A botanic garden is a collection of growing plants, the primary purpose of which is the advancement and diffusion of botanical knowledge. This purpose may be accomplished in a number of different ways with the particular placing of emphasis on different departments of biological science.

The scientific and educational work of a botanical garden center around the one important and essential problem of maintaining a collection of living plants, both native and exotic, with the end purpose of acquisition and dissemination of botanical knowledge.
THE GREEN THUMB
VOLUME TWENTY-THREE, NUMBER TWO

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Copyright 1966 by Denver Botanic Gardens, Inc.
The recently dedicated conservatory won international recognition from architects and engineers even before it was completed. It is a beautiful and unique structure. As an architectural feature alone, it is a great asset to Denver Botanic Gardens and to the City and County of Denver. This is the only conservatory in America made entirely of concrete and plexiglass, with the concrete poured in place.

The climate inside the conservatory is warm and humid, simulating the conditions of lush equatorial areas where so many interesting and important plants are found.

For the conservatory plantings, two large transport loads of tropical trees, shrubs and vines were brought from southern Florida, and one from south Texas. Four smaller loads were brought from St. Louis, Missouri—gifts of the Missouri Botanical Garden.

In addition, many fine tropical plant specimens have been donated by commercial greenhouses of this region and by people who practice indoor gardening in their homes or in hobby greenhouses. At present, approximately 600 species and varieties of tropical plants...
have been acquired for growing in the conservatory.

In late fall, a beginning was made toward landscape development of the area immediately outside the conservatory. Plantings of trees, shrubs, vines and strips of lawn were made around the entrances and along the east approach to the building. Design and supervision of the landscaping both inside and outside the conservatory were under the general direction of Mr. Ed Wallace in charge of the Parks Planning and Engineering Division of the Parks and Recreation Department. He was ably assisted by two landscape architects of his staff, Mr. Richard Mayer and Mr. Roger Buck.

The first of February, 1965, Mr. Ernest Bibe joined our staff as Conservatory Superintendent. Previous to his coming to Denver he was Horticulturist at the Climatron in the Missouri Botanical Garden. Before that he worked several years at a tropical plant nursery in southern Florida. With consummate skill and almost superhuman effort, Mr. Bibe succeeded in keeping the great number of assembled plants alive during many months of delay in completing the conservatory. We are most fortunate in having a man of Mr. Bibe’s training and experience in charge of our conservatory development.

Although completion of the conservatory and its auxiliary greenhouses was the outstanding development of the year, there were other noteworthy achievements. Most important of these was the completion of the herb garden.

**Herb Garden:** The herb garden is a gift of the Denver Botanic Gardens Guild, a volunteer organization operating for the benefit of Denver Botanic Gardens. This group raised funds for the herb garden by selling garden calendars, designed and published by Guild members and also by selling herb plants and herb products.

The garden was designed by Mrs. Persis M. Owen. The construction contractor was Mr. Sigurd Stein. The walks are of red brick, laid out in the intricate pattern of a “knot garden” of past generations. The beds are planted with both rare and familiar garden herbs. In an adjacent area is a small nursery where herb plants are grown for the formal part of the garden and also for the annual plant sale.

**Guest Iris:** The American Iris Society has decided to hold its 1967 convention in Denver. It was in 1963 that our city was last host to this Society. Two or three years before a meeting, members of the Society start sending stock of their new iris creations for planting in the host city, so that the plants will be at the proper stage for blooming the year of the convention. Such plants are known as “guest iris.”

Denver Botanic Gardens grew the guest iris for the 1963 convention and will also grow them for the 1967 convention. During the past summer and fall, 141 members of the American Iris Society, representing 27 states, sent rhizomes of 920 different iris selections for the planting. It is anticipated that a few more selections will be received in 1966. The guest iris garden for the 1967 meeting is located in the northwestern part of our York Street Unit.

**Tulip Trials:** Another test planting of old and new tulip varieties was made last fall. This is our third such test undertaken in cooperation with the Netherlands Flower-Bulb Institute, Inc. The 1965 planting brings to 23,050 the total number of bulbs included in our test. Our plantings, of course, are only a small part of the world-wide tulip trials being conducted by the Institute.

**Gladiolus Trials:** The Colorado Gladiolus Society again grew a fine gladiolus garden at our York Street Unit. Both standard varieties and breeders’ numbered progenies were included. Two prominent gladiolus breeders of Denver, Mrs. Alice Wood and Mr. Lee Ashley, supplied the planting stock and made the plantings. Approximately 8,000 plants flowered, about 5,000 of which were seedlings. A few
Children's Gardens: The Children's Garden Program for 1965 was considerably larger than in previous years. A total of 309 children participated at four different locations.

In the Children's Garden at our York Street Unit, 111 youngsters grew gardens and received certificates for their successful completion. These gardens, as well as the exhibits at the Fair on graduation day, were rated by a committee of Accredited Amateur Judges of the Colorado Federation of Garden Clubs. Serving on this panel were Mrs. Russell Quails, Mrs. Claude Burt and Mrs. W. G. Gressett. Prizes were awarded for superior gardens, and ribbons were given for outstanding exhibits. The Kiwanis Club of Denver again entertained the prize-winning gardeners at luncheon and gave each a five-dollar check.

Chairman of the Committee of Supervisors for the Children's Garden was Mrs. Anita McDonald. Other members of the committee were Barbara Brin, Doris Danahey, Tess Donahue, Marion Edwards, Virginia Faxon, Yolande Fillis, Mary Frawley, Bill and Millie Grant, Eleanor Green, Richard Holcomb, Dr. Joseph Hovorka, Frank Jaramillo, Mary Jepson, Emily Joy, Mary Kauffmann, Eddie Kawakami, Valora Kenney, Sheila Kirchhof, Rose Lips, Mrs. T. I. Longley, John Maloney, Stella Martin, Martha Metzer, Louise Mosley, Nancy Murray, Rosemarie Pertz, George and Ann Pugh, of the seedlings may be worthy of introduction.

Dahlia Tests: The Denver Dahlia Society enlarged its 1965 planting, under the guidance of President Pat Deffner. The display of bloom and the yield of tuberous roots were both somewhat disappointing. This was probably due to unfavorable weather, including a hailstorm which did considerable damage to the plants and flowers.

Twenty-four dahlia varieties were included in the 1965 test for the American Dahlia Society. There were also 150 named varieties in the display planting. In addition, about 100 seedling plants were grown for selection.
Gen Turner, Robert and Edna Vessa, John and Irene Vittetoe and Olga Wolf.

"Off campus" children's garden programs were conducted in cooperation with three different organizations. Participation of the Denver Botanic Gardens consisted in furnishing the tools, seeds and technical instruction and doing the necessary machine work in preparing the land.

At the Denver Christian Center 83 children of various ages participated. At the Retarded Children's Center, 8000 Montview Boulevard, we cooperated with the Director, Mrs. William Bell, and her enthusiastic staff, in operating a garden program for 100 retarded children. A similar program was conducted at Auraria Community Center where 15 retarded children participated.

Lecture Series: The past year the Education Committee, under the leadership of its chairman, Dr. Wayne Christian, arranged a series of six public lectures on botanical subjects. The series began in the fall of 1965 and will continue into 1966, ending the 29th of April. Previously, a few individual lectures had been sponsored by Denver Botanic Gardens but this is the first time that they have offered to the public a whole lecture series.

Publication: During the past summer the valuable little booklet called "What Tree Is This?" was reprinted by Denver Botanic Gardens. This booklet, written by Mrs. Charlotte Barbour and Mr. Earl Sinnamon and illustrated by the late M. Walter Pesman, was first published in 1950 by the City Forester's Office of the City and County of Denver. Funds for the second printing were donated by Mrs. Barbour and proceeds from the sale of the 5,000 copies will be used for the further development of the Helen Fowler Library.

Acknowledgements

No botanic garden with a skeleton staff and a meager budget such as we have, could possibly develop and carry on its normal functions without volunteer assistants. We are fortunate in having three very active volunteer organizations: Around the Seasons Club, Denver Botanic Gardens Guild, and Associates of Denver Botanic Gardens. Members of these groups have participated in practically every phase of our botanic garden work, including such varied activities as pulling weeds, editing, managing garden tours and plant sales, maintaining the herbarium, operating the gift shop and the library and developing the herb garden.

Also important to us have been the generous business establishments which have donated services and materials. Particularly noteworthy have been the spraying services donated by Swingle Tree Surgeons, Inc., and by T. R. Collier; the garden tools donated by the Rocky Mountain Seed Company as prizes for the winning children's gardens; the soft drinks donated by the Seven-Up Bottling Company for festive occasions in the Children's Garden, and the bedding plants donated by Hannigan Floral Company.

Special acknowledgements are due Park Floral Company of Englewood, Richard's Flowers of Fort Collins and Lakewood Floral Company of Lakewood, and numerous private indoor gardeners who gave so many fine plant specimens for the new conservatory.

Volunteer Worker Planting in Conservatory

Jane Weston (left) and Cathy Petersen serve as sales clerks in gift shop
Redbud Tree

DR. HELEN MARSH ZEINER

FEW YEARS AGO, the redbud, (illustrated on page 40) was seldom seen in Denver. Today a number of redbuds are being grown successfully in this area.

Redbud is a member of Leguminosae, the pea family. Its botanical name is Cercis canadensis.

It is a small tree, with dark reddish-brown bark. The leaves are large, dark green, and heart-shaped. The rosy-lavender flowers occur in small clusters of 4 to 8, usually before the leaves appear. Each individual flower is a pea-like blossom about one-half inch long. Since the flowers appear before the leaves, a redbud tree in bloom is very striking. In Denver, the blooms are usually seen in May.

The fruit is a typical legume pod, small and flattened, and purplish-brown at maturity.

Redbud is also known as the Judas Tree. It is said that Judas hanged himself on a redbud tree.

In one local area in Indiana, where redbud is very common, it is called "fish blossom" because the larger fish spawn when the redbud is in bloom.

However, redbud is the most widely used common name. It is a very appropriate name, since the buds are quite red before they open.

In its native habitats, redbud often makes great masses, and is often associated with flowering dogwood which blooms at the same time. The combination is an unforgettable sight.

The natural range of Cercis canadensis is from New York and New Jersey west to southern Ontario, through Michigan and Iowa, south to the Gulf states, and westward to Texas. It reaches its peak of abundance and perfection in the southern half of its range, and perhaps is no more beautiful anywhere than in the hills of southern Indiana, where it is frequent in wooded ravines or on slopes, often covering large areas.

Beautiful as the redbud is when in bloom, it is classed as a weed tree and is grubbed out to make way for more useful species. The wood is hard, but the tree is too small to be of commercial value. Its only economic importance is as an ornamental.

If you wish to plant a redbud in this area, pick a protected site. The east side of a building or between buildings seem to be suitable locations. Some redbuds are being used as accent trees in front of clumps of evergreens which provide shelter. They endure shade in nature, but grow best in partial shade or in the open.

Redbuds are best transplanted when very young. Even in their natural range, older trees are difficult to transplant successfully. They prefer a rich
moist soil, with good drainage. However, winterkill rather than soil appears to be the greatest difficulty in this region. Greater care in the choice of a location should overcome some of this difficulty and permit the use of more redbud trees.

For those who do not know the redbud, there is a large and well-established redbud on the South High grounds, in the shelter of the building. There is also a small redbud on the Denver Botanic Gardens grounds, back of the house and near the garage. These trees should be blooming in May, probably early in the month, and can be recognized by the rose-lavender, pea-like flowers.

DENVER BOTANIC GARDENS ANNUAL PLANT SALE
May 6 and 7 9:30 a.m. to 5:30 p.m.
Annuals Herbs, Vegetables and Fruits
Perennials Herb Vinegar
Rock Plants and Ground Covers Donated Garden Plants at the
Selected Trees and Shrubs Bargain Corner
Geraniums and Hanging Basket House Plants
Plant Materials Children's Corner
Mother's Day Gifts — Information — Visit Tulip Display

"Dry Land" Landscaping in the State of Colorado

A TOTAL of 41,000 trees and shrubs were planted along Interstate 70, east of Denver, in so-called "dry land" landscaping since there is no sprinkler system and vegetation is expected to take care of itself.

Hardy type trees, such as Russian Olive, Western Catalpa, Ponderosa Pine, seedless Cottonwoods, Siberian Elm, New Mexico Privet, Chokecherry and Rocky Mountain Sumac were planted.

Colorado is especially interested in overlook areas where people may park off the highway and take photos of the mountains. Planting is continuing along Interstate 25 from Wyoming to New Mexico and along Interstate 80-S. Snow fencing of conifers also is being planted in order to minimize winter maintenance.

Editor's Note: The foregoing is reprinted from the Highway Landscaping News, a publication of the American Association of Nurserymen, Public Information Service, 10 E. 43rd St., New York, N.Y., Dec., 1965.

All-America Winners Among Flowers—Vegetables

Six flowers and two vegetables were named the best of their kind for 1966 by the All-Americas Selections. The new flower types and colors are as follows: a giant white pansy, the first red Klondyke cosmos and red annual sweet William, a garden type of open-faced snapdragon, a blue cushion-type verbena and a large yellow chrysanthemum-flowered marigold on foot high plants. A winter squash and a larger, longer lasting butterhead lettuce are award winners in the vegetable line.

Contact your seed or plant supplier for these varieties.

THE 'SUNSET' COSMOS, third gold medal award winner in the past 27 years, is a full blooming season annual sulphureus or Klondyke cosmos, formerly of gold or yellow, now in scarlet red. Semi-double 2" blooms on 12 to 15" wiry stems are said to be borne freely over a longer blooming season. Bushy plant reaches 3' with 18 to 24" spread. A Japanese innovation which has performed well from the lower South to Canadian stations.

PANSY 'MAJESTIC WHITE WITH BLOTCH' is the first hybrid pansy winner. A giant in size, individual flowers have measured as wide as 4". White with large contrasting dark blotch in the center. Said to have remarkable hybrid vigor, standing up and continuing with large flowers in hot weather.

PANSY 'GIANT MAJESTIC MIXED' is a blended formula mixture of many separate F1 hybrid colors or varieties, including the White with Blotch, which are usually hardy through more southern winters.

SWEET WILLIAM 'RED MONARCH' blooms as an annual, and is
the first and only solid red sweet William. Sown in early spring for summer blooming or in the fall for early spring blooming. Flowers of scarlet red with white stamens are borne in rounded clusters surmounting erect green plants. Reaches about 10” in height from spring sowing and about 16” from autumn sowing.

SNAPDRAGON ‘BRIGHT BUTTERFLIES’ is a formula mixture of separate F1 hybrid colors or varieties in a new class of garden snaps. Instead of tubular throated snapdragons, these are open faced, the dwarf Peloric or Juliwa type as shown in Europe. But they are vigorous hybrids of 3’ height, midsummer blooming, with long spikes of open-faced flowers. Stocky, base branching plants produce to a dozen floral spires; if cut back after blooming or cutting they produce a second or third crop during the season.

VERBENA ‘AMETHYST’ is the only sky-blue dwarf compact verbena. Flattish flower clusters of 2¾” diameter are said to blanket the cushion-like 10” to 15” spread of 6” plants. Especially low and compactly growing for edging walks, patios, borders and for low beds.

MARIGOLD ‘SPUN YELLOW’ is the yellow counterpart to the awarded ‘Spun Gold’ of 1960. Noted for early and long flowering. Said to have 12” height, rich green foliage and large chrysanthemum-flowered blooms.

SQUASH ‘GOLD NUGGET’ is a late or winter squash of small, softball size weighing 1½ to 2 lbs. Each compact plant said to produce five to eight fruits. All may be gathered when fully mature or after killing frost. Plants grow 2½’ tall. Fruit has orange skin and sweet flesh high in dry matter.

LETTUCE ‘BUTTER KING’ is a larger headed ‘White Boston’ type. Height is about 7” with average head 5¼” in diameter and weighing 12.8 oz. Said to be disease resistant, larger and later than the White Boston, slower to bolt and more sun or tip-burn resistant. Most highly regarded from eastern Canada to California and Mexico.

The seventh annual Colorado Garden and Home Show, the state’s largest exposition devoted to modern indoor-outdoor living, will be held from Tuesday, March 29, through Sunday, April 3, at the Denver Coliseum and National Western Buildings. The 1966 version of this finest and largest annual display of garden and home merchandise and services in the region will be planned around a “Fiesta” theme, saluting our spirited and colorful neighbor, Mexico.

Hundreds of elaborate and exciting exhibits will offer a preview of the newest products and services for outdoor living, home planning and conveniences, garden and yard items, home improvement, maintenance and decorating suggestions.

The show will give expanded emphasis to appliance lines, with exhibitors spotlighting dramatic technological advances to make work and play more pleasant.

Again a “Vacation Home Valley” will be an impressive part of the show, with full sized cabins on display in a mountain setting. This display has been one of the most enthusiastically received of all during previous Garden and Home Shows.

Actual gardens, from informal to elegantly formal, will again be shown, a competitive flower show will be held, and a cartoon theatre and aquarium show will be part of the lavish entertainment planned for guests.

Attendance at the six-day show is expected to exceed 70,000 in a projection of attendance ratios of previous years, by Garden Show Manager, Dick Haughton.

The much-needed expansion of the exposition in 1964 into the huge Coliseum as well as the National Western Buildings has been a highly important factor in the mushrooming growth and success of the show, according to show officials. The Garden and Home Show is produced by Colorado Garden Show, Inc., a non-profit organization, and is sponsored by the Denver Botanic Gardens, Inc.

Exhibitors and regional dealers who wish to have displays at the 1966 show are urged to reserve space now to make sure of advantageous locations.

Board of Directors for the Colorado Garden & Home Show:
Mrs. Ed. Honnen
Mrs. Vivian Christensen
Russell Myer
Pat Gallavan
Fred Vetting
Charles Watenpaugh
Earl Sinnamon

Reservations for guided tours of the Conservatory at Denver Botanic Gardens may be made by calling the Conservatory number, 297-2348, between 9:00 a.m. and 4:00 p.m. daily.
**Dedication of the Edna C. and Claude K. Boettcher Conservatory**

The opening of the Edna C. and Claude K. Boettcher Conservatory became a reality with its formal dedication on Saturday, January 16, 1966. Prior to this dedication, on January 15, a preview reception was held for members of Denver Botanic Gardens in the Conservatory.

Lawrence A. Long, President of the Board of Trustees of Denver Botanic Gardens, presided at the dedication. Amongst others present at this notable event, in addition to a fine turnout by the public in general, were: Cris Dobbins, Chairman of the Boettcher Foundation; John A. Love, Governor of Colorado; Thomas G. Currigan, Mayor of Denver; Joe Ciancio, Manager of Parks and Recreation; the Board of Trustees of the Boettcher Foundation; the Board of Trustees of Denver Botanic Gardens and the members of the City Council.

Following the dedication, the building was opened to the public, without charge. Denver area residents have shown their avid interest in this structure for more than a year as is evidenced by the many requests received at the Gardens for information regarding its purpose and date of completion, possibility of guided tours and entrance fee. Many of these requests have come from school teachers and children's group leaders. Since the formal opening, thousands of people have gone through the Conservatory and admired the very fine collection of tropical and sub-tropical plants which has been established in a contoured area landscaped with rock outcroppings, streams, pools and a waterfall.

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**Plant Sale**

**Herbs** — Whether it's a pre-started window planter of mixed culinary herbs, a collection of scented geraniums, or seasonings and vegetables to delight the gourmet, the herb booth will offer a wide selection of annual and perennial herbs. Popular herb vinegars, a choice of fruit and vegetable plants as well as information on growing herbs and their uses will be available at the Annual Plant Sale, May 6 and 7.

**Donated Garden Plants** — A fun booth with many bargains for the novice gardener or seasoned hobbyist is the special corner selling donated garden plants. With the help of generous gardeners a wide selection of plants is offered at this bargain center, another feature of the Annual Plant Sale May 6 and 7 at Botanic Gardens House.

**Trees and Shrubs** — A select assortment of unusual trees and shrubs, generally known, but semi-hardy and only occasionally grown in this area and hardy trees and shrubs, little known but readily grown in this area, are for sale at this booth. Special information concerning plant hardiness and growth requirements will be given to the gardener seeking distinctive plants, such as redbud, European black alder or perhaps a horsechestnut. These will be available in limited supply May 6 and 7 at the Annual Plant Sale.

**Geraniums, Planter Material** — Geraniums — ivy-leaved, 'Martha Washington' or the hardy 'Irene' strain in many colors, are offered for borders, hanging baskets, planters or Mother's Day gifts at this special booth. Here, too, are thunbergia, dracaena and other hanging basket material popular at the Annual Plant Sale, May 6 and 7.
Chinese Elm—Still More

S. R. DeBoer

The most interesting article on Chinese elm, *Ulmus pumila*, by Dr. Helen Zeiner (January - February, 1966 *Green Thumb*) intrigues me and I am prompted to add a few planting notes, beginning with some early work done at Buckley Field, on Sixth Avenue, east of Denver. America had just entered World War II and Buckley was one of the new Army Posts which were being built all over the country. Buildings had been erected there but money was lacking for landscaping the area.

Therefore, some of us in the landscaping field donated our services in order that the Post might become a little more livable. Trees could not be purchased except for a few small items which were paid for out of a petty cash fund. Captain Milam was in charge of the work and there was no lack of manpower for the physical labor required. In those days there was a great demand for the Chinese elm, although it was considered a second-rate tree and we planted but very few of them.

The Denver nurseries, however, anticipated a great demand for this tree and had planted thousands of them. With the advent of World War II, there was no market for them and the nurserymen realized that after the war they would be overrun with Chinese elm. Captain Milam learned that, while there were plenty of them available at a low price, there was no money available to purchase them for Buckley Field.

So it came about that the Denver nurserymen, out of pure patriotism, contributed thousands of them (I believe 11,000) for the purpose of landscaping the Field. I often wonder if these generous people were ever thanked by the officials in Washington who were so immersed in war preparations at that time.

Dr. Zeiner’s article made me wonder what had happened to these trees during the 25 years since they were planted so I went out to Buckley Field to look for them. The Post has been torn down and all buildings removed with the exception of one service building. But the trees are still there and, in spite of the fact that they have not been irrigated, they have grown to considerable size. They are standing along the abandoned roadways in knee-high weeds but they did survive. In the annals of Colorado tree culture I would say that this is a remarkable thing. Strangely enough to some of us, there are also some mature Bolleana poplars and several yellow pines.

The lovely Chinese elms were a godsend to the small cities on the plains of Colorado, Nebraska, Kansas — in fact, to the whole high plain plateau area from Canada to the middle of Texas. Hundreds of small towns were landscaped with them and these towns owe their livability to these small trees.

I remember Frank Meyer and his exploits and I have in my own yard several trees which he brought to America. So, Dr. Zieiner’s article prompted this personal reminiscence into the history of the Chinese elm in this area which I hope will be of interest to *THE GREEN THUMB* readers.

Stop! You’re killing those beautiful trees! Think how nice their cooling shade will be next summer. Can’t you see yourself stretched out in a lounge chair with a cold drink under that big spreading tree? See how this tree “frames” your house and makes it look so inviting. You could be known as the fellow who lives in that nice house with the beautiful trees. Notice the group of bushy trees over there — how nicely they will screen off the telephone pole and the back door of that other house. Every one of those trees is priceless! Why are you killing them?

Don’t look so puzzled! Don’t you know what you’re doing? You say you are not killing the trees, but saving them. No, you’re killing them — the chances of those trees surviving your new house construction are very slim. Let me show you what is happening to them.

Before this area was subdivided, these trees were not far from an irrigated field. As the field was irrigated or as rain occurred, the water soaked into the ground and probably ran underground to water the trees. However, let us see what is happening: All of those new basements may be interrupting the underground flow of the rainwater and the field is no longer irrigated — right now it is full of houses under construction. The new streets and storm sewers are draining away part of the rainwater; until the new homes are completed and the new lawns are being watered, your trees are apt to become very dry.

Look over here — see this new sanitary sewer? The trench has been dug down into the shale and will act just like an underground drainage ditch, draining away water that your trees need and carrying it to that group of lots over there. Those new homeowners over there may have just the opposite trouble from yours — their trees may be getting too much water. If you want to save your trees, you had better get some water to them. The water mains aren’t in yet? Then haul in some water — lots of water — and pour it into shallow trenches dug around the trees in the area of their feeder roots which is about the outer perimeter of the branch spread. Too much bother? Then forget the trees or
import some Indians to dance for rain! This isn’t all you are doing that’s wrong. You had better put a fence around that tree. Construction trucks and tractors are approaching too closely and are compacting the soil tremendously over the roots. The equipment is also breaking the lower limbs and scratching the bark of the trunk. By the time your house is built, the ground around the tree will be like concrete and won’t absorb much water. The tree will have lots of character—character like that of a battlefield tree—but you won’t want it.

That tree is as good as gone now! It would be best to cut it down now before the house next door is started. It can be “felled” into the vacant lot at little cost, but it will be really expensive to bring it down limb by limb between two houses. Why must it go? Let me show you: Observe where the excavation for the foundation has cut those big roots. What is going to anchor the tree when the wind blows? The roots on the other side will hold it, you say? Very well, but what happens when the basement is dug for the house next door? There will be scarcely any anchor roots left. Notice the wide area of feeder roots destroyed. Even if you could save the tree, the limbs on one side will rub against your house and that big limb on the other side will hang over your neighbor’s house like the sword of Damocles—ready to drop at any time. A big tree such as that should be at least 20 to 30 feet from the house.

The group of trees over there might as well be taken out now. They look weak, have few fat buds, and have been having a tough battle against insects and our Rocky Mountain climate. The lack of water during construction will probably finish them off.

This will leave the nice trees over there. Yes, they are well away from the construction area, the roots haven’t been cut, no limbs have been broken. One tree is in a slight valley where it is catching some extra water—if and when it rains. I believe they should come through this construction period with little harm—except, (stop shaking your head; you knew I’d find you doing something wrong with these, too, didn’t you?) doesn’t this one look as though it is in a hole? How are you going to grade the lawn in this part of your yard?

You’re going to fill two feet around the tree? That will kill it! No, I’m not crazy. Go ahead and fill around it, but save some money for removing the tree when it dies. Of course I know the trunk will stick up above the fill, but the tree roots need to breathe or, to be technical, the fill around the tree will impede the aeration that is essential to tree health.

Yes, it can be saved. Build a low, cement wall to form a shallow, broad “well” around it. I’d suggest that you make it a little larger than necessary and leave it open on one side for drainage. This wall should be about 18 inches high, which is sitting height, and you might even pave the shady side with brick, tile or flagstone on sand—no mortar. You will then have a charming sunken patio. If this wall can’t be kept to 18 inches, make it higher and leave planting pockets for rock garden plants. Don’t you think that this would make a delightful feature in your yard? It would be much more interesting than a flat lawn. What to some might seem a necessary evil is actually an asset. (See illustration.)

You defy me to find something wrong with the one remaining tree? All right, none of the problems that we have been talking about seem to be present except the lack of water. But isn’t it too high? Won’t your grading expose the roots and leave the impression that the tree is growing out of a pimple? Now you’re thinking! Your idea is excellent. Just move the driveway over here and build a dry-stone wall with plant pockets and an informal set of steps up to the house. That will not only leave undisturbed the natural grade of the area around the tree but will provide an inviting entrance from the parking area. The cars will be shaded, too, and they will not be conspicuous, being at a lower level.

Now, all that is needed is some tender-loving-care until the trees get over the shock of changed growing conditions. This means the right amount of water, fertilizing, pruning, spraying, etc., as soon as you move in!

Then, enjoy your trees! Your house will be much cooler because of them. See how much more attractive it will be than that row of houses marching along over there without a single tree to break the monotony. And the slope of the lot is an asset, too — it is giving you a chance to make your yard much more interesting and livable. You’ll be proud of your home and its outside appearance — thanks to those trees!
Indoor Garden For Decorative Plants

HENRY M. CATHEY,
Crops Research Division,
Agricultural Research Service,
U. S. Department of Agriculture

You can grow and display many kinds of decorative plants in your home by using an indoor garden. An indoor garden essentially is a planter equipped with high-intensity fluorescent lights.

The idea is not new. For years, houseplant growers—African violet enthusiasts in particular—have worked to develop ways of growing plants satisfactorily where there is little or no daylight. By acclimating the plants to a dimly lighted environment and by providing supplementary lighting with fluorescent tubes, these growers have been able to maintain plants indoors for long periods. But they have been hampered by lack of a light source that is suitable for plant display—a source that is high in intensity, that is not too hot for the plants, and that does not detract from the appearance of the surroundings. With the development of high-output (HO) panel fluorescent lights and very high output (VHO) fluorescent tubes, many of their handicaps have been overcome.

When grown in an indoor garden illuminated by these HO and VHO fluorescent lights, plants thrive—plants that barely existed indoors before the lights were developed.

To grow plants satisfactorily in an indoor garden—

- Water the plants only often enough to prevent wilting—then water thoroughly.
- Fertilize the plants every 2 to 4 weeks while they are actively growing.
- Illuminate the plants with HO and VHO fluorescent lights 12 to 16 hours daily.

Lighting System

The lighting system for the garden using panel fluorescent lights consists of separate lamps, ballast, fixture and timer.

The panel fluorescent lamps are General Electric deluxe cool white (FP-125/CW). They also are available in tints other than cool white. They require special connectors (ALF 510 series), which should be ordered at the same time the lights are ordered.

Rapid start ballast 7G3720 is required for these lamps. One ballast will operate two panel fluorescent lamps.

When you order lamps, ask the dealer if fixtures are available for them. If not, you will have to make your own or have them made.

Selecting a Location

The best place to put an indoor garden is where the temperature during the day is about 75° and the temperature during the night is about 65°. Avoid locations near heating ducts, exhaust fans, or doorways to the outside. Hot air from heating ducts heats and dries the plants. Cold air and drafts from exhaust fans and outside doors may chill the plants.

It's also a good idea to avoid areas where the lamps shine forward onto the plants, you may include some flowering plants in the garden.

Setting Plants in the Garden

Support large potted plants by setting them on other clay pots that are upended in the bottom of the planter box. Fill in around the upended pots with unmilled sphagnum moss, pea-size gravel, or marble chips. Small potted plants can be plunged directly into the sphagnum or pea gravel.

Though the panel fluorescent lamps used in the garden are not as hot as incandescent lamps, they generate enough heat to harm plants that come in direct contact with them. Therefore, keep all plants at least 4 inches away from the panel lamps.

Watering

Of all steps in the care of an indoor garden, watering is most important. If they don't get enough water, the plants dry out and die. If they get too much water, the plants drown or rot. The proper procedure is this: Water only often enough to prevent wilting—then water thoroughly.

As soon as you put plants in the garden, begin adjusting them to their new indoor environment. Water the soil ball, clay pot and surrounding sphagnum moss to saturation. But don't flood it. Then allow the whole garden to dry until the plants are near wilting. You can detect wilting early by watching the leaves; they change from green to grey-green and begin to droop.

When the plants begin to wilt, water thoroughly again.

**Annual Plant Sale**

**Annuals** — Cockscomb, verbena, periwinkle, pansies, coleus, marigold, double gaillardia are only a few of the annuals selected for the plant sale on the basis of their performance in test trials at Denver Botanic Gardens, their popularity and hardiness in Denver City Parks or success and excellence experienced by practicing gardeners.

**Petunias** — Among the dozen outstanding varieties selected for the 1966 plant sale is 'Sunburst', the best yellow petunia tested at Denver Botanic Gardens last year. About 100 varieties of petunias are tested here annually; petunias offered are the best of these test trials. 'Seafoam', 'Improved Comanche,' and 'Lyric' continue to excel and are chosen in a complete color range.

**Children’s Corner** — Little plants for little people are planned especially to stimulate interest among young gardeners. Prices, too, are little in the Children’s Corner at the Annual Plant Sale, May 6 and 7.

**COMMITTEE CHAIRMEN FOR 1966**

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**DENVER BOTANIC GARDENS**

**A Non-Profit Organization**

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- Mr. Lawrence A. Long: President
- Dr. John R. Durrance: Vice-President
- Mr. Andrew Horan: Vice-President
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- Mr. John C. Mitchell: Treasurer
- Mrs. George H. Garrey: Assistant Secretary

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- Ernest A. Bibee, Conservatory Superintendent
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- Helen M. Vincent, Staff Assistant

**Botanic Gardens House** | 297-2428  
**Conservatory Superintendent** | 297-2632  
**Conservatory and Gift Shop** | 297-2348

**ILLUSTRATION SOURCES**

- Cover: Pen and Ink Drawing, Polly Steele
- Page 32: Fred Baker, Denver Post Photographer
- Page 33: Mr. C. Ridenoar, U.S.A.F. Academy, Photographer
- Page 34: Jack Fason, Photographer
- Page 36: Dave Buresh, Denver Post Photographer
- Page 37: Duane Howell, Denver Post Photographer
- Page 39: Mr. C. Ridenoar, U.S.A.F. Academy, Photographer
- Page 40: Pen and Ink Drawing, Polly Steele
- Pages 43 and 44: Lawn/Garden/Outdoor Living Photographs
- Pages 45 and 46: Lowell Georgia, Denver Post Photographer
- Page 51: Denver Parks and Recreation Diagram

**Inside Back Cover** — Pen and Ink Drawing, Susan Ash

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DENVER BOTANIC GARDENS
DENVER, COLORADO

This is a non-profit organization supported by municipal and private funds.

A botanic garden is a collection of growing plants, the primary purpose of which is the advancement and diffusion of botanical knowledge. This purpose may be accomplished in a number of different ways with the particular placing of emphasis on different departments of biological science.

The scientific and educational work of a botanical garden center around the one important and essential problem of maintaining a collection of living plants, both native and exotic, with the end purpose of acquisition and dissemination of botanical knowledge.