The Green Thumb
January—February, 1946


The beautiful Colorado Spruces Mrs. Jones put on each side of the front door of her little bungalow six years ago are now completely out of scale. They tower above the house, encroach on the front walk, and block the view from the front windows. They grow eighteen inches to two feet higher each year. And red spider and brown aphids got into her Junipers and Redcedars last summer, so that instead of healthy, virile, green trees, she now has sickly, moth-eaten, brown monstrosities that will gradually sicken and die — if she permits them to remain. But an Eastern catalox, with gorgeous pictures, came to her through the mail last year, and she ordered a Hemlock sent across the country. The nursery feared this long journey by freight, and since Mrs. Jones gave no specific shipping instructions, the tree was sent to her by express. The transportation bill was stupendous, but when the crate was finally removed, the delicate beauty of the Hemlock's lacy foliage made Mrs. Jones forget all — until it died the following April.

There were three essential differences Mrs. Jones should have known:
1. Are my Evergreens hardy in Colorado?
2. What are their growth habits?
3. What care shall I give them?

It will be the purpose of this series of articles to answer these questions. In this first article general matters pertaining to all types of Evergreens will be discussed. Then, in subsequent articles, particular Evergreens suitable for Colorado landscaping will be reviewed.

The discussion will be confined to the Coniferous (cone-bearing) Evergreens. The "broad leaf" Evergreens, like Mahonia, Kinnikinnick, Ceanothus, etc., will not be included.

First of all let us talk about the weather: Contrary to popular belief, Colorado is a very difficult place to grow many types of Evergreens. Not only does the temperature frequently go down to twenty degrees below zero, or more, but, more important, in the spring there are alternate freezes and thaws and a great deal of wind. Much winter killing is due to the factors last named. An Evergreen that is protected from wind and can remain in frozen ground all winter seldom suffers injury. Mulches, therefore, are not intended to keep the ground from freezing, but to keep the ground frozen. For this reason, when we speak of a "protected location" we mean a spot on the east or north side of some structure or screen which protects from spring winds and the spring sun in the afternoon.

In addition to the factors just mentioned, Colorado soil is frequently very difficult. Most Evergreens prefer a rather open soil, and one that is at least not alkaline. In many parts of Denver we find a clay that is anything but porous, and, except in the mountains, Colorado soil is inclined to be alkaline.

We can't therefore, even with tough natives like the Colorado Spruce and the Ponderosa Pine, simply stick them in anywhere. With strangers from other places, like Mugho Pines, Eastern Redcedars, Larches Eastern White Pines, and many others, even more careful thought must be given to making our visitors feel "at home."

Aside from the particular factors first mentioned, every Evergreen must have a moderate amount of sunlight, adequate drainage, sufficient moisture, and freedom from downtown smoke. The Evergreens on the old Courthouse Square will never do more than barely exist, because of the smoke they are subjected to.
Let us consider these matters in more detail. How about soil? And sun? Go to one of the older parts of town where little thought has been given to landscaping recently. Huge maples, elms and cottonwoods line the parking, with roots hungrily seeking food and water for great distances. The builder of thirty years ago always used for backfill the chunks of wood, the pieces of brick and the drippings of mortar that otherwise would have to be hauled away. A few tough shrubs have continued to live in these surroundings for many years, and our household now decides he wants a nice foundation planting of Evergreens. It can't be done — at least without spending a great deal of money. The Evergreens will either die, one after another, or at best soon become sickly, spindly things that are a reproach to the owner.

On the other hand, look at the bungalow that is built in the new subdivision, which was open from the start years ago. Before construction is started the top four inches of soil is scрапed in a pile, and then when the bricks and lime are carted away and the grading is finished, this precious top soil is spread again. A load of old manure is spread in also. The same nursery supplies the same kind of trees it sold to our friend under the elms but where those languished these lep. If they are chosen indiscriminately they are out of hand in five years.

The Park Hill clay is not ideal. But in a new area, if unpolluted by contractors, and if broken up with cow or sheep manure, or even peat moss, it is suitable for any Evergreen that is hardy in this climate. If you live under twelve-inch trees — any kind — especially if little can has been given the soil for many, many years and digging turns up all manner of surprising solids, then don't expect much unless you remove the competition and brace up the soil, and let the sun get at your Evergreens for several hours a day.

Besides soil and sun, watch drainage and water. We see a Rocky Mountain Juniper on a dry, rocky south slope in Deer Creek, perfectly happy during a year in which there is little or no rain, yet a similar tree, when given several times as much water in cultivation, dies from drought. The roots of the native have expanded naturally for years, running between cool rocks and seeking out the areas where moisture collects. The nursery tree has its whole root system in a 30-inch ball, and that ball is placed on an elevation where all surface moisture drains away from the tree.

Conversely, another Scopolorum Juniper is placed in a depression in the black clay where all surface waters collect, with the result that the tree always has "wet feet." It will soon die.

A newly planted Evergreen needs lots of water during the first year. It must be so located that water will neither instantly drain from the roots, nor constantly collect about them. Good sunlight, freedom from severe competition, virgin porous soil, and, perhaps, love and affection, all guarantee a healthy and happy tree.

Spruce Hedge at Upton Gardens, Colorado Springs

HEDGES FOR COLORADO

We have for several months been checking information on hedges for various uses and places in Colorado. Horticulturists all over the state have been giving freely of their experiences. We list below the results of this survey, dividing the plants used into classes as to size and use. This general list will apply in most cases to plant zones, 1, 2, 4, 5, 6, & 8. Additional lists of exceptions for zones 3, 7-9, 10-11, and 12-13-14-15 are also given. In many of these last zones there are small protected valleys where almost any of the plants in the general list may be grown successfully.

The most valuable quality of a plant to make it suitable for use as a clipped hedge is that of freely branching when sheared. The accompanying drawings show what happens when a privet hedge is sheared. Below each cut two new stems sprout out in place of the one cut off. Thus the often-heard "denser the hedge becomes, Privet is the best example of this but lilac, cotoneaster, Russian olive and many others have that quality in a lesser degree. Plants which only send up new shoots from the ground are not suitable for sheared hedges. The amapha is a good example. That is one reason why there are less barberry hedges being planted.

Other valuable qualities of a hedge plant are rate of growth, color of leaves, length of time leaves stay on, hardness of plant, ease of transplanting, initial cost and ease of trimming. Almost any shrub which is hardy in the area, is of the desired size and is fairly dense and symmetrical will make a good informal or untrimmed hedge.

Mrs. Marriage has written some observations about trimmed hedges. Mr. More has called attention to some outstanding hedge material and both have supplied several good illustrations. Frances White has made a drawing showing several qualities of a good hedge. We solicited further information from any reader who has had experience with hedges in any part of the state.

We have the following letter from J. Lee Deen, Dean of Division of Forestry and Range Management, Colorado A. & M. College, Fort Collins, Col.:

We have a number of copies of 'Evergreens of Colorado' by Professor Longyear, which have been published by this institution a few years back. We believe that they should be sent out into the hands of people who appreciate and use such publications, and in our judgement, members of the Colorado Forestry and Horticulture Association are such people. We have mailed them to members of the Association without charge as long as the supply lasts. All we need is a card or letter to the Division of Forestry and Range Management, Colorado A. & M. College, Fort Collins, Colo., requesting that a copy be sent them.
In the following lists will be included all those plants which have been reported as having been used for hedges. Some plants have not been used as much as they should have been. These have been marked with an *.

“Standardized Plant Names” has been used as a guide in selecting the names used here. ‘Cl.” indicates a clon, which is usually a sport propagated from cuttings or grafts.

“Hv.” indicates a horticultural variety, which may be a hybrid or selection.

FORMAL OR CLIPPED. TALL, 4-8 FT.

*Elaeagnus angustifolia, RUSSIAN OLIVE. Hangs nicely. Prune to shape.

Ulmus pumila, SIBERIAN ELM. Very hardy, large growth. Considered an asset.

Caragana arborescens, SIBERIAN PEASHRUB. Large, thorny, very hardy. Probably the best all-around hedge plant.

Lonicera tatarica, AMUR HONEYSUCKLE. Good for drying.

Cornus paniculata, GRAY DOGWOOD. Neat and compact.

Rhus trilobata, SKUNKBUSH SUMAC. Good for dry places.

Gleditsia triacanthos, HONEY LOCUST. Neat and compact.

Pinus mugo, MUGHO SWISS MOUNTAIN PINE. Dwarf variety, very hardy.

Juniperus virginiana, EASTERN REDCEDAR. Good for symbol use.

EVERGREENS

Juniperus scopulorum, ROCKY MOUNTAIN JUNIPER. Slow growth.

Juniperus virginiana, EASTERN REDCEDAR. Excellent. Good for symbol use.

Ligustrum vulgare, EUROPEAN PRIVET. New improved grades.

Caragana pygmaea, PYGMY SUMAC. Good for dry places.

Shepherdia argentea, SILVER BUFFALOBERRY. Suckers from roots.

Symphoricarpos chenaulti, HY. CHENAULT CORALBERRY. Suckers from roots.

Elaeagnus angustifolia, RUSSIAN OLIVE. Hangs nicely. Prune to shape.

*Juniperus sabinae, Cl. VONEHRON JUNIPER. One of the best.

Sorbus sambucifolia, WESTERN MOUNTAINASH. Good fruit.

Salix pentandra, LAUREL WILLOW. Large, fast growing.

Shepherdia argentea, SILVER BUFFALO BARBERRY. Gray foliage.

*Juniperus sabinae, Cl. POLISH PRIVET, Improved.

*Ribes alpinum, ALPINE CURRANT. Needs little trimming.

Berberis thunbergi atropurpurea, REDLEAF JAPANESE BARBERRY. Does not trim well.

Juniperus monosperma, ONESEED JUNIPER. Hardy, lower.

Amelanchier various, SERVICEBERRY. Slow growth.

Philadelphus lemoinei, LEMOINE MOCKORANGE. Dense and formal.

Berberis thunbergi, JAPANESE BARBERRY. Better in shade.

Philadelphus coronarius. SWEET MOCKORANGE. Tall and slim.

Prunus tomentosa, MANCHU CHERRY. Good flower and fruit.

Physocarpus opulifolius, COMMON NINEBARK. Coarse.

Phyllostachys nigra, JUNEGRAVE. Neat and compact.

Russianolive, Siberian Elm, Mulberry and Honeylocust are all used for extra large effects, and are all very hardy in difficult places.

FORMAL OR CLIPPED. MEDIUM, 1½-6 FT.

*Ligustrum vulgare, EUROPEAN PRIVET.Still the most popular.

*Ligustrum vulgare, Cl. POLISH PRIVET. Improved.

Ligustrum vulgare, Cl. THOMPSON PRIVET. Best color.

Ligustrum amurense, AMUR PRIVET. Not as good color or habit.

*Elaeagnus angustifolia, PEKING COELESTERON. Good.

Picea pungens, COLORADO SPRUCE. Coarse, slow growing.

Picea glauca, BLACK HILLS WHITE SPRUCE. Dense, uniform.

Pinus contorta, COLORED PINE. Slow, low.

Pinus aristata, BRISTLECON PINE. Slow, dense.

Juniperus scopulorum, ROCKY MOUNTAIN JUNIPER. Tall, dense.

Juniperus virginiana, EASTERN REDCEDAR. Better in shade.

Juniperus monosperma, ONESEED JUNIPER. Hardy, lower.

Scotoneaster acutifolia, PEKING COTONEASTER. Dark green foliage.

Philadelphus lemoinei, LEMOINE MODERN. Dense and formal.

Berberis thunbergi, JAPANESE BARBERRY. Better untrimmed.

*Berberis thunbergi, Cl. TRUEHEDGE COLUMNBERRY. Very good.

Berberis thunbergi, JAPANESE BARBERRY. Better in shade.

Physocarpus opulifolius, HV. DWARF NINEBARK. Very good.

FORMAL, MEDIUM CONT'D.

Loniceramaximowiczia, SAKHALIN HONEYSUCKLE.

Cornus alnifolia, COLORADO REDDOSED DOGWOOD.

Cornus paniculata, GRAY DOGWOOD. Neat and compact.

Ribes alpinum, ALPINE CURRANT. Needs little trimming.

Ribes trilobata, SKUNKBUSH SUMAC. Good for dry places.

Salix purpurea, PURPLESISHER WILLOW. Neat and dense.

Malus transitoria, TIBETAN CRABAPPLE. Slow, thorny.

Shepherdia argentea, SILVER BUFFALOBERRY. Suckers from roots.

Symphoricarpos chenaulti, Hy. CHENAULT CORALBERRY. Suckers from roots.

Artemisia abrotanum, OLDMAN WORMWOOD. For dry places.

Juniperus monosperma, ONESEED JUNIPER. Needs little trimming.

Pinus mugo, MUGHO SWISS MOUNTAIN PINE. Dwarf variety.

*Juniperus chinensis, Cl. PFIJTER JUNIPER. One of the best.

Juniperus sabinae, Cl. VONEHRON JUNIPER. Good color.

Juniperus virginiana, EASTERN REDCEDAR. Stands some shade.

Amelanchier various, SERVICEBERRY. Slow growth.

Philadelphus coronarius. SWEET MOCKORANGE. Tall and slim.

Prunus americana, AMERICAN PLUM. Coarse, hardy, suckers.

Viburnum trilobum, AMERICAN CRANBERRYBUSH VIBURNUM. Red fruit.

Betula fontinalis, WATER BIRCH. Tall and spreading.

Acer glabrum, ROCKY MOUNTAIN MAPLE. Tall, neat.

Juniperus virginiana, EASTERN REDCEDAR. Better in shade.

Juniperus monosperma, ONESEED JUNIPER. Hardy, lower.

Amelanchier various, SERVICEBERRY. Slow growth.

Physocarpus opulifolius, COMMON NINEBARK. Coarse.

Phyllostachys nigra, JUNEGRAVE. Neat and compact.

Philadelphus lemoinei, LEMOINE MODERN. Dense and formal.

Berberis thunbergi, JAPANESE BARBERRY. Better untrimmed.

*Berberis thunbergi, Cl. TRUEHEDGE COLUMNBERRY. Very good.

Berberis thunbergi, JAPANESE BARBERRY. Better in shade.

Physocarpus opulifolius, HV. DWARF NINEBARK. Very good.

FORMAL, MEDIUM CONT'D.

Juniperus monosperma, ONESEED JUNIPER. Needs little trimming.

Pinus mugo, MUGHO SWISS MOUNTAIN PINE. Dwarf variety.

*Juniperus chinensis, Cl. PFIJTER JUNIPER. One of the best.

Juniperus sabinae, Cl. VONEHRON JUNIPER. Good color.

Juniperus virginiana, EASTERN REDCEDAR. Stands some shade.

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Juniperus monosperma, ONESEED JUNIPER. Hardy, lower.

Amelanchier various, SERVICEBERRY. Slow growth.

Physocarpus opulifolius, COMMON NINEBARK. Coarse.

Phyllostachys nigra, JUNEGRAVE. Neat and compact.

Philadelphus lemoinei, LEMOINE MODERN. Dense and formal.

Berberis thunbergi, JAPANESE BARBERRY. Better untrimmed.

*Berberis thunbergi, Cl. TRUEHEDGE COLUMNBERRY. Very good.

Berberis thunbergi, JAPANESE BARBERRY. Better in shade.

Physocarpus opulifolius, HV. DWARF NINEBARK. Very good.

Other tall shrubs hardy in the area.

FORMAL, MEDIUM CONT'D.

Loniceramaximowiczia, SAKHALIN HONEYSUCKLE.

Cornus alnifolia, COLORADO REDDOSED DOGWOOD.

Cornus paniculata, GRAY DOGWOOD. Neat and compact.

Ribes alpinum, ALPINE CURRANT. Needs little trimming.

Ribes trilobata, SKUNKBUSH SUMAC. Good for dry places.

Salix purpurea, PURPLESISHER WILLOW. Neat and dense.

Malus transitoria, TIBETAN CRABAPPLE. Slow, thorny.

Shepherdia argentea, SILVER BUFFALOBERRY. Suckers from roots.

Symphoricarpos chenaulti, Hy. CHENAULT CORALBERRY. Suckers from roots.

Artemisia abrotanum, OLDMAN WORMWOOD. For dry places.

Juniperus monosperma, ONESEED JUNIPER. Needs little trimming.

Pinus mugo, MUGHO SWISS MOUNTAIN PINE. Dwarf variety.

*Juniperus chinensis, Cl. PFIJTER JUNIPER. One of the best.

Juniperus sabinae, Cl. VONEHRON JUNIPER. Good color.

Juniperus virginiana, EASTERN REDCEDAR. Stands some shade.

Amelanchier various, SERVICEBERRY. Slow growth.

Physocarpus opulifolius, COMMON NINEBARK. Coarse.

Phyllostachys nigra, JUNEGRAVE. Neat and compact.

Philadelphus lemoinei, LEMOINE MODERN. Dense and formal.

Berberis thunbergi, JAPANESE BARBERRY. Better untrimmed.

*Berberis thunbergi, Cl. TRUEHEDGE COLUMNBERRY. Very good.

Berberis thunbergi, JAPANESE BARBERRY. Better in shade.

Physocarpus opulifolius, HV. DWARF NINEBARK. Very good.
INFORMAL, MEDIUM CONT'D.

Euonymus alatus, WINGED EUONYMUS. Compact, fine fall color.

Philadelphia, LEMOINE, LEMOINE MOCKORANGE. Naturally formal.

Rhus trilobata, SKUNKBUSH SUMAC. For dry places.

Cornus stolonifera coloradensis, COLORADO REDOSIER DOGWOOD.

Berberis thunbergi, Cl. TRUEHEDGE COLUMNBERRY. Formal, erect.

Artemisia abrotanum, OLDMAN WORMWOOD. Very hardy.

Saxifraga purpurea, PURPLESAGE WILLOW. Dense and daintiness.

In addition the following:

Ligustrum obtusifolium regaleum, REGELS BORDER PRIVET.

Rhododendron scandens, BLACK JETBEAD. Needs some shade.

Symphoricarpos orbiculatus, INDIANCURRANT CORALBERRY.

Cercocarpus montanus, MOUNTAIN MAHOGANY. For dry places.

Chaenomeles japonica, JAPANESE PEAR. Loose, informal.

Holodiscus dumosus, BUSH ROCKSPIREA. For all dry slopes.

Ribes americanum, AMERICAN BLACK CURRANT. Tolerates shade.

Ribes cereum, WAX CURRANT. Red fruit. Dry slopes.

Ribes sature, GOLDEN CURRANT. Suckers from roots.

Rubus delicious, BOULDER RASPBERRY. White flowers.

Prunus glandulosa rosea, Cl. Double-pink ALMOND CHERRY.

Prunus besseyi, BESSEY CHERRY. Spreading.

Ligustrum ibota, IBOTA PRIVET. Sometimes tender.

Rosa setigera, PRAIRIE ROSE. Pink, spreading.

Rosa hirtii, Hv. HARISSON YELLOW ROSE. Darker yellow.

Rosa persiana, PERSIAN YELLOW ROSE. Darker yellow.

Rosa foetida bicolor, AUSTRIAN COPPER ROSE. Striking color.

Berberis menziesii, MENTOR BARBERRY. Usually hardy.

Lonicera syringa, LILAC HONEYSuckle. Widespread.

Lycium halimifolium, MATRIMONYVINE. For "impossible places.

Symphoricarpos chenaulti, CHENAULT CORALBERRY. Partly tender.

Rosa blanda, MEADOW ROSE. Red stems. Pink flowers.

Caragana aurantia, DWARF PEASHRUB. Large yellow flowers.

Juniperus chinensis, Cl. Pfitzer JUNIPER. Good color.

Pinus mugo, MUGHO SWISS MOUNTAIN PINE. Formal habit.

INFORMAL, LOW. 6-24 IN.

Those listed under: "Formal, low" and in addition the following:

- Rosa Hv. FLORIBUNDA ROSES. Bloom all summer.

Spiraea bumalda, Cl. PROEBEL SPIREA. Kills back in winter.

Spiraea bumalda, Cl. ANTHONY WATERER SPIREA. Lower.

Symphoricarpos orbiculatus, INDIANCURRANT CORALBERRY. Red fruit.

Symphoricarpos chenaulti, CHENAULT CORALBERRY. Partly tender.

Lonicera syringa, LILAC HONEYSuckle. Widespread.

Yucca glauca, SMALL SOAPWEED. Evergreen.

Of course there are many low perennials which may be used for borders, but more low shrubs suitable for formal or informal use are needed. Who has some to suggest?

DROUGHT-RESISTANT PLANTS FOR FORMAL OR INFORMAL HEDGES IN ZONES 7 & 9 (Plains) (Roughly in order of size and hardiness)

RUSSIAN OLIVE
SIBERIAN ELM
HONEYLOCUST
SIBERIAN PEASHRUB
KASHGAR TAMARIX
COMMON BUCKTHORN
WESTERN CHOKEBERRY
BUSH HONEYSuckle
COMMON LILIC
CHINESE LILIC
SILVER BUCKALOBERY

RUSSIAN OLIVE
SIBERIAN ELM
HONEYLOCUST
SIBERIAN PEASHRUB
KASHGAR TAMARIX
COMMON BUCKTHORN
WESTERN CHOKEBERRY
BUSH HONEYSuckle
COMMON LILIC
CHINESE LILIC
SILVER BUCKALOBERY

AMERICAN PLUM
PEKING COTONEASTER
SKUNKBUSH SUMAC
VANHOUTTE SPIREA
GOLDEN CURRANT
MOUNTAIN MAHOGANY
SHRUB ROSES
MATRIMONYVINE
BUSH ROCKSPIREA
INDIGOBUSH AMORPH
WAX CURRANT
COMMON SNOWBERRY

AMERICAN PLUM
PEKING COTONEASTER
SKUNKBUSH SUMAC
VANHOUTTE SPIREA
GOLDEN CURRANT
MOUNTAIN MAHOGANY
SHRUB ROSES
MATRIMONYVINE
BUSH ROCKSPIREA
INDIGOBUSH AMORPH
WAX CURRANT
COMMON SNOWBERRY

CORALBERRY
JAPANESE BARBERY
LEADPLANT AMORPH
ALPINE CURRANT
BESSY CHERRY
ROCKY MOUNTAIN JUNIPER
ONESEED JUNIPER
MUGHO SWISS MOUNTAIN PINE
SMALL SOAPWEED
OBSERVATIONS ON HEDGES
BY ROBERT E. MORE
CLIPPED—TALL
A—Deciduous
(1) European Privet LIGUSTRUM VULGARE. Very fine in every way.
(2) Vainhoutte Spirea, SPIRAEA VANHOUTTEI. Makes a splendid compact hedge.
(3) Russianolive, ELAEAGNUS ANGUSTRIFOLIA. If pruned regularly (see the fine one at Harry Huffman's place) it is very good, at least for ten years. If neglected (see Denver Country Club) gets ragged and spotted soon.

B—Evergreen
(1) Black Hills White Spruce, PICEA GLAUCA DENSTATA. I believe this makes the best formal evergreen hedge for Colorado. The tree is naturally dense, shears well and is very uniform in color and texture, making grafts unnecessary. There is apparently uniformity of growth in different trees, also.
(2) One-seed Juniper JUNIPERUS MONOSPERMA. I believe it to have fine possibilities. Of course uniform grafted specimens should be used for most evergreen hedges. The use of grafts on this species will probably result in one-stemmed specimens that will stand snow better. This is the most serious shortcoming of this tree in a formal hedge. While not as compact as J. SCOPULORUM it maintains foliage better on shady side so is more uniform when both sides are considered.
(3) Eastern Redcedar, JUNIPERUS VIRGINIANA. Have seen no hedges in Denver, but believe they would be better than J. SCOPULORUM because the tree stands shade better. A hedge of Canaert Junipers would be stunning.
(4) Rocky Mountain Juniper, JUNIPERUS SCOPULORUM. Not satisfactory for the average private house because bottom is inclined to thin when crowded and red spider or aphis usually complete the job of depleting foliage. If regularly sprayed and fed it results in a fine hedge, as shown in the picture from home of Allan B. Phipps.
(5) Bristlecone Pine, PINUS ARISTATA. As shown by the pictures of the seven-foot hedge at the house of Allan R. Phipps, the Bristlecone can be used for an informal hedge. By shearing the candles an effective clipped hedge would be possible. The tree is slow growing, which gives it an advantage over other pines.
(6) Colorado Spruce, PICEA PUNGENS. Needs expert care so would not be recommended for average place. That seen at Upton Gardens shows that a very fine formal hedge is possible.

CLIPPED—MEDIUM
My first choice is Truehedge Columberrry, CLON OF BERBERIS THUNBERGI—Plant patent No. 110. It has beautiful foliage in summer which is held late and turns a beautiful red in fall. It has handsome berries. It is full and yet trim, and makes an effective barrier because of its thorns.

CLIPPED—LOW
INFORMAL—TALL
A—Deciduous
(1) European Privet. Its almost evergreen characteristic, its thick foliage and its berries make this a fine hedge.
(2) Vainhoutte Spirea. When not clipped its superb floral display is presented in the spring.
(3) The usual group of Viburnums, Lilacs, Honeysuckles, etc.

B—Evergreen
Since hedges cannot be easily removed when they get too large, I feel that few Evergreens are practicable when unrestrained. The Bristlecone Pine is probably the slowest growing of those previously mentioned. The most striking unclipped evergreen hedge I have seen, however, is the one of Pfizer Chinese Junipers. Clon of JUNIPERUS CHINENSIS at the home of Mr. Van Houten. I think they will get out of hand horizontally soon, but they are gorgeous at present.

INFORMAL—MEDIUM
(1) Truehedge Columberrry.
(2) Dwarf Ninebark. CLON OF PHYSOCAR-FUS OPULIFOLIUS is fine.

INFORMAL—LOW
Dwarf Peashrub, CARAGANA AURANTIACA.
Of course there are many other fine hedges, but I have mentioned only those I am personally familiar with.
Formal hedges, whatever their plant material, their ultimate height or width, seem best when trimmed soon after new growth has well got under way in summer—usually as soon as the hedge begins to look a bit shaggy and ready for the barber. Shearing at this time allows, even in slow-growing plants, time for the hedge to make enough new tips to get it over the stubbiness of its new haircut.

How often to trim? All Green Thumb people know and can tell the world that a new hedge must be kept shorn low until it has the required width and density at the base. Impatience for height is the ruin of many hedges, for if there is one common requirement for all hedges it is that they be dense and light-excluding at the bottom.

How to trim? When a hedge has attained the required height and width, trim to keep it to this size. The greatest increase is always at the tips so the upper part of any hedge endangers the lower part by overshadowing it, keeping light and moisture from it.

Thus it is wise to keep the top of a formal hedge an (imperceptible) few inches narrower than the base. “Imperceptible” here is intentional, for occasionally we see where some amateur topiarist has brought the top of his hedge to form the apex of a triangle. This device makes the hedge too obvious, gives it the appearance of being the picture instead of merely the frame.
WALTER H. SCHRADER

Walter H. Schrader, a pioneer in governmental nursery development in the Rocky Mountain region, was born December 16, 1883, in the log cabin home at Valley View. He attended the country school on Pinos Creek, a hike of several miles from the ranch, from the time he was seven years old until he was thirteen; then worked on the ranch the summer of 1899. By that time he thought the time had come to move on, so he ran away from home and did not return for three years. He first went to Salida, then to Denver and other towns in Eastern Colorado where ranch work, all he knew, was to be found. In 1903, he was working at Montrose, and attended the Oak Grove School there during the winter. After that was over, he drifted to Northern Colorado and worked on a sugar beet ranch near Windsor.

Nearness to Fort Collins and contact with successful farmers stimulated his interest in scientific farming and fruit growing, and he sent to the State Agricultural College at Fort Collins for information about the short course given there each winter. His educational background proved to be insufficient to meet requirements for admission, and the entrance examination would probably be beyond him. In a personal interview with President B. F. Aylesworth, however, Schrader was so engrossed with his sincerity and ability to profit by the course, and he was admitted without examination.

The course lasted only nine months, but in that short time he not only learned much, but found that his chief interest lay in horticulture and nursery work. So when Professor Longyear told him of a summer job open at the new Bureau of Forestry nursery near Colorado Springs at $35.00 per month, Schrader jumped at the chance. He saw himself, he later said, planting ten-foot trees with huge balls of earth around their roots.

At about this same time, S. B. Detwiler, now well known for his work in the Bureau of Entomology and S. C. S., was assigned to the Colorado Springs nursery, and on July 3, 1906, J. F. Kummel, the present Chief of Planting for Oregon, Washington, and California, came to Bear Creek. On the following day, July 4, Schrader organized himself into a one-man committee with the dual purpose of celebrating Independence Day and initiating Forest Agent Kummel into the camp brotherhood. The preparations and ceremonies were both simple. Early in the morning Schrader tied three sticks of dynamite together and detonated this “bomb” outside the headquarters building while Kummel was still in bed. But the fuse was a bit short and as Schrader ran from the scene with his body bent well forward, he was spattered with a barrage of gravel which cut through his overalls and around the area of his hip pockets. For several days thereafter, Kummel was courteously insistent that Schrader “have a seat” whenever the Teamster entered the room. From the same source of information comes the statement that Schrader, with the excuse that he did not “feel like sitting down just yet.”

This episode is the last recorded display of boyish abandon. From this time Schrader was so engrossed with the nursery work that there was no time left for such exhibitions of surplus energy. The history of Schrader became the history of the Monument Nursery. Eventually, only the Monument Nursery survived. It was not the fault of the Forest Service employees that three of these nurseries failed, however. The nursery work was arduous, the pay was low, and the hours were long. There was no “forty-hour week, with double time for Sundays and holidays,” and the officials worked side by side with the ordinary “hands.”

When the first seeding was completed and construction finished, the actual nursery work was carried on by a crew of only four men, who lived at the Bear Creek headquarters.

Breakfast was over and lunches packed shortly after daybreak. Then the nurserymen walked four miles over the Frosty Clemens trail to where they were taking care of the Rosemont beds, the workers walked eight miles west, up the Cripple Creek Stage Road to Clyde, where that nursery was weeded, cultivated and watered, after which the men made their way twelve weary miles back to Bear Creek.

There were many incidental and accidental events contributing to the failure of the nursery work at Rosemont, Clyde, and Bear Creek, but one important elementary reason was the fact that the soil itself was non-productive, almost sterile. So a fitting epitaph for the dead nurseries might be written in the testy words of Prof. J. W. Tourney, head of the Yale School of Forestry. “I wonder what fool picked this place for a nursery, the soil won’t even grow weeds, let alone trees.”

During 1908 and 1909 Walter Schrader came from the Monument Nursery to tend and observe the experimental beds at Bear Creek. Schrader would ride from Monument to Colorado Springs by trail, then walk thirty one miles to the seed beds.

On June 15, 1911, Schrader and Elizabeth Poley were married in Grace Episcopal Church at Colorado Springs. The bride was the daughter of Horace S. and Margaret Poley, formerly of Pennsylvania, but for many years residents of Colorado Springs, which was the birthplace of Elizabeth. She attended Colorado College for two years, majoring in Botany, and they were married the day the final examinations which concluded her sophomore year.

The Schraders started housekeeping at the Monument Nursery and there the three children were born; Walter Herman, Jr., July 14, 1912; Frank Poley, March 2, 1914; and Elizabeth Ferguson, September 15, 1915.

On December 31, 1943, Walter Herman Schrader retired from active Forest Service duty, after 38 years of service. He and Mrs. Schrader have a suburban home at the edge of the Garden of the Gods, known as “Vallecito” (Little Valley), between Manitou and Colorado Springs, with ground enough for a nursery.

Schrader has, among all men in the Forest Service, a rare, perhaps unique, privilege of being near the slopes of Mt. Herman overlooking the Monument Nursery, and only a few miles from his present home, and see below him, not only the locale of the Forest Service life, but also the visible results of a long and honorable career.
GROWING EVERGREENS FROM SEED AT THE MONUMENT NURSERY

In 1914, R. G. Colwell, Senior Clerk in the office of the Supervisor of the Pike National Forest, U. S. Forest Service, prepared from the Monument Nursery records a fascinating 200-page history of this great project. Excerpts from Mr. Colwell's biography of Walter Schrader, the director of the Nursery during most of its 38 years of operation appear earlier in this number. It was felt that the "high spots" of the developments in planting practices during these 38 years would be of interest and benefit to both professionals and amateurs. It is possible for even the neophyte to grow native evergreens from seed, and it is a very thrilling experience besides.

With the consent of the Forest Service, therefore, we present this brief summary of these chapters of Mr. Colwell's History of the Monument Nursery, entitled "Nursery Practices."

Twenty miles north of Colorado Springs and 54 miles south of Denver, near the town of Monument, a spectacular creation of nature is to be found. There a monolith of cream-colored sandstone, its base 25 feet by 100 feet, and its perpendicular sides 86 feet in height, towers above the flat land of the valley.

"It is the most prominent feature of the landscape, and is visible for many miles in every direction, so that it became known as 'The Monument' to the early-day trappers and traders. The Indians knew it, also, and their hunting and war parties camped at a nearby spring and left their 'sign' on its face in crudely carved symbols and pictographs."

"The site of the Monument Nursery is at the base of the Monument, itself, just inside the eastern boundary of the Pike National Forest, among the foothills of the Rampart Range and three miles west of the town and railroad station of Monument, Colorado. Mt. Herman rises abruptly to the west, and low parallel ridges with gently sloping valleys between them extend eastward toward Monument Creek."

There, in May 1907, Walter Schrader plowed the first furrow. Forty-two and a half pounds of seed were sowed and two years later 5,000 trees were distributed. In 1940, 6,239,000 seedlings and transplants were distributed, and an additional 4,263,000 were transplanted. During 37 years, 40,572,000 trees have been transplanted, and 36,000,000 more distributed. Truly, the growing of 76 million trees is "Big Business."

Like every other nursery, the one at Monument soon learned that good seed, good soil, and plenty of water were indispensable to successful production.

The best seed proved to be the nearest seed. At an early date, all but Colorado seed was, for the most part, eliminated. But even within this State, variations were found.

"It was noted in 1919 that tree seed collected on national forests in the southern part of Colorado and northern New Mexico had produced much larger and more thrifty seedlings than the seed obtained from northern forests. Specifically, blue spruce from the Santa Fe National Forest in New Mexico, Douglas-fir from the San Juan, and Ponderosa Pine from the San Isabel. But against this it was also observed that seedlings of southern origin were much more susceptible to frost injury, damping off, and other damage than the trees from northern seeds. Later experiments definitely proved that seedlings produced from seed grown near where they are to be planted were much harder and the survival much greater than the seedlings from seed grown in other locations. Therefore, seed collected as near the nursery as possible has been accepted as preferable."

As to soil, it must have basic value to start with, and then be constantly cared for. The first three nurseries that were started by the Forest Service at Bear Creek, Clyde, and Rosemont, lacked good soil. Professor Touney's statement that the soil of these nurseries "wouldn't even grow weeds, let alone trees," is quoted in
Mr. Coiwell’s biography of W. H. Schrader is put on to remain until germination commences. On fall-sown beds, a solution of aluminum sulphate is applied at the rate of one-fourth ounce to one ounce per square foot, depending on species and the regular winter mulch is put in place.

(Schrader repeatedly called attention to the fact that this continued use of aluminum sulphate might eventually change the soil. Mr. Jay Higgins, in charge of nursery and planting for the Rocky Mountain Region, states that chemical tests made in 1945 disclosed the area where this has occurred. Ed.)

Mulching has likewise been a problem that has caused much experimentation at Monument. Various media and many practices were tried. The present routine is as follows:

"Spring sown beds were ... covered with burlap. Protection frames were put in place to keep out rodents. ... The burlap was removed as soon as the seedlings began to break through the burlap. At the same time the mulch was removed in the Spring as soon as germination started, but before the seedlings had started to grow. The surface and protection frames were put in place. All spring beds were completely protected with partially rotted pine needles. This mulch was placed directly on first year seedlings. The mulch was supported over second and third year seedlings if the mulch is allowed to become standard, besides. Originally, the lath was placed several inches above the ground to form a board-like cover and maintain a high relative humidity in the surrounding air. Pine and cedar seedlings of all ages were covered with protection frames as far as possible."

All seed beds are shaded with lath slatting throughout the first year. With older trees the practice varies with the species, and has not become standardized, besides. Originally, the lath was placed several feet above the trees, but the practice has become more and more many years to use "low shade." The old system "of removing shade during protracted cloudy or damp and cold weather was abandoned..."
in 1915. It is now left on for the season regardless of temporary changes in weather.

Many different theories relate to root pruning have been advanced at times, at Monument. One thing is certain, and that is that beds that have been root pruned require a great deal more water. Schrader felt that root pruning—at least with one-year pine and two-year spruce and Douglas-fir—produced a better root system and a more vigorous tree and that this should be done without the real damage to the root system. However, except as to two-year-old Douglas-fir that are to be held over for a third year, “the procedure is still in the process of development.”

Seedlings are generally transplanted at the end of the second year, going to the planting areas as 2-1 transplants. Transplant roots receive the same care after the seed beds do, and the transplanted trees are cared for in the same manner as are the seedlings.

A moist, almost wet, soil is demanded for the best job of digging transplants because such a condition is necessary to permit removing the plants without damaging the fine roots and root hairs. That same moisture, however, results in leaving the soil cold and sour—unfit for immediate planting. Furthermore, at least a year of rest between tree crops is necessary for restoring the fertility of the soil.

The beds are therefore fertilized and cultivated for a year. Next to damping off and root rot, the most difficult pest to combat has been the rodents. In an early long-hand record, it was stated that “Rodents caused considerable loss from damage by entering the beds under the snow and girdling the trees;” from which an early typist reported that the rodents caused the loss and damage by “eaten and grinding their teeth.” If the mice didn't grind their teeth,” Schrader did. Finally it was decided to enclose beds with a fence of hardware cloth with three meshes to the inch. This was the answer to the problem.

Since 1932 winter rodent loss has been a minor hazard at Monument nursery, though in 1935 one well protected bed was almost entirely destroyed by field mice. Investigation by members of the nursery staff failed to find any opening by which the rodents could have entered. For several days the affair was an annoying mystery until a CCC enrollee solved the case with a very simple explanation: In the course of their work at the nursery, some enrollees had discovered a bed of field mice, and with misguided humanitarian motives had placed the entire family of mice inside the θ-rodent-proof bed. Full fed, and protected against all enemies, the mice had lived very comfortably through the winter.

These are the procedures that have enabled the Monument nursery to grow almost eighty million trees and to distribute over six million study trees in a single year. The achievement is one of which the Forest service—and particularly Walter H. Schrader—can be very proud.

OUR MEMBERSHIP YEAR

There has been some uncertainty among our members who have paid their dollar at odd times as to when their membership terminates. Subscriptions to most magazines run for one year from the time of the first issue sent. There are no subscriptions sold to The Green Thumb. It is a bulletin sent only to the membership of the Colorado Forestry and Horticulture Association. And all of us in this organization are for the calendar year.

So at whatever time your money is received your membership is either for the year or for the small balance of this year and all of next. This is to simplify bookkeeping and be able to put more of the income into actual expense of publication. If you are notified that your membership has expired before a year has gone by you probably paid up early in the year and missed a couple of months.

THE COLORADO RIVER REDBUD “PUZZLER”

In a recent issue of the Green Thumb (vol. 2, pp. 16-18, 1945), Charles Kelly gave us a very interesting account of the occurrence of the Redbud along the Colorado River above Lee’s Ferry. The editor’s note heading this same article asks: “How many Green Thumb readers know of similar instances of plants found naturalized far from their natural range?” In this particular instance, the Redbud in question is neither naturalized nor far from its natural range, through forests and quite at home; it is Cercis occidentals, known from various places in Utah, Nevada, Arizona, Texas and California, being particularly common in the latter State.

Although the differentiation of species in the genus Cercis is at times a difficult, a comparison of the materials—either living objects, or herbarium specimens—does indicate that a series of rather well-defined species does exist. As a group, however, they have much in common; there is rarely any misidentification, so if you know one species of Redbud there will be little, if any, trouble in identifying any of the others as a Redbud, no matter where you find them. It is therefore very likely that anyone knowing the Redbud of the Eastern U.S. (Cercis canadensis)—and not aware that there also is a native Western species—would be startled at finding a Redbud rather common along the Colorado River; probably almost as much as they would be should they chance upon the different native Redbuds while travelling in Mexico, southern Spain, eastern to the Persian hills, in Afghanistan, or on seeing the various (and horticulturally important) species wild in the mountains of China. As Charles Kelly pointed out, the present distribution of our native western U.S. Redbud is somewhat “spotty.”

This, very likely, is because in much of its present range it appears to be a relic, a remnant from a time when the climate of the region was moister and the species more wide-spread and probably much more common than at present, while, also, not so obligate, it does tend to favor sites which have a slight excess of calcium (at least that is one of the major limiting factors in the distribution of the species of the Eastern U.S.). The Redbud is in attempting to explain how so similar appearing a group of plants originally got so wide a distribution. Plant fossils indicate that it is a fairly old group; probably the Redbuds got scattered about in those ancient times before the continents of Europe, Asia and North America became separated, when they were in a single continent called “Holartic” by the geologists. But, for the present, we will let the “fossil” botanists worry over how and when the Redbuds got so wide a distribution. As it is, that is now the northern hemisphere; it is sufficient for those of us who work with living plants to know that they are.

H. L. CAMP
New York Botanical Garden.

BRIEF HISTORY OF WORLD WAR II

John Stockbridge

We all raised vegetables
Right from the scorched earth
And got some food
And a great many weeds.

We worked on gardens
Days and nights,
And we developed
Strange new blights.

We won two wars
With our gardens new,
(But the army and navy
Deserve credit, too.)
THE EXPERTS SAY:

Keep your compost heap in the best possible condition this winter. It is one of your most valuable garden properties. When you screen it to get the fine stuff for your lawn next September, try using the coarse stuff you screen out to mound up over the roses, later, for winter protection.

GEORGE BEACH, Assistant Horticulturist
Colorado A. & M. College.

Buffalo grass makes a good lawn. The seed is expensive, but it is well worth the cost. Sow in the spring. By fall small clumps, two inches apart, will be showing up. These will send out runners in all directions and the turf will thicken up. After several years you will have a solid mat. The grass will choke out all weeds. No mowing required.

MAUD REED, Biology teacher, Boulder High School.

If you are allergic to work as I am, why not plant your tulip bulbs twelve inches deep, to the top of the bulb, and then watch them bloom for ten years without any digging?

ROBERT E. EWALT, Garden enthusiast, Denver, Colorado.

If from inquiries coming my way, I anticipate a post-war revival of interest in rock gardens, I hope of the right sort. I usually ask if ROCK garden or rock GARDEN is meant. If I detect an undue interest in "pretty rocks" (museum specimens) I change the subject. Those discords with Nature—ROCK gardens—resemble JAZZ on the radio, in that both are thrust on one's unwilling attention in a disproportionate frequency. Both illustrate sublimated ignorance of certain fundamentals of Nature. (the physics of sound and the physiology of plants). I put on an extra burst of speed to get by one and tune out the other, too often encountering another atrocity at the next corner or another cacophony on the next network.

WINTER GARDENS

Form in a garden shows throughout the year. It is embellished by new foliage growth and the color of flowers in the spring and summer, but a garden must also be beautiful in winter.

Evergreens, which give form and color the year around, and catch the snow in winter, are perhaps most important to a winter garden. Yellow willow and red dogwood twigs, and the downy blue and black and red buds of the blue bark willow are only a few of the other colors which make a winter garden. The snowdrops add their note, blooming through the February snows.

A slope, a low wall or rock terrace, a trim line of hedge, a fountain, pool or seat, even a path of stepping stones—all give the garden a design which shows in even the driest part of winter.

S. R. DeBoer
Landscape Architect
Denver, Colorado.

FOUNDATION PLANTINGS

A careful consideration of "Plant Materials" used in foundation plantings will ultimately repay an effort. It appears that too many in selecting plant materials for such a use fail to take into consideration that plants "will grow" and a final appearance differs greatly from the immediate effect obtained at the time of planting. This can be overcome if one learns about the ultimate habit and growth of the plants. In general, it is safe to use plants that will conform to the lines of the house and a given space. Avoid using plants that become so large as to dwarf the structure, thereby throwing the entire picture out of key.

ANDREW LARSON, Landscape Architect, Denver, Colorado.

The need for tree surgery is practically always evidence of poor judgement in the choice of species, form, and care of trees. It can be avoided.

J. V. K. WAGAR, Professor of Forest Recreation and Game Management
Colorado A. & M. College, Fort Collins.

HORTICULTURAL HOLIDAY

The Christmas that I've always known
Is not the same this year
The old familiar phrases
Just will not do, I fear.
This going horticultural
Upsets my life, I find
I cannot think the old thoughts
And again my Bailey I thumb.
I puzzle anew over species
With "coccinea" berries hung
With "coccinea" berries hung
And "subdeantus" I grow.

The Yuletide is "pulchella"
I become "Rediviva" I become
My hair is turning "glauca"
And my tired head "nutans" now.
But the thought of a new word intrigues me
With Bailey on my mind.
And "delicatus" too
Will sustain my bewildered spirit
And once more my strength renew.
I'd like to be "proembusens"
And relax my "rugaobia" brow,
And my tired head "nutans" now.
But the thought of a new word intrigues me
The turkey "delicious"
I cannot think the old thoughts
And again my Bailey I thumb.
I cannot take it or leave it
"Tis a chronic affliction I know
I'll study till I am "senilis"
And "subdeantus" I grow.

—Katherine Eames.