Richard W. Bender has been growing and selling bonsai for over 35 years. He is an avid home gardener, who not only expects his plants to look good but also to play a supporting role in the home by supplying fragrant fresh herbs and fruits for the dinner table.

Richard's approach is radically different from that of other bonsai practitioners. He familiarizes this traditional art by inviting the plants into the living space, substituting dwarf citrus trees or herb shrubs for the outdoor species that are normally used (and which are finicky and expensive!). Instead of spending many years to bend a tree to your wishes, Richard shows you how to create "instant bonsai" in an afternoon using common plants that you purchase at a local nursery. You'll discover plants that also yield a delicious bounty:

- Fruits (such as cherries and oranges)
- Herbs (such as rosemary and thyme) that help you prepare a wonderfully fragrant pasta dish or roast
- Beautiful flowers (such as fragrant jasmine, edible guava and hibiscus) used in teas and wine
- Medicinals (such as tea tree and camphor laurel)

This book conveys all the information needed to begin growing edible bonsai, including plant characteristics, care requirements, potential plant uses, specimen choice advice and bonsai "carving" tips.

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BOUNTIFUL BONSAI

Create Instant Indoor Container Gardens with Edible Fruits, Herbs and Flowers

RICHARD W. BENDER

TUTTLE Publishing
Tokyo | Rutland, Vermont | Singapore

Dedication

When I was young, my mother told me, “Boy, the way you like to eat, you better learn how to cook.” I grew up with a large vegetable garden and operated a produce stand to earn money until I went to college. My family also collected wild mushrooms, fruits, and game animals in the woods. Following Mom’s advice, I learned to look for food everywhere, and learned to cook what I found. I even expect my houseplants to provide a useful crop. I dedicate this book to my mother, Marie K. Bender.

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CHAPTER 1

Bonsai: An Overview

While the history of bonsai goes back several hundred years in its modern form as developed by the Japanese, there is no doubt that mankind has shaped plants for as long as humans have grown and tended them. The first plants grown in containers were most likely valuable herbs or food plants that the growers wanted to transport or protect from harm. The oldest images of potted plants come from Egyptian paintings; Hindu doctors were known to keep medicinal plants in pots for easy cultivation and transportation around 1000 BCE.

Bonsai became a well-developed art in China during the first millennium CE, as evidenced by the first writings and paintings about bonsai as an art form. By the time of the Sung dynasty, around 1000 CE, bonsai as an art form was spreading throughout Chinese culture with paintings, poetry, and technical instructions in the literature of the time. It was probably around this time that bonsai was introduced into Japan, most likely by Buddhist monks; the first written records of bonsai appeared there around 1300 CE.

Bonsai developed into its modern form in Japan with very strict styles and conventions that mirrored the structured society in which it developed. Specimens were mostly grown outdoors, and were often tended for generations, passing from father to son, using native plant varieties that were suited to the local climatic conditions. Western society was exposed to the art of bonsai during the twentieth century, particularly during the aftermath of World War II. Many American GIs who spent time in Japan after the war became fascinated by aspects of Japanese culture, and bonsai was an interest that some of them brought home. The *Karate Kid* movies, the first of which came out in 1984, introduced bonsai to a new generation of children in the US. In fact, 1989's *Karate Kid, Part III* opened with the karate master Mr. Miyagi fulfilling his lifelong dream of opening a bonsai shop. A bonsai theme was prominent in that movie, including recapturing a "repatriated" bonsai tree that Mr. Miyagi had planted back in the wild after bringing it to America from Okinawa. Throughout the 1980s, as a bonsai artist managing several garden centers I witnessed an amazing number of children, primarily boys, who were looking for bonsai "like Mr. Miyagi's trees." Millions of children were exposed to and fascinated by bonsai as a result of this type of mass-media attention. Traditional Japanese bonsai had captured the imagination of the West.

Unfortunately, many of the resulting attempts at cultivation were unsuccessful. Millions of juniper bonsai died in people's homes as buyers reached out to embrace a fad without

understanding the conditions required to keep these trees alive. Traditional Japanese-style bonsai primarily uses outdoor trees that require a cold dormant period to thrive—junipers, pines, and maples. These outdoor varieties are not suitable for use as houseplants, and seldom last long indoors. As the art of bonsai gained a foothold in the West, however, more indoor varieties were used, because people wanted bonsai that could be put in the house and treated like houseplants.

The art of bonsai has developed with several different philosophies or schools of thought beyond the traditional Japanese style. The use of strictly indoor varieties has become most prominent of these, embracing many new varieties beyond the usual ficus and serissa that were among the few tropical varieties used by traditional Chinese and Japanese bonsai artists. A sideline to this is the specialization in flowering varieties. Another philosophy, similar to traditional Japanese-style bonsai, strives to use only local varieties native to the region and grow them outdoors.

An older style that seems to be losing favor is the collection of wild, natural bonsai. This is understandable, as the field trips to wild areas to collect "natural" bonsai that this tradition involved resulted in the defacement of natural areas and losses from digging up trees in the wild. Modern environmental ethics preclude digging wild bonsai from our dwindling natural areas.

There is still a place, however, for collecting "wild" natural bonsai when cleaning brush from cultivated fields, lawns, or vacant lots. Some amazing bonsai can be collected when cleaning out old yards and fields, without damaging our natural areas. A friend clearing brush from a lot collected one of the most unique bonsai I've ever seen, a wild elm with a two-inch diameter trunk that was cut off twelve inches above the ground and potted into a six-inch plastic pot. A year later, this stump had developed a fine, strong set of roots and a fringe of branches growing around the rim of the stump. My friend had always wanted a hollow-trunked bonsai, so as a demonstration at a bonsai show, he used a one-inch bit and a hand drill to hollow the trunk straight down from the top to an inch above the ground and in from the side to meet the bottom of that hole. He then took a two-handed electric router and carved a jagged "lightning strike" down several inches from one side of the top and shaped the hole from the side. As wood chips were hitting the roof of the greenhouse, the traditional bonsai artists in attendance gaped in amazement at the scene unfolding in front of them. I saw that tree again a year later, and it had survived the harsh treatment.

Using herbs as subjects for bonsai was only mentioned a handful of times in the previous history of bonsai writing before the publication of my article "Herbs as Bonsai" in the November 1987 edition of *Horticulture* magazine, which was followed by my book *Herbal Bonsai* in 1996. Herbal bonsai changes the whole timescale of bonsai development because of its comparatively fast growth. Impressive specimens can be created in as little as one growing season with a plant such as rosemary, yet these plants can be kept alive in pots for fifty years or

more. A moderately large herbal bonsai can provide homegrown fresh herbs in sufficient quantity to supply a household. Growing herbs indoors can be a little trickier than cultivating tropical plant varieties, but the idea of consuming your bonsai trimmings leads naturally to considering a fruiting bonsai that provides a usable harvest.

It seems a little incongruous to think of a bonsai tree providing enough harvest to amount to much, but bonsai don't have to be miniature. Even traditional Japanese classifications include bonsai up to six feet tall. An edible fig or a citrus tree of that size can provide an amazing amount of fruit. I have harvested enough of these fruits to make jam and to ferment into wine (although I will admit to freezing an entire crop and using a couple of crops to make two cases of wine). A friend asked whether I pour tiny glasses of bonsai wine. I replied, "Of course, we use sake cups to help provide the proper ceremonial courtesy when sharing such a rare vintage."

Limequat Mariachi wine.

Citrus trees have an added advantage in that most citrus fruits can sit on a tree for several months after becoming ripe without going bad, and can be picked fresh when ready to use. With a small collection of several varieties of citrus, it is possible to have fresh citrus to pick nearly 365 days a year, even in places like my home in the Colorado mountains. You may not be able to pick one every single day of the year, but it is quite reasonable to expect to pick a couple of fruits a week for cooking purposes. Varieties with smaller fruits have more appeal strictly as bonsai specimens, and also provide a bigger crop than large-fruited varieties. These small varieties include calamondin orange, kumquat, Key lime, and the harder-to-find limequat (a

lime-kumquat cross). The limequat is the heaviest bearer of fruit in my experience, and my calamondins here in Colorado usually produce two crops a year.

Limequats, a lime-kumquat cross, are a little smaller than an egg and turn yellow when ripe. Though sour, they have great flavor, and can be used peel and all in many kinds of cooking.

Though many people grow ornamental ficus trees in their homes, they seldom grow the species that produce edible figs. There are many cultivated varieties, of which *Ficus carica* is the most prevalent. Th e "standard" ficus, which resembles a lollipop stuck in a five-gallon nursery pot, is one of the most common houseplants sold in the plant industry, and is widely used in interior landscaping. An edible fig variety of the same size can produce several dozen fresh figs every summer. There are some differences in care and appearance between ornamental and edible figs that might seem daunting, but the benefit of obtaining fresh fruit from houseplants outweighs many other considerations.

This bowl of limequats made seven half-pints of limequat marmalade; the rest was fermented into three cases of wine.

Many dedicated coffee and tea drinkers don't realize that these plants are rather easy to grow as houseplants. The camellia, a popular flowering tree that blooms in mid-winter, is often grown as a houseplant in northern climates. *Camellia sinensis*, the tea plant, has smaller, less spectacular flowers than ornamental camellia varieties, but the white flowers are numerous and the blooming season lasts longer. Green tea plants and seeds can be found and purchased online. A regular tea drinker may not be able to grow their entire supply, but any amount of homegrown tea is a worthy addition to a collection of teas.

Coffee trees can be easy to find. Large trees produce many beans; some of the large foliage growers in Florida will throw a handful of coffee beans into four-inch pots and include the seedlings in their shipments of mixed-foliage plants. I've found these pots of coffee trees mixed into inexpensive foliage collections at garden centers all over the country. Coffee trees take some time to begin producing beans, but I have not only produced beans in Colorado from plants that started as six-inch seedlings, but have seen a six-foot coffee tree in Montana so loaded with beans there was fear the branches would break. Again, houseplants cannot be expected to offer a full supply of coffee, but the ability to offer coffee harvested from the beautiful tree in your living room on special occasions is priceless.

This thirty-inch dwarf pomegranate, cultivated from a five-gallon nursery stock plant, has been in training for seven months.

These fruits are considered ornamental. While their quality doesn't compare to that of full-sized commercial pomegranates, they are beautiful and technically edible.

A few edible species are becoming more common in indoor tropical bonsai collections, particularly Australian cherry (*Eugenia paniculata*), dwarf pomegranate (*Punica granatum* var.

nana), Barbados cherry (*Malpighia emarginata*), and Natal plum (*Carissa macrocarpa*). All of these are easy to find and have several varieties available, some of which are known to produce more fruit than others. Natal plums are used extensively in landscaping in the desert Southwest and should be easy to find at nurseries in that area. Dwarf pomegranates, which can flower and fruit heavily, are becoming very popular as bonsai specimens. Large fruiting pomegranate varieties have larger leaves that may go deciduous for a period; they aren't as attractive as the dwarf variety, but they do bear much larger fruit. The heavier flowering and fruiting varieties of Australian cherry are widely sold at local nurseries as large topiary specimens, but the miniature varieties that make the most spectacular bonsai only flower sporadically, and in twenty years of growing them, I have never seen them bear fruit.

Miniature Australian cherries seldom flower. This specimen is sixteen inches tall.

Several species of guava, including the strawberry guava (*Psidium cattleanum*), lemon guava (*Psidium littorale*) and pineapple guava (*Feijoa sellowiana*), produce delightful fruit and can be grown indoors. Papayas can be grown from seed out of fruit from the market; I have grown them from seed to fruiting in Colorado. Avocados, easily sprouted from their large pits, can be shaped into interesting bonsai, although they are unlikely to fruit in the home. Many people grow jasmine and hibiscus as flowering plants without realizing that these flowers are quite useful in herbal teas; I have also made wine from the flowers of my bonsai jasmine and hibiscus

specimens. While not technically edible, aromatic tropical trees like camphor, New Zealand tea tree, and eucalyptus can be grown as bonsai and provide a useful harvest. Furthermore, many unusual tropical fruits that are little known outside of their native areas could be experimented with as edible bonsai. I recommend experimenting with what you find locally, or seeking out any variety that captures your imagination. With the vastness of the Internet to search for unique varieties, the possibilities are endless.

Bonsai plants have a reputation for being very easy to kill and hard to grow, and for requiring a lot of time-consuming, detailed work. People are afraid to prune the tops of their plants, much less trim the roots of their valuable aged specimen. People who are afraid to prune their houseplants end up with long, spindly stems reaching for the ceiling with a little tuft of foliage on top. Pruning such a plant in order to produce a pleasing shape is easy, and creates a stronger, more stable plant. This is not much different from shaping a plant as a bonsai. When a plant is intended to produce a crop, some considerations may be different from traditional bonsai practice, outweighing ideals like always maintaining a perfect shape. Larger, fuller crowns are needed for a good-sized crop, making the sparser, heavily pruned style of bonsai unsuitable if production is important. Some desirable fruiting specimens, including the large-fruited citrus varieties like full-sized lemons, limes, oranges, and grapefruit, have leaves that are larger than would be desired in a more traditional bonsai style.

This seventy-inch-tall lemon tree bends under the weight of its twenty-seven lemons.

In traditional bonsai, the ideal specimen has a pot that is no deeper than the diameter of the bonsai's trunk. Striving toward this "perfection" leads to most bonsai being sold in very shallow trays that are difficult to keep watered in homes with heaters and dehumidifiers—a problem that is compounded in dry climates. Especially when growing a large indoor bonsai specimen that might reach several feet in height, a larger, deeper pot than is traditional must be used to keep the plant healthy and productive. Root pruning—a requirement for training a tree that might grow over fifty feet tall in its natural environment to be an eighteen-inch specimen when it is 250 years old—also seems to be a sticking point for many potential bonsai enthusiasts. Pruning for this type of bonsai, as described in much bonsai literature, may involve washing all the dirt from the roots just before the tree breaks its dormancy in the spring and pruning a third of them before returning it to the same pot with fresh soil. This is very intimidating to the novice.

Small roots were pruned in the process of exposing the base of the trunk and shaping the root ball of this strawberry tree.

The original soil level can still be seen on the trunk of this strawberry tree.

Most of the varieties discussed in this book are shrubs and small trees that are easy to keep in shape just by pruning the tops, although you sometimes have to let the tops get a little wild

and wooly in flowering and fruiting season. Most of these tropical plants do not go dormant (edible figs are an exception) and cannot survive such harsh treatment as washing all the dirt from the roots. Like most typical houseplants, repotting involves gently disturbing the roots to stimulate growth into the new soil in a slightly larger pot. Sometimes roots at the base of the trunk are pruned and exposed to simulate aging and give the bonsai character. Because larger and deeper pots are used than with traditional bonsai, harsh root pruning is seldom required. Lightly pruning the foliage at the same time as repotting allows the plant to stay in balance with the disturbed roots, preventing it from going into shock before the new hair roots begin to grow and nourish your bonsai specimen.

Light requirements are another consideration in some situations. Most flowering and fruiting tropical varieties in this book require bright light to do their best; they may not produce if they don't receive enough light. Edible figs actually do much better outside during the summer. When they go dormant and lose all their leaves for a couple months in the winter, figs do just fine in a lower-light situation, or even a basement or garage kept above freezing, until they start to sprout new leaves again in the spring and once again need brighter light. Citrus plants are also happier outside in the summer, but in climates with cloudy and colder winter conditions, these light-loving bonsai specimens may need supplemental lighting. Inexpensive full-spectrum plant light bulbs that screw into normal sockets or even track lighting can be found in any large hardware or lighting store. Even a single 150-watt bulb can make a huge difference when providing supplemental light for a large specimen during low-light seasons.

Most people believe bonsai need constant daily misting in addition to other the time-consuming work required to keep bonsai. This myth was spread by workers at garden centers, who hoped that constant misting would keep little juniper bonsai alive longer indoors, or at least keep foliage soft enough that it would take a while for the bonsai enthusiast to realize the tree was really quite dead. I observed this behavior during thirty-five years of plant industry work while managing four large garden centers and operating my own wholesale bonsai business for twenty years. In fact, daily misting will benefit a bonsai for a week or so after repotting, since the disturbance to the roots hampers the plant's ability to draw water from the soil. This is especially true in dry climates and when repotting is done during warm weather. Outside this period, however, the varieties described in this book have no need for daily or even regular misting (although any specimen that will live for years will benefit and look better after being rinsed in the shower or outside with a hose a couple of times a year).

Another myth about bonsai is the belief that maintaining a bonsai specimen requires hours of detailed work and pruning on a regular basis. This is a complete misconception. Traditional outdoor bonsai grow so slowly that some varieties are only pruned once a year, and in cold climates are put into cold storage with minimal care for the entire winter. Fast-growing tropical bonsai need to be pruned several times a year; this can be seasonal depending on fruiting

patterns. An edible fig can grow a three-foot shoot in a couple months during the spring, during which period it may be pruned a couple of times and then left alone until it goes dormant the next winter. Even fast-growing herbs don't need to be pruned more than once every month or two, although if a perfectly groomed specimen is desired, herbs need much more detailed work than slower-growing tropical bonsai or the traditional deciduous or evergreen outdoor bonsai. Because herbs grow so quickly compared to most tropical plants, and their leaves age and yellow in a much shorter time, they need to be pruned more often. A neglected herbal bonsai can show a lot of yellow leaves that are just a natural part of aging. Simply combing the foliage with your fingers will remove most of these leaves; the last few can be removed individually when grooming the herbal specimen for display.

Growing indoor bonsai that produce an edible crop doesn't have to be difficult. Water a couple times a week, fertilize once a month, prune a couple times a year, repot every couple of years, add supplemental lighting if needed, and harvest your bonsai crop when ready. The varieties discussed in this book will grow in typical potting soils—no need for special bonsai mixes designed for evergreens and deciduous trees. Miniaturizing giant outdoor trees over decades and centuries requires very limited use of fertilizers, but indoor tropical varieties grow year round and need regular feeding. As a rule, most commonly available fertilizers used at recommended strength will work just fine with these bonsai, although some varieties will prefer more acidic fertilizers.

Growing indoor fruiting bonsai is much easier than it sounds and can be very rewarding. Many people have sprouted citrus seeds and grown spindly trees that seldom produce fruit; by using the proper varieties and giving them the correct conditions, a surprising quantity of citrus fruit can be produced even in northern climates. Despite bonsai's reputation for being difficult to grow and keep alive, anyone who is even moderately successful at growing common houseplants should be able to grow spectacular indoor tropical bonsai that can produce a usable crop. Many plant owners cultivate the same few varieties of common houseplant that have no use beyond their ability to cleanse the air and provide a pleasant atmosphere in the home. Th e primary difference between these common houseplants and edible varieties trained as bonsai is that flowering and fruiting varieties as a rule need bright light, and thus may require supplemental lighting. The number of potentially useful and edible varieties of tropical plants that can be trained as bonsai is large, making possible a distinctive display of green plants unlike those in most homes. Furthermore, serving a guest produce from a beautiful house-plant can add a unique dimension to your hospitality, and makes for a very rewarding experience.

CHAPTER 2

Creating Instant Bonsai

The easiest way to start your edible bonsai collection is to visit a garden center and purchase an already-created bonsai from one of the varieties commonly used in the bonsai trade. Australian cherries, dwarf pomegranates and Natal plums should be easy to find this way. They will be small, like traditional bonsai, and won't bear heavily until they get some age and size. The garden center may also have "bonsai starters," which are less expensive partially shaped trees in four- to six-inch pots. These groomed starters, which need a minimum of pruning and often have large roots to expose upon repotting, can be planted in nice pottery and will look good immediately.

Depending on the size and quality of your local garden center and the area where you live, some of the varieties discussed here may be available as nursery stock plants in one-, two-, or five-gallon nursery pots. Australian cherries, pomegranates, olives, myrtles, figs, rosemary, and citrus are widely available in larger pots even in colder climates where they aren't planted outside as nursery stock. Plants ordered through the Internet will likely be young and small, allowing you to develop desired shapes as they grow. Most herbs and scented geraniums will be in pots no larger than six inches or one gallon, although they grow quickly and can be shaped in any direction you choose.

Many bonsai guides offer strict instructions for shaping different bonsai with specific forms, keeping them as diminutive as possible. This book changes the parameters, presenting bonsai that are larger than usual and pruning times and patterns that are directed toward production of meaningful crops. Some may be satisfied with a symbolic crop from a classic bonsai, but this book considers production of a useful crop to be an important part of the bonsai experience. It also focuses on creating larger bonsai than is typical in order to maximize production.

The best way to accomplish this goal is to purchase a good-sized nursery plant and "carve" an instant bonsai. It is usually easy to find good-sized blooming or fruiting citrus plants in five-gallon nursery pots. These can be minimally shaped and repotted into nice pottery, giving you an impressive specimen with a couple hours' work. The first edible fig plant I trained as a bonsai was a nursery "standard" in a five-gallon pot, delivered as a two-foot-diameter ball of foliage atop a forty-eight-inch stem. I let the plant grow and bear a first crop of figs that first summer. When it went dormant in the fall, I took a saw to the stem two feet above the ground, leaving an unbranched stubby trunk. When it sent out new shoots in the spring I left the ones I wanted

and pinched them several times. The tree grew a nice shape that summer and bore figs again. After another year of growing and pinching tips, that fig bonsai has a full crown that is quite impressive in the summer and bears a large crop of figs. Taking a large older plant and cutting it back dramatically can be the quickest way to create a spectacular bonsai in a relatively short period of time. Besides figs, I've also done this with guavas, citrus, Natal plums, and Australian cherries. Some of these were left with two-inch diameter stubs and essentially no foliage, yet grew out a nice crown over the next year with regular pruning.

Although it may not be as dramatic, a nice nursery plant can often be pruned heavily, removing a third to more than half of the plant's branches and foliage, to create a beautiful bonsai immediately. This is where it is important to have a selection of plants to choose from, so you can select the inner structure that will create the best bonsai. In addition to a good main trunk, the ideal bonsai should have a nice main branch to one side some distance above the ground. It should be balanced by another branch, slightly higher up on the opposite side, for balance. A third branch should grow from the back of the bonsai, providing depth. These branches should come from different spots on the trunk rather than from the same original leaf node. The lowest branch should be the thickest, with each succeeding branch being a little smaller. Branches that project across the front, crossing the trunk and obscuring the inner bonsai, should be removed. Of course, it is unlikely that a large nursery plant will have this perfect shape, but hopefully you have picked out something with good enough balance and shape to give you something to work with. The three plants illustrated in this chapter were purchased at a local garden center in Fort Collins, Colorado, near my mountain home. The store offered a selection of six strawberry trees, a dozen myrtle-leaved oranges, and about thirty Key limes for me to choose my specimens from.

The tallest growing tips were pruned when shaping the crown of this Key lime bonsai.

Citrus can be very easy to shape as bonsai. The large Key lime shown here was about forty inches tall in a three-gallon pot. It had just finished blooming and had some pea-sized fruits. It was easy to see the future shape in this plant even before anything had been trimmed. Only five growing tips were cut back, leaving the height of the specimen thirty inches from ground level when finished.

Removing a strong branch that was too low on the trunk of this tree.

Fresh soil being added when potting the trimmed Key lime bonsai.

More than a dozen small, stubby, or spindly shoots were removed from the bottom half of the tree. A few that could have been removed were left because they carried small fruits. These

would be removed after fruiting to better expose the open branch form. The foliage crown was pruned from the bottom up, exposing the bonsai structure, and the tips were pinched to fill out the top of the crown. One thicker branch was removed from below the main fork to open up the bonsai, allowing a good view of the flowing symmetry of the two main branches.

The front of the nursery tree in the photo became the rear of the finished bonsai, showing the scar where the branch was removed. The marks where some other branches were removed are visible; they will darken and scar over with age. Because not much foliage needed to be removed from this specimen, the root ball was reduced very little. I exposed a little less than one inch of trunk stem and just roughed up the edges of the root ball, adding some fresh soil in a pot big enough to give the bonsai some room to grow.

Finishing the Key lime by covering the soil surface with gravel.

Completed Key lime bonsai. This specimen is thirty inches tall.

If you look closely, you can see I lost some small Key limes with that larger branch, but it needed to be removed to look good, and there are other fruits on the specimen. The left-flowing movement of the two main branches is pleasing to the eye and is balanced by the foliage to the right, even though the two main branches cross each other slightly. It may not have the "perfect" shape, but it's still a very attractive bonsai with strong branches, a nice full crown, and a crop of small Key limes. Less than one month after shaping, this bonsai had new flower buds opening. After dressing the soil surface with fine pea gravel, I placed a snow-capped-mountain rock behind the bonsai to draw attention through the plant, giving an illusion of depth with a mountain in the distance.

The myrtle-leaved orange specimen shown here was twenty-four inches tall in a one-gallon nursery pot, and was covered with clusters of little oranges. The crown didn't need to be cut back to obtain a nice shape, which was a good thing because there were orange clusters on the branch tips. One larger branch was removed from below the main fork, and a few oranges went with it, although there are several dozen left on the bonsai. A number of short branches and leaves were removed to expose the trunk and branch structure and to define the lower limit of the crown.

Pruning leaves and small branches from a myrtle-leaved orange tree.

Using a pointed bamboo stick to remove soil and expose the roots of the newly carved bonsai.

During repotting, a sharpened bamboo stick was used to loosen soil around the roots and base of the tree, exposing almost two inches of trunk that had been below the soil.

A few small roots were removed when exposing the trunk, but the rest of the root ball was only slightly disturbed. The tree was then planted with some fresh soil in a pot large enough for it to grow in for a of couple years.

Fresh soil should be tamped down around the root ball when potting. The original soil level can be seen on the trunk.

The completed myrtle-leaved orange bonsai is twenty-four inches tall.

Exposing the trunk added to the height of the bonsai, and though the top was not pruned, the finished specimen rises twenty-four inches above the soil level. The added trunk length places the first branch at a nice interval above the ground and adds to the aesthetic effect of the curving flow in the trunk and branches of the bonsai. The soil surface was dressed with pea gravel, then topped with a multi-colored agate chosen to reflect the curve of the trunk and balance the "empty" side of the bonsai.

The strawberry tree shown here was about twenty-six inches tall in a one-gallon nursery pot, and had flowers and buds in several of the growing tips. Although it took off a large cluster of flowers, the tallest growing tip was removed just above the point where three nice branches were sprouting, bringing the crown of the bonsai into balance. More pinching will be needed to develop the crown, but as the tips were producing clusters of buds, they were left to grow, flower, and hopefully produce fruit before trimming. About half an inch of trunk and a large root were exposed when shaping the root ball before repotting, giving the finished bonsai a height of twenty-two inches above the soil level.

This strawberry tree has been removed from its pot and is ready to be trimmed.

The bottom branches have been pruned, and the tall growing tip was removed.

The strawberry tree is now ready to place into a bonsai pot.

Fine pea gravel is used to cover the soil surface after the bonsai is potted.

Strawberry tree bonsai. This specimen is twenty-two inches tall.

The bonsai was placed in the pot just to the left of center to balance the right-flowing movement in the tree's structure. Leaves and small branches were removed from the bottom up to shape the lower level of the crown. Two large branches were removed, one of which was below the large first limb left on the bonsai. The scars from removing those branches are visible, but will fade over time. Even with this harsh treatment, one month later the remaining buds were progressively blooming; the oldest flowers left on the bonsai had dropped, leaving clusters of tiny strawberry fruits growing in their place.

After the surface was finished with pea gravel, a piece of black obsidian collected in Oregon was selected to accent the bonsai. The rock was placed to anchor, balance, and reflect the flowing movement of the trunk and main flowering branch. The obsidian was particularly chosen for the contrast of its black color against the white flowers and pottery; it also reflects the color of the wingtips and neck of the sacred crane painted on the pot. The beautiful painted pottery also contrasts well with the bright green leaves and red trunk of the strawberry tree bonsai.

When creating these "instant" bonsai, the root ball usually cannot be flattened enough to fit in a conventional shallow bonsai pot. Like their crowns, the roots of traditional bonsai need years of training to be worked into shallow containers. The pots may depart from tradition in other ways, as well. Solid-colored earth-tone pottery is the customary choice for evergreen trees, while brightly colored or painted pottery is acceptable for flowering bonsai. These days,

however, people are more concerned with whether the pottery style and color matches their home décor than its suitability for the bonsai. If we are pursuing this art to please ourselves, rather than feeling forced to follow tradition, the pottery style and color should reflect the artist's preferences. Some may prefer to choose each individual pot to match the bonsai, while others may want every pot in their bonsai collection to match.

Although it is not as fast as carving an instant bonsai, another way to create a bonsai is to plant an inexpensive small plant such as a fast-growing herb, scented geranium, or hot pepper directly in the ground. This technique has been used in traditional bonsai with outdoor trees, which are planted in the ground and encouraged to grow rapidly for several years. A fifteen-foot tree would be dug up and cut back to less than two feet, providing a thick trunk on which to develop a crown. By adapting this technique to fast-growing plants, a bonsai can be created in a single growing season.

Ideally this should be started in spring, at the beginning of the best growing season. Field-planting directly in the ground in a space with good soil and ample available water will encourage rapid growth. I have taken a four-inch pot of rosemary, like those available in any good garden center, and field-grown a plant that produced a bonsai under two feet tall with a one-inch diameter trunk in a single summer growing season. This can also be done in a large pot while pushing growth with lots of water and fertilizer. You won't get as much growth as is possible in the field, but it will be easier and less risky to move to a smaller pot when carving your large herb back into a bonsai. Field-growing and digging a plant carries some risk of losing the plant if conditions are too harsh, or if the root and crown pruning are not balanced. For this reason, I recommend growing several plants to train as bonsai. You may lose one or two, but an extra bonsai or three—especially a desirable herb—always makes a great gift.

Most of these fast-growing varieties put out many more new sprouting branches than will be needed to develop the bonsai structure. Your young plant should be cut back to a basic skeleton of a bonsai, with just the trunk and a couple of main branches pruned where you wish them to branch again. All extraneous new shoots and branches should be removed. As your bonsai-in-training grows, all new shoots on the trunk and main branches should be removed regularly except for the new branches forming at the tips of the pruned "skeleton." These new branches should be pinched at the point where you wish them to branch again. Don't be too obsessive about this process. Two to four pruning sessions through the summer should be enough. The point is to push lots of growth in the direction desired while keeping the plant from using too much of its energy developing unwanted branches. This process will work well even with little or no trimming through the growing season, although one good trim mid-season can make a big difference in the final shape. Refrain from pruning for the last month or two of the growing season before it is time to dig your specimen and replant it.

Digging a field-grown plant is necessarily a harsh procedure, likely causing root damage and reducing the plant's ability to take in water for several days as root tips redevelop. This is ideally

done at the end of the growing season in cool weather, before the first frost. Avoid digging field-grown plants or repotting in hot weather, which will stress the plant too much. Your transplanted bonsai should kept out of the sun in a shady place to prevent it from drying it out before new roots develop. You will need a rather deep pot. You may want to consider using a training pot, like a ten-inch or two-gallon plastic nursery pot, for six months or so before moving your bonsai into nice display pottery.

In order to balance the unavoidable root damage when digging your field-grown bonsai, a large amount of foliage in the crown must be removed. As plants lose moisture through their leaves, enough foliage must be removed to balance the damage done to the roots. All growing tips should be removed. Some may be cut back severely depending on the seasonal growth and desired bonsai shape. Lower foliage, especially large leaves, should be removed from the bottom up to define the lower part of the crown. Expect to remove about half or more of the plant's leafy foliage to keep it in balance as it recovers from potting. These plants grow quickly enough to recover rapidly, and can look very good after just another month or two of growing in a pot.

If you purchase your potential bonsai through mail order or over the Internet—which may be the only way to obtain some of the more unusual tropical varieties like guavas or green tea, depending on your location—you will probably get a small, young plant. My green-tea bushes arrived as single-stem unbranched rooted cuttings six inches tall. In developing a small tropical plant as a bonsai, the best results will be obtained by pushing its growth in a good-sized pot for a year or more with only minimal shaping before cutting it back. Over a period of several years, this will create a thicker trunk and a more dramatic appearance than restricting your bonsai-in-training to a small pot with more frequent pruning within that same time span.

Of the many ways to create your edible bonsai, the easiest but least satisfying is to purchase one already created. Perhaps the best way is to find a large nursery plant and carve an instant bonsai. Explore the recesses of your local nurseries. Talk to the greenhouse manager about your interests. Search online if you can't find your desired variety locally. In more than twenty years of business, I've created tens of thousands of edible bonsai using the techniques described here, yet I am always on the lookout for new varieties and sources to explore.

here are many species and varieties of edible and useful plants that can be trained as bonsai. Traditional concepts of bonsai can be put aside to allow for varieties that have leaves or fruit much too large to have been considered acceptable through the long history of this art form. While most people think bonsai are miniature trees that couldn't possibly bear enough fruit to be worthy of more than a symbolic harvest, even strict traditionalists in the art will consider and create bonsai up to six feet tall. To get a useful harvest from a bonsai, larger plants are a must—perhaps beyond six feet in height if the available space, the plant's characteristics, and the artist's desires make it suitable. The tree is still being shaped artistically and confined to a pot that is smaller than the chosen species would be allowed its natural habitat, growing in the ground.

While traditional bonsai are governed by artistic forms with strict guidelines, this book focuses on production of a useful harvest, which may prove a more important consideration than achieving the perfect artistic form of the tree. I personally have a difficult time removing a branch that is flowering or bearing fruit in order to improve the artistic shape of the tree. If I decide a branch must be removed for the long-term benefit of the bonsai's shape, the pruning is postponed until after the harvest. There are no strict guidelines here. Everyone has different concepts and preferences as to what artistic perfection and bountiful harvests mean to them. Let these guide your direction to manifest the type of bonsai you wish to grow. Just as it is possible to train a bonsai for years or even lifetimes, one can also use a harvest to create products like jams, jellies, and canned fruits, or even teas, dry herbs, or wines that can be stored and savored for many years. It's possible to freeze each year's harvest over two or three years until you have enough volume to ferment a small batch of wine. My collection includes edible bonsai that have been in my training for over twenty years, and there are wines created from bonsai harvests in my cellar that are more than twenty years old. While displaying a bonsai that one has trained for twenty years is very satisfying, there's nothing quite like the satisfaction of pouring someone a twenty-year-old glass of wine from the same bonsai that's on display.

My focus here is mostly on tropical and Mediterranean plant varieties which are active year-round, although some species may have dormant periods even when grown indoors. These varieties may thrive outside year-round in some climates, but they all can be grown entirely indoors under proper conditions. I have grown and shaped all the varieties discussed here,

although not all of them have produced a harvest for me. Some, like avocados, may never produce fruit when grown indoors, but can do so when grown outdoors in a suitable climate. I have collected and experimented with edible and useful varieties for several decades, and I'm always looking for new varieties to try. While I expect most people to choose varieties that appeal to their taste, few sources will have the wide variety discussed here. Be open to the possibility of experimenting with species that are new or unfamiliar to you.

- C[illegible] (*[illegible]enia m rti olia*) Also known as brush cherry, this species has become widely used for indoor bonsai and is easily available in most locations. My bonsai nursery has sold more Australian cherries than any other species I grow. There are several varieties that make extremely attractive bonsai, including the miniature version most commonly found in shops and other sources that supply bonsai materials. One drawback to this miniature variety is that it seldom flowers, and when it does, it has only a few scattered blossoms. In twenty years of working with miniature Australian cherries, I have never seen a single fruit develop on them. There are also dwarf and standard varieties with larger leaves that flower reliably and often fruit very heavily. These larger varieties can be found in many locations and are often used for big topiaries, though their internode distance and overall size makes them less commonly used as bonsai. I see them most often as large double-or triple-ball topiaries up to six feet tall in local nurseries. Their blooming season in my area is between June and September, with the heaviest period of flowering occurring in August. The bright pink cherries are really a type of berry rather than a true stone cherry; they're not exactly a sweet, juicy, delectable fruit. Though edible, they can be a little dry and mealy, and are better used for cooking or drying and adding to teas rather than eating fresh. While Australian cherries might not be your first choice if harvesting succulent fruit is your objective, they can be used to create the most spectacular "traditional" bonsai of any variety discussed in this book, with the added bonus of edible fruit. This species does very well indoors with bright light; their biggest requirement is lots of water. In fact, they are difficult to overwater if they have good drainage and bright light. It's best to use a larger pot than suggested for traditional bonsai so the soil doesn't dry out quickly.

This dwarf Australian cherry, started from a five-gallon nursery plant, is now full of flower buds. This specimen is forty-six inches tall.

[illegible] *sea americana*) While many people have grown plants from avocado pits, they may not have done so with creating bonsai in mind. Avocados are quite easy to start simply insert three toothpicks around the circumference of the pit and half-submerge it in a glass of water. The pit will split and send out roots and a green shoot that can grow for several months in water before being transferred to soil and a pot. The shoot should be pinched to make the plant branch as desired, and can be shaped like any other bonsai. Avocados have large leaves, and are best developed as a large-specimen bonsai so the leaves won't look so out of place. The literature says avocados seldom or never fruit indoors, and my experience backs this up. I have started and grown several with no success at fruiting, but someone in a suitable climate like California may be able to grow one outdoors and produce fruit successfully. At the very least, avocados are a cheap and easy way to start a potentially edible bonsai, and can be a great way to introduce a child to growing plants and shaping a tree.

[illegible] *ashia inaguensis*) Bahama berry, also called pineapple verbena, is a small tropical woody herb with tiny bright-green leaves and a strong fragrance often described as a pineapple-vanilla blend. It blooms freely with tiny white flowers, and can develop orange berries that make a great addition to teas. Bahama berry has become popular for use as bonsai and can often be found at bonsai shops. Like other herbs, it is a fast grower, gets root-bound quickly, and requires plenty of pruning. If grown indoors, it will need very bright light and plenty of water.

(*Malpighia glabra*) Barbados cherry, also called acerola, is a subtropical tree widely grown for its attractive flowers and ornamental fruit. Though sour, the fruit has good flavor and is used in jams, juices, wines, and baby foods. It is grown commercially as the best organic source of vitamin C. The leaves can be used for herbal teas. Barbados cherries are a popular subject for bonsai and should be easy to find. Nurseries in milder climates will likely have larger specimens that can be carved into bonsai that will bear fruit right away. Barbados cherry is fairly easy to grow with well-drained soil and regular watering. Its vitamin C content alone makes it worth cultivating.

D cl kn *um basilicum*) Most people are familiar with basil as a soft herb used in cooking that wouldn't seem to be a good candidate for bonsai. While basil might not survive as a bonsai for long enough to pass down through the generations, it is a woody shrub that can survive for years in the right conditions. My dinner last night included fresh basil from a bonsai specimen that is currently thriving in its second winter in my Colorado greenhouse. Basil requires bright light and warm temperatures to do well. Without the use of a greenhouse or solarium in cooler or northern climates, it will need a bright south or west window through the winter, and would benefit greatly from the addition of a spotlight-type full-spectrum plant light that supplies both heat and light. There are many varieties of basil; the smaller-leaved specimens like bush basil (*basilicum minimum*) make the most attractive bonsai. Standard sweet basil, as well as the exotic and fragrant lemon, lime, and cinnamon basils, are a good compromise between wanting a perfect small bonsai specimen and harvesting a large crop. Opal basil, with its beautiful purple leaves, can make a spectacular bonsai. Fast-growing herbs like basil are perhaps the most useful of all edible bonsai one nice specimen can provide a fresh harvest for use in cooking several times a week. Basil should definitely be pruned back when it develops flowering spikes. Because it grows very quickly in good conditions, it can sometimes get out of hand and lose its bonsai shape. But it can be cut back sharply, even to solid wood, and will sprout out again to form a new shape and provide a continual harvest. Basil stems can get quite woody with age, making this a uniquely different, beautiful, and useful bonsai.

D n w *bilis*) Sweet bay leaf, commonly used in the kitchen, comes from a large, slow-growing shrub that is quite attractive. One specimen can easily provide all the leaves needed, even for a cook who uses them often. Every pruning will provide leaves that can be dried and stored for long periods until needed in the kitchen. Like many other species, sweet bay will often send out side shoots or suckers from low on the trunk; these need to be pruned away along with the growing tips of the specimen. While bay leaves are used to flavor foods, they are fibrous and indigestible—in fact, the strong rib in the leaf can actually be dangerous if it pierces the wall of a digestive organ. Tender young side shoots shorter

than an inch or two can be consumed without this danger, offering many new possibilities in the kitchen.

This thirty-inch sweet bay laurel has been in training for twelve years; it was started from a five-gallon nursery pot.

[illegible] *uropeae*) Olive trees are highly desired ornamental trees in many locations, and also provide commercial olives and oils for the table. Black olives are widely available at commercial nurseries, although these ornamental varieties are generally non-fruiting. Many people who want olive trees seem to have no interest in harvesting and using the fruit, perhaps hoping to avoid the mess of unwanted fruit dropping in their yard. My experience with these ornamental non-fruiting varieties is primarily as a staple in my wholesale bonsai nursery business. Olives tolerate dry conditions in the home very well and are easy to grow, though somewhat slow to develop. It will take repeated pruning over time to develop a nice crown, but at a young age the trunk begins to develop the characteristic gnarled, knobby bark that makes the black olive an attractive bonsai specimen. The non-fruiting varieties, which have long, pointed silver-green leaves and occasionally produce small yellow flowers, are gaining wider use in traditional bonsai circles, and can often be found in bonsai collections at nurseries that carry a good selection of indoor bonsai. Be aware there is also another species with shiny rounded green leaves, the Florida black olive (*Bucida buceras*), which is often called black olive and is sold in many bonsai collections. The two species are not related, and the seed capsules of the Florida black olive are inedible.

(*Citrus sinensis*) In my experience, larger citrus varieties like oranges and grapefruit are more difficult and less productive than the smaller citrus varieties discussed here, but blood oranges have worked well for me. Blood oranges are an unusual and delectable fruit, and are spectacular when used in gourmet cooking. One of my all-time favorite recipes, described in Chapter 6, "The Bountiful Harvest," uses blood oranges. Large-fruited citrus like this will form larger trees, and will therefore require ample space and bright light. They may need supplemental artificial lighting through the winter, especially in northern climates. All citrus will benefit from outdoor conditions in the summer; letting bees help pollinate the flowers in late spring will increase fruit production. Most citrus plants bloom most heavily in early spring, but will have scattered flowers throughout the year, providing a delightful fragrance in the house.

The fourteen fruits on this sixty-three-inch blood orange tree are nearly ripe.

These blood oranges are ripe enough to eat, but with more time will develop a purplish mottling on the rind. The flesh will become sweeter, turning from orange to reddish-purple.

w f f p k q p *medica* ar. *arcodact lis*) The fruit of this unique citrus resembles a bright yellow hand full of fingers. It has no pulp or juice; it is usually solid all the way through. The fragrant fruit can be diced and used like citrus zest in a wide variety of foods. The Buddha's hand flowers in clusters during early spring and, in my experience, often drops small fruit that apparently did not get pollinated. Because the fruits are so desirable, I have worked hard to pollinate my specimens. I've tried hand pollination with a small paintbrush, and I've moved them outside on warm spring days to attract the first local bees to the flowers. While most flowers drop without producing, I usually manage to get a few fruits to grow. My best year produced nine fruits from three specimens—enough to make two cases of wine and have some frozen to use in cooking for the next year. I love the name, flavor, and unique shape of this fruit, and my Buddha's hand bonsai is one of the most prized specimens in my collection.

A uddha's hand citron. This fruit is about nine inches long and six around.

c n c o q p t c p g (*Citro ortunella microcarpa*) Calamondin oranges are a created hybrid, believed to be a cross between mandarin oranges and kumquats, whose origin is lost to history. They are not found in the wild. The entire fruit is edible the peel is sweet and the pulp is sour. These fruits are commonly used as a garnish for drinks or cocktails, and are sometimes frozen before use. They are delightful in cooking—simply chop them whole, removing the seeds, and add them to any dish. They can also be made into marmalade or wine. Calamondins have smaller leaves and fruit than a full-sized citrus, and are more shrublike, making them ideal for growing as citrus bonsai. In my experience, calamondins are the easiest to grow of the dozen or so citrus varieties I have experimented with, and are by far the most prolific. They bear two crops a year for me, blooming in spring with a crop of ripe oranges before Christmas and flowering again around New Year's Day to produce another crop in the spring. These oranges are often given as gifts during the Chinese New Year, as Chinese tradition holds that oranges in the house bring health, abundance, and good fortune during the coming year. Calamondins will hang on the tree for several months after ripening without going bad, and are best "stored" on the tree until used, although they can also be frozen for use in cooking. Under proper conditions, a calamondin will bear ripe fruit to pick almost year-round, even in a cold climate like my Colorado mountain home. There is also a gorgeous yellow variegated variety that makes a spectacular bonsai. Even the fruit is variegated until it turns ripe. Because of its easy growth and prolific production, I would strongly recommend the calamondin as a first choice for anyone wishing to grow a citrus bonsai.

ariegated calamondin oranges lose their variegation when they turn ripe. The golf-ball-sized fruits have an intense orange flavor, and can be used, peel and all, in many types of cooking.

Ripe calamondin oranges show up nicely against this forty-two-inch-tall variegated bonsai.

These ripe calamondins still show faint signs of their variegation. They will not turn the bright orange of calamondins from a green variety.

[illegible] *[illegible]m camphora*) Camphor is a large evergreen tree with attractive, deeply fissured bark and large leaves that produce essential oils used in culinary spices and medicines. Camphor is widely used in over-the-counter medicines, and the leaves can be crushed to release the camphor fragrance. While I wasn't impressed with the first young tree I received, which looked like a whip with giant leaves, I have found that after several years of pruning the camphor can make a spectacular bonsai, with plenty of leaves to use for potpourri or medicinal steams. My oldest specimen flowered regularly, though it never produced berries. This is a fast-growing large tree that requires regular hard pruning to shape, but it will develop nicely, and the leaves will be smaller if a well-branched crown is produced.

Crushing the leaves of the camphor tree releases a strong camphor scent, recognizable in many over-the-counter medications. This sixty-five-inch tree with a four-foot-diameter crown has been in training for sixteen years.

The impressive root structure on the camphor tree gives it great character and an aged appearance.

- ***c t d*** *atonia sili ua*) Carob, an evergreen shrub native to the Mediterranean region, is widely used in foods, and is often considered a substitute for chocolate. The leaf stems and new growth are a deep burgundy color that contrasts nicely with the shiny green leaves and brown bark. Carob also develops a gnarled root system at the base of the trunk that adds a distinctive aged character to the bonsai. Like most Mediterranean varieties, carob prefers well-drained soils, tolerates dry conditions, and is well suited to growing indoors in bright areas. My carob bonsai has been in training for over a dozen years and has yet to flower or bear seed pods, but is nonetheless a beautiful and unique specimen.

This forty-eight-inch carob tree has been in training for about eight years. t was started from a one-gallon nursery stock plant.

[illegible] (*[illegible]sidium guineese*) Also known as Brazilian guava, this small herbaceous shrub native to Central and South America is considered an invasive weed in other parts of the world where it has become naturalized. The pale-yellow fruit is less than an inch long, with many small, hard seeds. My specimen has flowered heavily but only produced a few small fruits. Castilian guava has a light tan bark that peels and curls away from the trunk and large branches in thin sheets, adding a distinctive aged character to the bonsai specimen. Bright light, well-drained soil, and frequent watering will keep a Castilian guava happy indoors.

This Castilian guava has been in training for a couple years from a small five-gallon nursery plant; it now has a few small fruits. This specimen is forty-three inches tall.

Ripening Castilian guavas show a scale infestation that was treated after picking the guavas.

[illegible] [illegible]*k*[illegible]*n*[illegible]*gni molinae*) Chilean guava is a small shrub with deep green leaves on red twigs. It bears delicate pink bell-shaped flowers in spring, and forms delightful small fruits, less than half an inch in diameter, which are more like a sweet berry than other guavas. These are wonderful fresh as they ripen from pink to purple. The Chilean guava is the smallest of the guavas, and is easy to grow as a tabletop bonsai that can bear abundant, though small, fruit. The leaves are only one to two centimeters long, giving them a scale perfect for creating a more traditional bonsai that will flower and bear edible fruit. Like other members of the myrtle family, its leaves have a spicy scent when crushed. Chilean guava will grow well indoors as long as it doesn't get too hot; they prefer moist, well-drained soil and medium to bright light.

[illegible]E[illegible]j[illegible]k[illegible]n[illegible]g[illegible]*gma apiculata*) Chilean myrtle is a very attractive shrub with small dark-green leaves that give off a spicy scent when crushed. Fragrant white flowers in early

summer lead to edible bluish-black berries in the fall. The papery bright orange bark peels away from the creamy white underbark, creating a beautiful contrast on the trunk and main branches. This has always been one of my favorite bonsai for demonstrations, display, and sales. It produces enough foliage to offer a regular aromatherapeutic lift by picking and crushing a leaf. I would do this for anyone visiting my greenhouse, just to see the sparkle in their eyes when smelling the delightful fragrance. This alone would convince a skeptic of the value of aromatherapy Easy enough to grow indoors in bright light, Chilean myrtles need plenty of water to support their numerous leaves. This is a great species for anyone wishing to grow a traditional-looking indoor bonsai that will produce abundant foliage and edible berries that are easy and fun to use.

E Co ea arabica) Coffee trees are easy to find, and grow well as houseplants. Like nearly everything else these days, online sources are a click away, but I have also found coffee trees as groups of about half a dozen seedlings in inexpensive four-inch foliage plant collections in flower shops and greenhouses throughout the United States. The plants can be separated easily at this stage or grown as a grove. They will grow quickly enough to develop a nice shape in a couple of years, and will be impressive even sooner as a grove. It may take a seedling three to five years to flower. My older specimens flowered regularly and produced a few beans. A large coffee bonsai can produce enough beans to bring great satisfaction to the grower, even though the harvest will never be significant. Even a single ceremonial tasting is a very rewarding way to expand the artistic experience of bonsai.

At about four years old, this co ee tree grove is not yet ready to produce beans. This specimen is thirty-four inches tall.

Though this forty-six-inch Chilean myrtle bonsai needs pruning, weeding, and a gravel finish, it bears fragrant mid-summer flowers.

Costa Rican Mint Bush This mint grows quickly into a very woody shrub with attractive fissured bark and small, round, bright lime-green leaves. Tiny white flowers bloom profusely along the stems on a regular basis. The plant contains high levels of menthol oil, the source of mint flavoring that is also used in many over-the-counter medicines. Barely brushing against the leaves will release a strong mint fragrance into the air. While this plant is widely grown and used in Costa Rica, it was only discovered and named in the latter part of the twentieth century; it is not listed in my 1976 edition of *Hortus ird*, the definitive dictionary of cultivated plants in the United States. When writing my book *erbal Bonsai* (published in 1996), I tracked down a member of the expedition that discovered and named this plant, and learned that the local population cuts branches of it to place on coals under grilling meats. It is also used as a medicinal herb, primarily in teas, because of the menthol content. The Costa Rican mint bush grows very quickly and often sends out strong new shoots from the ground, roots, trunk, and large branches of the bonsai. These will grow much more vigorously than the growing tips of the tree and should be removed regularly, unless the artist wishes to dramatically change the shape of the bonsai. All of the lower shoots must be removed or the bonsai will quickly start to look like a multi-trunked bush instead of a miniature tree. A mint bush bonsai requires very bright light and lots of water. Being more of a woody herb than an actual tree, it will benefit from a larger pot with more soil than most other bonsai discussed here. It will also

become pot-bound more quickly, necessitating more frequent repotting. Because of its fast growth and high menthol content, one medium-sized Costa Rican mint bush will likely produce as much mint flavoring as any family could use. The leaves can be used fresh or dried, and the stems—like those of many types of herbs—can be saved to soak in water and place on coals under foods being grilled. With its attractive appearance, bright lime-green leaves, and intense fragrance, this plant often made the biggest impression on any of the visitors to my greenhouse. Unfortunately, it is not really produced on a commercial basis and may not be easy to find, perhaps because it attracts insect pests like white fly and aphids. Despite this, I consider Costa Rican mint bush a very desirable plant to grow, and it has a place of value in my collection.

This four-year-old Costa Rican mint bush, grown from a cutting, is now thirty-six inches tall. The leaves have a very strong mint fragrance.

F *imon*) The earliest uses and cultivation of lemons are lost to history, but there are many varieties available today. Eureka lemons are the common grocery-store lemon; Lisbon lemons are very similar. Meyer lemons (*Citrus* *e eri*), a less acidic, round fruit derived from a cross between a lemon and an orange, have become very popular. All three of these varieties are widely grown as ornamentals and can be found in large garden centers everywhere. Ponderosa lemons, believed to be a natural cross between a lemon and a citron, bear large fruit with a bumpy rind that can weigh as much as a pound; they are used like regular lemons. A variegated pink lemon is also available, with attractive green-and-white foliage and a pink tinge to new growth. The fruit is similar to the common Eureka lemon except for the variegated rind that disappears as the fruit ripens; the pink

flesh and juice inside, similar to regular lemons in taste, is a delightful surprise, and can be used to make natural pink lemonade. These beautiful citruses are becoming more common, as some of the large commercial ornamental plant growers have been distributing them to nurseries all over the country as part of their citrus collections. Most lemons sold in nurseries are grafted onto vigorous citrus rootstocks that actually make for a stronger plant that is easy to grow, while also keeping the lemon tree growing as a dwarf rather than a large standard tree. Traditional bonsai artists may be horrified at using grafted trees, but we are breaking new ground here; most citrus rootstocks have thick trunks and nice large exposed roots that can add greatly to the character of the bonsai. New shoots or "suckers" will sometimes sprout from below the graft. These will look different from the upper growth and should be removed whenever they are seen. Besides detracting from the appearance of the bonsai, they will grow quickly, sapping strength from the desirable lemon-producing part of the tree. Lemons need bright light, and benefit from extra artificial lighting if winter conditions don't provide enough natural sunlight; they thrive outside during the summer. All of my citrus here in Colorado grows better and looks healthier when grown outside in the summer. A good dose of acid fertilizer can help the lemon tree stay healthy and produce a lot of fruit. A natural source of acidity, which citrus seem to love—though not a replacement for acid fertilizer—is some coffee grounds thrown on the surface of the their soil. When ripe, lemons can be left on the tree for a long time to be picked when needed. Along with the flowers, which are wonderfully fragrant, the myriad uses of fresh lemons make this one of the most desirable of all the edible bonsai. Given the right conditions, lemons are comparatively easy to grow and can be quite productive.

This seventy-inch lemon tree is struggling to bear the weight of its twenty-seven lemons.

Ripe lemons ready to pick.

This variegated pink lemon has been in training for a couple years. The forty-eight-inch specimen began as a five gallon nursery stock plant.

This pink lemon was variegated before turning ripe. ew flower buds can be seen developing on a lower branch.

F[illegible]*auranti olia*) Persian limes, similar in size to lemons, are found everywhere in markets. The most common variety, especially as an ornamental widely available in nurseries, is called Bearss seedless lime. The Key lime, also called a Mexican lime, is a small round lime with intense flavor that is well known and highly desirable for use in cooking and making beverages. Commercial Key lime trees are often grafted, but strong trees can be grown from a seed out of a store-bought Key lime. Kaffir lime (*Citrus h stri*) is a small rough-skinned lime that is primarily grown for its leaves; it doesn't seem to fruit well when

cultivated indoors. Lime leaves are used as medicine and as a culinary spice in many Southeast Asian cuisines. Most people are unaware that green limes are not completely ripe. If left on the tree long enough, limes will turn yellow, retaining the green color in the juice and pulp and growing sweeter as they ripen. All of the above-mentioned varieties are easy to find, and details of their care and growth are essentially the same as for lemon trees. Smaller Key limes, which have small leaves, can make a bonsai similar in scale to traditional bonsai. Limes are easy to grow, can be very productive, and make a great addition to any citrus bonsai collection.

Fortunately, there is a dwarf variety of *Punica granatum* var. *nana*) Dwarf pomegranate is a pretty shrub with small leaves. It flowers profusely in the spring and at other times of year with striking orange to red flowers. The plants develop fruit that average two to three inches in diameter; while small and not as juicy as standard full-sized pomegranates, they are edible. Standard pomegranates, which are not as easy to grow indoors, have large leaves and go dormant through the winter, even indoors. They can have spectacular flowers and produce full-sized fruit, but are not as suitable for bonsai cultivation as the dwarf variety. Dwarf pomegranates are fairly easy to find in well-stocked garden centers, and are generally a prominent component of indoor bonsai collections at these retail locations. Dwarf pomegranates will stay evergreen and flower often when kept in a warm environment. Exposure to temperatures near freezing will cause them to go dormant at least briefly, showing bright yellow “fall color” in the foliage and dropping all the leaves. With renewed warmth, however, they will sprout new green growth very quickly. The dwarf pomegranite is a good choice for anyone wishing to start growing edible bonsai, as they are easy to find and grow. They will reward the grower by producing flowers as well as fruit almost immediately.

This dwarf pomegranate, started from a five-gallon nursery stock plant, has been in training for a year and seven months. t is forty-two inches tall.

This close-up shows a nearly ripe dwarf pomegranate and a flower bud.

- *f[illegible]us carica*) Edible figs are native to the Middle East, the cradle of civilization; they have been grown as a diet staple since before recorded history, and were likely the first plant to be intentionally cultivated. Fossilized figs have been found in Neolithic villages dated from before 9000 BCE, and figs are mentioned in the oldest literature. They hold a special place in the history of food culture and have long been considered a romantic, even erotic food to serve to a lover. There are many ornamental fig species, including the common [illegible]*cus benjamina*, which is widely used for indoor landscaping and easily available everywhere. These shiny-leaved evergreen ornamental figs can also make nice bonsai, but they don't produce edible fruit. Edible figs have very large, dull leaves that are hairy underneath; they go dormant in the winter, even when kept in the greenhouse. Some cultivars can survive quite cold temperatures when dormant. The desirability of edible figs has given rise to elaborate strategies for helping them survive cold winters and bear fruit afterward surrounding the entire tree with a mulch-filled cage; or digging a trench out from one side of the tree, severing half the roots on the opposite side, and laying the entire tree down into the trench to be covered with mulch. It seems much easier to just grow the fig in a large pot and move it to a protected space during the winter. Edible fig trees can grow very large, however, and will need yearly pruning to keep the size manageable for your available

space. One of the best ways to train a fig bonsai is as a large patio tree, grown outside through the summer season and moved to a protected space such as a porch, garage, basement, or spare room while dormant in winter. Figs tolerate temperatures down to freezing at this time, and take up less space after the large leaves have dropped off. Edible figs thrive in hot weather. As long as your fig bonsai gets enough water, it will be happier outside in the summer than in the brightest window. Figs need a lot of water, especially when producing fruit, and will benefit from as large a pot as you can give them. It is nearly impossible to overwater an edible fig in a pot with good drainage; the fruit will not be as juicy if the tree is allowed to dry out between watering times. They can start bearing figs by mid-summer and will still be producing when the leaves drop for the winter. There are probably thousands of different fig cultivars, and they are grown everywhere in the world that the local climate permits. The varieties I've grown seem to be pretty similar in growth habits and general appearance. The difference is primarily in the fruit. The Brown Turkey variety is large, with a dark purplish-brown color when ripe. These figs mature much later than many other varieties and can often be found fresh in produce departments of good grocery stores when in season. Kadota is a white- or green-skinned fig with amber to salmon-colored flesh; it can produce from early summer into the fall. I found a similar variety called White Texan in Austin, Texas, but with a whitish blush to the fruit and a pale amber flesh. The Peter's Honey Fig is a yellowish-green fig with light golden-yellow flesh. When I was selling edible bonsai at the local farmer's market, the fig trees attracted more attention than citrus with ripe fruit. People would spot them from across the market and make a beeline for my display. When they saw that dramatic fig bonsai full of fruit, they inevitably wanted one of their own. Figs grow vigorously and can send out more than three feet of new growth in a single growing season if not pinched back. It should be noted, however, that pinching can delay or reduce fig production. Woody sections with at least two leaf nodes pruned from a mature tree can be readily rooted by dipping one end into rooting hormones and planting in a light potting soil. Young plants make a great gift and will often bear figs their first summer. Of course, if you get several, you may decide to keep them all and create your own orchard in moveable pots.

This Celeste edible fig is still in a plastic training pot after two years of training. This specimen is fifty inches tall from the surface of the soil.

Close-up of a fig on the Celeste tree.

- [illegible] (*Eucalyptus* sp.) There are well over five hundred species of eucalyptus, mostly native to Australia; various sources report from one to five hundred species currently growing in California. Apparently eucalyptus hybridizes easily and has a widely varying general appearance in both leaves and bark, yet many species closely resemble each other and are hard to differentiate. Flowers can be showy, but my specimens have never bloomed indoors. The main variety I've grown as bonsai, called peppermint willow (*Eucal ptus*

nicholii), has narrow gray-green leaves that emit a strong peppermint fragrance when crushed. The large, hairy, teardrop-shaped leaves of the lemon eucalyptus (*Cor mbia citriodora*), the source of citronella, have a strong lemon component in their essential oils; my specimens have developed elaborate twisted exposed roots. Eucalyptus oils, widely used in medicines, perfumes, and flavorings, are collected by boiling the leaves in water to distill the essential oils. Used in cough drops, decongestants, and other medicines, eucalyptus has a soothing effect on the respiratory system, and the leaves can be boiled uncovered on the stove to create a soothing steam as a room humidifier. Eucalyptus is perhaps the most useful tree on the planet. The wood is very hard when dry and has been used extensively in many kinds of construction, as well as for fuel. It grows so quickly that there is much interest in using various eucalyptus species for biomass production of fuels. Because they use a lot of water, eucalyptus trees have even been used in mass plantings to drain swampy areas harboring malarial mosquitoes. They need well-drained soil and should be watered heavily and frequently. While eucalyptus is more useful than edible, it makes an interesting addition to any bonsai collection.

Camellia sinensis) Camellias, widely grown ornamental trees native to Southeast Asia that have long been prized for their showy flowers, were often featured in ancient Chinese paintings. After being introduced to England in the mid-eighteenth century, they became the most prized luxury flower in Europe until commercial orchids arrived on the scene. Several species of camellias are grown for their flowers, their seed oils, and the tea made from the leaves. The most significant, of course, is the green tea bush (*Camellia sinensis*) responsible for the drink that rivals coffee as the preeminent hot beverage around the world. White, green, and black teas are all produced from the same leaves by using different curing techniques. The finest teas are made from the tender new growth picked every couple of weeks, although I save every leaf when I prune my tea bushes. Ornamental camellias are known for having large, showy flowers that bloom in the dead of winter in Europe and North America, which may explain their popularity. The green tea plant has small but pretty flowers less than two inches across, with white petals surrounding the camellia's trademark showy cluster of big yellow stamens. Ornamental camellias usually just bloom once, in midwinter, but the green tea plants in my house and greenhouse bloom all winter long. Preferring an acidic, well-drained soil, with frequent watering and bright light, the green tea plant can be shaped into attractive tabletop-sized bonsai that flowers frequently. Its useful harvest makes for a unique homegrown treat.

reen tea flowers are smaller than other camellias, but they are beautiful and prolific.

This sixteen-inch green tea bonsai was shipped to me as a six-inch tall rooted cutting. allowed several new shoots to develop to balance the strong flowing movement of the main stem, as well as to produce more foliage for harvesting.

k d k u *rosa sinensis*) Tropical hibiscus is widely grown as an ornamental shrub, and is easy to find in garden centers and nurseries everywhere. It has large, shiny leaves and is known for its large, spectacular flowers in many colors. The edible flowers can be added to salads and are used for teas and other drinks, contributing color, flavor, and vitamins whenever they are used. Hibiscus flowers are also used in shampoos and other hair treatments. Drying and saving flowers from a good-sized hibiscus bonsai can produce plenty of useful material. Roselle (*Hibiscus sabdari a*) is the species most widely used for consumption around the world and in commercial preparations. It is the fleshy calyx that surrounds and holds the petals, rather than the petals themselves, that is used in many kinds of hot and cold beverages. Roselle is not easy to find in plant form, but the seeds are

available from some specialty companies. Tropical hibiscus plants are easy to grow and shape as attractive bonsai, and can be found in nearly every plant shop. There are some miniature varieties better suited to bonsai, and at least one miniature with variegated foliage and small flowers that can make a very striking bonsai specimen. Hibiscus bonsai thrive with rich soil, bright light, and ample water. They can get large, but will reward the grower with beautiful and useful flowers.

J q r *apsicum* p.) The bewildering variety of peppers found in gardens and markets everywhere are cultivated from five basic species—*C annuum, C rutescens, C chinense, C pubescens, and C baccatum*. Peppers are native to the Americas, but have spread worldwide and now constitute an important part of the local cuisine in many countries. Almost every gardener has grown peppers, but few consider that they can be more than summer annuals. Peppers can grow as a woody shrub that will live for several years and produce peppers continually, even in winter. The small ornamental peppers available in flower shops everywhere are an obvious choice for bonsai; their dwarf stature and small leaves and fruit almost create a natural bonsai without much pruning. Many hot culinary peppers are not dwarf varieties, but still make nice bonsai if pruned and kept in check. Which variety is best depends more on the grower's culinary preference than the plant's dwarf characteristics. I've grown a number of them, including jalapeno, habanero, kung pao, cayenne, and a small red spicy pepper called Apache that's a new favorite. I've even wintered a pepper in a pot, planted it in the ground the following summer, and dug it back up for a second winter in a pot—although this is harder on the plant than just keeping it in a container full time. If the crown of a pepper bush gets leggy and droops, and doesn't have great shape, the bush can be pruned dramatically to thick wood and it will sprout and flower again very quickly. The main requirement for hot peppers to thrive is warm temperatures. I place them on an overhead shelf in my winter greenhouse, closer to the peak than the floor, to take advantage of the warmth up there when the sun is shining. Peppers will survive the winter in a bright sunny window, and benefit from the heat and additional light of a well-placed spotlight-type full-spectrum plant light. Rich potting soil and frequent fertilization will keep your pepper plants happy and productive. One problem with peppers is their tendency to attract insects, especially aphids, which tend to flourish under indoor conditions. The best way to deal with an infestation is to wash the plant with a high-pressure water spray and then spray it with soapy water to suffocate any insects that have survived the washing.

L c d q v *cauli ora*) Jaboticaba is a small, slow-growing tree native to Brazil. Its attractive two-toned peeling bark and pale salmon-colored new growth, which turns into light-green leaves, have contributed to its recent popularity and availability for use as an indoor bonsai subject. A distinctive feature of jaboticaba is the one- to two-inch purple-

black fruits resembling large grapes that form on very short stems directly off the trunk and main branches. These fruits are eaten fresh right off the tree, and do not keep long after picking. It is far more common to see them processed into jams, wines, liqueurs, and other foods than available fresh, except in local markets. Jaboticaba grows slowly and will take some time to produce fruit—anywhere from six to twenty years, according to various authorities. The specimen I've been training for five years has yet to flower. Jaboticaba is a graceful tree with delicate foliage that can make a beautiful classic bonsai, whether it fruits or not. A heavier soil full of mulch that can hold moisture is best for these water-loving trees. They are often flooded for weeks in their native habitat, and prefer a moist soil with frequent watering. The only problem I've observed with my jaboticaba bonsai is damage to the foliage if it dries out too much between watering periods.

This forty-one-inch aboticaba started as a small tree shipped to me in a six-inch pot. t has been in training for five years.

c u o k (asminum p.) A number of jasmine species are grown ornamentally and commercially for their fragrant flowers. Angel-wing jas-mine (*asminum nitidum*) is a medium-sized shrubby evergreen vine that produces an abundance of fragrant two-inch white pinwheel blossoms that pop out of purple buds. Though jasmine is supposed to be a summer bloomer, my twenty-year-old specimen blooms at Christmas and New Year every winter, and has more days with flowers than without in any given year. The fragrance of this species is less intense than other varieties, but my large-crowned six-foot specimen can be smelled throughout my living room when it is blooming freely. Star jasmine (*rachelospermum jasminoides*) is a dwarf evergreen vine that blooms heavily once a year, with clusters of tubular five-petaled flowers that give off a strong jasmine scent. The fast-

growing vine requires regular pruning, but will develop a nice trunk to make a beautiful small- to medium-sized bonsai. Common jasmine (*asminum o cinale*) is the classic jasmine used for perfumes and aromatherapy since the beginnings of recorded history; the original native source is unknown. Summer-blooming and often deciduous, it has spread in cultivation everywhere it will survive. Tea jasmine (*asminum sambac*) is the source of jasmine flavor in jasmine teas. The fresh flowers are mixed with dried tea leaves, which absorb moisture and oils from the flowers. The flowers are often removed, but can be left in the dry tea and steeped all together. Tea jasmine grows as a medium-sized shrub, and is not a vigorous plant with fast-growing vines like other jasmines. Night-blooming jasmine (*Cestrum nocturnum*) is a member of the unrelated potato family. It has an intensely sweet odor which may cause some people to have a strong allergic reaction and difficulty breathing. It is reportedly toxic, and internal consumption is definitely not recommended. A large shrub with long leaves, night-blooming jasmine is difficult to shape as a classic bonsai, but the intense fragrance when the fl owers open at dusk makes it an interesting plant to grow. All of the above-mentioned varieties should be readily available in local nurseries. Angel-wing, star, and tea jasmines are best suited for cultivation as indoor bonsai. I've had angel-wing and star jasmine bonsai in training for more than twenty years with good results. The star jasmine developed an interesting bark and trunk structure and filled the entire house with fragrance when it bloomed. My twenty-plus-year-old angel-wing jasmine bonsai is a large plant that fills a four-by-six-foot west window in my living room, making a bold statement when people enter my home, especially when it is blooming. It blooms heavily several times a year and produces enough flowers to use in tea and even to make a small vintage of two cases of jasmine-flower wine. Jasmines need bright light, but are easy plants to grow, and the flowers are very rewarding. The vining varieties require regular pruning. Any new shoots that emerge from the trunk, roots, or ground should be removed to keep the plant looking like a bonsai rather than a multi-stemmed bush.

Kumquat (*Fortunella* sp.) While some authorities classify the kumquat as *Citrus japonica*, most consider it to be a separate genus from other citrus. Kumquats, the smallest citrus fruit, are only one or two inches long. They have smaller leaves than large-fruited citrus varieties, making them ideal candidates for bonsai. Fresh kumquats can be found in produce markets in late fall and early winter. There are round and oval varieties; the oval nagami variety is most widely grown as an ornamental and for the fruit market. Kumquats have a sweet peel and sour flesh, and are mostly eaten fresh in their entirety. They are served as a garnish with food or drinks. Fresh kumquats may be chopped and used like citrus zest in many dishes. They also can be made into a unique marmalade or preserved by canning in sugar syrup. Although the fruit is small, kumquats can flower and fruit heavily, and a medium to large specimen can produce dozens or even hundreds of fruits. Kumquats are well suited to growing in containers. They do best in a rich soil full of humus that holds

moisture well, as their natural habitat in China is along streams where the soil stays damp. Kumquats require more regular watering than other citrus, especially if restrained in a small bonsai pot. They are more cold-tolerant than other citrus, including periods below freezing, and are suited for growing as a larger patio bonsai outside in milder climates. Most kumquats sold in nurseries are grafted, which can produce a thick trunk and impressive exposed roots that lend an aged character to the specimen. Spectacular variegated kumquats are also available that are easy to train as indoor bonsai. A varie-gated kumquat bonsai, full of fruit, would be the center of attention at any bonsai show.

This kumquat, which began as a two-gallon nursery plant, has been in training for less than a year.

These kumquats will turn orange when ripe.

- **Lavender** (*Lavandula* sp.) English lavender (*angustifolia*), the widely grown lavender used commercially, is a cold-hardy species that needs to go dormant, and is not really suitable to grow as bonsai. Spanish lavender (*stoechas*) is a dwarf perennial shrub with attractive gray-green foliage and large pink to purple flower spikes. While this is the most attractive species of the group for bonsai, it is fussy and not as long-lived as other lavenders. French lavender (*dentate*) is a woody upright shrub with a more open growth habit, distinguished by the sharply toothed edges of its silvery green foliage. The leaves have a strong fragrance that is slightly different from that of traditional English lavender. While not often used commercially, French lavender can be used like other lavenders. I use it for potpourri, fresh aromatherapy, and as an added fragrance in teas. The oldest homemade wine in my cellar is actually French lavender wine from 1986. This is the best species to grow as bonsai because it is long-lived, grows into a nice upright shape, and can flower all year long. The crown of a mature lavender plant can become quite thick and droopy, with way too many growing shoots and older foliage in the interior of the crown that has turned brown or black. This can be prevented with regular pruning, or the bonsai can be cut back dramatically to solid wood, which will sprout quickly into a new crown. The small French lavender plants that can be found in the herb section of most well-stocked garden centers will grow rapidly into a small- to medium-sized bonsai. Small herbs like this can be planted in the garden in the spring and field-grown through a growing season before being dug up in the fall and pruned strongly. This technique can produce a dramatic bonsai with a thick trunk in a short period of time. French lavender is very tender and will not tolerate freezing temperatures. It likes well-drained soil and should be allowed to dry out between waterings, although not to the point of wilting. Like most herbs, it does best under full sun outside and a bright window indoors. French lavender also benefits from additional artificial lighting if kept indoors under low light conditions during the winter.

- **Lemon guava** (*Psidium littorale*) Lemon guava is a small, fast-growing evergreen tree with attractive peeling bark. Its golf-ball-sized fruits, which have white flesh, small seeds, and yellow skin when ripe, are eaten fresh, used in cooking, and made into juice, jams, and jelly. The leaves are dried and used for tea in some areas. Guavas flower in spring and early summer and bear ripe fruit by August. That fall crop is the heaviest, but sparser flowers and fruit emerge at other times of the year. A lemon guava can get big for a house-plant, and is best trained as a six- to eight-foot specimen. Even at this size, it may occasionally need a severe pruning to keep it at a manageable size. I've pruned out-of-control specimens down to two-inch-diameter branch and trunk stumps, which immediately sprouted many shoots that with frequent pinching created a full crown. Guavas like well-drained soil, but will use plenty of water. The growing tips will quickly start to droop when the plant gets dry, and

this is a reliable indicator of when to water. Of course, like any fruit-bearing tree, its fruits will taste best if ample water is given as they are growing. The lemon guava is relatively easy to grow and can produce unique and tasty fruit every year under good conditions. These fast-growing bonsai do best in a larger pot.

This lemon guava is still in a training pot six months after being dug up and cut back from an old plant that had rooted though its pot and into the ground. This specimen is eighty-four inches tall.

A close-up view of ripe golf-ball-sized lemon guavas.

- ***g*** ***o*** ***sia triph lla***, also *citriodora*) Some authorities put this plant, which is native to South America, in the genus *ippia*. Lemon verbena is a fast-growing woody shrub that develops attractive gray furrowed bark with age. Its narrow, pointed, light-green

leaves can go deciduous, and the plant will remain dormant for a period if subjected to cold temperatures near freezing or other shocks. Spikes of small white flowers erupt from lilac-colored buds in early summer. Lemon verbena is generally acknowledged as having the strongest, cleanest lemon fragrance of any of the lemon-scented herbs. Just brushing the leaves will release an intense lemon odor that can fill a room. Lemon verbena has extensive culinary uses, from flavoring meat (fish and poultry) dishes and sauces to sorbets and drinks; it is also very good blended with herbal or black teas. Fresh or dried leaves can be used anywhere lemon flavor is desired, though fresh leaves have stronger flavor than dried ones. The essential oils in this plant are strong antioxidants, and have been used medicinally as well as in fragrances and other cosmetics. Its scent has aromatherapeutic qualities, and lemon verbena tea has long been renowned for its soothing and relaxing effects on the body. Lemon verbena likes warm temperatures and can grow very quickly in suitable conditions, producing plenty of leaves for household use. This herb may have more potential uses around the house and kitchen than any other species discussed here, and is well worth growing as an edible bonsai. My oldest specimen has gone dormant several times and has sometimes died back to a stump that sprouts a new strong trunk. Lemon verbena can be kept to a nice tabletop size or allowed to grow into a medium-sized tree up to six feet tall. The top may die back dramatically if the tree goes dormant, but vigorous new growth can quickly create a new crown. Lemon verbenas need bright light, warm temperatures, and well-drained soil to thrive, and will take plenty of water when actively growing. Aphids, white flies, spider mites, and similar pests are attracted to this plant, and indoor infestations may become serious. In addition to regular soap sprays, moving the specimen outdoors, trimming away heavily infected growing tips, and washing with high-pressure water sprays can take care of the problem. Strong insecticides should not be used on any plant whose leaves will be consumed.

N[illegible] (*Citrus japonica*) Limequats are a cross between Key limes and kumquats; the several varieties result from crosses with round and oval kumquats. One called Lakeland is crossed with a round kumquat, creating a small, slightly oval fruit, smaller leaves, and a more dwarf habit than other crosses. In my experience, the oval cross, sometimes called a Margarita limequat, is a more vigorous grower, with oval fruit nearly the size of a small egg that turn bright yellow when ripe. Limequats have edible skin and lime-flavored green pulp and juice. Except for the seeds, limequats can be eaten whole, made into marmalade or wine, and added to many dishes or drinks in the kitchen. I love to slice or chop them and add them to eggs or any meat or vegetable dish. Limequat bushes and fruits can exceed those of the parent species in size, and consistently produce more fruit by weight than any other citrus I've grown. The flowers have a nice citrus fragrance. Limequats are an easy citrus to grow as bonsai, making a larger specimen from five to eight feet tall. They tolerate temperatures a little below freezing if grown outside as a patio tree in mild climates. Soil

should be well drained and allowed to dry out slightly between waterings. Regular watering and fertilizing will contribute to the health and productivity of your limequat bonsai, providing a generous crop to use in the kitchen. Limequats are generally trouble-free and self-pollinating, but they can be susceptible to infestations by scale or mealy bugs, which are best removed with high-pressure sprays or alcohol swabs.

The perfect shape of this limequat has been sacrificed to maximize fruit production. The seventy-six-inch specimen now has nearly a hundred green fruits ust beginning to ripen. Purchased as a six-foot-tall tree, it has been in training for five years.

Six weeks after the picture at left was taken, most of the fruit on this limequat bonsai have turned ripe and are ready to use. Ripe citrus always makes a striking specimen.

A limequat cluster seen close up.

- [illegible] *iobotr a japonica*) Loquats are a member of the rose family native to China, with a small fruit similar to an apple. The fruits are eaten fresh, canned, and cooked into jams, wines, and desserts. Loquats are very popular and widely grown for their fruits in Asia. They have been introduced all over the world, and there are hundreds, if not thousands, of cultivars with wide variations in fruit shape and color. The fruits are one to two inches in

diameter, growing in clusters; they turn yellow when ripe and have a central core of large seeds. The loquat has thick, dark-green leaves up to twelve inches long, with serrated edges and a rusty red hairiness on the underside that provides a striking contrast. The leaves form a whorled pinwheel at the branch tips, creating a unique appearance. The white flowers are quite fragrant, with a sweet smell. I trained a fetching specimen for six years and finally sold it to a client before it ever fruited for me. A loquat is best cultivated as a larger bonsai specimen because of the large leaves, and may need several years of pruning to fill out a crown. There is a variegated loquat grown indoors as an ornamental variety in some areas. Loquats grow slowly, but are drought tolerant and adapt to many different climates and soil types without problems.

Though this fifty-five-inch loquat has not yet produced fruit in its five years of training, it is a graceful specimen.

Myrtle-leaved orange (*Citrus myrtifolia*) Though it is sometimes described as just a cultivar of *C. aurantium*, which includes other sour oranges like the Seville, the myrtle-leaved orange is different enough to be considered a separate species. With its compact, branching, thornless habit and tiny myrtle-shaped leaves with very short internodes, this is the most dwarf type of citrus I've grown; it has great potential to create a classic bonsai just a couple feet tall. Its small, round fruit have a loose rind and are quite sour, with some bitterness in the peel. When ripe, the fruits will hang for a long time on the tree without going bad, so they can be left to add to the beauty of the bonsai and picked when needed. Introduced to Europe hundreds of years before sweet oranges were discovered, myrtle-leaved oranges have a long history of medicinal and culinary use. The fruits have a strong orange flavor, and are

best using in cooking rather than eating fresh. Their high pectin content makes them ideal for use in candy, marmalade, chutneys, and sauces. Myrtle-leaved oranges can be used in all kinds of drinks, and are the source of the orange flavoring agent in classic orange liqueurs. Myrtle-leaved oranges need a rich, acidic soil, regular watering, and bright light. This is a slow-growing tree that won't need a huge pot and likely won't need repotting every year. If you wish to create a classic small indoor bonsai with citrus flowers and fruit, the myrtle-leaved orange tree is the best possible candidate.

Clusters of young myrtle-leaved oranges.

[illegible] (*Carissa macrocarpa*) Natal (pronounced nuh-) plum is a dwarf evergreen shrub native to South Africa. It has thick waxy leaves, strong thorns, fragrant white flowers reminiscent of gardenia, and edible red plum-like fruits. A number of varieties are grown as ornamentals in coastal and desert environments, as Natal plum is salt and drought tolerant and very tough. I've seen them come back from being shriveled and wilted. All parts of this plant are poisonous except the tasty fruit, yet it is planted widely as an ornamental in warm climates in the United States. Its dangerous-looking double thorns no doubt contribute to it being advertised as a child- and pet-proof hedge for warm climates. Few people eat the fruit, which is very high in vitamin C and can be used fresh, baked into pastries or other dishes, and made into jams, jellies, or sauces. Well known among indoor bonsai enthusiasts, Natal plum can be found at nurseries that carry a good selection of bonsai stock. These plants are well known for creating cascade bonsai where the crown hangs well below the bottom of the pot, as if growing off the edge of a cliff. Natal plums bloom freely with a delightfully scented five-lobed white flower. They bloom most heavily in the spring and summer, but also produce scattered flowers throughout the year, often flowering and fruiting simultaneously. A small plant less than a year old is likely to flower a couple of times a year with bright light; an older medium-to-large specimen with a thick crown can

be expected to have flowers open more days than not over a year. There are many cultivated varieties, but the standard, full-sized original plant flowers and fruits much more heavily than any of the dwarf cultivars in my experience. Some dwarfs just have smaller leaves, thorns, flowers, and fruit, and a shorter internode length on the stem; I've trained an attractive golden variegated Natal plum of this type. There are also some extremely compact thornless varieties with an almost otherworldly appearance, including a gorgeous cream and light-green variegated cultivar. That thornless variegated dwarf variety is one of the bestselling bonsai in my nursery, and reliably blooms in two- to three-inch pots in less than a year. These very compact varieties are especially suited for cascades, as they develop dense, heavy crowns on thin trunks and branches. Natal plum will survive a light frost with some damage, but can't really tolerate temperatures below freezing. I have seen them four feet tall with four-inch trunks in landscaping around hotel pools in Phoenix, Arizona; such plants, if salvaged when slated for removal, would make spectacular bonsai in that climate. There is also a ground-cover variety of Natal plum that resembles a vine with small leaves, flowers, and fruit, and a long distance between leaf nodes. With heavy pruning this can make a very interesting cascade bonsai. The various Natal plums are among my favorite plants for bonsai. The delightfully fragrant flowers and tasty fruit make for an interesting contrast with the wicked thorns and poisonous-looking milky-white latex sap, which seeps out when the fruit is plucked. I often recommend Natal plums to beginners because they are easy to grow and drought-tolerant, and can easily recover if watering is a little late. They do want their water, but should be allowed to dry out between waterings in well-drained potting soil. They can sometimes be infested with scale or mealy bug pests that should be controlled by hand, with alcohol swabs and or high pressure water sprays. A mature Natal plum bonsai specimen will bloom more consistently than any other species discussed in this book, making it a very desirable species to grow.

The thornless variegated dwarf atal plum bears the same fragrant flowers and tasty fruits as the full sized green variety, but has spectacular foliage. This seventeen-inch specimen has been in training for seven months from a one gallon nursery stock plant.

This ripe atal plum is about an inch and a half long.

This fifty-seven-inch-tall atal plum has been in training for about eight years, starting as a five-gallon nursery plant. The flowers are very fragrant and the plums are tasty.

[illegible] *ptospermum scoparium*) New Zealand tea tree is often seen in bonsai displays. The tiny sharp leaves and scattered white to pink button-sized flowers on the small bush make it a very attractive plant to train as bonsai. While it has been used to brew tea, this is not the same plant as the tea tree (*Melaleuca* [illegible]p.) that produces the widely used tea-tree oil. The wood of the New Zealand tea tree is used for flavoring when smoking meats and fish. Though this plant may not be as useful as others discussed here, its tiny scale and delicate appearance can create a classic small traditional bonsai that flowers freely. While adapted to dry climates, this species can be temperamental if it gets too dry between waterings. I have carved and replanted large five-gallon potted cone-shaped topiaries of New Zealand tea tree to make impressive bonsai in a single afternoon. As part of a collection, the New Zealand tea tree makes a nice contrast to the larger-leaved varieties grown for their fruit.

[illegible] *Carica papa a*) Papaya normally grows as a single-stem trunk, but can be pruned to force branching. Although it will have large leaves, a papaya makes an interesting and attractive bonsai. The best way to start a papaya bonsai is to purchase a fresh papaya at a local market and sprout the seeds by washing and drying them and then planting them right away. Keep them warm and wet, and they will sprout and grow quickly. Whether cultivated as a single trunk or pruned to cause branching, papayas have a striking