Preface

Trees and shrubs. Dozens of them. Thousands. Millions. Trillions! They dominate the landscape in all four corners of the world. They adapt to the harshest climates and the most grueling conditions. They generate oxygen and remove carbon dioxide from the atmosphere around us. They provide shade in the summer and a windbreak in the winter. They cut heating and cooling costs for our homes. They may even produce beautiful, aromatic flowers and edible, healthful fruit and nuts!

But why on Earth would anyone want to grow trees and shrubs indoors? They are, after all, the mega-monsters of the plant world. They're huge and gobble up tons of space. They're difficult to grow under the best of conditions. And they're nearly impossible to move around.

Or are they?

Actually, trees and shrubs make great indoor companions for human domiciles. They are masters of environmental cleansing, which is extraordinarily good news since numerous studies show that the most polluted air we breathe comes from inside our own homes — not out. The EPA estimates that indoor pollution levels are between two-to-five times higher than they are outside. Some of the specific pollutants you breathe in can be as much as 100 times more concentrated indoors!

Both the National Cancer Institute (NCI) and the Centers for Disease Control and Prevention (CDC) have established that 80 percent of all cancers may be attributed to factors not from your genetic makeup or your diet but from your environment. The sources of indoor pollution are a combination of interactions between buildings, their occupants, the climate, construction materials, furnishings, and specific contaminants. Among the causes are hundreds of

different harmful volatile organic compounds (VOCs) that are your home's usual suspects. These include asbestos, bacteria, viruses, building materials, painting and decorating products, carbon monoxide, carpets, cleaning supplies and household chemicals, cockroaches, dust mites, dust, formaldehyde, lead, pet dander, radon, secondhand smoke, fire retardants, and other miscellany.

VOCs are a specific and dangerous type of pollution emitted from the use of everyday products such as aerosol sprays, cleaning supplies, wood preservatives, hobby supplies, and pressed wood products commonly used in furniture and building materials. Some of the more familiar names of these VOCs are benzene, formaldehyde, xylene, and toluene.

Scary? Only to the uninitiated. Recent studies have shown that potted plants improve your work and living spaces by reducing your blood pressure, increasing your attention span and productivity, lowering your anxiety levels, and reducing the chance for stroke and heart attack.

Other research has demonstrated that working around plants leads to a higher degree of accuracy and better results in performance. Memory retention and concentration also improve by an average of 20 percent.

While most leafy plants are adept at removing some pollution from your indoor air, scientists have discovered several that are better at removing VOCs than others. NASA was behind some of the initial research in 1989 to unearth specific plants that might be useful to reduce pollution in sealed environments — such as in space capsules and the space station. Their study showed that some indoor plants removed as much as 87 percent of all airborne pollutants!

Researchers have identified the following houseplants as those that are most beneficial at removing targeted VOCs.

- **Jade plant:** Particularly good at absorbing toluene emitted from gasoline, paint, kerosene, and lacquers.
- **Spider plant:** Excellent for absorbing up to 90 percent of formaldehyde and carbon monoxide from tobacco smoke, O-xylene from fuels, and P-xylene in plastics.
- **Scarlet start:** In the Bromeliad family (pineapples), this plant purifies the air of 90 percent of benzenes emitted from glues, furniture wax, detergent, and paint.
- **Caribbean tree cactus:** This plant can absorb up to 80 percent of the ethylbenzene wherever it's grown. Ethylbenzene is an emission from electronic products, construction materials, garden-care products, toys, and furniture.
- **Dracaena:** This stunning all-green or variegated-leaf plant absorbs 90 percent

of the acetone from household cleaners and nail polish remover.

- **Fern:** The delicate fronts remove numerous pollutants from the air while providing healthful humidity for your environment.
- **Peace lily:** In either solid or variegated-leaf variety, it blooms in the spring and absorbs electromagnetic radiation from digital devices while it humidifies the air.
- **English ivy:** An excellent companion plant for trees and shrubs, it's useful in absorbing the toxins from cigarette smoke and cleansing the air for asthma sufferers.
- **Ficus:** Slightly more challenging to care for, the Ficus cleanses odors from the air and reduces toxic substances from both home and office.
- **Snake plant** (Mother-in-law's tongue)**:** Another excellent companion plant, this is easy to care for and cleanses the air of benzene and formaldehyde while increasing the room's oxygen content while you sleep.
- **Philodendron and pathos:** These companion plants are easily grown and look great hanging over the sides of pots. They efficiently detoxify formaldehyde.
- **Bamboo palm:** Also known as the reed palm, this tree thrives indoors and readily absorbs formaldehyde outgasses from furniture.

How Much Is Enough?

NASA researchers suggest you use at least one potted plant per 100 square feet of home or office space for maximum air-purifying effects. That distills down to one large plant or several smaller ones for a spacious area such as a typical family room or a master bedroom en suite.

It's true that trees and shrubs can take up a lot of space, but they don't have to. Many species and hybrid varieties are compact enough for small to medium-sized pots. Others, while growing tall, can utilize all that indoor "dead space" above our heads — especially in foyers, stairwells, and homes with open floor plans and cathedral ceilings.

And when it comes time to move your large plants around, you'll find doing so a cinch using a trivet on casters. Placed beneath even the largest of pots, trivets make relocating indoor trees and shrubs from one place to another easier.

How do I know? I've been growing trees and shrubs indoors for the better part of three decades. I wouldn't dream of living anywhere that didn't boast a dozen or more of these foliar monsters sharing my family's space. Plants make us feel good, bring a piece of the outdoors in, cleanse and oxygenate the air we breathe, create dramatic decorating details, and change — some of them — with the seasons. As a bonus, they help increase your

cognitive reasoning, stretch your memory, and kick your immune system up a notch or two. (I haven't had the flu or even a common cold in more than a dozen years now. Knock on *Ficus benjamina*!)

The sheer size and beauty of trees and shrubs create an efficient window screen that helps keep the blinding rays of the sun out of our eyes when we're watching TV or working at our computers. They prevent our furniture from fading or rotting from the sun's damaging rays. And, so far as the dramatic effect on your décor, forget that end table and lamp. Bring in a *Dracaena marginata, Schefflera*, or a Norfolk Island pine, instead.

If you're worried about your trees and shrubs outgrowing your home or apartment, well, you can give up that ghost, too. Utilizing two simple techniques called "pruning" and "heading back," you can keep nearly any botanical specimen precisely the size you want — year after year — both in height and girth.

But the number one advantage to growing trees and shrubs indoors is the number one reason behind nearly everything we do in life.

Health

Being near so many large plants is not only physically healthful but also emotionally stimulating, calming, soothing, and sedating. (Yes, all of that.) In fact, large plants are so beneficial to humans from a health standpoint that specialized cutting-edge hospital and medical facility design teams are incorporating them into their fundamental architectural concepts. Institutional designers have learned that walls of fiddle-leaf fig trees in a hospital environment, for example, cut down on sound pollution while contributing to shorter hospital stays and fewer medical complications for their patients, resulting in lower patient costs.

One of the reasons is that large plants produce a radical change in the molecular structure of the air around them — and us! — for the better; and, since most people spend far more time inside than out, it makes sense to surround ourselves with these miracles of molecular transmogrification.

Trees and shrubs offer yet another healthful benefit that has only recently come to light: they act as some of the world's most efficient and effective humidifiers, turning the driest and least healthy of rooms into the most hospitable of human habitats. As a bonus, they produce none of the potentially deadly pathogens of costly conventional humidification systems!

And that's only the beginning.

At the Landscaping and Human Health Laboratory in Champagne-Urbana, Illinois, researchers are hard at

work developing the best strategies for impacting human health and happiness. They concentrate on trees and shrubs in and around the home to increase positive mental attitude (PMA) and to reduce human aggression. They have uncovered how rational planting can strengthen the welfare of the community and enhance the individual's ability to cope with various physical and mental diseases and illnesses via increased immunity, vitality, attention span, self-control, and capacity for learning.

At the same time, new studies are showing how trees and shrubs in the home environment can significantly reduce Attention-Deficit/Hyperactivity Disorder (ADHD) and other human diseases. Several studies suggest that trees and shrubs in the home reduce the incidence and severity of domestic violence.[1]

Studies conducted at the Rodale Institute, the Plants for Human Health Institute, the University of Minnesota's Healthy Plants-Healthy Lives Institute, NC State University's Plants for Human Health Institute, and other research facilities are also yielding promising findings with the correlation of trees and shrubs to human wellness. Not only in the home but also in schools, churches, and workplaces.

So, if you're looking for a single word that sums up all of the reasons for growing trees and shrubs indoors, sorry. This book can't help you. But if you're looking for the most important reason for growing these age-old wonders of the plant world inside your home, I can sum it up in a few simple words: For your health!

Science Says

The vast majority of plants absorb carbon dioxide (CO_2) at night and give off oxygen (O_2) during the day. But a few plants work a little differently, both absorbing CO_2 and giving off O_2 at night. That makes them especially beneficial in sleeping areas, where reducing carbon dioxide and increasing oxygen levels results in a deeper, healthier, more restful sleep.

The scientific explanation behind this wondrous phenomenon is relatively simple, if you're a plant. Otherwise, suffice to say that the plants listed below perform a type of photosynthesis called crassulacean acid metabolism (CAM).

There are two means by which plants generate photosynthesis. One is by light reaction, meaning O_2 is released by splitting H_2O (water) molecules into

hydrogen and oxygen. The other means is by dark reaction (Calvin cycle) in which plants use CO_2 to make sugars to drive the process of photosynthesis.

The energy behind both these reactions comes from sunlight. CO_2 is absorbed via the plant's stomata, and O_2 is released in the same channels. In CAM photosynthesis metabolism, the plant opens the stomata at night to minimize water loss and keeps it closed during the day to conserve life-sustaining water.

The bottom line is that, if you want to pop out of bed reinvigorated and ready to tackle the problems of the day, include one or more of these plants in your bedroom:

- **Areca palm:** These are slow-to-moderate growers in sun or shade and can reach heights of 15 to 20 feet outdoors. They're wide at the top, so they make excellent finely textured specimens if given enough room.
- **Neem tree:** Synonymous with numerous health benefits, neem trees also purify the air during nighttime by emitting oxygen. Superstition calls for the trees to be planted inside the house, especially in the center or courtyard of the house, and that belief is scientifically true since neem acts as a natural pesticide.
- **Snake plant:** Much like aloe vera, snake plants also emit oxygen at night. So, get one in your house and breathe in a healthy environment even during the night.
- **Aloe vera:** Whenever a list of plants with benefits is made, aloe vera tops the charts *always*. Listed as one of the plants improving the air of NASA, aloe vera emits oxygen at night and increases the longevity of your life. It's practically a no-maintenance plant that adds an elegant touch of beauty to any room.
- **Gerber daisy:** Beautiful daisy-like plants, these make good companions for numerous trees and shrubs while brightening up any room.
- **Christmas cactus:** Long-blooming companion plants or small shrubs, these can get quite dramatic with their everlasting blossoms of red, pink, or white.
- **Tulsi:** Also known as holy basil, this plant is widely used for its medicinal qualities and makes an excellent companion plant for trees and shrubs.
- **Peepal tree:** Despite the superstition that spirits dwell within this tree, peepals have several benefits that make them rather important plants in their native lands. They not only emit oxygen at night but also are useful in controlling diabetes and treating constipation and asthma.
- **Orchid:** Beautiful and beneficial, orchids are the perfect choice for a brightly lit corner of your bedroom. Apart from emitting oxygen during the nighttime, orchids also clean the air of xylene, a potent pollutant found in paints, while filling the room with their exotic tropical fragrance.

Making Complex Simple

Interestingly, oxygen emitted by plants is a waste product from the plant's process of photosynthesis, which uses energy from the sun (or a compatible daylight-balanced, full-spectrum artificial light source) to turn carbon dioxide (CO_2) and water (H_2O) into sugar ($C_6H_{12}O_6$), giving off oxygen (O_2) as a by-product. That's *photosynthesis*.

Plants also break down sugar ($C_6H_{12}O_6$) into carbon dioxide (CO_2) and water (H_2O), but they need oxygen (O_2) to do so. That's *cellular respiration*.[2]

Whatever the process, you'll want to move some of these plants into your bedroom for a better night's sleep!

If that's not good enough news for your tired ears, scientists say they have succeeded in genetically modifying a common houseplant so that it improves air quality. Researchers from the University of Washington (UW) have genetically altered pothos ivy (*Epipremnum aureum*) to remove chloroform and benzene from the air surrounding it.

The plants have been modified so they express a mammalian protein, called 2E1, which enables them to transfer the harmful pollutants into compounds that can support plant growth. Since the insides of our homes can contain small molecules such as chloroform or benzene (a component of gasoline) from boiling water, storing cars and lawnmowers in attached garages, and even simple showering, they could benefit from "super-cleansers."

Tiny Toxic Molecules Too Small for HEPA

Many of the airborne pollutants in our homes are too small to be captured by even HEPA air filters. That creates a problem in that long-term exposure to these microscopic pollutants has been linked to cancer.

"People haven't really been talking about these hazardous organic compounds in homes, and I think that's because we couldn't do anything about them," according to senior study investigator Stuart Strand, a research professor in the UW's civil and environmental engineering department. "Now we've engineered houseplants to remove these pollutants for us."[3]

The scientists got their inspiration from nature by focusing on a protein called cytochrome P450 2E1, or 2E1 for short. The 2E1 protein is naturally present in all mammals, including humans. In our bodies, 2E1 turns benzene into a chemical called phenol, and chloroform into carbon dioxide and chloride ions.

Unfortunately, the protein is located in our liver and not available to battle air pollution. That's where Strand's team came in. "We decided we should have this reaction occur outside of the body in a plant, an example of the 'green liver' concept," he explained. "And 2E1 can be beneficial for the plant, too. Plants use carbon dioxide and chloride ions to make their food, and they use phenol to help make components of their cell walls."[4]

So, researchers developed a synthetic version of the gene and, through slow, methodic measures,

eventually introduced it to the pothos so that every cell in the plant expressed the protein. They then tested their new GMO plants by taking both a non-modified and a modified plant and putting them in glass tubes filled with either benzene or chloroform gas.

The concentration of each pollutant in each tube was tracked over the next 11 days. The levels did not change at all for the unmodified plants; the modified plants, though, showed the concentration of chloroform had dropped by 82% after only 3 days. By day 6, the chloroform was nearly undetectable. The level of benzene also decreased in the modified plant vials, although at the slower rate of a 75% decrease over an eight-day span.[5]

The team believes the plants will work inside homes, but they would need good airflow or a fan aimed directly at the plants for maximum effectiveness. "If you had a plant growing in the corner of a room," Strand says, "it will have some effect on that room, but without airflow, it will take a long time for a molecule at the other end of the house to reach the plant."

Bolstered by the success of their experiments, Strand's researchers are now attempting to develop modifications for other common household pollutants, including formaldehyde, wood smoke, and furniture.

Could researchers one day turn air pollution into a thing of the past simply by changing a few genetic elements of various hardy plants?

In the words of the immortal physicist Albert Einstein, "Why not?"

Chapter One:

Why Trees and Shrubs?

If you root around the shelves of your neighborhood bookstore long enough, do you know what you'll find? Dust! And books, too, of course. Plenty of books dedicated to growing all sorts of indoor plants. Flowering plants. Small houseplants. Cacti. Succulents. Bromeliads. Even fruits and vegetables. So why another book — and why about trees and shrubs?

Well, if you've ever gone outside in the spring, opened up a spadeful of earth, inserted a young sapling, and heeled the hole closed again, you know why. Even if you have a massive yard filled with beautiful flowers and bushy shrubs, there's a special thrill all of its own in planting a young tree. The pleasure comes partly, I suppose, from the anticipation of knowing that a tree 2 feet tall today will be 4 feet tall tomorrow — then 6 feet, 10 feet, 90 feet, and more. You have played a role in creating one of the most amazing things in nature. Long after you've gone and your relatives have forgotten how little you bequeathed them in your will, the tree you planted will remain for the benefit of mankind, checking destructive erosion, screening out the sun's scorching rays, drawing impurities from the air, and replacing pollutants with life-giving oxygen and humidity.

Can you imagine what our existence on Earth would be if there were no trees? Our little planet would quickly dry up and crumble away. No living thing could survive. We would all perish.

For centuries now, man has turned toward the heavens to view nature's most miraculous living creations — spiraling, majestic towers of wood and living cells. Our earliest ancestors looked upon trees with both awe and wonder. There was life in these creations … and longevity. If

man was not struck by the complexity of the other components of life around him, he was humbled by the trees that existed long before he came and would last long after his passing from the Earth.

> I remember, I remember,
> The roses, red and white,
> The vi'lets, and the lily-cups,
> Those flowers made of light!
> The lilacs where the robin built,
> And where my brother set
> The laburnum on his birthday, —
> The tree is living yet!
>
> Thomas Hood, "I Remember"

Trees are not the oldest form of plants on Earth. From the vast seas that gave birth to evolution came the algae and bacteria; they were eventually followed by the more recognizable plant life — mosses and ferns. Even so, trees have been around for 300 million years. They, like all living things, did a lot of adapting to a continually changing environment over those years. That in itself is a wonder.

Today, modern man no longer supposes, as the people of the Germanic North once did, that trees are the homes of spirits and gods. Today, he knows what they're made of and how they go about growing. But man has not lost that feeling of awe — perhaps a legacy of his early ancestry — that wells inside when he lays eyes on those behemoths of the plant world.

Today, new developments in plant sciences have enabled man to create variations that nature may not have intended. We have many varieties of dwarf and compact trees that didn't exist even a decade ago. These new types, together with our increased knowledge of a tree's adaptability and growing requirements, enable us to enjoy the beauty and majesty of many trees — without their enormity — inside our homes as well as out. Many of our favorite trees can be grown in pots right in our own living rooms. These indoor trees are not examples of the largest plants on Earth, but they are examples of the largest ones in our indoor environment. As such, they act as eye-catching, often breath-taking focuses of attention. And much, much more.

Man no longer has to brave the elements to curl up with a good book and a glass of wine beneath the boughs of a spreading chestnut tree. He can enjoy those same aesthetic pleasures right in his own living room.

In this book, I've chosen to include some tree-sized plants, shrubs, and vines that are not by definition trees. Many of these because of their size make exciting additions to any decorating scheme. It would be a shame to omit them because they do not comply technically with the

focus of this book. Such plants as the Oregon grape (*Mahonia aquifolium*) and mock orange (*Philadelphus coronarius*) are both shrubs. The jade plant (*Crassula argentea*) reaches a treelike height of 10 feet in the wild but is actually a slow-growing succulent indoors. The familiar pineapple (*Ananas comosus*) is a slow-growing bromeliad, while the banana tree (*Musa ensete*) is actually an herb. But all these plants make interesting tree-sized additions and are easy to grow in nearly any home or office.

A few words about flowering: Some trees and shrubs flower quite easily under average indoor growing conditions (camellias, for instance) while others do so only reluctantly. Many plants require optimum conditions, such as those available to them in their natural habitat or in a carefully tended greenhouse, to produce blooms. All plants, of course, must be mature before they flower (flowering is actually a plant's means of sexually reproducing itself).

Except in those cases where flowering trees are not known to flower indoors, I describe the bloom in the listing at the end of this book. The fact that I describe the flowers means the tree is known to have grown and flowered in somebody's house, although conditions and requirements may prevent it from doing so in yours. But indoor plants shouldn't be selected on the basis of their blooms. They should be chosen for their overall personalities: what they add to your home's décor as well as to your sense of personal enjoyment. Then, if it flowers (or if you can adjust your home's conditions to induce it to flower), it's a little like winning your local lottery. You've gained an unexpected bonus for your trouble, a reward for your patience and your sensitivity to some of the most amazing and beautiful creations on Earth.

How to Choose

Many considerations go into selecting a tree or a tree-sized shrub for your home. If you buy a tree, you'll probably spend between $5 and $75 or more, depending on the type, size, and availability of tree and where you buy it. If you harvest the tree yourself by digging it up and transplanting it, it'll still cost you in time and effort as well as the tender loving care necessary to nurture it from a small sapling to a mature specimen. If you hastily select the wrong tree or shrub, you come out on the short side of the investment.

On the other hand, with a little forethought and planning, a bit of investigative research and dreaming, your new acquisition can quickly become one of the most valuable possessions in your home. It's hard to understand, but when you round out your decorating pattern with

a beautiful maple, elm, birch, or *zelkova* (a tree whose attractive lines and elegant features never disappoint), you grow closer and more attached to that living, growing organism with each passing day. And there's not a time when you walk past it while going about your business that you don't pause to admire it.

Furthermore, when you actually plan a tree into your home's surroundings, you increase the pleasure of ownership even more through anticipation. Let's consider a few examples.

- You have a home with a small dinette area where the family gathers for breakfast and lunch. On one wall is a giant picture window or, better yet, sliding glass doors leading to the patio or deck. You position an arching, graceful *Dracaena* next to the glass. In its pot, you arrange a colorful splash of long-blooming pansies around the tree's trunk. From spring through fall, the tree's small bright-green leaves add excitement and a touch of the outdoors to your meals. In winter, the pansies are a work of art set against a backdrop of frosty, silvery panes.
- Your family room is decorated modestly with wicker furniture and bamboo wall hangings. In one corner hangs a wicker swing lined with soft, colorful pillows. Above the swing unfold the long fanlike leaves of a banana tree, complete with fruit bunches. You can almost hear Harry Belafonte.
- Your teenage daughter's bedroom is a combination of styles best described as modish-messy. In one corner sits a stylish desk (about $395) with matching swivel chair and a fluorescent desk lamp for doing homework. In an opposite corner rests a $15 fig alongside several $3 throw pillows, and your daughter (of course), busy texting her friends instead of doing her homework.

So, it's easy to envision trees and shrubs being part of nearly any area of your home. As long as it gets enough food, water, and light, it's literally home free.

Speaking of Light

At one time, indoor gardening was restricted to the amount of natural light entering the house through the windows. That severely limited the number of plants you could grow and where you could grow them. Not so today. With a wide array of plant lights, soil and planting media, fertilizer, decorator pots, and assorted paraphernalia available, you can pretty much rest assured that, if you see a place just begging for a plant, you can make it happen. But how do you decide what areas of your home or office are crying out, Plant me, plant me! That's

something you'll be better prepared to answer after you have a basic understanding of what trees and shrubs can do for you. And vice versa. Here's just a sampling.

Trees add beauty. Perhaps the most fundamental reason for acquiring an indoor tree or shrub is to beautify a room. If you have a corner that definitely needs perking up — but you don't have $400,000 for a small Rembrandt or a Rubens — consider a tree or shrub. The last chapter of this book, Recommended Trees and Shrubs, will help you in your selection. It lists various plant details and sizes. It contrasts large-leaved and small-leaved trees, flowering and nonflowering trees, trees that require bright light and those that thrive in shade, stately and casual trees. Decide on what tree or shrub you'd like to see growing in that empty corner, and then check out how much money (if any) you'll have to spend to put it there. The results? Instant beautification.

Trees add serenity. If you have a study or a hobby area that needs a little extra touch to set it apart from the more mundane rooms in your home, consider a tree. An evergreen might be best (not all evergreen trees are conifers or junipers; some are exotic-looking, and others are hard to distinguish from the deciduous leaf-shedding varieties so familiar outdoors). One advantage to an evergreen is that its needles or leaves will generate their calming effect all year round. Without that fall raking!

Trees add drama. If you have a foyer or another drab area of the house that could use a centerpiece to impress and delight visitors entering your home, consider a massive, dramatic, easy-to-grow tree, either evergreen or deciduous.

Trees add warmth. If your home suffers from "colditis" — that hard-to-explain but always depressing feeling of impersonality in so many homes — add a grouping of small or medium-sized trees and shrubs.

Together with some companion plants (see Chapter 13), they're sure to add warmth and personality to your surroundings.

One Man's Meat

In the meantime, remember that no one's ideal is the same as the next one's. The first time I visited the home of one of my good friends — a doctor at Methodist Hospital in Madison, Wisconsin — I was impressed with a large palm and a hanging asparagus fern. There were two or three other small houseplants in the home. "They're nice," my friend confided that evening, "but I almost think we have too many plants in here."

A couple of weeks later, my doctor friend and his wife returned the visit. They raved about the warm, homey feeling of my place, which was much smaller than their mini-manse. I had a dozen trees, shrubs, and tons of small houseplants scattered throughout the house.

My point is this: don't arbitrarily assume your home is saturated with plants. I've often thought the most ideally decorated home would be one that was stocked first with plants, fountains, and rock gardens and rounded out afterward with furniture. That might be a little extreme for the average person to cope with. And, I admit, it might be a bit impractical. But in nearly a dozen years of indoor gardening, I've yet to find a home with too many plants in it.

Of course, when you plan the addition of a tree or shrub, take into consideration the predominant style of your furniture. Whether your rooms are Louis XIV, Victorian, Spanish, or Danish modern, what you add to them makes a difference. If you plan on adding greenery to a room that's primarily Oriental in design, you'll be wise to pass up the urge to acquire a *Dracaena marginata*, a rubber plant (*Ficus elastica*), or a golden locust (*Robinia friesia*). The general shape and color of these trees' foliage would detract from, rather than add to, your Oriental motif. Instead, consider the elliptical-leaved weeping fig (*Ficus benjamina*) or one of several yews, Japanese maples, or aralias.

On the other hand, if your decor is traditional Spanish filled with dense, dark wood, you'd be better off considering some of the larger-leaved, more dramatic trees such as the ubiquitous rubber plant (*Ficus elastica*), the *Dracaena fragrans*, or the fiddle-leaf fig (*Ficus lyrata*).

Unlocking the door to successful decorating with houseplants is no simple matter. Many considerations are involved if you want to do it right. Not the least of these concerns is managing to balance your own predilections with the aesthetic beauty of specific trees or shrubs adding to your home's decor. While my living room is primarily classic American, my study is predominantly Early American clutter. It's a combination of eras — some modern along with Early American, plus a little Philippine wicker and "office functionality."

In my living room, I've selected plants that complement the decor. I use thick-leaved trees, full shrubs, and ferns to add warmth. A leathery-leaved lemon tree and an ornate fig look perfectly at ease alongside a thick, bushy rubber plant.

For my study, I've selected trees and shrubs mostly for their aesthetic beauty and air-cleansing abilities rather than for their ties to the decor. The result is a higher latitude of trees and shrubs than in

my living room, with no particular loss in decorating value. My study enjoys a wide variety of greenery in the form of several black pine, apple, and orange trees, as well as in the delicate curvature of a weeping fig.

Other Considerations

One of the primary choices you'll face when decorating with trees is the overall size of the plant when mature. All plants can be headed back to control their height and pruned to limit their girth (more about how to do that later), but some species are more aggressive growers than others. To keep them in check, you might end up reaching for the pruning shears four or five times a year to prevent them from growing out the windows. How much wiser had you selected a species that grows no larger than your room can accommodate, or at least a slow grower that requires only occasional pruning.

Conversely, it wouldn't make sense to place a 6-foot Chinese rose tree (*Prunus triloba*) in a room that boasts a soaring 20-foot ceiling. The rose tree would make a better candidate for a family room of more modest proportions, while neem or *Ficus* trees would be better accommodated in a setting where space is as unlimited as the plants' growth habits themselves.

Ideally, a tree destined to become the focal point of any room should be maintained at about three-fourths the room's height once fully grown. A tree of that height dominates the space without seeming to crowd it. Other trees and shrubs ranging from shortest to tallest serve to round out the appearance of the room and provide continuity to the eye and a warm, comfortable feeling for the soul.

Remember the Tree's Palette

As a rule, several different characteristics of trees combine to create what many horticulturists call their *palette*. These components include size, form (at maturity), texture, bark, blossoms (maybe yes, maybe no), and fruit, if any. Also, since you may need to control a plant's height, we might add one other characteristic: growth rate.

Size when mature. In general, a tree's size when mature can be classified in one of three categories in the wild: small (under 20 feet), medium (under 40 feet), or large (40 feet and over). Most trees and shrubs can be grown indoors given the proper conditions (which include adequate light, humidity, nourishment, water, and container size or root space). Still, I've omitted some from general consideration in this book because their growth is too vigorous. They grow too tall too fast to be controlled even by the strictest pruning program. This group includes many of the tallest towering trees. Better candidates

for indoor adaptation are medium- and short-growing trees and shrubs.

Form when mature. Trees, like people, come in many different shapes. Generally, they fit into one of five different categories:

- Columnar: very narrow with a rounded top (sentry maple)
- Fastigiate: narrow with a pointed top (Lombardy poplar)
- Pyramidal: conical (Douglas fir) with a rounded top
- Spreading: flattened (sugar maple) and broad or with an open headed airy top (silk tree)
- Weeping: drooping with pendulous branches (weeping willow, cherry, or magnolia)

Texture. This characteristic refers to the smoothness or roughness of the leaves, branches, and trunks of both evergreen and deciduous trees. It can be light — with delicate, feathery leaves (tree of heaven) and smooth trunks; medium — with more massive limbs and larger leaves (elm); or coarse — with heavy, chunky, leathery leaves (*catalpa*) and trunk.

Bark. This is an especially desirable characteristic in deciduous trees that shed their leaves for several months out of the year. If you decide on a deciduous tree, you may want to choose one with distinctive bark for year-round appeal, bark that flakes or peels or is especially colorful or deeply gnarled, for instance.

Blossom. We'll see later in the book which trees blossom under favorable conditions and which don't. In selecting flowering trees, you should take into consideration both the color and the size of the blossoms as well as the plant's period of bloom.

Fruit. In selecting a fruiting tree, you should consider the fruit's color and size as well as its function: is the fruit decorative, significant, or consumable? If not, why concern yourself?

Growth rate. I've avoided discussing in this book trees that grow too large too fast. But some trees that have a fast initial growth rate slow down when nearing their normal height at maturity. A number of these make excellent indoor specimens. They can be classified by the speed at which they grow.

- Slow: less than 1 foot a year (European birch or Norfolk Island pine).
- Medium: 1 to 2 feet a year (maple or cherry).
- Fast: 2 or more feet a year (poplar and some pine).

The growth rate is especially critical in trees intended for the house. It's somewhat less than wise to buy a 2-foot European birch sapling and wait a decade before seeing it reach the 20-foot height you were hoping for in its intended cathedral-like surroundings. And wouldn't it be a little counterproductive to bring a 5-foot poplar into a 7-foot room! As in all areas of life, a little planning and know-how can prevent a lot of disappointment in selecting a tree for your home. Understand your indoor tree's palette before bringing it into the house, and the only surprises you'll receive will be pleasant ones.

Remember the Tree's Requirements

There are only two sets of needs to consider when choosing a tree or shrub for your home: yours and the tree's. Of the two, the tree's are more important. While your needs can be modified to give you acceptable or even ideal results, the tree's demands aren't as flexible. If you don't give it what it needs for life and growth, it dies. Very much like a newborn child or a small puppy, an indoor tree is entirely dependent upon its "parents" for survival. More information on meeting a tree's indoor requirements appears later in this book.

Science Says

If your objective for planting trees and shrubs indoors is geared more toward creating a healthful environment than an aesthetically pleasing one, you can relax while you enjoy both. Plant your home for health, and the added aesthetics are sure to increase its market value. Plant for aesthetics, and your overall health will take a turn for the better.

Several conclusive scientific studies have recently proven that aesthetically appealing plantings — unusually large trees and shrubs — calm people down, lower their heart rate, make them more attentive, provide an enhanced learning environment, and lead to an increased sense of peace and relaxation.

Other studies have confirmed that planting indoor trees and shrubs for health reduces airborne contaminants, irritants, and bacterial/viral cells — a process known as *phytoremediation*. Trees and shrubs also absorb volatile organic compounds (VOCs) along with deadly carbon dioxide, which it converts into life-sustaining oxygen that the plants surrender back into their environment through respiration.

What else do trees and shrubs do? Unlike African violets and spider plants, which are great aesthetically, trees and shrubs have long been used to reduce noise from busy roadsides. More recently, research has shown another benefit:

interior plants can help reduce background noise in our homes and offices, too.

Our own studies indicate that plants and their leaves absorb, diffract, and reflect background noise, making the environment more comfortable for its occupants.

In one study, Peter Costa, a postgraduate student at South Bank University, London, found that some plants are particularly good at absorbing high sound frequencies. They are most dramatically effective in spaces defined as "acoustically live," places lined with hard surfaces such as tile, laminates, and hardwood floors.

Plants for beauty, emotional well-being, sound mitigation, and mental and physical health: It's a win-win situation for everyone.