingly adjusted, there are now only four since 1976. Far from its native Western mountains the conditions it was faced with were evidently not suitable, and too great a strain was put on the adaptability of the plant.

After the plant explorers we are indebted to the various agencies and organizations working with the new materials. Who is doing the crossing, breeding, and testing for tomorrow's finest trees? The State and Federal government agencies, nurserymen, the U.S. National Arboretum, other arboreta across the country. Why not the amateurs? Most of the arboreta are limited in funds and opportunities to do the work they would like to do. Many know the need for long term tree studies, but their priorities lie with shorter term projects. In three or five years conclusions can be reached and published about perennials, after several generations under study. This kind of work is good image-making for the author and his institution. But in the case of *Pinus lambertiana*, the giant or sugar pine, a 200' tree with cones up to 20 inches long, it could take 25 or more years for the tree to produce its first



Clematis seedling in nursery

Rhododendron hybrid, Nakaharai x W. Leith, cv 'Red Fountain'





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seed or pollen. This makes a program based on selection or breeding in this species slow business. Do the enormous cones of *Pinus lambertiana*, *P. sabiniana*, or *P. coulteri* intrigue you? Would you like to see them on a tree with the long needles of *P. griffithi* (the Himalayan pine)? Would you like to see them on a tree with deep green, or steel blue, or variegated leaves? Would you like to see them hanging on a tree resistant to the pine shoot moth, or *Diplodea pinaea*? Would you like to see them in your life time? Then plant your seeds yesterday and make careful notes of your dates and sources. Don't wait for someone working in conditions far removed from yours. It is your local area that matters to you, and it is there the observations should be made.

The numerous Junipers are in a field of study pretty well covered, if not crowded, and yet a *Juniperus virginiana* has come to light that is slender and straight (with no bulge in the middle), that roots readily from cuttings, that is a rich dark green in winter, that was produced by mother nature and is now growing beside the New Jersey turnpike where it has been right along. Its name: *Juniperus* cv. slender. If it proves worthy after further observation it will be registered and released to anyone interested (as cuttings only). How many turnpike travelers have noticed this tree?

It may be safely assumed that many arboreta and botanic gardens are working quietly with limited plant groups. Only time will tell their successes. This is also true of nurserymen. But the plants they are testing may not fit your needs. Here is an unlimited field of possibilities suited to amateurs. They need have little fear of duplication. *Ilex* has been worked on by many and *Magnolia* by more every year, and now *Kalmia* is becoming available in new spring clothes, but how about *Stewartia*? *Hortus III* lists *S. monadelphica* and *S. pseudocamellia* for Zone 8. In my experience seeds from various sources have produced happy and fast-growing flowering

trees of these species in Barnard's Inn Farm, Zone 6. Seed produced in eastern Pennsylvania from a tree labeled *S. koreana* planted in 1958 produced a flowering tree 15' or so tall. But its flowers are smaller and its bark greyer than on *S. koreana*. So it seemed it was crossed accidentally with *S. monadelphica*, since the 2 species were growing near together and a hybrid tree resulted. The seedling tree is now listed as *S. X Henryae*, the correct name for that cross.

Imported Japanese seed of *S. monadelphica* planted in 1965 produced a bushy flowering shrub about 7' tall in 10 years, thoroughly hardy in my conditions, but quite unlike those in local arboreta as regards tree habit. Is there no local source of true *S. monadelphica* or are the available trees misnamed? *S. pseudocamellia*, grown from seed, has been the most successful species of *Stewartia* in my experience, nor is it possible to distinguish progeny of *S. koreana* from progeny of *S. pseudocamellia*, at least in 10 years' observation. Our native *S. ovata* and *S. malacodendron* are much slower to mature, but well worth the wait. These last two species from the southeastern United States were planted in 1966 and 1960 respectively. Neither has yet flowered. In the meantime they are rewarding for their glossy leaves and rich fall coloring.

Curiously enough, it has been my observation that some native American plants, when moved out of their normal range, either in altitude or latitude, are far less easily adapted to my conditions than their Far Eastern counterparts. Not only is this so with the *Stewartias*, but also with *Acer pensylvanicum* vs. *Acer rufinerve*, or with *Carpinus carolina* vs. *Carpinus techonoski*. The Japanese plants are quicker to mature and better able to adjust to our climate than the native counterparts. Details of my climate include sandy soils, summer droughts, thin nutrition, cold winter winds, and an acidity reading of 4.5 - 5.2.

Is there no-one working with our lovely fringe tree, *Chionanthus vir-*

ginica? There is ample variation in seedlings to make clonal selection desirable. Also there is the floriferous *Chionanthus retusus*, Chinese fringe tree, to work with. Or how about the sorrel tree, *Oxydendrum arboreum*? The tree is beautiful in three of the four seasons, at least. But I do not know of any clonal selections at this time. Or how about the genus *Styrax*? There are charming species native to the eastern United States that are not known to many gardeners, and there are several species from the Far East that are better known. Unfortunately for me, there is something about my conditions that militates against success with the handsome *S. obassia*, listed for Zone 5 further north. Possibly it is our droughts that are not to its liking. Or, why, to my knowledge, is no one working with *Ungnadia* or *Zenobia*, both excellent native plants, quite at home in Zone 6? As a start, why not grow a seedling progeny from any genus of your choice and make selections suitable locally? That is all the home owner really needs. When the work is a hobby, the time factor, crucial to a nurseryman's budget, is no longer a hindrance to ultimate success. The pleasures of close observation are rewards enough. "Instant garden" is not a civilized concept, in my opinion. Who ever heard of "instant Rome"?

Camellias are listed for Zone 7B and 8, and yet *C. japonica* and *C. sasanqua* are not the only camellias growing on Barnard's Inn Farm, in Zone 6. There is one plant of *Camellia oleifera* that has been covered in October for 2 years with two inch white flowers. It is now about 6' tall and 6' wide. It was planted as a small rooted cutting in 1965. *C. saluenensis*, a Chinese species, grown from seed in 1960, has flowered in late spring since 1974. Some of these seedlings, which were open-pollinated, appear to be *C. X Williamsii*. Their pale pink single flowers are definitely ornamental. *C. japonica* from seed have flowered, too, but more reluctantly in our short season. The only remaining *C.*

sasanqua from my trials which has bloomed is *C. cv. 'Maiden's Blush'*, which was grown from a cutting in 1964. Last fall, in its very sheltered corner, it bloomed well. The graceful single pink flowers nod in the master bedroom of the 17th century farmhouse through the chilliest October rains, or the brightest Indian summer days. Though a very small plant, another *C. sasanqua* seems to be on its way called *C. cv. 'Ginrei'*.

Hortus III lists *Aucuba japonica* as another plant for Zone 8. Fresh seed imported from Japan in 1960, taken from fancy leaved kinds, germinated readily, but only two plants proved hardy in my Zone 6, both concolor green males. These two plants are now 4' tall and bloom regularly in early spring. Broad and narrow leaved females have been added to the grouping. No variegated types are among them. The blossoms of the males are frequently blackened by frosts in late May. I have read in the explorers' literature that aucubas, native in Japan, follow *Camellia japonica* further north in Honshu than any other broad-leaved evergreen.

When it comes to trying *Taiwania cryptomerioides*, listed for Zone 9, one is really living dangerously. Yet the seeds from a newly-discovered northern source planted in 1971 have yielded one plant still alive in 1976 in the open nursery. Only time will prove or disprove this experiment.

The Mexican pine, *Pinus ayacahuite*, is listed in *Hortus III* for Zone 8, but it is one of our tallest and handsomest trees. First seen many years ago in the Bailey Pinetum, Westtown School, Pennsylvania, seeds from two sources were planted in 1961. The five resulting original seedlings have produced trees of some dissimilarity in form, yet all are densely foliated to the ground. They are massive, soft to touch, a rich green color, and from 10 to 15 feet tall. I feel that this pine should be grown wherever pines thrive, at least up to Zone 6. After all, you never know until you try. □

Wandering Through Winter

Continued from page 17

These are all deciduous. *Pinus bungeana* is a short needled, somewhat vase-shaped or round-headed evergreen, often multi-branched from the base. It grows slowly and gets more attractive each year. In the early stages a little judicious pruning of lower branches may be needed to reveal the patterning of the trunks, a patchwork of grey, green and yellow, becoming white in old age I understand . . . don't we all!

From bark to berry. Holly, of course, with 'Burfordii' the choice where only one is wanted, and where it is hardy, because it fruits even when grown alone. The *Ilex x meserveae* hybrids bred for cold climates have such blue-sheened glossiness that even the males ('Blue Boy', 'Blue Prince') are ornamental, as well as being mates for the fruiting 'Blue Princess' and 'Blue Angel'. Deciduous hollies such as the treelike Possum Haw, *I. decidua*, the eight foot *I. verticillata* and its Japanese equivalent *I. serrata* all put on a fine display through much of winter, though all too few nurseries offer them as sexed plants, also the case with Sea Buckthorn, *Hippophae rhamnoides*. Nurseries describing the berrying potential of this shrub without mention of its dioecious nature are surely contravening the truth in advertising laws . . . or is ignorance an acceptable defense? *Skimmia*, too, only Zone 7 hardy, must have a mate unless the low growing *S. reevesiana* with perfect flowers is chosen. Red berries are generally preferred to orange and the hardiest red-berried *Pyracantha* is *P. atalantioides*, by no means the equal, however, of the *P. crenatoserrata* selections such as 'Graberii' so popular in the south.

Just a few among many possibilities. Whether from blossom, from bark or from berry, the winter garden need not be drab. □





Bare Bones of Winter

Martha Prince
9 Winding Way
Locust Valley, NY 11560

Photo by Martha and Jordan Prince

Gardeners, like bears, tend to hibernate in winter. They mope indoors, poring over bright flower catalogues and waiting impatiently for spring. How wasteful of a season with special beauties of its own! Bundle up in your woolliest coat, pull on your boots, wrap a muffler up to your ears, and come out to inspect what a December day has to offer.

Trees, in shedding their leaves, shed all pretense. The green dresses of summer, and the red and yellow ones of autumn, seem but forgotten camouflage which hid much of nature's finest structural design. Over-arching elms (*Ulmus americana*) are most gracefully displayed in winter's basic silhouette. All the trees boldly proclaim their distinctive identities against the backdrop of sky. Thick in trunk, broad and sturdy, old oaks of many species (such as the white—*Quercus alba*, and the chestnut—*Quercus prinus*) assert their royalty. The narrow, neat, round-topped sourwood (*Oxydendrum arboreum*) keeps a prim secret of the superb honey the bees will manufacture from its sprays of white blossoms in the spring. The shipmast locust, a form of the black locust (*Robinia pseudoacacia*) called 'Rectissima', stands tall and straight, but juts out short, stubby, broken branches to jab at the grey sky. Our lovely symbol of spring, the white dogwood (*Cornus florida*), reaches its branches outward and upward in successive short curves. The Japanese maples (*Acer palmatum* and all its many forms), "pretty" when clothed in delicate leaves, are now strange and twisted acrobats, contorted in loops and bends. Trees with the most beautiful bark now show it off with pride. Our

white birch (*Betula papyrifera*), peeling into papery layers and marked by dark lenticels, is at its most dramatic when growing in clumps. An almost-weeping form of the European birch (*Betula pendula* 'Gracilis') stands as proudly, but droops slender fingers to play in the winter wind. Smooth, tight, lined grey bark, almost a silver in color, clothes the beech (*Fagus grandifolia*). This, our American beech, stands tall; the European (*Fagus sylvatica*) may be an awesome thing, especially an old tree of the weeping form (*F. sylvatica* 'Pendula'). "Grandeur" is too small a word.

Come look for yourself. Straight trunks, twisted trunks, graceful branches, angular branches, upward-reaching twigs, or drooping ones—the trees are writing unique signatures, and learning to read them is an adventure. Even the "paper" against which they write is beautiful; the winter sky is different. It may be a darker, polished blue, or a fierce and marbled gray; the sunset sky is often richer than the one of summer. A tracery of branches against a wintry moon has no match in May.

Flowers have been succeeded by seeds. True, you must look for them, as they do not signal their presence. If you have admired the star-like leaves of sweetgum (*Liquidambar styraciflua*) and the deep red of its autumn color, now is the time for collecting the prickly brown (*Styrax obassia*), replaces its racemes of fragrant blossoms dipped in gold or silver paint, to ornament the Christmas tree. Do you remember the dainty white bells chiming on the silverbell tree (*Halesia carolina*) last spring? They have now been transformed into long four-winged seeds hanging in swaying rows along the branch-tips. And a cousin of silverbell, the snowbell (*Styrax Obassia*), replaces its racemes of fragrant blossoms with sprays of round "grapes"—that is, if grapes grew in two neat rows. Perky cups, opening into five-pointed stars of dark brown, are the empty seed pods of *Stewartia koreana*, and are very attractive. Most seeds are! The empty clusters of the deciduous azaleas are favorites.

Acorns make a fascinating study in themselves; when you walk along, look only at the ground, pick up the acorns, and see if you can identify the oak. Big fat acorns, half inside their bumpy cups, are actually an edible gift of the chestnut oak (*Quercus prinus*). As a child I tried to imitate the Cherokee Indians, and make flour for bread—with notable lack of success. Some acorns are almost hidden within the cups. The overcup oak (*Q. lyrata*) nearly smothers its acorns completely. The northern red oak (*Q. rubra*) holds its acorns in cups so flat as to be dishes, of sorts. The bur oak (*Q. macrocarpa*) is also called the "Mossycup"—for fringed and mossy are exactly how the cups appear. Big acorns, little acorns—fat acorns, slender acorns—any park, arboretum or woodland should provide an assortment. We have woods of our own, and often plant a pocketful of acorns to add variety—someday. As everyone knows, gardeners believe in their own immortality.

Then, of course, there are nuts. Black walnuts (*Juglans nigra*) are not as common as they used to be; many of the best trees vanished into veneer factories. However, they are so distinctively delicious that the two-inch balls are worth a search in early winter. The outer husk contains a brown dye, which was used by the Indians; watch out, or you will dye your hands! When not dried properly there is a mushy layer between the husk and the nut shell itself; because of this, they can make rather a mess on a tidy lawn. The classical method of treating walnuts on a lawn is to rake them onto the driveway, then go back and forth over them with the wheels of a car. A practical solution. And hickory nuts! Some are, indeed, pignuts (and pigs are probably their only devotées). Shellbark and shagbark hickories (*Carya laciniosa* and *C. ovata*) are well worth bringing into the kitchen. True, a hammer is needed to crack them—but if you have ever eaten hickory nut bread you won't hesitate.

The ground is a treasure trove of cones, too. There is much variety—large and small pine cones, spruce, fir, cedar. The use of spirals in nature is possibly best studied here. A special pleasure is to visit a grove of hemlocks, and be an eavesdropper on the chatter of a swarm of busily lunching chickadees.

I have been talking of a grey and brown world. There is color, lots of it. Among the bright reds are the now-visible stems of one of the shrub dogwoods (*Cornus alba* 'Coral Beauty'). Its warm glow is an unexpected surprise. A fresh yellow-green marks the stems of *C. sericea* cv. *flaviramea*. There is color, too, in the array of berries. The viburnum berry clusters do not shrivel until late in the winter; the glossy red of *Viburnum opulus* makes a gay contrast beside the yellow of *V. opulus* 'Xanthocarpum.' Some viburnums have blue berries.

Have I forgotten the hollies? Of course not—but there are many other than the ones we traditionally associate with the holiday season. The green and white blotched leaves of *Ilex aquifolium* 'Argenteo-marginata Silvary' are quite startling. Our favorite *Ilex opaca* may have yellow berries instead of red ('Canary' is one). *Ilex pedunculosa* has smooth leaf margins, and hangs its berries singly, on long "strings," as though they were truly intended to be ornaments on the Christmas tree. One of the loveliest native hollies, to me and to the robins, is a deciduous one, winterberry (*Ilex verticillata*).

What else might it take to lure you outdoors? Perhaps a glistening layer of velvety white snow, for that turns the world into the Snow Queen's kingdom. Even a few dried clumps of grass, emerging from the white, have the delicate beauty of an etching. The prosaic stack of logs, intended for the fireplace, becomes suddenly beautiful. And no plainest, straggiest, most ordinary tree fails to seem an exquisite crystal tracery, when iced by a winter rain and glittering in a pale sunlight.

Leave those garden catalogues alone! There are months to go before the spring—and winter is here to enjoy now! □

Reflections on the Katsura-tree

Continued from page 23

plants were 3 to 5 feet high and well branched. The early freeze (September 1974) did not damage the plants and they were placed in an opaque poly-house for overwintering. Surprisingly there was no die-back on any of the 150 plants which were stored. Fifty plants were shifted to 3 gallon containers in May of 1975 and fertilized similarly to the previous year. The vertical (height) increases were not as great as the first year for the plants grew 2 to 3 feet; however, they doubled or tripled in caliper and developed into well-branched, attractive and, from a nurseryman's or customer's viewpoint, highly salable or purchasable plants, respectively. Katsura-tree, like many other woody plants, is well adapted to container culture and it is possible to produce a 5 to 8' well-branched container specimen in a year and a half, whereas under field conditions a similar plant would take 3 to 4 years to develop.

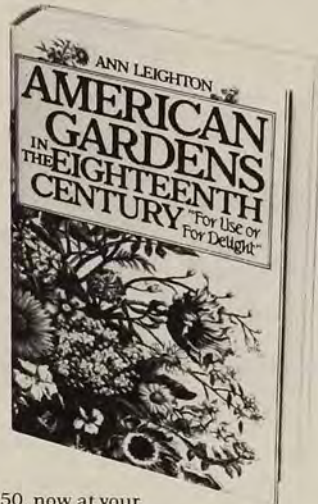
Effects of pH

In retrospect I might add that the fall color on the one-gallon plants was a beautiful apricot while the larger trees on campus turned yellow, even the tree from which the seed was collected. Perhaps pH affected the degree of red pigmentation for the container plants were in a medium of pH 5.5 to 6.0 while the campus trees were growing in soils with pH ranges of 6.5 to 7.5. An English authority noted that the species withstands chalky soils but does not color readily there.

The Morton Arboretum, Lisle, Illinois; the Arnold Arboretum, Jamaica Plain, Massachusetts; and Spring Grove Cemetery, Cincinnati, Ohio, have excellent specimens of *Cercidiphyllum*. The largest specimen I have witnessed is located next to the town hall in Amherst, Massachusetts, and measures 60 to 70 feet in height and 80 to 90 feet in spread. □

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Important Quotes

Continued from page 9

till planting systems if a mulch is present on the soil surface.

A recent survey of entomologists in Delaware, Illinois, Michigan, North Carolina and Virginia indicated intensity and frequency of



damage by above-ground insect pests of corn and soybeans more common in no-till than conventional systems. Although injury levels differed from state to state, the major insect pests were armyworms, cutworms, stalk borers, European corn borers, corn rootworms, white grubs, and such non-insect pests as slugs and mice. Root aphids caused damage in no-till corn in Kentucky and North Carolina. New in-furrow system insecticides and other control and management systems can prevent insects from being severe deterrents to no-till.

There are many areas of the United States where neither wind nor water erosion is a serious problem, says Dr. Robert Frans, University of Arkansas professor of weed control. The no-till concept is questionable for such areas, unless there are consistent economic advantages for its use. The Mississippi River Delta is one of the questionable areas.

Early experience in Arkansas showed little difference in yields of cotton and soybeans grown under minimum vs. conventional tillage. Cotton gave a slight yield response to minimum tillage. The reverse was true for soybeans.

Yield differences emphasize the frustration that farmers often en-

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counter with double-cropping. Moisture may be short following wheat harvest, causing poor stands of the second crop. Or there may be too much rain, causing excessive weed infestations.

When little or no control of competitive vegetation was obtained with the no-tillage method because of no application of herbicides or ineffective herbicide action due to too much rain, yields were reduced with the no-tillage system.

The potential for no-till crop production in the Mississippi Delta can be summarized as follows: If you can second guess the weather and the predictability of your weed control program, you might do as well with no-till as with conventional crop production practices. Unfortunately, you also stand a chance of finding your no-till fields covered with weeds.



A research team headed by Agricultural Research Service agricultural engineer Keith C. McGregor, USDA Sedimentation Laboratory, Oxford, Miss., found in a 3-year study that no-tillage methods of cropping greatly reduced soil losses compared to conventional tilling.

In the case of soybeans, says Dr. B. D. Carriere, USDA ARS, in a report on the research, seven times more soil was lost through erosion from conventional tilled plots than from the no-tillage plots. Also no-tillage had a beneficial cumulative effect: as surface matting and mulch increase, soil erosion continues to decline, and the least amount of erosion recorded from no-tillage plots was in the third year of the test. On the other hand, erosion from conventionally tilled land was highest during the third year. □

Honeybees, Flowers and Man

Continued from page 11

shift in land use from pasturage to row crops like corn and soybeans. It doesn't take an especially enlightened beekeeper to understand the dire consequences of the situation.

Where once it was possible to produce a net surplus of 100 or more pounds of honey per colony per year, colonies now are often considered well located and well managed if they produce an average of 50 pounds net surplus honey.

White sweet clover, said to have been brought to this country by accident, was widely planted in farm rotations as a soil builder during the second quarter of this century. White sweet clover is credited with providing probably the greatest quantity of honey ever produced in the United States. But in today's economy, white sweet clover is not a cash crop, is not planted, and occurs only accidentally along unkempt roadsides and in old fields.

White Dutch clover, once an excellent early summer source of great quantities of honey, is now largely considered a noxious weed and is being eradicated from lawns, golf courses and institutional lands which once were dotted with the attractive white flowers. White Dutch clover was also heavily utilized by bumblebees and other valuable native insects.

Since the production of honey is the primary goal of most beekeepers, the decline in abundance of the major melliferous plants, such as the clovers, is disastrous. However, the seriousness of the situation varies both regionally and locally. If a beekeeper carefully surveys an area in terms of farming practices, it is still possible to site a bee yard for reasonably good production of honey.

Insecticides are a major threat to honeybees in many sections of the country. Often the workers encountering poisoned nectar are killed

within a matter of minutes; others die after they return to the hive. Insecticide poisoning of pollen sources has a much more subtle effect on the honeybee colony in that the workers carry the poisoned pollen to the hive where in a chain-reaction process vast amounts of brood and non-field bees are killed. Sevin, or Carbaryl, is especially noted for its damage to honeybee colonies.

Aside from its relationship to man in terms of pollination of plants and production of surplus honey, the honeybee has become extensively naturalized, living in hollow trees and other places of shelter. Under these conditions the honeybee demonstrates a remarkable survival ability. It is this population, often in remote areas, that will more than likely be associated with the flowers of native plants long after the relationship of the honeybee and man comes to an end. □

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Street Trees in the Northwest

W. H. Warren
6-1041 St. Charles Street
Victoria, B.C., Canada

Before World War I, Victoria, British Columbia, experienced a real estate boom. Deciduous forest trees were thickly planted on boulevards (parking strips) to promote new subdivisions regardless of obvious potential problems with low overhead wires. To control growth the trees were pollarded annually. The soft growth which resulted brought about insect problems. Linden, elm and maple trees were heavily attacked by leaf hoppers and aphids. Sticky, sooty mold blackened sidewalks under sycamore maples. This became my problem in 1930. Basic information on suitable smaller replacement trees was negligible, so the project became a pioneer one. First step was to remove alternate trees and replant with smaller types. Then the balance of the forest trees were taken out to leave the new trees approximately 40' apart, twice their former distance.

A point should be made here that if shade requirements are not a prime factor, then close planting is both costly and wasteful. Serious consideration should always be given to proper spacing of street trees from both aesthetic and budgetary considerations.

For this article, major cities with established street tree plantings in coastal British Columbia and the Puget Sound area were asked to list good and poor trees for street plantings. Replies from smaller cities were inconsistent. This may be partly due to inexperience in evaluating trees—it takes time; but varying climatic conditions are also involved. Victoria only gets 4.27 inches of rain during the five month growing season May-September—which necessitates summer watering of all newly-planted trees.

Vancouver and Seattle, 60-80 miles distant, receive 8.3 inches and 6.2 inches respectively.

Temperatures vary enough to make the use of *Prunus blireiana* practical in Washington State but not in British Columbia, where occasional winter injury is a factor.

Seattle and Tacoma have given very serious study to street tree selection, no doubt assisted by the excellent experience and guidance of the staff of the University of Washington Arboretum. Noticeable in their lists are the clonal selections of the late Ed Scanlon and others. It was also interesting to note that some cities made good use of local selections. Victoria has a good non-seeding selection of *Fraxinus ornus*. Vancouver uses *Cornus* x 'White Wonder', a hybrid between *C. nuttallii* and *C. florida*. It has also propagated and used over 10,000 trees of a hybrid of *Tilia euchlora* selected from a specimen planted about 1910.

Someone has said, "There are no bad trees when the right tree is planted in the right place." When the wrong tree is planted in the wrong place there is bound to be trouble. It may take years to evaluate them for a given area only to discover that trees which may be unsuitable for you may grow very well on streets in another city nearby. It can usually be expected that trees on streets will be less than normal size because of the various unnatural conditions on city streets.

In my opinion it is as important to know what trees to avoid as it is to know the desirable ones. There is general agreement that poplar and willow have no place on a street. Members of the rose family, with some exceptions, are suspect. Most cherries and mountain ash are short-lived and may lack vigor. All

Rosaceae species are highly subject to pests, particularly English hawthorn and its varieties.

Pruning can be a problem with the latter. Summer pruning has been found to be more successful in controlling unwanted sucker growth on them. An exception has been *Prunus cerasifera pissardii* and *P.c. nigra*. These have thrived successfully under dry summer conditions in Victoria, lasting about 55 years. They look best alternated with green leafed trees. *Betula papyrifera* looks well with them. Fruit trees are out; but opinions vary as to use of flowering crabapples. Two natives are generally banned—*Acer macrophyllum* which has a large buttress root base like horse chestnut, and *Alnus rubra*. While most maples and linden are subject to sucking insects in Victoria, they are acceptable elsewhere. *Aesculus x carnea* and its cultivar 'Briotii' on the other hand are well-behaved. Silver maple is generally regarded as unmanageable. Birch borers do not appear to be a problem in Victoria, but European birch is particularly susceptible to aphids. Paper birch has been an excellent alternative.

Because of the poisonous seed, laburnums are usually excluded from street plantings.

Thanks are expressed for assistance from street tree officials in the following cities for their help in preparing this report: Vancouver, Victoria and New Westminster, British Columbia, and Seattle, Tacoma and Kent, Washington.

Mr. W. H. Warren was Parks Administrator for the City of Victoria, British Columbia, 1930-1970. He is presently horticultural consultant at The Butchart Gardens. □

Best Street Tree Selections

SEATTLE

Small or Narrow

Acer rubrum 'Armstrong II'
Carpinus betulus 'Pyramidalis'
 (best in clay)
Prunus maackii
Prunus padus
Prunus sargentii 'Columnaris'
Pyrus calleryana 'Chanticleer'

Medium

Acer platanoides 'Emerald Queen'
Acer rubrum 'Red Sunset'
Acer rubrum 'Schlesingeri'
Fraxinus oxycarpa 'Flame' (outstanding)
Liquidambar
Malus X 'Snowdrift'
Malus X 'Wintergold'
Prunus sargentii
Tilia cordata 'Greenspire'
Tilia cordata 'Bicentennial'
Tilia cordata 'Scanlon x P110'

Tall

Aesculus hippocastanum
Pterocarya fraxinifolia

TACOMA

Small

Acer ginnala
Carpinus betulus 'Columnaris'
Crataegus X *lavallei*
Crataegus 'Toba'
Koelreuteria paniculata 'September Gold'
Oxydendrum arboreum
Prunus X *blireiana*

Medium

Prunus avium 'Scanlon'
Prunus padus 'Plena'
Prunus maackii
Fraxinus ornus
Acer campestre
Carpinus betulus
Carpinus betulus 'Purpurea'
Carpinus betulus 'Quercifolia'
Pyrus calleryana
Pyrus calleryana 'Chanticleer'
Fraxinus oxycarpa 'Flame'
Fraxinus oxycarpa 'Golden Desert'
Aesculus X *carnea* 'Briotii'
Phellodendron amurense
Catalpa bignonioides
Davidia involucrata

Tall

Acer pseudoplatanus 'Spaethii'
Acer platanoides 'Crimson King'
Liriodendron tulipifera
Sophora japonica 'Regent'
Fraxinus americana 'Autumn Purple'
Fraxinus americana 'Rosehill'
Ginkgo biloba 'Fairmount'
Ginkgo biloba 'Autumn Gold'
Quercus borealis
Fraxinus pensylvanica lanceolata 'Marshall'
Cercidiphyllum japonicum
Liquidambar styraciflua
Quercus phellos
Quercus palustris 'Sovereign'
Tilia euchlora

VANCOUVER

Small

Acer cissifolium
 Japanese cherries 'Akebono'
 'Accolade'
 'Whitcombei'
Prunus sargentii 'Rancho'
Cornus x 'White Wonder'
Malus floribunda rosea
Magnolia kobus

Medium

Tilia euchlora hybrid (top selection)
Acer cappadocicum 'Rubrum'

Tall

Liriodendron tulipifera
Acer rubrum 'Sunset Red'
Quercus coccinea

Columnar

Acer rubrum 'Scanlon'
Fagus sylvatica 'Dawyckii'

Unacceptable Trees for Street Plantings

SEATTLE

<i>Acer negundo</i>	<i>Juglans nigra</i>
<i>Acer macrophyllum</i>	<i>Platanus</i>
<i>Ailanthus</i>	<i>Quercus palustris</i>
<i>Albizia</i>	<i>Robinia</i>
<i>Alnus rubra</i>	<i>Sophora</i>
<i>Betula pendula</i>	<i>Tilia americana</i>
<i>Catalpa</i>	<i>Ulmus</i>
<i>Crataegus oxyacantha</i>	Conifers
<i>Gleditsia</i>	Tree fruits

TACOMA

<i>Acer negundo</i>	<i>Platanus</i>
<i>Acer saccharinum</i>	<i>Populus</i>
<i>Alnus</i>	<i>Prunus</i>
<i>Betula</i>	<i>Quercus alba</i>
<i>Fagus</i>	<i>Quercus robur</i>
<i>Ginkgo</i>	<i>Robinia</i>
<i>Gleditsia</i>	<i>Salix</i>
<i>Juglans</i>	<i>Tilia cordata</i>
<i>Liquidambar</i>	<i>Ulmus</i>
<i>Malus</i>	<i>Zelkova</i>
<i>Paulownia</i>	

VANCOUVER

<i>Acer macrophyllum</i>	<i>Populus</i>
<i>Acer platanoides</i>	<i>Salix</i>
<i>Acer pseudoplatanus</i>	<i>Platanus</i> X <i>acerifolia</i>
<i>Aesculus</i>	<i>Malus</i>
<i>Prunus</i> —cherries	<i>Quercus alba</i>

VICTORIA

<i>Prunus subhirtella</i>	<i>Sorbus</i>
<i>Betula pendula</i>	<i>Crataegus</i>
<i>Cornus</i>	<i>Laburnum</i>

Acer nikoense— “The Glory of the Woods”

Mrs. Ralph H. Cannon
5849 N. Kostner Avenue
Chicago, IL 60646

There are many sugar maples, *Acer saccharum*, and black maples, *Acer nigrum*, growing in our woodland 60 miles southwest of Chicago. This suggested that we should try to grow other species of maples. We had read David Fairchild's "The World is My Garden" in which he wrote: "The loveliest of all the introduced species around the house was *Acer nikoense*, a maple from Japan and Central China. Its delicate leaflets turned to a more beautiful and brilliant scarlet than the autumn foliage of any other maple I had ever seen."

Thus the first non-native maple that we bought and planted in our woods was *Acer nikoense*, in 1950. The 6-foot whip was planted near and east of a large sugar maple because we were told that it was not too hardy in our zone 5, and we thought the large maple would protect it from the strong westerly winter winds. It has been growing 25 years now and is a magnificent tree about 25 feet high. I think we can say that it grows slowly and should increase in beauty every year, making it suitable as a specimen tree.

Acer nikoense is a trifoliolate species, on a bole of smooth greenish gray-brown bark. It has large dark brownish-green shiny leaves of three ovate to oblong slightly toothed leaflets about 5 inches long, pubescent beneath. This is one of the few maples that has compound leaves. At the end of each stalk there are three small leaflets on their own little stalk. The tree has an open crown and will in time reach a height of 40 feet. At Westonbirt arboretum in Gloucestershire,



Acer nikoense

England, there are a number of these trees 40 feet high.

We have found it to be an interesting tree throughout the growing season. In early spring it breaks into growing with salmon-pink foliage covered with silvery hairs. As the foliage unfurls the leaves become a shiny green. In summer the dark green foliage is decorative and its feathery leaves allow a little light to filter through its shade.

When autumn comes the rela-

tively large hairy leaflets erupt into brilliant scarlet and the tree becomes the glory of the woods. The color remains a couple of weeks an unforgettable picture, and then all at once over-night all the leaves fall.

This tree has withstood -25° F of cold and 100° F of heat and also our disastrous drought of 1976. We are unable to irrigate. It has not yet fruited but we will be looking each spring for the flowers that should come in cymes. □

Books

by Tom Stevenson

GREEN HOUSE GROW HOW

A Reference Book

by

John H. Pierce

Plants Alive Books

241 pages, over 400 illustrations
in color and black and white, \$19.95.

The author has spent 10 years in nursery production and landscape design and 20 years as a community college instructor in botany and horticulture. This book, he says, provides details on the methods and advantages of greenhouse growing, some basic botany and instructions on plant care. It is intended to be a reference that is kept at hand.

The book does indeed contain a vast amount of information and can be of considerable value to someone really interested in growing plants and curious about the facts of life insofar as they are concerned.

But like a gold mine, what you get out of it depends on how much you work (use) it.

It is really up-to-date. For example, two of the worst pests in greenhouse and garden are whiteflies and red spider mites.

Whiteflies are tiny sucking insects that feed on the underside of leaves (they are particularly fond of tomato and squash plants), they multiply rapidly. A cloud of them may arise from a plant that is disturbed and unless controlled infested plants may wilt and die.

Almost all of the insecticides usually recommended for control of whiteflies apparently have little effectiveness. A new insecticide, Resmethrin, now on the market in some areas, provides excellent control, and is listed in Pierce's book for that purpose.

Red spider mites also feed on the underside of leaves, and multiply rapidly particularly during hot, dry weather. They are tiny and hard to see without a magnifying glass.

There is a full page picture of a red spider mite, magnified nearly 700 times through the use of an electronic microscope, in the book, also excellent suggestions for control.

Something new in conserving heat in glass greenhouses was somewhat recently discovered at Ohio Agricultural Research and Development Center, Wooster. A double-layered, air-inflated plastic cover (602 greenhouse sheeting

by the Monsanto Co.) placed over one of the glass houses reduced total heat use by 57 per cent during cold weather.

Detailed instructions on use of the plastic are contained in Pierce's book. There is also information on solar heating and on a hot-water solar heating system.

There are many suggestions. For example, on a cold winter evening or a rainy summer night, you have to be a real plant enthusiast to take a trip to your greenhouse to see how the new cuttings are doing. A hobby greenhouse attached to the residence allows you to enjoy looking or putting anything, in your slippers.

PERENNIAL GARDEN PLANTS OR THE MODERN FLORILEGIUM

by Graham Stuart Thomas

David McKay Company, Inc.,

New York, 1976

389 pages with 16 color
and 24 monochrome plates. \$24.95.

Perennial borders have always been associated with a style of classical English gardening and with intensive hand labor that no longer is affordable. But Mr. Thomas does not think in terms of the herbaceous border that requires replanting, staking, tying, disbudding, and other time-consuming chores essential to good grooming. Rather, he views perennial gardening in terms of permanency and economy, choosing those plants which thrive with minimum care. Such plants can be grown either in beds or borders. Mr. Thomas prefers the mixing of trees and shrubs with perennials, allowing for retreats for shade-loving species and for background effects at all times of the year.

The first seven chapters constitute a book in themselves and summarize the remarkable wealth of gardening information acquired by the author. They reflect his approach to landscaping, culture of the perennial border, and choices of plants to meet his concepts.

The following four chapters, arranged alphabetically by genus, concern general perennials, grasses, sedges and rushes, and ferns. These are according to Latin names with a brief description of each plant; exceptional plants are starred or otherwise noted. The notes for each plant are obviously his own observations. The use of inches, feet, and metric equivalents for plant size is especially useful. Some 2,000 species are included. There is an interesting chapter at the end entitled "Cuttings From My Notebook," which lists his private plants, mostly less than 300 mm. (1 ft.) in height, some choice subshrubs, evergreen perennials, biennial plants, plants with handsome foliage, and plants for several

categories of special cultural conditions. The last chapter on pests and diseases (a single short paragraph on each) scarcely justifies inclusion.

One can explore the delights of perennial gardening through the observations of this remarkable gardener and achieve new vistas by use of Mr. Thomas' recommendations.

Review by John L. Creech, *Director,*
U.S. National Arboretum.

CACTI AND SUCCULENTS FOR THE AMATEUR

by

Charles Glass and Robert Foster

Van Nostrand Reinhold

New York, N.Y.—1977

72 pages, very well illustrated, \$4.95
paperback

Glass and Foster are editors of the *Cactus & Succulent Journal*. Their book is authorized by the Cactus and Succulent Society of America. The Society was formed in 1929 in order to help popularize the culture and study of succulent plants and to help bring together collectors from all over the country. The *Journal* is published bimonthly, with 6 issues per volume, and strives to maintain a balance with material of interest to the beginner, to the advanced collector and to the botanist.

What is a cactus, and what is a succulent? A cactus is a plant, the authors say, a plant is an organism that manufactures its own food, and a succulent is a plant which not only manufactures its own food but stores it . . . or at least, it stores water, the most essential ingredient of foods, in its stem, its roots or its leaves. Succulent means juicy; a succulent plant is simply a juicy plant.

Why does a succulent or any other cactus have a grab, a fascination, which the daisy or the rose or the geranium simply does not have? One element is undoubtedly admiration, the authors say. Here is a plant which has learned to survive in a hostile environment, a no-nonsense plant that has done away with all but the bare essentials necessary for survival.

Some are fierce, some are inconspicuous, few are dainty, delicate or frivolous except in the act of sex, a time when a plant which has spent its whole life being menacing or inconspicuous, suddenly cries out to the world, through an often dazzlingly beautiful flower (the plant's genitalia, as the pre-Victorians called it), "here I am, come and get me!" to the birds and the bees, but also to possible predators.

The book covers the field rather well, including culture, propagation, pests

and diseases, building a collection, and information with good illustrations of the various kinds.

"We have avoided trying to give rules in this essay," they say. "There is the illusion of comfort in rules such as 'water when dry' (what is dry?), 'full sun' (California sun or New York sun?), 'water every two weeks' (irregardless of pot size and porosity, humidity, activity of growth, size and habit of plant, etc.?)."

"There are no rules concerning good culture which may not and occasionally should not be broken; there are principles and guide-lines which when followed with interest, common sense and love will be of help.

"If the culture of plants were cut-and-dried matter rather than a living experience, it would have far less to offer. Fortunately such is not the case."

SONGBIRDS IN YOUR GARDEN

by

John K. Terres

Hawthorn Books, Inc.

New York, N.Y.—1977

300 pages, illustrated, \$5.95, paperback

This revised and updated edition of a 25-year old classic covers all aspects of bird-attracting and watching. It is suitable for any section of the country and is meant for city dwellers as well as suburbanites.

It contains practical instructions on what to feed birds, how to build birdhouses and birdbaths, which plants and shrubs will attract birds, how to imitate bird calls, and an entire chapter on attracting the beautiful hummingbird.

According to the author, in days gone by, Ernest Harold Baynes, former newspaperman, photographer, highly popular lecturer, naturalist and organizer of some 200 bird clubs, called his hometown of Meriden, N.H. "The Bird Village." There most of the residents attracted birds throughout the year; a town where the birds had been tamed so by the residents that they allowed themselves to be picked up.

"There is no mystery about it," wrote Baynes. "It is simply a matter of being quiet and gentle with your guests and of using a little thought and ingenuity for their welfare." Pine grosbeaks, white-winged crossbills, redpolls, pine siskins, nuthatches, and chickadees were among the wild birds tamed at Meriden.

One severe winter, when pine grosbeaks came down from the north, they were so fearless that Baynes and his wife and other bird-attractors in Meriden could sit down in the middle of a flock and have the birds come to their laps and feed.

One morning, Baynes invited the chickadees in for breakfast. He and his wife set their breakfast table close to the open window and sprinkled bits of walnut kernels on the tablecloth. While the Bayneses were eating, in came the chickadees. They looked up at their hosts, then picked up the nuts and flew off with them into the garden.

If you follow the instruction in this (my) book, says John Terres, the author, you will have opportunities to live as closely with birds as did Baynes and many others. In time you have many delightful experiences with individually friendly and tamable birds.

Even if you live to the south, you will have those constant day-to-day bird visitors to your garden that will learn to come to your hands for food. But first, you must start with a winter feeding program.

THE GARDENS OF MUGHUL INDIA

text by

Sylvia Crowe and Sheila Haywood

photographs and research by

Susan Jellicoe

plants and maps by

Gordon Patterson

Thames and Hudson, Inc.

New York, N. Y.—1977

200 pages, wonderfully illustrated,

\$12.95

The splendid garden tradition of Persia and Central Asia, introduced into India by the Muslim conquerors, was revived and magnificently developed by the six great Mughul emperors who reigned there from 1526 to 1707. Babur, the first of the six, after conquering Northern India, fixed his capital at Agra and set about planning the Ram Bagh on the River Jumna, one of the many gardens to be laid out all over northern and central India in the next two hundred years.

With the intense love of flowers characteristic of the Central Asian, the Mughuls created a distinctive style of garden art. It reached a peak of perfection in the beautiful Kashmir gardens built by the emperor Jahangir and his Persian wife Nur Jahan.

Built with imposing entrance gateways, often terraced, with gushing fountains, waterfalls and brimming pools, these gardens had a manifold purpose—a place for spiritual meditation or for shared delight, a retreat from a hot, dry climate and a resting place for the emperors on their lengthy travels.

In this book, the four authors have produced the first fully comprehensive study of this subject. It should be interesting and of value to the scholar, layman and traveller to distant parts.

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