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The Colorado Forestry and Horticulture Association
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909 YORK ST. DENVER 6, COLORADO
There is nothing that gives a house more the appearance of being well-established than a stately elm, a massive oak or a tall spreading maple standing guard over it. Such trees give welcome and decorative shade, cooling the house and they dim the glare of brand new construction.

If you are lucky enough to find handsome trees on the plot you purchase, plan around them. To cut down a tree, unless it is absolutely necessary is a desecration of nature.

If your house is in a new development area in which builders seem to cause it will not shut out light during the short days in winter and it gives protection from the heat in summer.

If your house is in a new development area in which builders seem to cause it will not shut out light during the short days in winter and it gives protection from the heat in summer.

To frame the house choose a deciduous tree rather than an evergreen, because it will not shut out light during the short days in winter and it gives protection from the heat in summer.

Do not plant the tree too near the house. If it needs spraying the chemicals may mar the finish of the building.

The roots may become a source of trouble. For example, the weeping willow has roots which are often the cause of downsloping pipes or clogging sewer pipes. The elm, the poplar, and the soft maple as they grow older sometimes do damage to walks and fences.

A rapidly growing tree may soon get out of scale and dwarf an attractive cottage. Consider the area the tree will cover as it grows. Grass will not grow beneath the branches of a tree. A really good tree is expensive, so it is best to take care of greenery before beginning to work, trees are certainly a necessity. Be careful if the plot is small, not to have too many trees.

It may seem superfluous to say that trees become large and take room to grow. They draw nourishment from the soil and keep the sun from your flowers. These are not serious objections, but we should recognize them.

Trees should be planned for and instilled before anything else is done about the grounds. A really good tree is expensive, so it is best to take care of this large item of expense first, even though further work on your grounds may be retarded. It is not wise to buy very large trees. Buy one young enough that it can adapt itself to the conditions in which it is to live. A tree eight to ten feet high is regarded as a good investment.

In choosing a tree to frame a house, its character and size should give the effect needed and fit the size and style of the house. In general taller trees in the rear as background are proper while a small low-headed tree in the front of the house will be more effective. When well placed a tree may serve for framing and shade at the same time. A high headed tree will furnish an umbrella over the area and not interfere with important views.

Trees that serve as a covering to a house, or an overhanging shelter or framework become large trees. How large the tree should become will be determined by the size of the house or its position with respect to the house.

To frame the house choose a deciduous tree rather than an evergreen, because it will not shut out light during the short days in winter and it gives protection from the heat in summer.

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A rapidly growing tree may soon get out of scale and dwarf an attractive cottage. Consider the area the tree will cover as it grows. Grass will not grow beneath the branches of a tree with heavy foliage.

Trees that taper toward the tip will accentuate the width and breadth of the house. Spreading trees such as the feathery honey locust will emphasize its height.

A pleasant effect can be obtained upon the lawn by considering the tree shadows. In planting a tree, place it where the shadow will fall on the right place. It is necessary to make note of the position of the sun during the change of the seasons. If you want a certain area to be shaded on a summer morning, it must be southwest of the tree on which you are depending for shade. If shade is desired on a summer afternoon, the shaded area should be southeast of the tree.
An open umbrella attached to the end of a stick inserted in the ground will indicate approximately where the shadows will fall at various times of the day. This will enable you to plan for the position of the shadows.

Avoid the urge to pick the tree that grows the fastest. Necessary shade may be obtained just as fast from a smaller tree which, as it grows, will not dwarf your house.

The following are trees that have proved themselves adaptable to the growing conditions in Colorado:

The thornless honey locust, *Gleditsia triacanthos*, 50 to 75 feet, hardly and drought resistant, slow growing. Its feather-like foliage produces light shade. Picturesque shape. Long feathery pods remain on the tree after the leaves fall. Good specimens of this tree may be seen on Monaco Boulevard near 6th Avenue.

The hackberry, *Celtis occidentalis*, 50 feet, elm-like, resists drought. Once established will withstand very adverse conditions. Irregular crooked twigs give it an interesting appearance in winter. The tree bears blackish cherry-like fruits the size of peas. A row of these trees may be seen in the parking on Sherman Street north of the Capitol building.

The Kentucky Coffee tree, *Gymnocladus dioicus*, 50 feet, slow growing, well shaped tree, hardy and almost pest free. Has interesting winter characteristics. Fine specimens are growing on the north side of Cheesman Park.

The American linden, *Tilia americana*, 50 to 60 feet, slow growing, has dense foliage, fragrant flowers, and interesting winged fruits which are carried readily by the wind. If you want to get acquainted with this beautiful tree, take a walk through linden lane on the west side of Cheesman Park.

The Norway maple, *Acer platanoides*, 40 to 60 feet, is a desirable tree. It should be planted more frequently. Slow growing with dense foliage. A fine row of the Schwedler variety having reddish foliage in the spring may be seen in the parking at the State Historical Museum on 14th and Sherman Streets. They are most attractive when in bloom in the spring.

The American elm, *Ulmus americana*, 50 to 80 feet, grows readily. Its vase shaped branching and luxuriant foliage in the summer make it excellent for shade. In spring a flush of purple spreads over the tree when it is in bloom, the first in the flower procession. Then come little green seeds winged for flight. These ripen and scatter before the leaves are open. The tree must be sprayed to control scale insects and aphids.

The soft maple, *Acer saccharinum*, 75 feet, medium rate of growth, has brittle branches, easily damaged by snow. It is not too desirable for small home sites.


Flowering trees are effective when used at the corner of a house or terrace. This often makes a small house appear much larger. However, sufficient room must be allowed for growth. Often trees and shrubs are planted too close to windows, innocent looking in the beginning but becoming monstrosities later and crowding out the view.

On a small property it is better not to plant flowering trees as specimen trees in the lawn where the unbroken area can give a feeling of space. In general, the average size tree to be selected should be in direct proportion to the size of the house. Plant the right tree and make your house a home.
PLANT AND ANTIQUE AUCTION

Coming Soon. An opportunity for you to buy your garden plants at auction. That’s right, our fabulous plant auction is only a month away. The opportunity doesn’t stop with plants according to the Co-chairmen, Mrs. Barbour and Mrs. Catherwood. There’ll be antiques, white elephants, and lunches a la carte. Sounds like fun, doesn’t it? The local garden shops, seed stores and nurserymen have all pledged their support so that there will be a good supply of plant materials on hand. The white elephants and antiques are accumulating at a steady rate. Have you brought yours in yet? Mrs. Conrad who put on the delicious Chuck Wagon dinner last September is in charge of the a la carte lunch. It will be boxed and available both days of the auction.

Surprise!

Pot-luck book sales indoors on both days. The contents of an entire library will be sold in sealed cartons at bargain rates. You will find treasures.

Don’t forget the dates—May 7 and 8.

“He that planteth a tree is a servant of God,
He provideth a kindness for many generations,
And faces that he hath not seen shall bless him.”

—Henry Van Dyke

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THE COLORADO BLUE SPRUCE

BY RICHARD G. BEIDLEMAN

Zoology Department, Colorado College, Colorado Springs, Colo.

Dr. Richard G. Beidleman is an Associate Professor of Zoology at Colorado College. He has specialized in animal ecology and through his researches into the history of changes in plant and animal distribution, has compiled a most interesting record of which this article is a part. Dr. Beidleman is pleasantly remembered by all the fortunate people who attended our annual meeting where he gave such an informative and excellent lecture, illustrated with his excellent slides.

In the summer of 1862 Charles Christopher Parry was as busy scampering over the Colorado Rockies as any get-rich-quick gold miner. But Parry wouldn’t have stooped for a nugget if he had stumbled over one; his arms were too filled with flowers. This English doctor from Davenport, Iowa, called the “Father of Colorado Botany” by his British compatriots during our early territorial days, spread the good word about the wonders of Colorado from Maine to California in a flurry of newspaper articles. And, more important, he gave the Centennial State a symbol which would advertise it long after the name of “Parry” had been forgotten by all but the botanical world.

On July 1 of 1862, Parry and his guide, M. S. Beach of Colorado City, headed towards Pike’s Peak from Manitou Springs, in what was to be the first ascent of that fourteen thousand foot peak by a professional botanist since Edwin James of the Long Expedition first collected alpine flowers there forty-two years before. Somewhere on the lower flanks of ponderosa pine and Douglas-fir, beside one of the streams that drew its water from the mountain-top, Parry collected specimens of a magnificent new spruce tree.

Parry’s spruce, or more familiarly the Colorado blue spruce, proved to have the least valuable timber among the world’s spruce. Its sharp-needled branches offered no comfortable mattresses for sleepy campers and its four-inch cones no meaty nuts for hungry hikers. But this stately conifer, with its blue-frosted foliage, has carried the name and mountain fame of its native Colorado into parks and yards the globe around.

From seeds collected in 1862 by Parry himself, seedling blue spruce sprouted far from home in 1863 at Professor Sargent’s garden in Brookline, Massachusetts and at the nearby Arnold Arboretum. As recently as 1929 one of Parry’s originals was still growing at the Arboretum, though its lower boughs had long since fallen and only a cluster of living branches remained at the crown. Transplantings thrived in Parry’s Iowa; a nursery in Waukegan, Illinois, began to lay in a supply of the attractive conifers; and in 1877 a Mr. Waterer started them in his nursery at Knap Hill, England, by cuttings from Sargent’s trees in Brookline. Most of the old blue spruce in England today date back to Waterer’s nursery. After Parry, Roezl collected seeds in Colorado, and from these many of the early plantings on the European continent originated.

Through the years horticulturists experimented with this ornamental spruce, grafting it in various ways, especially to the Norway spruce, and producing a number of varieties. The most popular European form is the...


Koster Blue Spruce, which was developed at the nursery of Messrs. Koster and Company, Boskoop, Holland. In the nursery of Herr Weise at Kamenz in Saxony, a long-needled variety originated which has been called the "Konig Albert von Sachsen," while back home at the Arnold Arboretum an interesting dwarf variety was produced about 1890. Within a half-century after Parry's discovery of the blue spruce, North American nurserymen were commenting that "no conifer of recent introduction has been so generally planted in the United States."

Originally the blue spruce or, variably, Parry's spruce, balsam, white spruce, silver spruce, prickly spruce, water spruce, and Colorado spruce, was given the scientific name Abies menziesii by George Engelmann, Saint Louis doctor, botanist, and adviser to western explorers. Abies is a generic group containing the true firs, and the species name "menziesii" was in honor of Archibald Menzies, the British botanist who accompanied Vancouver on his explorations along the West Coast.

Subsequently, the tree was placed in the group containing the spruces, Picea, was named Picea parysana at one time in honor of its discoverer, and today is Picea pungens, the pungent spruce. The word "spruce," applied to this tree and its relatives, is certainly descriptive, meaning "something natty, smart and dandified."

"When young . . . there is no more beautiful object for symmetry or color" than the Colorado blue spruce. These trees have chosen the edges of Rocky Mountain streams for their livelihood, never in extensive stands such as those of lodgepole pine, and the esteemed Engelmann Spruce of the subalpine country, but rather a select scattering from the foothills up to nine thousand feet or so, from New Mexico to Montana but especially in Colorado.

Blue spruce needles are stiff and sharp, each set on a woody pedestal of the twig and covered with a bluish-silver bloom. Whereas twigs of the Engelmann spruce are softened by a velvety covering of "hair," the blue spruce has smooth twigs. During the frequent good cone years the dense treetops are clustered with the four-inch, papery cones which mature in a year, dropping their seeds in early autumn. By the time young trees reach the age of thirty years, the blue cast to the foliage usually has begun to fade. As blue spruce matures, they not only lose their colorfulness but drop lower branches and become scraggly. The bark, unlike that of the Engelmann, becomes cinnamon-gray scaled and deeply furrowed.

A tree of five inches in diameter may be over a hundred years old, one two feet in diameter well over 300 years. Old patriarchs may reach more than 600 years of age. Good specimens of blue spruce in Colorado will be close to a hundred feet in height and between a foot-and-a-half and two feet in diameter. The American Forestry Association's Colorado blue spruce record is a giant discovered by Fred R. Johnson of Denver in the central Colorado Gunnison National Forest, a tree 123 feet high and about 45 inches in diameter (breast high). Blue spruce wood has proved of little commercial value, being used only for rough house logs, mine timbers, posts and mountain railway ties. The real appeal of the blue spruce is its crisp beauty . . . and its attractiveness to bird life.

It is no surprise that in 1939 the beautiful Colorado blue spruce should have become the official state tree of the Centennial State; and the only surprise is that it didn't happen sooner. Sixteen years after statehood, one year after Colorado picked her columbine state flower, members of the State Horticultural Society instituted a campaign to select a state tree. Two members of the Society whipped up a brochure on the various trees of the state, and it was suggested that the state's teachers go over the propaganda with their students. Following a sufficient period of indoctrination there would be a ballot on Arbor Day of 1892 to determine the children's choice, as previously had been done with the state flower.

George L. Cannon, Jr., of East High School in Denver summed up the qualities which a state tree worthy of a magnificent candidate, and local exponents quickly voiced their journalistic approval: "Do you know that the most beautiful of all trees of the Rocky Mountains, and in some respects, the most beautiful conifer in the world, is the Colorado or blue spruce? Its beauty is too rare to be common and hence, it is found nowhere outside of our State . . . . . If we examine the long list of evergreen trees we cannot find one that grades higher in perfection of form beauty, color, hardness and adaptation to various sorts and conditions of climate . . . . . It is
a question whether any tree containing so many desirable qualities can be found in this State. . . . . When voting for a State tree the students of our public schools should not pass by this lovely namesake of Colorado . . .

The campaign was taken to the school children of Arbor Day, April 15, 1892; and to no one’s surprise, the blue spruce won by a landslide, with 16,931 votes. Villages like Eastonville, in view of Parry’s Peak collecting grounds, threw their entire support, fifty-nine votes in this instance, to the blue spruce. Florissant, on the other side of the Peak, saved one of its fifty votes for the white fir. The fir, incidentally, ranked second in popularity in the state, with 780 votes, though most of the children failed to distinguish between the white fir, subalpine, and Douglas-fir. Unspecified pines ranked third with 732 votes, and then a lesser scattering of votes for the Engelmann spruce, cedar, cottonwood, box elder, maple, and aspen. Youngsters with out-of-state prejudices cast their votes for such foreigners as the catalpa, mulberry, hickory, apple, elm, and pear.

The report of this voting disappeared into the 8th Biennial Report of the State Superintendent of Public Instruction; and there the matter rested for almost half-a-century. Finally, in the winter of 1939 State Representatives Griffith, Smith and Kramer introduced a resolution into the state legislature, H. J. R. No. 7, which brought the blue spruce its due recognition: 

Whereas, Colorado Blue Spruce (Picea Pun gens) was first discovered on the slopes of Pikes Peak in 1862, and named by the noted botanist, Dr. C. C. Parry; and

Whereas, this species reaches its optimum development in the State of Colorado and has been transplanted throughout many other sections of the United States and the World; and

Whereas, the school children of the State of Colorado voted in 1882 to name the Blue Spruce as the State Tree of Colorado;

Now, Therefore, Be It Resolved by the House of Representatives of the Thirty-second General Assembly of the State of Colorado, the Senate concurring herein:

That this action of the children of the state be officially recognized, and that the House of Representatives and the Senate of the State of Colorado, by this resolution, officially designate Colorado Blue Spruce as the State Tree of Colorado.

On March 7, 1939, in the morning the resolution was signed by William E. Hight, Speaker of the House; and Colorado added to its state flower the Colorado Columbine and its state bird the Lark Bunting a most appropriate state tree, the Blue Spruce. Newspapers of the period, busy following a Hitler rushing to destiny, can be forgiven for not rushing to acclaim this official sanction of an accepted state tradition.

In its first century, Parry’s fine Peak conifer has carried the name of Colorado throughout the world; and as long as people love the beauty of an evergreen, our Colorado Blue Spruce will continue to advertise her western mountain homeland far and wide.

Snow Damage to and by Trees

BY DR. A. C. HILDRETH
Director Denver Botanic Gardens

The unseasonable snow that struck Denver last fall (Sept. 29 to Oct. 2) caused unprecedented damage to the trees of the city. Although a similar snowstorm 23 years earlier (Sept. 26 to 28, 1936) took a heavy toll, the trees at that time were smaller and fewer in number and, therefore, there was less possibility of damage. The 1959 snow caught trees in full foliage. Without accompanying wind to displace it, the wet snow froze on the leaves as it fell, until its sheer weight broke branches and split crotches on a high percentage of the trees in Denver.

It is impossible to calculate the loss to the community occasioned by such tree damage. Who can evaluate beauty, or the pleasure and satisfaction that people derive from fine trees? Some idea of the monetary loss, however, may be had from figures compiled by those who had to salvage what they could from the wreckage and clean up the debris.

City Forester, George S. Stadler, estimated $112,789 as the cost of repairing trees damaged by the storm in parks and parkways of the city. These areas contain approximately 10% of Denver’s 250,000 trees. Assuming that trees both inside and outside these park areas suffered about equal snow damage, we can see that the cost of putting all of Denver’s trees in order after the storm is well over a million dollars. The Department of Public Works estimates $340,000 as the cost of picking up, hauling and burning the broken branches from the city streets, parking strips, etc. This figure, of course, does not include the amounts paid to truckers by private citizens for removing brush from their premises.

A staggering amount of damage to other property was caused by the breaking and bending of trees during the storm. Few people realized that the trees, which had been Denver’s pride, could be such instruments of destruction. The chief damage was to telephone and power lines. Limbs broken off or bent low by the snow brought down an enormous number of overhead wires. In metropolitan Denver the Mountain States Telephone and Telegraph Company estimates expenditures of $250,000 for repairing lines damaged by trees during the storm, and the Public Service Company of Colorado estimated $275,000 as the cost of repairing similar damage to their power lines in the area. In addition, falling limbs did considerable damage to houses, patios, fences and other structures. Insurance companies paid out thousands of dollars to satisfy claims for damage to parked cars caused by tree breakage.
It is evident that in the Denver metropolitan area, the monetary loss from damage to and by trees during the storm amounted to at least 2 million dollars to say nothing of the inconvenience of blocked traffic and interruption of telephone and electric power service. Such costs and inconveniences lead us to ask whether they are necessary and what we can do to prevent their recurrence or to limit them to a minimum in future storms.

From the horticultural standpoint there seem to be five things that we might do to prevent or, at least, to minimize the loss to and by trees resulting from such early snows:

1. Plant species that are least susceptible to snow breakage.
2. By proper pruning, the trees throughout their lifetime, encourage a mechanically strong structure, normal growth and sound wood so that there will be less likelihood of breakage.
3. Cable or bolt old trees that have weak structure or have started to split, in order to prevent their breaking under the weight of snow.
4. Locate trees so that in case of breakage they will be less likely to cause damage to telephone and power lines and other property.
5. Select low-growing trees for planting under telephone and power lines so that there will be no heavy limbs to fall and break wires.

**Susceptibility to Snow Damage**

But what trees are least susceptible to snow damage? The storm afforded a good opportunity to answer this question. Following the storm many trees of different species growing in Denver were examined and scored according to injury on a scale of 1 to 5 as follows:

1. None or insignificant damage.
2. Slight damage, mostly to minor branches. Little more than normal pruning treatment required.
3. Moderate injury, resulting from breaking several secondary branches and splitting of minor crotches.
4. Severe damage, resulting from breakage or splitting of the trunk or some of the main limbs, thus weakening the structure, distorting the shape and impairing the appearance and value of the tree for several years.
5. Extreme damage, resulting from breakage or splitting the trunk or several main branches, destroying the beauty of the tree and permanently impairing its usefulness. Such trees ordinarily require removal or drastic surgical treatment.

It is easy to overestimate the damage to a tree immediately after such a snowstorm. One is inclined to regard a confined mass of leafy, hanging branches as evidence of irreparable injury. After an experienced tree pruner has cleared away the wreckage, however, one is often surprised at the little actual damage to the tree. Putting the injury observations on a numerical basis made possible an unbiased appraisal of the injury and also an objective comparison of different species as regards snow damage.

In summary, it was found that the coniferous trees, such as spruce, fir, Douglas-fir, pine and juniper, suffered least breakage by snow. The normal structure of such trees, consisting of a strong vertical shaft from which numerous flexible lateral branches radiate, is ideal for resisting such snow damage. In such trees the weight is distributed on dozens of branches instead of being concentrated on a few major limbs as is the case in some commonly planted types of broadleaf trees. The long-conical shape of our conifers, particularly the spruces and firs, makes it possible for the upper limbs to protect the lower ones from excessive snow accumulation and for the lower ones to support the upper ones bending under a load of snow. It is with trees of this shape that nature timed the slopes of our high mountains and the far-north forests of the world, where heavy snows are commonplace.

Among coniferous trees there was more damage to junipers than to other kinds. Most of this damage was caused by spreading out of the branches. This trouble was most prevalent in the much-prized upright forms. Although there was practically no breaking or splitting of junipers during the storm, another wet snow falling on the spread-out branches probably would have caused extensive permanent injury. Careful tying up and pruning of the distorted branches is of course necessary to restore the normal shape of trees so affected. The sooner such corrective measures can be applied the better. Perhaps under our climatic conditions, junipers with drooping branches would be more suitable than upright forms.

Broadleaf trees, in general, suffered much greater damage than the conifers during the storm. No broadleaf species escaped injury but the damage was by no means uniform for all species or even for different trees of the same species. One can find severely injured specimens as well as unjured ones in every broadleaf species that has been extensively planted in the Denver area. In fact, anything that one might say as to the susceptibility or resistance of any species to snow damage can be eloquently refuted by individual trees which showed the opposite response to the storm. Of course, the first requirement in comparing species that show a wide variation is to include a large number of individuals in the comparison.

Strangely enough, broadleaf trees that showed the greatest resistance to snow damage were weeping forms such as weeping birch and weeping willows. Apparently the pendulous branches did not accumulate such a heavy weight of snow as those in the usual position. Furthermore, the flexible branches tend to bend rather than break under a load of snow.

The native cottonwood suffered some breakage, particularly of decayed limbs. The total damage however was much less than might be expected in trees of such large size and mature age. Part of this lack of damage may be due to the habit of the cottonwood to prune itself. Although the old

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Black Walnut tree damaged by the storm (Washington Park).

Russian Olive broken by snow (Cheesman Park).
wood is very tough the young branches will break off readily with slight pressure from any cause. Thus these trees are constantly undergoing thinning out of their young growth, a process that keeps the new growth and leaf area in balance with the strength of the main limbs.

Next in order of damage is a group of species that sometimes showed severe injury but which on the average were not as constant to snow utilization or too much water can be as bad as neglect. Over-stimulated trees develop weak crotches, shoots too long for their diameter and crotch structure. It is necessary to consider not only the main lines but also the loops from the main lines to the branches, although there was great variation in the severity of damage to individual trees. Green ash showed a surprising amount of damage, being especially prone to splitting off large limbs from the trunk. Kentucky coffee tree showed breakage of secondary and smaller branches on the few specimens available for observation. Black walnut generally showed heavy breakage of both large and small branches.

Three broadleaf species most extensively planted—soft maple, American elm and Siberian elm—caused most of the damage to property, largely because they were more numerous. They also were badly injured by the snow, the Siberian elm being perhaps worst in this respect than any other tree planted in Denver.

The great variation in snow injury observed in trees of the same species, suggests the possibility of selection for resistance to snow damage. Some of this variation was undoubtedly due to difference in form of the trees but it is possible that there is also a difference in the toughness of the wood. By selecting and propagating trees with good structure and wood that is likely to break under strain. Normal growth for the species, sound wood and mechanically strong structure are the conditions desired.

Old trees that have not been trained to have a strong framework can be strengthened against snow damage by proper bracing with cables. This is a job for an expert, as otherwise more harm than good may be done.

**PREVENTING DAMAGE BY TREES**

We have seen that damage to other property caused by trees during the storm, resulted from breaking or excessive bending of the trees. It follows, therefore, that all means indicated for preventing snow damage to trees are also means of preventing other property losses in such storms.

In addition, there are some special precautions that tree growers can take that will help to reduce property damage in future snowstorms. Most important of such precautions is to avoid planting tall trees where their breakage might damage other property. Telephone and power lines have sustained the greatest damage from this cause and therefore it is to the protection of these utilities that chief attention should be directed. This is important to the community not only from the standpoint of uninterrupted service but also because of the cost of repairing these lines must ultimately be reflected in the rates the companies charge for their service.

In the older parts of the city, already fully planted to trees, not much can be done to remedy the situation except to remove those trees most likely to cause destruction and to correct, by cabling or bolting, those having weak structure. In unplanted areas much may be done to avoid such losses by proper planning. Most effective would be restriction of plantings under telephone and power lines to low-growing species. It is necessary to consider not only the main lines but also the loops from the main lines to the houses. Both the telephone and power companies serving Denver report greater expenditures on repairing these loops after the storm than on the main lines.

It should be emphasized that this article is only a report on damage to and by trees and on means of preventing it and not general recommendations for tree growing in Denver. Many factors other than snow damage are of course important in the selection, maintenance and use of trees in a city. However, because of our great losses through tree damage caused by snows, such damage must be of concern to us in all matters pertaining to tree growing in this area.

**Acknowledgement:**

Thanks are due Mr. Edmund W. Wallace for assistance in locating various tree species in the city and in taking pictures of snow-damaged trees.
Colorado Garden Show

DENVER STOCKYARDS STADIUM
APRIL 7-10, 1960

Hours: Thursday, 12-10; Friday and Saturday, 10-10; Sunday, 10-6

THE DESIGN AND ITS DESIGNER

With the tremendous increase in gardening interest we find that Garden Shows are being spotlighted throughout the world. The International Floriade just opened in Rotterdam and will remain open until November with an expected attendance of 6,300,000 people. In the United States we have shows in New York, Philadelphia, Cleveland, Oakland and, for the first time, a full-fledged Garden Show here in Denver.

Such shows don't just happen, they take a great deal of vision and planning. They are primarily an educational venture aimed at showing the public new and exciting garden ideas. To accomplish this purpose, plants, building materials, and garden accessories have to be integrated into a plan that is functional and has mass appeal. Thus, it is easy to see that the success of such a show hinges on its designer. Our Colorado Garden Show is fortunate in having a top-notch Landscape Architect who has given us an exceptionally fine plan. Since Chris Moettz is relatively new to our area, we would like to give you a brief biography on him.

Chris was born in Germany and became interested in horticulture at an early age. He attributes much of this interest to Mr. Foerster, owner of the Foerster Perennial Gardens in Germany. Mr. Foerster is a leading perennial hybridizer known throughout the world for his many introductions. Chris served a two-year apprenticeship under this noted gentleman, and the knowledge of plants learned from him stimulated Chris to further his education in landscape architecture. He studied at Hannover, Germany, Iowa State, Colorado State University and received his degree in Berlin, Germany. Since he arrived in this country, Chris has worked for S. R. DeBoer and Ernest Sheffer, local architects, and during the past year he has been Landscape Architect for Magic Mountain, Inc. Last summer he submitted a tentative plan for the Garden Show. This was accepted by the Show Committee, which then asked him to draw up the detailed plan. Garden Shows are not new to Chris. He worked on two major shows in Germany, one in Cologne with an attendance of 5,000,000 and one in Dortmund with 7,000,000 attendance. We feel that he has done a splendid job on the Colorado Show. I'm sure you will agree when you see the Show. On completion of the Show, Mr. Moettz will be employed as Landscape Architect for Lew Hammer, Landscape Contractor.
A dwarf fruit tree generally is assumed to be a well-known standard variety grafted on a slower growing rootstock. This restricts the normal vigorous growth of the desired variety and produces a tree of smaller size. The resulting tree usually produces fruit much sooner than a standard tree. The fruit is full-sized and of the same quality as that produced on a standard tree.

This early bearing habit is a distinct advantage to home orchard enthusiasts. Also several dwarf trees can be planted in the same space taken up by a single standard tree. This permits 4 to 6 varieties to be grown. (Of course the same end result can be obtained with a 4 in 1 or 5 in 1 standard tree, where the nurseryman has grafted 4 or 5 varieties on one standard tree.) Another distinct advantage of dwarf trees is the lower over-all height. This means that the trees are more bush-like, making them easy to prune, thin, spray and harvest. Less damage to fallen fruit results. Since most homeowners do not have high pressure spray equipment necessary to reach the tops of standard trees, the resulting fruit is often wormy or diseased. Even low pressure hose-attached sprayers can do an effective job spraying dwarf fruit trees.

Dwarf fruit trees do have some drawbacks. They are generally shallow-rooted thus subject to drought, winter injury and uprooting by heavy winds. They need support while young in order to develop a straight upright shape. As a group they are shorter lived and less hardy than standard trees. This is probably not of too much importance in backyard orchards. Not all varieties are equally compatible with dwarfing stocks. There are natural differences even on standard trees as to size, shape and vigor. These differences are exaggerated on dwarf stocks. The stronger growing variety will be taller on the same dwarf stock than a variety with less vigor. Also, if planted so deep as to bury the graft union, the vigorous standard variety will scion-root and a large tree will result.

Dwarfing of fruit trees is not new. During the 1600's and 1700's, a heterogeneous collection of apple and pear dwarfing rootstocks developed in Europe. These were commonly called “Paradise” or “Doucin” stocks. Sweet cherries grafted on smaller sour cherry stocks had a dwarfing effect. Here in the United States many dwarfs were planted in New York and other eastern states in the early 1900’s. Some semblance of order is finally emerging from the many collections of dwarfing rootstocks. The collections tested in England and at the Fruit Experiment Station at East Malling is probably the most famous. Table I shows their origin and usefulness. You will note that EM II, EM VII, EM VIII, EM IX, and EM XIII are the only ones recommended for use in the United States.

### Table 1—Suggested International Identification of East Malling Apple Rootstocks, Their Growth Effects on Varieties in The United States, And Their Former Names.

<table>
<thead>
<tr>
<th>Malus Rootstock Type</th>
<th>Growth Effect</th>
<th>Former Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM I Vigorous</td>
<td>True Board-leaved English Paradise</td>
<td></td>
</tr>
<tr>
<td>EM II* Semi-dwarfing</td>
<td>True Doucin; also called English Doucin or “English Paradise”</td>
<td></td>
</tr>
<tr>
<td>EM III Semi-dwarfing</td>
<td>Dutch Doucin or “Hollyleaf Paradise”</td>
<td></td>
</tr>
<tr>
<td>EM IV Semi-dwarfing</td>
<td>Holstein Douglas; also called Malus pumila and “Dutch Doucin”</td>
<td></td>
</tr>
<tr>
<td>EM V Semi-dwarfing</td>
<td>Doucin amelior; also called Improved Doucin and “Red Paradise”</td>
<td></td>
</tr>
<tr>
<td>EM VI Vigorous</td>
<td>-Nonsuch Paradise</td>
<td></td>
</tr>
<tr>
<td>EM VII* Semi-dwarfing</td>
<td>Without name</td>
<td></td>
</tr>
<tr>
<td>EM VIII* Very dwarfing</td>
<td>French Paradise; also called “Red Paradise” and “Clark Dwarf” in the U. S.</td>
<td></td>
</tr>
<tr>
<td>EM IX* Dwarving</td>
<td>Yellow Paradise of Metz, Jaune de Metz, Diederonde</td>
<td></td>
</tr>
<tr>
<td>EM X Very vigorous</td>
<td>Without name, selection Doucin U1 by Spath</td>
<td></td>
</tr>
<tr>
<td>EM XI Very vigorous</td>
<td>Green Doucin, Prachts Doucin</td>
<td></td>
</tr>
<tr>
<td>EM XII Very vigorous</td>
<td>Without name, of English origin</td>
<td></td>
</tr>
<tr>
<td>EM XIII* Vigorous</td>
<td>Black Doucin</td>
<td></td>
</tr>
<tr>
<td>EM XIV Not tested</td>
<td>Without name, selection Doucin U5 by Spath</td>
<td></td>
</tr>
<tr>
<td>EM XV Very vigorous</td>
<td>Without name, selection Doucin U6 by Spath</td>
<td></td>
</tr>
<tr>
<td>EM XVI Very vigorous</td>
<td>Ketziner Ideal</td>
<td></td>
</tr>
<tr>
<td>EM XVII Semi-dwarfing</td>
<td>Without name, a selection by Sprenger (similar to EM V)</td>
<td></td>
</tr>
</tbody>
</table>

*Recommended for use in the United States.
†Among the semi-dwarfing stocks, EM VII is typically semi-dwarfing, whereas all others tend to be more vigorous, although not as much as EM I.

More recently a Malling-Merton series has been developed for apple. East Malling stocks were crossed with Northern Spy some 30 years ago and 15 seedlings selected for resistance to wooly aphis (a root infesting insect) as well as for their dwarfing effect. Of these MM 104, 106, 109, and 111 have been introduced into the United States. The smallest trees are those on MM 106, about the same as EM VII. MM 104 is a little larger and MM 109 and 111 produce trees similar to those on EM II. They produce vigorous, well-anchored trees, produce early and are heavy yielding.

The Manchurian crab (*Malus baccata var. mandshurica*) is a seedling rootstock which is hardy and has a semi-dwarfing effect. The resultant trees are about the size of those grafted on EM VII.

Most midwest nurseries produce dwarf apples by the Clark system. In this system a seedling root is grafted to a hardy trunk variety such as Virginia...
Crib, then a short piece of interstock called "Clark Dwarf" is grafted to the crab trunk and finally the fruit-bearing variety.

Yields obtained from dwarf apple trees vary considerably. Approximately 3 bushels per tree can be expected on the most dwarfing stocks such as EM IX, with at least double this yield for EM VII and II.

In order to develop dwarf pear trees, quince is used as the understock. Since peach trees are normally small trees when grafted on regular peach stocks, they are not usually grown as dwarfs. If extremely small trees are desired, Nanking cherry (P. tomentosa) or western sand cherry (P. besseyi) may be used. The latter is very susceptible to iron chlorosis, however. These two might also become dwarfing stocks for cherry and plum.

One word when buying dwarf trees. Nurseriesmen generally do not specifically list the rootstock used. This is unfortunate since the buyer doesn't know whether the desired variety has been grafted on a very dwarf stock or on a semi-dwarf stock. Specify the kind you want by number. The rootstock as well as the bearing variety should be desired.

Dwarf fruit trees lend themselves well to being trained as "espaliered" trees. These are trained to grow against a wall in a vertical plane rather than the usual round shaped head. They can become a very attractive addition to the foundation planting—especially against a rather large unbroken stretch of wall. If planted against an east or south wall, such espaliered trees will grow and bloom under otherwise adverse climatic conditions.

Since some failures have been reported for dwarf trees because of winter dessication and lack of rootstock hardness, they cannot be universally recommended for our Rocky Mountain region. They are certainly worthy of trial. For the amateur horticulturist with a flair for growing the unusual, they are definitely worth the effort expended on them. A little extra winter protection for the roots in the form of a straw mulch or other mulch material may make these dwarf fruit trees the envy of your horticulturist friends.

FRENCH HYBRID LILACS ON THEIR OWN ROOTS

FINEST NAMED VARIETIES • SPECIMEN PLANTS

FERTILIZING LAWNS

By CHAS. M. DRAGE

Extension Horticulturist

A good fertilizer program for lawns would be to use straight nitrogen fertilizers or complete fertilizers that are high in nitrogen. Use them at the rate that will supply 3 or 4 pounds of available nitrogen per 1,000 square feet. The 3 or 4 pounds of available nitrogen should be applied in 2 or 3 applications. The amount and time of application is an important factor in preventing over-stimulation. When 3 feedings are made the first should be about April 1, the second six weeks later, and the third the last week of August. When 2 feedings are made omit the middle feeding.

Before new lawns are established, liberal amounts of organic matter, not less than 2 yards per 1,000 square feet, should be worked into the soil. This should be supplemented with 15 to 20 pounds of phosphate and on sandy soils add 15 to 25 pounds of potash. Or 200 pounds of a complete analysis fertilizer high in phosphate could be used.

In recent years numerous lawns in Colorado have been infested with leaf spot organisms. Leaf spot is not serious in itself, but can lead to foot rot infections. Foot rot infections have been serious. Several Colorado authorities have reported "that it seemed foot rot was more serious on lawns where high amounts of nitrogen were being used."

Raymond J. Lukens and Ernest M. Stoddard in Connecticut Experiment Station; Circular 208, 1959, write as follows: "Applications of fertilizer high in nitrogen increase the severity of leaf spot. In fact, applying fertilizer to grass having leaf spot may lead to foot rot which may kill the infected plants. Close mowing encourages foot rot. When weather favors disease development, cutting the grass high (1½ inch) and keeping nitrogen levels low may result in the leaf spot stage. When such weather conditions do not persist, infection will stop at this stage. However, if grass is cut short and has plenty of fertilizer, the disease may progress to the foot rot stage. If the lawn has previously had bluegrass leaf spot, postponing fertilization until the weather clears and the sod dries will reduce the severity of the disease."

John C. Harper II and M. A. Hein in U.S.D.A. Home and Garden Bulletin No. 51, 1959, have this to say about leaf spot, "Leaf spot, a disease that causes reddish-brown to purple black spots on the leaves of Kentucky bluegrass and sometimes spreads to the crown causes considerable damage."

"Damage can be reduced by: (1) Mowing no shorter than 1¾ to 2 inches; (2) using adequate fertilizer but avoiding overstimulation with nitrogen; (3) using Merion Kentucky bluegrass wherever possible (it is less susceptible to leaf spot than common Kentucky bluegrass); (4) using mixed planting of several grasses."

Fungicides can be effective in controlling leaf spot. However, the nature of the disease makes it necessary to make repeated applications, starting with the first symptoms of the disease. The fungus persists through the winter on infected refuse. Spores from infected leaves are the principal source of inoculum in the spring. Germinating spores can produce visible lesions within 4 days of inoculation. Successive generations of spores are formed every 1 to 2 weeks during the growing season with infection occurring during cool, wet weather.
GARDENING WITH COLORADO WILDINGS

By Ruth Ashton Nelson

A Love of Flowers Leads to Her Life Work

ABOUT THE AUTHOR

A little girl, Ruth Ashton, born in Boston and who lived for some time on the island at Martha's Vineyard, came with her parents to Colorado to spend a summer vacation. The lure of the mountains brought the family back again for further visits. They spent their time mostly in the region near Estes Park.

On one occasion the family took a trip by horseback and burro from Glen Isle to Hot Sulphur Springs. The smaller children rode the mountain burros but Ruth, being the oldest, had a horse. This trip stands out in her memory as enjoyable, but the thing that impressed her most was the sight of the masses of fringed gentian which were in bloom at that time. She thinks it was then that a botanist was born and her life began to follow a pattern.

She lived in the East until her schooling was completed, attending "The Sea Pines School for Girls" on Cape Cod. Upon completion, she entered Mt. Holyoke College where she majored in botany and writing in preparation for future work in her chosen field.

In 1924, she returned to Colorado to take a position for the summer as a counsellor at a girl's camp. She taught nature study and horseback riding.

The following summer she began working for the government at Rocky Mountain National Park and continued there for several years. Meanwhile, she was working toward a Master's degree in Botany at Colorado Agriculture and Mechanical College (now Colorado State University).

She completed this work in 1930. Her previous work in the park led to her thesis. Then she began to put her findings into book form. The book, "Plants of Rocky Mountain National Park," was published by the National Park Service in 1933. It was revised in 1953 and is used extensively as a reference.

Miss Ashton bought a home in the mountains, a former homestead, about seven miles southeast of Estes Park which she still owns.

In 1931, she married Dr. Aven Nelson, an eminent botanist, who was professor of botany at Wyoming University and was considered a leading authority on the plant life of the region. For twenty years she aided him in his work of identifying and classifying the flora of the Rocky Mountain area.

Since her husband's death, Mrs. Nelson has made her home in Colorado Springs, but spends much of her time at her mountain home, between Big Thompson Canyon and Devil's Gulch. The house is situated among many huge ponderosa pines and native wild flowers.

For the last ten years Mrs. Nelson has given a great deal of her time to photographing wild flowers and has a wonderful collection of color slides which she uses to illustrate her lectures. She teaches classes at a vocational school as well as small private classes. Her home is equipped with cabinets in which she has specimens and information right at hand.

Mrs. Nelson brings many plants down from the mountains to her yard and takes special pleasure in growing the unusual.

Recently she has collaborated with Rhoda N. Roberts in preparing a book entitled "Wild Flowers of Colorado" for the Denver Museum of Natural History.

Ruth Ashton Nelson's ambition to learn about flowers and to share this learning with others has been fulfilled.

Mrs. Nelson plans to do a series of stories entitled Gardening with Colorado Wildings for the Green Thumb. The following is the first of this series.—By Lou T. Ault.

GROUND COVERS

A PLANT which often attracts attention in my garden as a ground cover is Antennaria rosea, the "pussy toes" of our mountain meadows. This formed a carpet of small, neat, silvery leaves the year around. It thrives between flagstones and around rocks and may be used on banks if they are not exceptionally dry. It will do well in full sun or partial shade. Other native species of Antennaria, especially A. parvifolia, the small-Leaved catspaw which is common on dry hillsides of the ponderosa pine zone, are also very useful. Their leaves are slightly larger than those of A. rosea and their rosettes somewhat looser so that the carpet they make is not quite so fine textured and compact, but even so it is very satisfactory and attractive.

These plants spread rapidly when once established. For best results they should be collected in early April, before the flower buds appear. To keep the Antennarias neat looking through the early summer the flower stalks should be cut off when two or three inches tall. I use grass shears. Staminate plants are preferable for garden use because their heads wither without making a lot of fluffy seeds, but it is impossible to determine this when collecting in the spring. One could mark a patch of staminate plants at blooming time and move them the next spring, but I depend on eliminating the pistillate ones after I get them established, providing of course that I also have some staminate plants.

In spite of general belief to the contrary, Kinnikinnic is an evergreen ground cover which can be successfully transplanted and grown, as several of our Colorado gardeners have demonstrated. It requires careful handling in the transplanting and at least partial shade both summer and winter. Best results are obtained by collecting it when the ground is moist. If that is not practical carry a bucket of water and soak the soil around the plant before digging it. This will be helpful even if the soil falls off, as it is quite apt to do, when you dig it. On no account should the roots be allowed to dry out.

Vigorous colonies of Kinnikinnic are usually found in shaded places which retain winter snow. These will be found to have long branches which have rooted. Carefully cut the stem back of the rooted area without disturbing the roots. Then dig and wrap immediately in wet newspaper or sphagnum. It may be advisable to cut off the tip when planting but several leaves should be left on the new plant. Creeping Mahonia, Berberis repens, may be handled in the same way and is somewhat easier to establish than is Kinnikinnic.

A mixture of moist sand and peat moss induces root growth and should be used liberally whenever and wherever these wildings are transplanted. Keep the plantings moist for two or three weeks, or until new growth appears. Shading at first helps. My experience is that I have better success in moving all of these plants early in the season, particularly in late March and early April.

All of the plants which I have mentioned are still in plentiful supply along the foothills of the Front Range but anyone wanting to collect them should be careful and considerate in doing so. Remember the following points in order that those who come after may also enjoy. Do not collect near public roads and trails; always ask permission of property owners; always leave more than you take; never waste, take only small amounts and propagate them in your own gardens.
Tapestries and Gardens
By Julia H. Andrews
Rocky Mountain Chapter of A. S. L. A.

A TAPESTRY consists of many small scenes woven together to depict a landscape. Each scene is made up of tiny objects and details. Only when the tapestry is closely examined with a magnifying glass do you see these minute details. When you step back 20 paces you are only conscious of the tapestry as a complete unit. The small scenes, the tiny objects and the minute details are all important to tell the story, even though they are not readily discernable to you at 20 steps away.

Now that we are aware of the details existing in the tapestry landscape, let's extend our examination to the "living" landscape. Before you can relate the elements of design to your own garden, you must first understand the coordination of details existing in the natural landscape.

If we were to drive on the Denver-Boulder Turnpike to the high point overlooking the Boulder Creek Valley and stop beside the road we would see a "landscape". It is magnificent! There are blue mountains, grey rock cliffs, red roofs and green fields. Look closer for some of the small objects—the wire strung on heavy posts, 26 Shetland ponies, a cottonwood seedling at the edge of a marsh, a Ford station wagon beside a headgate. If we walk into this "landscape" it is like using a magnifying glass to see the minute details—the silver colored staples holding the barbed wire to the pitch pine posts, the white stars on the ponies' foreheads, the shovel in the rear of the station wagon and the yucca plants in the fields.

How does talk about a wild landscape, little altered by man, have anything to do with my garden, you ask. I hope that the description will help you realize that in your own garden you are looking at a landscape through a magnifying glass. You are looking at the minute details and are so concerned with these details that you forget to step back. When you do, do you see a tapestry? Do not be disheartened if all that you see is a collection of details. You now have a new purpose in your garden planning.

The walk is one of the elements in your landscape design. Does it just take you to the incinerator or does it help frame and delineate the design?

The shape of the planting bed is another element. Have you tried the tricks you can play on the eye by placing the bed so that you look down its length rather than across its width?

The vertical elements can be your fence or wall or hedge.

You like curves? Have the planting bed follow the same curve as the fence.

Now the shape or pattern has become the important factor. The fence tells you about it once. The front edge of the planting bed tells you about it again and the outline of the mass of foliage and color tells you about it a third time. You are achieving design when you learn how to make each of the elements in your garden work together to make a "landscape."

Let's build a patio together for another example of using the elements to make a design that is a unit as the tapestry is a unit. At the concrete block manufacturer's we can buy 24 inch reinforced concrete pavers. Each one is an element of design. Lay them in sand with their edges touching where you want your patio. Now let's move 2 chairs onto it and enjoy ourselves. It's too small, you say. So you add more pavers until at last it is large enough to use when entertaining a few friends. In the summer you discover that it is too hot to use. We can remedy that by planting a tree within the patio area. This will require the space of 3 or 4 of the pavers. Be careful to place the tree so that it shades the patio at the time of day that you want shade. Now something must be done about the patch of dirt at the base of the tree. We solve this problem with evergreen ground covers and spring bulbs. It is very nice next spring and your neighbors compliment you on your patio with its shade and tulips and green foliage. Summer comes and you feel that the patio is drab after its spring loveliness. So up come some more pavers to make room for 50 red and white petunia plants.

Now you sit and reflect that a successful patio is not just paving as you believed when you started. It is paving together with sun and shade and green plants and trees and swatches of color and furniture. Each of these individually is an element of your landscape design. Each paver is not important for itself but in how it helps the other elements to be important. Now, when you stand back without the magnifying glass, there is pattern or design in your garden.
THE PRUNING of ROSES

By CLYDE E. LEARNED

At the close of the rose growing season in late October it is a good idea to trim the larger rose bushes to a 30 to 36 inch height and tie the tops of the canes together loosely with string, to prevent cane breakage by high winds or heavy snows.

The early disastrous snow storm of Sept. 28, 1959, is a good illustration of what can happen. At the time of this storm the bushes were in full leaf and the heavy wet snow broke many of the canes back to the ground.

Following a normal Colorado winter, nature has usually made the decision as to the amount of spring pruning that will be required on the Hybrid Tea, Grandiflora and Floribunda roses. It is my usual practice during the first part of April to give the bushes a rough preliminary pruning, at which time the canes are cut back to a height of from 12 to 24 inches.

The uncovering and giving of the rose bushes their final pruning in Colorado, with its changeable spring weather is a rather risky operation, as most of you realize, and I am often reluctant to recommend any fixed date upon which these pruning operations can be successfully performed.

However, my records for the past ten years do indicate that this uncovering and final pruning operation has been performed between May 5th and 16th. Before uncovering I scan the news reports or call up the Weather Bureau, and if the forecast for a week ahead is favorable I then uncover and prune. It stands to reason the greater the amount of cover material, the more protection for the rose bush and less dead wood to cut out in the spring.

In performing the final pruning, first carefully remove the winter protective cover so you can see what you are doing. This operation requires extreme care to avoid damaging the new early growth. Some people have good results using a gentle hose spray to wash the soil away from the canes. The pruning work actually includes two distinct operations, first, thinning out, which means completely removing all dead, diseased or injured wood, thereby stimulating new growth and flower production. Secondly, shortening of the remaining canes or shoots so that the flowers produced may be larger or better.

The canes should be cut back to sound wood, which is normally green in color, with a clean slanting cut about a quarter inch above a good eye or bud, cutting in the same direction as the bud. Sometimes a late winter freeze may leave the cane still green and kill the interior of the cane with the result that the bud starts out normally but later dies back due to the increased demand of the growing plant.

No matter how good a pruning job you do on the dormant roses you will probably have to do some supplementary cutting as the season advances to balance the bush and remove some canes that did not grow as originally contemplated.

Keep the bush as symmetrical and shapely as possible by uniform cutting on each side and remove all twiggy and spindling canes as well as candelabra growth. Usually when you get through you will have, or hope you will have, from three to six good canes which will range from six to eighteen inches in height.

The question of pruning heights has long been a bone of contention among rose growers. However, it should be kept in mind that good green canes store reserve food which will nourish new growth and help in producing earlier blooms for June Rose Shows.

The low pruning of the bush to two or three eyes above the ground may give you a few extra large flowers for exhibition purposes, but this low pruning will delay the first blooms and will result in fewer blooms during the season.

The cutting of roses for the house or for display purposes should actually be considered as a pruning operation. For first year bushes keep the pruning to a minimum and do not cut too much foliage from the bush. To do so may result in weak and undernourished plants. With established bushes it is possible to cut longer stems. Ordinarily the stems of blooms should be cut about a quarter of an inch above a leaf, leaving at least two sets of well developed leaves between the cut and the junction of the branch and cane.

Floribundas, which are often used for hedges are sometimes cut back severely to make them conform to a pattern and provide a mass display at one level.

Following the pruning operations it is a good precaution to seal all cuts with an asphalt sealing or other suitable compound to prevent cane borers from boring into the canes. Finger nail polish is often used by the ladies effectively as a seal.

Be sure to keep your pruning shears sharp as dull shears cause jagged cuts that encourage disease or the entrance of cane borers.

The pruning of climbers is an entirely different operation, inasmuch as their blooms are normally on old wood which usually lasts from two to three years. My experience has indicated that during the forepart of April all canes older than three years or about one third of the bush together with a tangle of side shoots should be cut out.

SHRUBS CAN BE CRASH BARRIERS

Selected plant materials make a flexible barrier that cushions the crash of a vehicle without injuring the driver, according to the American Association of Nurserymen, following extensive tests by Motor Vehicle Research, Inc., South Lee, New Hampshire.

At specific dangerous locations on highways it has been found that certain shrubs are capable of stopping automobiles safely at speeds of 50 miles per hour without causing any injuries to the occupants and, beyond scratching the finish, little or no damage to the cars used in the tests.

The shrubs used in the tests require no yearly maintenance expenditures.

"If you don't know your merchandise, better know your merchant."

GEORGE and SUE

Cottonwood Garden Shop

Pyramid 4-0430

4849 South Santa Fe Drive
COMPOSTING

BY IRENE (MRS. JOHN) SCOTT

PROGRAMS can be likened unto the Tree of Life with most garden clubs keying an April project to trees, believing that “Through its tall heights he may never see. He has not lived in vain who plants a tree.” One reason we are so tree-conscious is due to our neighbor, Nebraska. She nurtured a seedling, I. Sterling Morton, to fame via Arbor Day, first proclaimed April 10, 1872. And now held on different dates in sundry states, but in Colorado always on the third Friday in April, Arbor Day is “The only American holiday that turns its face to the future—not the past.”

Another date with a future is the semi-annual Flower Show set for April 25-26-27 at Botanic Gardens House. Continuing the tree theme, this event could be called the Tree of Knowledge good and evil Flower Show Practice, Horticulture and Floral Design. And, like popular trees, this school shares its fruits with all peoples, whether or not members of garden clubs.

And thereon hangs a tale. Legends, like lichens, grow up, over and around IMPORTANT people, places and projects. But, sometimes like Bouncing Betsy, beyond the boundaries of fact into fiction. Perhaps, in some such manner was the idea spread that Flower Show Schools, sponsored by the Colorado Federation of Garden Clubs, Inc. were only for Federated Gardeners. Nothing could be more misleading. Anyone may come, and for the same fee: $1.25 per lecture; $2.50 per day, or $5.00 for both days. (For details contact either Mrs. G. A. Sca- stone, 3470 So. Marion or Mrs. L. J. Woodman, 3985 S. Penn., both Engle- wood.)

Following fallacy number one is another: that only prospective judges may register for Flower Show Schools. Partly true, in that student judges must take five courses, and must be members of Federated Garden Clubs. They must do much more, too, but back to programs.

Promenading through the programs, are the summer shows, sooner than you think, with everyone needing to know more about this growing art. Because a well motivated show is a masterpiece. And masterpieces just don’t happen. What then, can you as a club do?

You can: (1) send a delegate to the Flower Show School; (2) give her (or him) program time at the following club meeting or meetings; (3) pay toward or for her expenses, especially if outside Denver; (4) plan ahead for a follow-up course (No. 5) coming in the fall (‘60); (5) make this an annual project, noted in your yearbooks and allowed by your budget. Please send the type of person who remains awake in Church, and neither sits-out museum tours, nor has a doubting-Thomas mind. That old adage you take-out-of-it-what-you-put-in-it, applies here, too.

Publicity Chairmen, do get your show information to Chambers of Commerce, travel centers, and anywhere that tourists might stop to learn of local attractions.

For a timely project in keeping with our status as a tourist state, how about marking the plants on the sites, of say, Will Roger’s and Mother Cabrini’s shrines, and at the entrances or grounds of other public places? Surely, there’s a garden club near most of them. And even if the clubs don’t do the actual identification, they can furnish data and create interest. This summer as you travel around the state, query custodians and gardeners alike to “What plant is that?”

Which brings us right up to “Good Human Relations Week,” April 24-30, sponsored by the Dale Carnegie Alumni Assn., its purpose being: “To emphasize the need for good human relations in every community and in all businesses and professions.” Oh, Brothers and Sisters, can we use a big dose of this—TOGETHERNESS. And why not? We’ve everything to gain, and nothing to lose—that we wouldn’t be better without. The County and 4-H Alumni regale us. We need them. The florists need us. We need them. The nurseries, county fairs, non-federated garden clubs, but why enumerate? The list is limitless, dating back to doing unto others as you would like to be done unto. So simple! So Supreme! Strains of sweet music.

Both National Music Week and National Background Mood Music Month begin May first. We have a state song—“There Will Be A Garden.” Price 25c. Words by Mrs. E. A. Kehn, 5616 Yarrow Street, Arvada.

We need a song suitable for any garden club on a national scope. Any takers?

Taking precedence over other occasions, is Mother’s Day, promoted in America by Miss Anna Jarvis, and recognized by Congress in 1914. The white carnation, signifying sweetness, purity and endurance was adopted as the floral emblem. The wearing of a white carnation was not included in Miss Jarvis’s original plans. (Did you know that Brother’s Day was May 22 and Sister’s Day, June 5?) Today, carnation corsages are Colorado’s choice.

Why not organize a corsage club? There’s a federated one, the Mile High Corsage and Arrangers in Denver and another group in Littleton who call themselves the Floral Benders. Six members, and the same number of courses at $1.50 each, no dues and only one requirement: “That you secure the basic corsage course and study the fifty detailed corsages, simply described for beginners,” and you’re ready for a meeting. Write: The National Corsage Club, Glad Reusch, Di- rector, Headquarters, 5925 Fourth Avenue North, St. Petersburg 10, Florida.

This is the Glad Reusch, known to the Federation through her book, in collaboration with Mary Noble. Mrs. Reusch gives these reasons for forming such a floral accessory group: (1) to learn corsage designing; (2) to share in a restful and satisfying hobby; (3) to give pleasure to others; (4) for self-adornment; (5) to spread the hobby, especially to Garden Therapy and Junior Gardening Leaders; (6) for economical reasons; (7) helps solve gift problems; (8) as decorations.

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TREES FROM SURVEYOR'S STAKES

BY EDMUND WALLACE

Denver Parks and Recreation Dept.

You may have wondered what new type of tree the Parks Department was raising if you have seen the little round piles of leaves scattered throughout the parks with surveyor's stakes growing from their centers. By the time you read this most of those stakes will have grown into blue spruce, Austrial pine, linden, oak, and many other varieties of trees. This is a sort of magic formula the Parks Department has worked out for converting stakes into trees.

Early in the fall, before there is any frost in the ground, stakes are driven at various places throughout the parks in a program of starting new trees in older areas to take the place of those that are reaching the end of their life span. Each stake is marked as to the type of tree desired for the location and then a good leaf mulch is added. This keeps the frost out of the ground until mother nature can transform those stakes into real trees. You may have seen them digging around under these leaves and then putting them neatly back around the base of a new tree. I had the suspicion that some of these new trees were coming from the nursery where I'd seen the men spreading leaves in the fall to keep the frost out making for easier digging later on. Having just checked the nursery the other day, my suspicions have been confirmed. It's so full of fox holes a fellow can hardly get around without falling into one of them. Some six hundred trees are missing from the nursery and, judging from all the new trees I've seen as I drive the parks, I think I know where they went.

Look next time you drive through Washington, City, Cheesman, Platt, or most any other park and you'll see in among the yellowing maples or thinning evergreens, their progeny coming along to take their places when they've served their usefulness.

LOOK AND LEARN TOURS

"Designed for Garden Living" is the theme of this year's garden tours. A special committee is now in the process of selecting gardens. Their decisions will be based on design, functional patio areas, and easy maintenance. They have a choice of some 40 gardens suggested by the Landscape Architects Association and the Denver Nurserymen. Tentative dates for this year's tours are July 13 and 14.

EVERYTHING FOR THE GARDEN

BARTELDES GARDEN CENTER

East 40th Ave. at Jackson (2 Blocks West of Colo. Blvd.) FL 5-7361
Seasonal Suggestions
Oh, the lovely fickleness of an April day.
—W. Hamilton Gibson

These words should ring true to the seasoned Rocky Mountain gardener who knows the tricky weather of April. He knows that a week of sunshine can bring forth a beautiful display of narcissus, tulips, and spring flowering shrubs which can be obliterated overnight by snow and zero temperatures.

We can assume that you have all your planning for this season’s garden in hand; however, there are last minute changes to be considered, such as replacement of plants that were winter killed. Try to make sure that any change fits in with your overall plan. Some consideration should be given to the actual buying of your nursery stock. You will find that your local nurseries and garden shops have a good supply of quality bare root nursery stock available. Patronize these people who know plants and how to handle them instead of taking chances with inferior stock sold through mail order catalogues and grocery stores.

Lawns can be planted anytime this month. Again, the incorporation of organic matter is the most important step in lawn building. Next in importance is good seed. Use either Kentucky Blue grass or Merion Kentucky Blue, don’t settle for some of the cheaper mixes. Speaking of lawns, a good commercial fertilizer can be applied after the 15th. See article on page 95. If the weather warms sufficiently, 2,4-D can be applied for dandelions and other broad leaf weed control.

It’s also time to tidy up the garden. Remove the dead tops from perennials and rake some of the heavy thatch out of the lawn. Use these materials in your compost pile. If its warm enough, repair and paint your patio, lawn furniture and fences. Flagstones and patio pavers heaved by the frost can be leveled. Stored bulbs can be checked and made ready for planting in May.

Toward the end of the month there should be good displays of tulips in the Garden at Botanic Gardens House and at the Pinetum in City Park.

Our last but most important suggestion is that you make it a point to go to the Garden Show, April 7-10 at the Stockyards Stadium. There you will find ever so many good ideas on good gardening and landscaping.

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