INDOOR MEETINGS IN APRIL, 1948
At Horticulture House Unless Otherwise Indicated

Friday, April 2—What To Do About the Dutch Elm Disease, by a Panel of Experts. This meeting will be held at the Evans School, 11th Ave. and Acoma St., 7:45 P.M.

Thursday, April 8—Denver Rose Society, 8 P.M.

Friday, April 9—Life in India, 7:45 P.M., Mrs. F. S. Mattocks.

Friday, April 16—How to Interest Children in Horticulture, 7:45 P.M., Carl Herzman, Denver County Agricultural Agent.

Tuesday, April 20—Notes for a Beginner’s Garden, 10 to 12 A.M., Mrs. Persis Owen.

Wednesday, April 21—Research Committee, 7:45 P.M.

Friday, April 23—Movies of Trees and Gardens in Mexico and Florida, 7:45 P.M., Dr. I. D. Miller.

Friday, April 30—I Hate Trees, 7:45 P.M., Carl Feiss.

OUTDOOR PROGRAMS

Mrs. Anna Timm, Outdoor Programs chairman, announces that her committee has planned four week-long botanical expeditions and four short week-end trips for this summer. The longer trips will be taken in the first part of the months of May, June, July and August and will include some of the wildest and least known parts of the state. Several short bus trips and walks are planned for all who care to attend. Other trips scheduled include the established Botanical Reserve where the banana will be taken of the plants growing there. There will also be scouting trips to locate further reserves. The definite schedule for each month will be given in “The Green Thumb.”

The April schedule is as follows:

April 11—Trip to the Hogback to find the first wildflowers of the season. Meet at Horticulture House, 9 A.M. Mrs. Kathryn Kalmbach, leader. Round trip driving distance about 25 miles; walking distance about 3 miles.

April 25—Trip to explore the Pinyon Grove north of Fort Collins. Meet at Horticulture House, 8:30 A.M. Round trip driving distance about 75 miles; walking distance 1 mile. Bring a pocket lunch and wear outdoor clothes.

Prof. J. V. K. Wagar will lead the trip and will conduct the party to several other points of historic and botanical interest in and around Fort Collins.

Please let us know as much in advance as possible if you plan to go on any of these trips so that we can help arrange transportation. Also let us know if you can furnish a car on a share-the-cost basis.

NEW HOURS AT HOUSE

Horticulture House will be open for the transaction of business and for the use of the Library each weekday, Monday through Thursday, from 10 A.M. to 5 P.M.; Friday from 10 A.M. to 7:30 P.M.; Saturday from 10 A.M. to 1 P.M. A librarian or horticulturist will be here during these hours to assist members.

Other hours may often be arranged by appointment.

Meetings each Friday evening: Lectures, discussions and pictures on various horticultural subjects.

Meeting of the Denver Rose Society each second Thursday evening of the month.

Meeting of the Research Committee each third Wednesday evening of the month.
A MEMORIAL LIBRARY FUND

Good friends of the Association have been working for several months on a plan to make it convenient for people to give donations of books or money to The Helen Fowler Library at Horticulture House as a memorial gift. There is now a supply of cards available on request which can be sent to the family or friends indicating that you have given a certain amount to the Library Fund. Receipt cards are also provided for the donor.

The idea of sending something useful and permanent as well as, or in the place of flowers, is steadily gaining favor. In the case of the death of a friend or relative just send in the amount you wish to donate and we will mail the cards. Many books have already been given in this way.

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JUVENILE PROGRAMS

The Juvenile Programs Committee, under the chairmanship of Mrs. Josiah Holland, has been working for many weeks to develop a program whereby the greatest good can be done in interesting more children in Nature and gardens. Mr. Paul Nesbit, well known naturalist from Estes Park, was brought down to Denver to advise the committee and demonstrate some of his teaching methods. Representatives of many of the youth organizations of the city have met in a joint committee and have decided that the first need is a leader training institute. This is being arranged by Mr. John Rishel who has had many years of experience in this kind of work. There will be four sessions, the first one to be held at Horticulture House at 7:30 P.M., Tuesday, April 26th. The other sessions will be held from 2 to 5 P.M., Saturday afternoons, May 1st, 8th and 15th. The last session may be continued into the evening to admit of demonstrating a good campfire program. Our leading experts in Nature teaching methods will assist in these demonstrations. All those who are interested in learning the best methods of interesting children in the plants, birds, rocks and other things of Nature around them are invited to attend.

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DUTCH ELM DISEASE FOUND IN DENVER

One of the most serious situations in the history of Colorado Horticulture has been brought about by the discovery of the Dutch Elm Disease in Denver recently. Most of the American elm trees in the state are so weakened by the attacks of the Elm scale and by general neglect that they are all set for the Dutch elm disease to finish them off. Federal, state and city officials and experts are working on the problem and will soon make their recommendations for control. The first step will be a thorough survey to determine the extent of the infection at present, then they will be able to offer some definite procedures for control. Our isolated position in relation to the earlier settled parts of the country and the fact that there are no native elms will be much in our favor, and there will be an opportunity to work out some newly developed methods of control.

In the meantime owners of trees and tree workers can pracice and preach a few safety-first principles.
1. Do not carry elm limbs from one tree or part of town to another.
2. Do not use tools on a tree until they have been thoroughly disinfected to remove any possibility of carrying infection from the last tree used on.
3. Be sure that all trees are thoroughly watered. Several THOROUGH waterings a year are more effective than several light sprinklings a week.
4. Begin a systematic program of fertilization. Consult your tree man or Horticulture House for recommendations as to how to properly feed trees.

As the experts develop more definite recommendations for control we will attempt to keep you informed. Be prepared to cooperate in whatever program is adopted by the city, state or federal officials. This may be an expensive and bothersome procedure, but it will be worth any sacrifice to enable us to preserve some of our beautiful elm trees.

The Dutch elm disease has destroyed untold thousands of trees throughout America. This disease (Ceratostomella ulmi) sometimes combines with another virus disease called Phloem necrosis. In one year these two diseases combined destroyed 10,000 elms at Columbus, Ohio; 20,000 at Dayton, Ohio; 3,000 at Indianapolis, Indiana; 5,000 at Peoria, Illinois, and 1,500 at Kansas City, Missouri. During the past four years these diseases have killed an estimated 25,000 at Columbus, Ohio.

Mr. John W. Swingle, who has done considerable research on the Dutch elm disease, has advised that a more intelligent survey will be possible after the leaf development in the spring because of the external factors that are indicative of the presence of this fungus will be more in evidence. He gives the following description of Dutch elm disease symptoms: This disease causes the leaves of a branch or the entire tree to wilt, yellow and drop, or sometimes dry up and hang on as dead, green leaves. The very tip of a diseased twig may form a shepherd’s crook. The small branches may bend upward and curve in toward the center of the crown. Woodpeckers may drill holes in or shred the bark of dead branches that become infested with bark beetles. The last three symptoms are helpful in locating diseased elms during the winter and spring months when leaves are absent.

Colored wood is being produced experimentally in the Spessart forest of Germany, in the American occupation zone. Wood fiber of growing trees is colored by injecting dyes near the roots.

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DUTCH ELM DISEASE

The Dutch Elm disease (Ceratostomella ulmi) is a fungus disease which has caused the loss of thousands of America’s finest elm trees. It is serious enough to be of National importance. Traditionally, the elm is as much a part of America as Plymouth Rock!

Your Swingle representative, with a background of intelligent study and research, is always at your call to discuss this problem.

DON’T DELAY!

Swingle Tree Surgery Company
Member, National Shadetree Conference
KE 4776
212 Keith Bldg.
Denver, Colo.
THE WEEK-END GARDENER

The buds on the Maple and Elm are swelling this afternoon which reminds me that it will not be long until they are in leaf. Bad weather has prevented me from having my trees sprayed for scale insects, so I'll suggest to my tree man that now might be a good time to do the work. I suppose that everyone else is having the same idea about now and I'll have to wait my turn. I wonder sometimes if it is worth the expense to spray my trees so carefully when my neighbors pay no attention to theirs and the insects come right back onto mine. We must see to it that the city adopts a system whereby they can spray all the trees in certain areas of the city at one time and really clean up the pests. This would cost everyone much less and do a thorough job. The Oldtimer tells me that I should begin to watch my Colorado junipers for signs of aphid damage. He says that most of the Colorado junipers in town have been damaged to some extent by aphids and that they may start to work following even a few warm days. He says that the presence of ants running up and down the tree usually indicates that there are aphids at work. If I want to be really sure I could spray with a contact poison like Black Leaf 40 every ten days, or it is likely that one of the new chlordane sprays will give longer control.

As the first warm rains come I should remember to check my Colorado junipers for signs of the Cedar-apple gall. The Oldtimer tells me that this disease works in connection with the hawthorn trees and must have both kinds of trees in order to develop. The new fungicide, "Fermate", has been used quite successfully in controlling the spread of this fungus disease but removal of the host trees is still the most effective treatment.

U.S. FOREST SERVICE DONATES PICTURES

Through the kind influence of our genial members, Fred Johnson and Don Bloch, the U. S. Forest Service recently presented three fine framed pictures to the Association. Two are scenes in the White River National Forest, namely, Maroon Bells and Trappers Lake. The third is a large ponderosa pine which Jay Higgins, the photographer, found in the Uncompahgre National Forest. It stands beside the Divide truck trail on the Uncompahgre Plateau, south of Carson Hole, and it is about 100 feet in height and just under four feet in diameter. Higgins estimates its age at 350 to 400 years. We hereby express our thanks and appreciation.

LEN SHOEBAKER.

WANTED—TYPEWRITER

With the great increase in membership has come greatly increased work in connection with keeping the membership records. Mrs. Stella D. Hare has been employed to keep these membership records, but has had no desk or typewriter. A desk has recently been loaned us but one typewriter previously given the Association has had to do for three people at the House. If you have an old typewriter which is still in good order or can be put in order that you would like to loan or give us it would be put to very good use.

Another item of equipment that we need very much is an old-fashioned projector for showing the old-style large slides. We feel sure that at least one of our members has such a projector which is not in use.
A Five-Star Shrubbery Border
By EDMUND WALLACE

NOTHING will help you forget winter more quickly, nor announce spring more flamboyantly than the Forsythia or Golden Bells. Last spring gave us in Colorado an unusual display of the yellow flowers completely covering the branches in such masses that they literally bent with their own weight. The Flowering Almond and Japanese Quince are equally attractive in the early spring. We must, however, curb our enthusiasm in using these early flowering shrubs too generally in the shrub border. Colorado’s climate is not always so conducive to the profuse flowering which we witnessed last spring and, with the exception of the Quince, these shrubs have nothing to contribute during the remaining fifty weeks of the year.

The “five-star” shrubbery border must be planned to include a pleasing balance of spring and summer flowers, summer foliage, showy fruit, and fall and winter color.

Some of the Shrub Roses have probably the most striking bloom of any of our shrubs but depend upon the greenery of the shrub border to compensate for their scarcity of foliage. The Austrian Copper and yellow Hugonis Roses are among the more attractive of the shrub roses hardy in Colorado. The Floribunda Roses, which bloom all summer, come in a good range of colors and should be used more. These are best planted closely — about 14 inches apart. Groups of three or five of a variety placed in front of the border create a superb color display.

The Virginal Mock Orange, if given a partly protected spot in the border, will produce lovely semi-double fragrant white flowers in June and throughout the summer. The Buddleia or Butterfly Bush, with its colorful spikes of flowers, is a good addition but should be treated as a perennial, as it dies to the ground each winter. Its flowers are very fragrant and attract butterflies.

Others to be used for their flower effect are the French Lilacs, Double-flowering Plum, Thimbleberry, Garland Spirea, True Red Honeysuckle, (Lonicera sabeli), and Snowball Viburnum.

If your yard is small and the size of the shrub border limited, shrubs must be selected which will contribute beauty to the border throughout the year. An outstanding example of this is the Korean Berberry with large leathery leaves and long clusters of small yellow flowers in spring, followed by bright red berries and brilliant fall foliage color. Another example among the larger shrubs is the Native Hawthorn. In the spring it produces masses of white flowers and in the fall bears persistent red fruit. Its yellow-brown bark adds color to the border in the winter.

There are a number of “two-star” shrubs contributing fall and winter color with their fruit or colored stems. The Euonymous and Cotoneasters are notable examples. Euonymous atropurpureus or Burning Bush has a rich fall color and attractive red and orange fruit hanging on till late in the fall. The Peking Cotoneaster, despite its insignificant bloom, is very desirable for its clean shape, glossy dark green leaves, and attractive black berries which hang on all winter. Other “two-star” shrubs include the Sea Buckthorn with silvery leaves during the summer and orange berries in fall; the Blue Leaf Honeysuckle with blue-grey foliage and pink spring flowers; the Morrow and other Honeysuckles have creamy white flowers in May and yellow or red fruit from August to late fall; Dwarf Ninebark covered with white flowers in spring and followed with attractive red-brown seed pods in summer and good color in fall; the Nanking Cherry having beautiful pink blossoms and red edible fruit; and the Redleaf Rose adding color to the border with its dark red leaves and stems in the summer and persistent fruit in fall and winter.

For those with ample space, there are numerous shrubs which are particularly striking in only one characteristic. The Red-twig Dogwood is often planted for its handsome winter appearance. It lends a tinge of landscape color at a time when color is generally lacking. This shrub is particularly beautiful when snow on the ground brings out the red of twigs and branches in fullest color. It is especially good in association with evergreens.

Attractive for their fruit are: Mountain Ash, Wayfaring Tree, Snowberry, Coralberry, Buckthorn, Bladder Senna, and Dolga Crab.

Shrubs having colorful summer foliage include Purple Plum, Purple Barberry, Leadplant, Golden Elder, and Redsilver Crab.

For fall color, the red leaves of the Ginnala or Amur Maple are among the most brilliant. Others include the Sumacs, Spiraeas, and the already mentioned Korean Berberry, Euonymous, Cotoneasters, and Dwarf Ninebark.

There are other shrubs which can be used successfully in the well-balanced border. Care must be exercised in selecting only those which grow well in your locality. Obtain the best of them and be certain that they are Hardy. Height, shade, and type of soil should also be considered in making one’s selection.
THE WEEK-END GARDENER

TODAY is the kind of day that makes gardeners. I want to get down and roll in the soil just like Dr. Martin said. The fragrance and feel of good soil really does something to me at this time of year. When I was a small boy following behind my brother as he turned over the soil with a walking plow I knew that I must always be working in the soil.

My neighbor across the street has just moved into a new house and he can’t feel my enthusiasm for the soil. It just appears to him as “that sticky stuff which is tracked into the house” and almost sends his wife back to Mama. He asked me to explain the difference between his soil and mine. I expect that he is another victim of “contractors soil.” I asked the Oldtimer about it and he said that it would probably take years to make a great deal of difference in his soil; that he should start to improve the physical quality of his soil by working in quantities of peat, leafmold, manure and compost. If he had watched closer and seen to it that the good top soil was not all covered up and the poorest subsoil left on top he would have saved many years of discouraging work.

The Oldtimer tells me that it is important to keep soil loose so that air can penetrate to the roots. That may explain why plants do not grow well when the soil is kept too wet or is allowed to become very hard on the surface.

The Oldtimer also tells me that now is the time to check up on the chemical quality of my soil. That is something that I cannot tell much about without expert help. He tells me that practically all our Colorado soils are alkaline or at least not acid, so I know that I should add humus and in extreme cases some chemical in limited quantity. My oak tree looked rather pale last fall, and the flowering quince had yellowing leaves most of the summer. He calls this condition Chlorosis and says that it may often be corrected by the application of a little Aluminum sulphate or Iron sulphate.

WHY DON’T WE GROW MORE PRIMROSES?

By Florence Arnett

WHEN one remembers that Primroses were grown and loved and written about as long ago as the fifteenth century, and probably even earlier, it is surprising that during the past fifty years they have almost disappeared from our gardens. Many people know them only through song and poetry. Before the American Primrose Society was founded in 1941 it was almost impossible to find anything written about growing primroses; one had to experiment and too often failed. At last primroses are being seen again and what an addition they are to the spring garden!

The Polyanthus Primrose is the showiest, the easiest to grow and not hard to acquire. They come in many colors, from white, through pinks, to very dark red, usually with a small yellow eye and often rimmed with a hairline of white. They may also be had in shades of blue and in bronze shades that are very attractive. No plant is more generous in its bloom and the six-inch stems, topped with an umbel of one-inch wide flowers, give contrast in the bed to the spires of blue—hyacinth and other bulb blossoms seen at this time.

Almost all primroses require the same growing conditions: a deep, fat soil enriched with bone meal and old cow manure; light shade and plenty of moisture. On this subject, Mrs. Wilder writes, “...they want to be coddled—to have a little leafmold scratched in among them now and again—to be watered with manure-water at times and to have the ground about them nicely stirred and never to be allowed to become dry—in short, to be petted and indulged and kept constantly in mind, and what a pleasure it is to do these things for such undeniably loves and how they do respond to it:"

Primula auricula is the wild primrose, said to grow under every bush and hedgerow in England. It comes in many shades now but the wild form is yellow and has a balmy fragrance. As its name implies, there is only one flower to each stem. These bloom in April and May. The nineteenth of April is celebrated in England as Primrose Day. Blooming earlier, if the spot is quite damp, you may have the lavender balls of Primula denticula on straight, stiff stems. Also on tall, stiff stems, growing in tiers, come the flowers of P. japonica — another lover of moisture.

It is still possible to find a few varieties of double primroses but many of the lovely varieties commonly grown in cottage gardens in that long, long ago have been completely lost. The few to be had now are descendants of those found in very old gardens in Scotland and Ireland, where fashions in flowers did not change. The double primroses require a little more protection, both from winter winds and summer heat.

Primula auricula, with its velvety, round, flat bloom usually with a large white or yellow eye, is assuredly a must for the primrose grower. Its foliage is smooth and often serrate. It comes in many colors, even grey or tan. This is the most exciting primrose to grow from seed as they do not come true and one pod of seed may produce plants bearing flowers of several colors.

The climate of Colorado is not ideal for primrose culture. They thrive best in a damp atmosphere such as is found in our Northwest. Oregon, with its frequent rains, is probably the most favored spot for these flowers of the spring but if one loves and enjoys primroses they can be made to flourish by planting in a moisture-retentive soil, protected from midday sun and by judicious use of the hose in dry weather. Spring is not complete without at least a few primroses and once you have grown them you can never get enough of them!

FLOWERS FOR VETERANS

Four walls and a ceiling are a dreary prospect for a veteran sentenced to several months in bed. No one knows better than florists and individuals interested in flowers, how welcome a color variation is in this setting. Nothing is more welcome to these boys than a dash of floral color or the intrigue of a dish garden on the bedside table.

Several thousand veterans are in the Military and Veteran Hospitals in and around Denver. They are still engaged in a “war of survival.”

All individuals and floral concerns who would like to help brighten the long days for these boys should contact the Community Service to Camps and Hospitals, Denver Chapter American Red Cross, AL 0311, Ext. 16.
THE COLORADO FORESTRY REPORT

Alvin S. Peck

The long awaited report on a survey of state forestry administration in Colorado, sponsored by the Colorado Forestry and Horticultural Association was made public February 20 and a specially bound personal copy formally presented to Governor Knous by Vice President Robert E. More. Accompanying Mr. More were State Forester Everett J. Lee and J. J. Sylvester representing the State Land Board, John W. Spencer, member of the National Council of the Society of American Foresters, Arthur L. Nelson, Chairman of the Central Rocky Mountain Section of that Society, and George Kelly and Allen S. Peck of our Association. Governor Knous expressed great interest in the state’s forestry activities and said that he felt sure the report would be helpful in carrying out some plans he has in mind for reorganizing and expanding these activities.

Important among the 20 recommendations which summarize the findings of the survey is a proposed radical change in the Land Board which under present law acts also as a Board of Forestry. The Board would be expanded from 3 to 7 members including the Governor as Chairman and would serve without pay. It would be known as the Land-Management Board and would deal with policies, leaving execution to a Director with divisional chiefs handling lands and surveys, forestry, grazing, mineral lands and parks. Other proposals call for a sound forest fire protection organization built around a county fire warden in each of the 42 forested counties, under the direction of the State Forester; a forest staff sufficient to give competent management to all state owned woodlands; and to furnish advice and help to farmers and other private land owners in tree planting and good forest management practices; establishment of state parks in eastern Colorado; limitation of leases of state land to 5 years and of numbers of livestock and periods of use, for the purpose of restoring and maintaining maximum productivity.

The report, which is a comprehensive study of the state and private land situation in Colorado, is based on a 3 months’ survey made last summer by Alfred B. Hastings, a trained forester with many years of experience. It was financed by the Charles Lathrop Pack Forestry Foundation and so cost the state nothing. It was one of several such studies made under the supervision of a joint committee representing the Pack Foundation and the Society of American Foresters, in states requesting this service. When officers of the C. F. & H. A. learned some two years ago that it might be possible to arrange for one of these studies in Colorado they urged state officials to seek it, with the result that Governor Vivian made formal application late in 1946. In preparing his report Mr. Hastings had the aid of John B. Wood, another experienced forester, as consultant. The report was later reviewed and approved by the joint “steering” committee of five nationally known foresters.

The report recognizes the exceptionally high value of Colorado’s forest lands as watersheds and emphasizes that such lands, conservatively estimated as worth $50 per acre for water production alone, fully justify the cost of the best possible protection and use. To quote, “It has been rather widely assumed that forestry in Colorado is almost exclusively the function of the federal government, with its nearly 15 million acres of forest land. It has not been generally known that state and privately owned forest and brush land of watershed value which needs public protection totals nearly 7½ million acres. In matters of protection and development these 7½ million acres are the responsibility of the state, with the federal government and the counties playing cooperative roles. Public functions embrace protection from fire, insects and disease; reforestation activities; certain aspects of erosion and grazing control; administration of the considerable area of state land; forest and range research; assistance to timberland owners in the management of their lands; and information and educational programs. That the state legislature has not taken its forestry responsibilities seriously is indicated by its appropriation of a total amount of $7,200 for state forestry work in the fiscal year 1948.”

The program suggested calls for an expenditure of $30,000 in 1949 and increases each succeeding year, reaching the sum of $68,900 in 1972.

The survey is sure to prove an important contribution to Colorado’s progress. We are greatly indebted to the Charles Lathrop Pack Forestry Foundation, the Society of American Foresters, the Joint Committee and Harry Clepper, its secretary, and particularly, of course, to Alfred Hastings who made the field survey and drafted the report.

HIGHLIGHTS FROM THE PRESIDENT’S REPORT FOR 1947

Mrs. Evans reports that 1947 has been a year of progress for the Colorado Forestry and Horticulture Association and for our activities to stimulate public interest and to carry forward the objectives of the association. Horticulture House was completed and opened during the year. The library of horticultural and garden books is established and has been named The Helen Fowler Library. Many meetings have been held and programs given at the House both by the association and other societies. In addition, The Green Thumb is now published monthly and carries advertising to call to the attention of the members the best in horticultural services, materials and equipment.

It is interesting to know that articles by writers in The Green Thumb are appearing from time to time in Eastern publications. Our editor, George Kelly, has been named Zone 5 editor for the House Beautiful magazine and has contributed to the House Beautiful Practical Gardener for 1948. Mr. Robert More has a most interesting article on Evergreens in the American Home for February, 1948. Mr. Milton Keegan had a piece recently in the Women’s Home Companion Garden Book. Mrs. G. R. Marriage is a frequent contributor to American and English publications. Mr. Kelly has attended several important national meetings during the past year, including the National Shade Tree Conference and the Annual Meeting of the American Horticultural Council, both held in Cleveland. He was elected a director of the Council.

Another gratifying event of 1947 occurred when the City of Colorado Springs set aside, under the care of the association, three important Botanical Reserves.

In any and all its activities, repeats Mrs. Evans, the Colorado Forestry & Horticulture Association could not long exist nor could it accomplish effective work without the enthusiasm, time and effort of the many volunteers who serve on committees and work at Horticulture House.
CULTIVATED LINDENS OF THE DENVER-BOULDER AREA

Edna L. Johnson
University of Colorado

The lindens or basswoods, members of the family Tiliaceae, are among the best known ornamental trees, desirable because of their comparatively rapid growth, handsome foliage, and fragrant flowers. Although lindens may be pruned into geometrical figures characteristic of the formal garden, the beauty of their natural forms has long been appreciated. The most famous avenue of them in Europe is probably "Unter den Linden" in Berlin. In England, where they are known as lime trees, avenues of them are common features of the landscape.

The slender-stalked leaves are simple, alternate, usually heart-shaped, but often more or less one-sided. The margin is serrate, having notches or small teeth, pointing forward.

The fragrant creamy-yellowing flowers which are borne in drooping clusters of 5 to 20 on leaf-like membranous bracts, appear after the leaves are fully developed. Each flower bears five sepals, five petals, and many stamens. In the American species, there is opposite each petal a spatulate petaloid scale (staminode). The linden flowers yield large quantities of nectar which attract hordes of bees during the blossoming time. In northern Europe, linden honey is considered unsurpassed in flavor and delicacy. Oil, obtained by distilling the flowers of European species, is used in perfumery.

The globose or ovoid, woody, nut-like fruit remains attached to the slender bract which permits distribution by the wind. The fruits which contain one to three seeds are usually covered with short, dense, matted hairs.

Tilia, with its approximately 30 species, ranges throughout most of the temperate regions of the Northern Hemisphere, with the exception of western North America and central Asia. It always has been one of the most highly valued trees. The common name "basswood" may have originated on account of the bark which is made up of tough, fibrous, intertwined fibers. In pioneer times in the United States, and even in some countries today, these fibers were used for making shoes, horse collars, ropes, nets, and various masts.

The soft, easily worked, even-textured wood of the American linden, which is free from prominent grains and knots, is a favorite material with wood carvers, cabinet makers, and manual training teachers. Valued for its white color, light weight, and good working qualities it is widely used for
interior finish, wooden ware, boxes, excelsior, and paper pulp.

The names of the lindens, and especially those in cultivation have been much confused owing to the variability of some species, and perhaps to the presence of many hybrids which have arisen, either spontaneously or in cultivation. A key is given below which will enable one to distinguish five species of this group which grow successfully in this area. There are included leaf, flower, and fruiting characters which permit use of the key at various seasons. *Tilia americana* and *Tilia heterophylla* are the two native American species considered, the

*American Linden—Tilia americana.* Left-hand tree on preceding page. Photo by Edgar E. Warren

*Large-leaved European Linden—Tilia platyphyllos.* Right-hand tree on preceding page. This and leaf photos by Floyd G. Walters

*Other species being introduced. The scientific names used are those given in Bailey's "Standard Cyclopedia of Horticulture."

**Key to Five Species of Cultivated Lindens**

A. Leaves large, 8 to 20 cm.; flowers with staminodes; fruit globose, not ribbed.

1. Leaves light green beneath with tufts of hairs in the axils of lateral veins. (American linden) *Tilia americana.*

2. Leaves with lower surface covered thickly with short hairs, white or often brownish (Southern basswood) *Tilia heterophylla.*

AA. Leaves small, usually 8 cm. or less in length; staminodes wanting.

1. Leaves with pubescence covering entire under surface; fruit ovoid, ribbed. (Large-leaved

European linden) *Tilia platyphyllos.*

2. Leaves smooth except for axillary tufts of hair beneath.

a. Leaves orbicular or heart-shaped, glaucous beneath; fruit small, not ribbed, globose, with thin shell. (Small-leaved European linden) *Tilia cordata.*

a. Leaves obliquely cordate, bright green and glabrous beneath, except for axillary tufts of hair; fruit ovoid, ribbed, with hard shell. (Common European linden) *Tilia vulgaris.*

The flowers of the two American lindens listed above have little petaloid staminodes which are absent in the European species. The conspicuous white woolly hairs on the lower surface of the southern basswood separate it from all other species here considered. Microscopic examination reveals that these hairs have basal radiating branches and are termed

*Hairs only in axillary tufts; fruits ribbed.*

*Tilia vulgaris—Under surface of leaves light green; fruits not ribbed.*

*Silvery hairs cause under surface of leaves to appear white.*

Continued on Page 24
TRY SOME LESSER-KNOWN SUMMER-FLOWERING BULBS

By George M. Fisher, Landscape Architect

Nearly all Colorado gardeners grow, or are at least very familiar with the three well-known summer-flowering bulbs: cannas, gladiolus and dahlias but some of the lesser-known bulbs are certainly overlooked in gardening.

Consider such bulbs as Tuberose, Tigridias, Isemne, Tuberous-rooted Begonias and Fancy-leaved Caladiums, most of them known to good gardeners but seldom grown. All of these produce easily-grown terrace or border plants or striking pot plants for the patio. With the patio and the terrace becoming an important feature of outdoor living in modern home architecture, the summer-flowering bulbs are the answer for garden flowers.

For those gardeners who wish to go in for the more or less rare plants, try the bulbs of Zephyranthes, Galtonia, Mountbretia and Sprekelia. Also several vine-like tuberous plants useful for climbing on patios and arbors are: Climbing Lily, Cinnamon Vine and Madeira Vine. Ask your florist about these summer-flowering bulbs. He probably has a good many of them in stock and if not he will order them for you for proper planting time in the spring.

Tigridias

Few flowers can compare with Tigridias for brilliance. Their vivid color markings include yellow, orange, scarlet and purple. The large flowers with the spotted cups have the appearance of a tiger’s face, hence the name of Tigerflower or Mexican Shellflower. The single flowers last only for part of a day, but they are produced in profusion during July and August.

Tigridias are given about the same treatment in the garden as glads and are as easy to grow. They are tender plants, so should only be planted out when it is quite warm. They will grow in full sun or partial shade, and should be kept well-watered through the season. For showiest effect, plant Tigridias in groups, in rich, sandy loam soil, four to five inches deep. Purchase only the large bulbs from your florist or nurseryman.

Isemne

Isemne calathina, Peruvian Daffodil, or Spider Lily, is becoming very popular. The flowers are amaryllis-like and umbelate on tall stems, three to five to the stem, generally pure white with greenish stripes deep in the flower’s throat. The flowers are delightfully fragrant and scent the whole garden on warm summer evenings. They are also fine for cutting.

These plants prefer a warm, sunny spot in the garden, with some screening against hot winds. Plant out the bulbs—alight-green-planting time, six inches deep to the base of the bulb in deeply-prepared, well-drained rich soil. The growth is rapid and the foliage stays bright green all summer.

Gardeners should try to save their bulbs, for if properly stored in a warm place they will bloom year after year. Dig them in the early fall, with green tops, roots and all left intact. Alise to Tigridias and Tuberose, the bulb clumps should not be divided until spring planting time, and the large central bulbs planted for blooming stock.

Tuberoses

Another easily-grown familiar summer bulb is the Tuberose (Polianthes tuberosa) correctly pronounced tuberose. Their tall, showy spikes are fine for an evening garden, with waxy, white flowers and sweet Gardenia-like fragrance. Select the single-flowered Mexican types, as they bloom earlier and open more fully, and are better for the short Colorado summers.

Practice planting Tuberose as early as possible when the ground warms up. With successive plantings bloom may be had from July to frost. Plant the bulbs in full sun in rich sandy loam soil at a depth of three inches. Tuberoses must be kept weed and cultivated all summer and require plenty of water at all times. If you save your bulbs, and you should, dig them right after the first frost in the fall that kills the tops and place the clumps intact in warm storage.

Tuberous-rooted Begonias

These plants are well adapted for Colorado gardens as they like warm days, cool nights, and do splendidly at high altitude. Contrary to belief, they are not difficult to grow, but it is suggested that they be purchased from the florist as potted plants just as they are first coming into bloom. They must be used in fully protected shady situations, either as a pot plant or bedded-out in properly prepared soil.

Begonias are available in many bright pastel colors and foliage forms. The plants are dwarf and compact, six to twelve inches high with an abundance of flowers from May till frost. For bedding-out, plant after all danger of frost is passed in a soil mixture of rich garden loam, leaf mold and peat moss, well-mulched with a layer of peat. Fertilize occasionally throughout the season. They should be watered once or twice daily and sprayed frequently, but do not water late in the day.

Fancy-leaved Caladiums

Fancy-leaved Caladiums in numerous colorful shades make excellent foliage plants for the semi-shady patio or summer conservatory, and harmonize well with modern architectural settings. Alise to Tuberous-rooted Begonias, they should be started by the florist. They prefer partial shade, but want plenty of heat at all times, and are not too well adapted to the higher altitudes. Their surroundings should be kept quite moist by frequent waterings and sprays. Caladiums are rank feeders and should be fertilized every two or three weeks.
Some Rarer Bulbs

Some of the most popular of the more or less rare bulbs will be discussed briefly for gardeners who like to get acquainted with new plants. One of this group becoming very popular is Zephyranthes, popularly known as Zephyr Lily, or Rain Lily, mainly hybrids of Z. atamasco and Z. candida. The name Rain Lily comes from the fact that they often come in to bloom several times during the summer and fall after heavy rains or waterings. Various pastel shades of yellow, copper and pink flowers are available, blooming on stems six to twelve inches in height. They like warm, moist, shady places and good rich soil.

Montbretias

Montbretia, or Blazing Star are rapidly gaining popularity. Most of the cultivated hybrids are of Tritonia undulata. Their tiny corms are cultivated in a similar manner to gladions. They resemble gladions, but the flowers are smaller. They are extremely showy in the garden; available in shades of scarlet, yellow and orange. The tall flower spikes make excellent cutting. Montbretias prefer full sun and rich composted soil. For best effects they should be planted in large groups or drifts in the border, where they will flower from August till frost from plantings made at intervals.

Sprekelia formosissima, also known as Aztec Lily or Jacobean Lily, is another bulb that should be grown more. The large, deep orange-scarlet flowers, borne on tall stems, are very showy, resembling orchids or butterflies in appearance.

Tuberous-rooted Vines

There is always a spot or two alongside a patio, or for covering porches or arbors, where interesting flowering vines can be useful and attractive.

The showiest of three vines which will be discussed is the Climbing Lily (Gloriosa superba). This vine is not too well known, but it is not difficult to grow.

It is a charming refined vine of five to six feet growth in a season when support is provided the tendrils. The hanging, frilled blossoms are yellow and red. It should be well adapted to Colorado areas and higher altitudes. Start from pots, with two-year bulbs planted in late winter, and bedroom out when quite warm in partial shade.

For a rapidly-growing vigorous vine, plant the tubers of Cinnamon Vine, (Dioscorea batatas). It grows rapidly to fifteen to twenty feet in the summer, and will do well in almost any situation and exposure. The foliage is attractive, glossy green and heart-shaped, turning yellow after frost. Masses of tiny white flowers, with cinnamon-like odor are produced. Use the small, off-shoot tubers for planting as the old tubers get too large to handle.

The Madeira Vine is well known to most Colorado gardeners. It will grow in full sun and stand considerable heat and drought. It is more refined and less vigorous than Cinnamon Vine, only growing ten to fifteen feet in a season, but the vine has the same profusion of tiny, fragrant white flowers, produced late in the season.

CULTIVATE LINDENS

Continued from Page 21

considered and it may be distinguished by the velvety feel of the entire surface of the leaf. Tilia vulgaris, on the other hand, has leaves which are glabrous beneath except for tufts of hair in the axils.

In the Denver-Boulder area, there are many handsome specimens of the five species listed; they are strongly recommended for planting along avenues or on private grounds.

Attention Members

FLOWERS IN ACTION

On June 17th, at the Phipps Auditorium, the Association will present Mr. John Nash Ott, Jr., noted botanical motion picture photographer and lecturer. He will show his new all-color, time-lapse sound film “Plant Growth of days, weeks and months can be observed with scientific accuracy in motion pictures within a few moments. R. Milton Carleton, President of the Men’s Garden Club of Hinsdale, Ill., says: “The film should be of interest to everyone, botanist and horticulturist, since it answers clearly many perplexing questions as to how plants grow.”

Make a note of this date.

FORMATION OF THE COLORADO IRIS SOCIETY

Members of the American Iris Society and interested friends were invited to Horticulture House on February 19th to discuss the organization of a local Iris Society. There were thirty people present at this meeting, some coming from Boulder, Pueblo and as far away as Wray. All unanimously voted to form a local organization which was given the name “Colorado Iris Society.” Mrs. F. E. Winegar, 1953 So. Monroe St., Denver, was chosen as temporary President and Mrs. Richard D. Hall, 750 Kearney St., Denver, as temporary Secretary-Treasurer to serve until election of new officers in September.

THE WEEK-END GARDENER

It looked like spring for sure as I drove home today. I saw several people out with their hose watering their lawns. I wonder if that is always a good thing to do at this season. I'll ask the Oldtimer. * * * He tells me that it may very well be necessary to water south slopes or against the south wall of a building, but that I would be doing more harm than good to begin watering regularly now unless the ground was really dry down deep. He says that grass or other plants should be compelled to send their roots down deep for their moisture, so that they can withstand the very hot days in summer. Maybe he is right, but I sure makes my lawn look good to sprinkle it now. But if I trained my plants to require watering less often I might have time to do many more necessary things in my garden.

I believe that I can tell pretty well now the shrubs and roses that are dead and those that came through the winter without damage. I'll get my clippers and go to work. I'll start on the climbing roses, for I see that most of the old stumps are dead. If I can finish cleaning out the roses without losing my religion I'll tackle the other things.

While I have the clippers out I'll look over the little fruit trees. I saw a neighbor trimming his this morning and it looked easy. Now, how do you tell what to cut out and what to leave. I'll have to call the Oldtimer again.

He tells me that cherry trees need very little trimming, but that apples and peaches require quite a lot if they have grown vigorously. He tells me to never cut a limb unless it is for some definite purpose. Limbs that rub each other or are too close together should come out and often the center of the tree needs opening up. Limbs that are too low or too high should be nipped back. Then, they look better already. There are several limbs that I'll leave for next year, and maybe by that time they will be better or worse.
CHLOROSIS—A DEFICIENCY SYMPTOM
A. F. Hoffman
Orchard Soils Specialist, Palisade, Colorado

Extract from paper read at Rocky Mountain Horticultural Conference Denver, Colorado, February 3, 1948.

CHLOROSIS in plants is a condition in which there is a loss of chlorophyll, the green coloring matter of plants. This condition results in more or less starvation. Without chlorophyll, the plant is unable to make the food it needs. Chlorosis is the extreme condition. The factors causing it may exist in modified form in normal-appearing plants but may affect these plants in other ways—resulting in less frost resistance, a faded color in the bloom, etc.

A variety of causes are listed as being responsible for chlorosis in plants: mechanical injury, chemical injury, excess water—especially during cool weather in early spring, poor drainage, lack of aeration, lack of sunlight, lack of essential plant food elements, fungus and virus diseases, and change in the stomata by large amounts of dust. Different causes may result in different types of chlorosis.

We grow plants where they would not grow naturally. We change the character of these plants through breeding, at the same time paying little attention to the fertility changes required by the plant changes we have caused. We do not control erosion and leaching. We cover top-soil with sub-soil. In the case of ornamentals we remove part of the soil fertility by burning or dumping in the alley the leaves, lawn clippings and brush. We increase the salt content of the soil by the way we handle it. In brief, we change the physical and biological characteristics of soil as soon as we start to cultivate and water it.

The plant gets its food from the clay particles in the soil. Plant food is held around the clay particles and if one kind of plant food exists in such great quantities in the soil that it crowds other plant foods away from the clay particles, the plant is unable to get the varieties of food it needs.

In general our western soils are alkaline. If the concentration of alkalis is great enough, other plant foods may become relatively scarce on the surface of the particles of clay. There is only so much room around a particle, just as there is only so much room on a chair. As a result we often have an iron-deficiency type of chlorosis in plants grown in soils that are high in iron! The lime crowds the iron off the chair. We say that we have a "tie-up" of the iron by the lime, or that we have a "lime-induced" chlorosis.

It is also probable that plants are sometimes not able to utilize available fertility of the soil because of some condition of the plants themselves—other than mechanical injury and disease. Common salt seems to be a cumulative poison as far as plants are concerned. Some trees, for example, do well in salty soil for several years after they are planted, then apparently build up accumulations until the amount of salt is toxic to the plant. When this happens, leaves become small, there is marginal scorching and a loss of chlorophyll in the foliage.

Three types of nutritional troubles may lead to chlorosis in plants—actual soil deficiencies, non-availability of plant food elements in the soil, and inability of the plants to use the food materials even though they exist in available form. There is a method of attacking each of these troubles:

In the case of a deficiency, the addition of the missing cement; in the case of lack of availability, stimulating microscopic life in the soil and reducing the alkalinity; in the case of plants not being able to utilize available materials, removing the cause (through drainage if the salt content is too high). So far this seems to be fairly logical but now the question of how to make a proper diagnosis rears its ugly head!

Perhaps the plant itself can be put on the witness stand. The plant will tell of a nitrogen deficiency by a yellowing of the leaves near the base of the current season growth, a stiffening of the growing shoots, small fruit and leaf size, a lack of winter hardiness. An iron deficiency will show in a yellowing between the veins of the leaf, the midrib and primary veins remaining green, small leaves, in severe cases a whitening of the leaves, die-back. So also with deficiencies of phosphorus, potassium, calcium, sulfur, magnesium, copper, molybdenum, manganese, and zinc—all have distinctive symptoms. Learning to know these, we can at least suspect, if not diagnose the lack.

What are the recommendations for the control of chlorosis? Perhaps they should be divided into two main methods—soil management and emergency treatment. In soil management, fertilization, maintenance of humus and biological activity, cultivation, application of water and drainage should be considered. All of these things must be applied in the light of what is the balance-point or the optimum of the plant.

In the theme of fertilization, consider only the three macro-elements—nitrogen, phosphorus and potash. In most western soils, the first limiting factor is nitrogen. The majority of plants require from two to three times as much nitrogen as phosphorus. Yet this does not mean that these soils will contain enough phosphorus to maintain plant life forever under all conditions. It has generally been supposed that all western soils contain a large amount of potash, yet many plants use more potash than nitrogen and phosphoric acid combined. It is only a question of time until more balanced materials are needed and we are now coming to the point where the use of all three of the macro-elements is indicated. At this point it may be well to mention the old controversy between the proponents of organic fertilizers and those who favor the use of some inorganicities. Actually our own necessity eliminates any conflict. Experience with liquid inorganic fertilizers seems to indicate that the only magical property of barnyard manure is the humus it contains.

With this knowledge, it is recommended that you use barnyard manure when you can get it and the price is reasonable—fortifying it sometimes with commercial fertilizers. Use more nearly balanced commercial fertilizers and avoid applications that are beyond the needs of the plant, especially in the middle of the growing season.

Perhaps the most important recommendation of all is that the humus supply in the soil be maintained at a high level. Numbers, kinds and activity of microscopic organisms in the soil are dependent on the humus supply. Green manures are excellent for this purpose and also plant residues. When organic matter is in the process of decomposition, however, these organisms temporarily "tie-up" large amounts of nitrogen, so it may sometimes be necessary to apply commercial nitrogen if decomposition is proceeding at a rapid rate during the growing season.

Time and method of cultivation are important in the control of chlorosis. Too much of it may interfere with the
microscopic life of the soil. Avoid in particular deep cultivation in the middle of the growing season. The application of water should be to a depth greater than the penetration of the roots of the plant and there should be good drainage so that there will not be an accumulation of common salt and alkalis.

In very severe cases of chlorosis it is often desirable to use emergency treatments until a more permanent solution of the trouble can be made in the soil. We are using injections, soil treatments and nutritional sprays as emergency measures. Injections may be made in the form of dry material or liquid solutions in parts of the plant above ground or in the roots. Soil applications may be made by general distribution or by "pot-holing". Nutritional sprays may be applied with any kind of a sprayer that will do the job of covering all the foliage.

Editor's Note: While this emergency work should be done by professionals, soil management in the treatment of chlorosis can be undertaken by the owner after diagnosis.

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**SILLY SYLLIGOQUY**

I wished I knew a little more of what it's all about. ?!

Well, I hied me down to Horti. House one day to find it out.

I found a wealth of everything that makes this world go 'round;

Of shrubs and weeds and pretty things, and worms down in the ground.

And someday when I'm brave enough, I'll master all the names

Like Euonymous alatus, and that bug that climbs their frames.

Just now I must be satisfied to take it by degrees,

But how I wish I knew them all—could talk of them with ease.

E. T. L.

---

**ORCHARDS TO KATHRYN KALMBACH**

The results of Mrs. E. R. Kalmbach's work for horticulture will be felt in Denver for many years to come. How she finds hours enough in the day to do all the things she does is one of the mysteries that may never be solved. For many years now she has been a great influence for good in Garden Club work. She has worked in the Victory garden campaigns, and most recently has helped in the Judging schools. At present she is giving at least one day a week to putting the Herbarium at Horticulture House in order. This is a big and very important job.

Everyone likes to work with Mrs. Kalmbach. She never asks anything of her helpers that she is not willing to do herself. When she agrees to do a job it is as good as done. She is now anxiously awaiting the time when the wild flowers bloom again and she can go on more botanical expeditions to gather more specimens for her herbarium. The world needs more Kathryn Kalmbachs.

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REASONS FOR NATURE TRAINING FOR CHILDREN

Condensed from Paul W. Nesbit’s book, “Instructive Nature Games”, published by the
Author at Estes Park, Colorado.

Editor’s Note: We realize that in city schools it is very often difficult, even
impossible, for teachers to create outdoor activities or to hold nature trips
for their pupils. It would, however, be a step in the right direction if active
nature games could be made a part of the school day.

Our lives have become so pampered and artificial that we need
large doses of nature in order to bring about a proper balance. As
we get older we may return more easily to those activities in which we
engaged as children but it is more difficult for us to undertake new ac-
tivities which have been foreign to our experiences. During childhood is
the time to become familiar with nature.

Schools tend to too much to restrict children’s desire for physical activity and
to co-op them in pools of partially stagnant air exposing them to con-
tagious diseases, at the same time
softening their resistance to them. A
child’s physical development is often
taught at the altar of a school desk can never
be fully regained. In contrast, much
subject matter can be taught more effi-
ciently later. First we waste effort
opposing children’s desires to be ac-
tive and out of doors. Later in the
educational process, we waste effort
in prodding the then anemic youths
to accomplish something and even to
take part in physical activities. Still
later in life individuals and society
pay for poor health.

Pupils in schools study too much
about things instead of studying the
things themselves. Nature, when
taught at all, is likely to be taught “in a
carcass of pickled specimens” or
in an unnatural prison. Assignments
are emphasized at the expense of ex-
periences. Information and under-
standing can best be gained during
or after actual experiences—not be-
fore. Knowing should be more closely
related to doing and enjoying. Chil-
dren and teachers need more variety
in school work. They particularly
need relief from paper, pencil and
book work. Nature combined with
games can help to meet these needs.

Nature itself, and the problems of
taking care of oneself in a natural
environment, tend to develop inde-
pendence and self-reliance.

Schools heap inactive forms of rec-
reation, such as reading, music, and
various intellectual and artistic purs-
suits upon people whose lives are al-
ready too inactive. In contrast, na-
ture furnishes an important intellec-
tual interest which may lead one to-
ward healthful activities out of doors.
The active sports upon which schools
do place most emphasis are not those
which will be participated in except
during the fleeting years of youth,
after which comes the much longer
time of adulthood and its too frequent
physical stagnation. Schools need to
place more emphasis upon forms of
recreation which will furnish healthful
outdoor activity throughout life. Too
many of the recent products of our
schools turn to liquor, night clubs, and
over-stimulating amusements for their recreation. They depend too
much upon being entertained by others in stuffy crowds. To what will
future citizens turn for relief from the ever increasing pressures of mod-
ern life?

A person’s recreation should help
to balance his life. If he does inactive, indoor work as many do, then his recreation should be out of doors and active. If he works continuously with others, then he may well spend some of his recreation alone. Nature, and its related activity, hiking, can be adapted to fit a wide variety of personal needs. It can be enjoyed at all seasons. It can be carried out alone or in groups and clubs. It can be entered into leisurely by loafing at the streamside, or strenuously by climbing mountains. A hike in old clothes may cost nothing, or one may deplete any pocketbook through travel and exploration. It may vary intellectually from mild contemplation to the unravelling of the mysteries of the universe. Creativeness with natural materials is unlimited in its possibilities. One's spiritual nature may respond in any degree to the wonders of nature, and there is unsurpassed beauty for the aesthetic sense. Thus each individual may find in nature the combination of activities which will best serve to balance his life and allow expression for his individual desires.

Nature is the very basis for our lives and needs to be better understood. Both individuals and nations suffer in proportion as they disregard nature. Interest in nature often leads to the development of valuable scientific interests, to worthy vocations, or to intelligent efforts along such beneficial lines as the conservation of natural resources.

JACK SEZ

A cold frame often helps us to start our annuals from two to four weeks earlier than if we sowed the seeds directly in a flower bed. A desirable size to build a cold frame is 3' 6" x 6", approximately 6" to 10" above the ground. Make sure that the frame slopes to allow the sunshine in and the rains to run off instead of into your bed. It is usually difficult to obtain manure and it is possible to have a successful cold frame without bottom heat, provided it is covered at night and the seeds planted somewhat later. Be sure that the soil in which the seeds are planted is thoroughly pulverized to give the young plants a fast start. Opening the frame to harden the plants a week before transplanting is a great help.

***

A good many of us have failed to prune our shrubs after last season's blooming. Now we find that they have outgrown their position and we are anxious to do heavy trimming so that the plant will again be in bounds. This is not the time to prune and we suggest that you do as little trimming as possible until after the blooming season, as you will otherwise be cutting away most of the new bloom. Many people think that pruning is a mysterious art but if you will follow the two rules—not to trim shrubs till after blooming and not to be afraid of cutting into the old wood (to give the shrub an opportunity to bloom again)—you will find that it is a very simple matter.

Most Mountain Ash trees were unusually full of fruit last year which has caused a great deal of attention being brought on this attractive tree. Many do not know that there is a native mountain ash which grows slowly and will never get large.

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LANDSCAPE CLASSES

Announcement is made of a spring course on landscape planting for Denver homes, offered by Denver University in cooperation with the Colorado Forestry & Horticulture Association. The classes will be held at Horticulture House, 1355 Bannock Street, on Tuesday evenings from 8 until 10 o’clock, commencing April 6 and continuing through June 8.

The class is planned for home owners, amateur gardeners, and others interested in art out-of-doors. In addition to a consideration of the principles of landscape design as applied to the layout of home grounds and gardens, the study will cover plant materials, planting design, and the many practical problems involved in the development and care of beautiful and distinctive landscape plantings. To supplement the lectures and class discussions, some field trips will be planned.

Instructors for the course will be Irvin J. McCravy, landscape architect, Miss Jane Silverstein, landscape architect, and George W. Kelly, horticulturist. The price for the course of eleven sessions is $12.00.

QUESTION BOX

We have had several requests lately for such a department. So to help our readers with their garden problems, we will be glad to answer any questions sent to us. Those of general interest, we will publish, with the answers, in The Green Thumb.

THE WEEK-END GARDENER

The "boss" says that the nurseryman delivered those plants I had ordered this morning. I’ll change into my garden clothes and plant them out. I must see what they look like before I go in. Yes, they are nice looking plants. I will get the plan I made last fall and see where I had figured to put them.

"Hi, Oldtimer, what is the matter? Are those my plants? Yes, I want them to grow. Why surely it can’t hurt them to leave them in the sun and wind for an hour or so. You say that some of them are practically dead now. It must have been poor stock that the nurseryman delivered me. What should I do about it now? Do you think that they might still live if I covered them completely with moist soil for a day or two? Thanks, I’ll know better next time."

I wonder if the same rule applies to the perennials that I am digging up and dividing. I’d better have the work all planned so that I can get things back into the ground as fast as possible. The Oldtimer tells me that the instinct to know when a plant is being treated right and when it is being abused is one of the things that indicates people with green thumbs.

That was hard work moving all those plants and working over the soil. I’d just wander around and look at things for a while. There are ants running up that bush. I’ll bet there are aphids on it somewhere. Sure enough, they are just starting. I’ll get out the sprayer and get them before they do any more damage. I’ll bet that there are other insects just starting now. I’ll look everything over carefully. There is no rest for the gardener when spring once comes and the plants start to grow. It isn’t long after the first leaves venture forth that the various bugs begin to eat them. Well, that is part of the fun of gardening—to outsmart the insects and diseases, but it sure takes eternal vigilance.