The Green Thumb
COLORADO'S GARDEN MAGAZINE

SPRING WILDFLOWERS
THE COMMON MOLD
BROADLEAVED EVERGREENS
A Special Course of Training Has Been Planned for You

LEARN FROM PROFESSIONAL FLORAL ARTISTS:
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CLIFF MANN, Director
Phone AL 2064 or Write for Detailed Schedule.

ASSOCIATION ACTIVITIES
Secretary's Report of 1949, Mrs. A. L. Barbour
Minimum Membership Raised to $3.00
The Spring Fair in Civic Center

GARDENING
The Common Mold, by Thomas Martin
The Donald C. Bromfield Garden, by Helen Fowler
What's New About Plants
We Need Research
April Gardening Suggestions

LIBRARY
News and Notes, by Helen Fowler

MOUNTAIN AND PLAIN
We Found Spring, by Kathryn Kalmbach
Some Spring Flowers to Look For, by L. J. Holland

ORNAMENTAL PLANTS
Adventures with Broadleaved Evergreens, by Arthur Braun
Tired of Gladioli?, by M. Walter Pesman
Evergreens for Colorado
Johnny-Jump-ups, by Mrs. G. R. Marriage
Primrose Path, by Frances Binkley

Picture on front cover of our native Mariposa Lily. On back cover of Shooting Star, from painting by Emma A. Ervin.

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PLANT NOW

April and May are the best months for planting nearly everything your nurseryman can furnish — Evergreens, Shade Trees, Fruit Trees, Flowering Shrubs, Roses, Hedges, Perennials, Vines, etc., etc. It is a very busy month for your nurseryman. Every moment of his time must count to the best possible advantage if he is to give satisfactory service to his customers. You can help him in his effort if you don’t call him away from his work to demand preferred service and if you tell your friends to be patient and wait for their turns.

You can render your friends a real service if you supply them with a list of members of the Colorado Nurserymen’s Association. You will find these names listed in the February issue of “The Green Thumb”. These nurserymen know the kinds of plants that thrive under Colorado conditions. They will give you and your friends good service and good advice.

COLORADO NURSERYMEN’S ASSOCIATION

See the February Issue of the GREEN THUMB for List of Members

APRIL SCHEDULE

April 2. Sun. Meet at Horticulture House 8:30 A.M. for trip to Hamlin Gulch, old Ghost Town near Alice. Some early flowers should be seen.


April 23. Sun. Meet Horticulture House 8 A.M. for trip to the White Rocks area near Boulder. Here are found very unusual plants.

April 28. Fri. 7:45 P.M. Horticulture House. Recordings of bird Songs. See announcement elsewhere.

April 30. Meet Horticulture House 8 A.M. for start of trip to inspect the Monument Nursery of the U.S. Forest Service. Trip will also include inspection of the Yucca Botanical Reserve and Van Briggel Pottery works at Colorado Springs. May 6-7, Sat. & Sun. Trip to Cucharas Canyon in southern part of state for study of the flowers and trees in that area and inspection of Indian writings on nearby rocks.

Registration must be made by Friday evening for all outdoor trips so that transportation may be arranged. Call for more particulars of all these trips.

SPRING FAIR

The Ways and Means Committee headed by Mrs. Barbour and including many loyal friends of the Association have made preliminary plans for the much-talked-of Spring Fiesta. This will be held in the Civic Center on May 20th, all day. Growers of plants and dealers in garden accessories will maintain booths where their wares will be on sale. It is planned that the Denver Art Museum will also have booths where art objects will be made and sold. The committee from this Association will arrange for publicity and staging and will provide entertainment to attract prospective buyers and make of this a gala day. Light refreshment stands will be maintained by various groups.

Other cities have conducted similar affairs which have produced, rather painlessly, an income sufficient to cover half the operating expenses of their horticultural association. If all will cooperate we may do as well. There will be more details given later.
A never-increasing volume of work has been done this past year at Horticulture House in the line of direct information and help given the public. It would take too much space to detail and describe the courses and classes, lectures and programs sponsored or given by George Kelly and associates during the year. These did not include, of course, the daily stream of “advice to the plant-lorn” that goes out by telephone, letters and word of mouth. As well as in the Green Thumb there has been a steady supply of excellent horticultural material furnished the Garden Corner and Homestead page of the Denver Post. The association was fortunate to secure as assistant and secretary Miss Lynette Heminway, who aids in this work.

The various committees have also been busy in their fields of endeavor. The Roadside Improvement and State Parks Committee has enlisted a distinguished group of people who are making plans to beautify our high ways and secure a strong state park situation. Mrs. Waring provided 30,000 copies of a very attractive folder in color that will be used to promote the group’s ideas of roadside clean-up and signboard removal.

The Conservation Committee under Mrs. Churchill Owen has made several trips around the foothill areas to select and study sites which should be set aside and kept as botanical reserves. They are determining ownership and will ask for the donation of chosen spots. This committee has sponsored a Nature Leader’s Institute aimed at training people to teach nature subjects to children.

A year ago the association advocated a program that would establish Junior Forester Clubs in the elementary schools. This plan has been taken over by the City Forester’s Office and...
THE COMMON MOLD: MAN’S FRIEND OR ENEMY?

THOMAS L. MARTIN
Brigham Young University

All lovers of the soil should be interested in this topic, for the molds, just like bacteria, determine when, how, and where a man shall live. They become very influential on the health problems of men, and have much to do with the fertility of the soil. The organisms are found on oranges, cheese, bread, and decomposing leaves. They produce odors and create “rotten” appearances, but their activities, in spite of this, makes them an object of nature and worth some of our investigation activities.

Plants are divided into four general groups. There are the seed plants, the mosses and liverworts, the ferns, and a fourth group which has the peculiarity of never developing stems, roots, or leaves. The fungus plants, such as the mushrooms, the rusts and smuts of grain, are illustrative of this group of plants. Among these are a number of cottony, cobwebby, powdery materials which we call molds. With these organisms you and I have very much to do because these molds are either our friends or our enemies. They exert much influence on the lives of each one of us.

Are These Molds Foes of Man? In some instances, they are. They attach themselves to various kinds of organic materials, such as manures, foodstuffs, the flesh of the finger of a person, and the flesh of animals. They secrete a digestive juice which changes this organic material into a soluble state so that the mold can secure energy and food elements for the growth of the mold body. They grow rapidly, and they happen to grow on things that you and I are very much interested in such as the food we eat and the tissues of our bodies. Under those conditions we say that they are foes. They produce a fusarium wilt disease on tomatoes and potatoes. They cause blight on chestnut trees and threaten the very existence of those trees. They kill house flies. They grow on skin, pus, and sputum. They grow on the tissues of man. They grow on the scalp and produce ringworm, on the hands and feet and produce athlete’s feet. They grow on the mucous membrane of the lungs and produce a pneumonia-like disease. They produce thrush in the new baby’s mouth. They attack the wax of the external ear of man and, at times, produce total deafness. They are responsible for many abscesses. They produce a number of other diseases which cause rheumatic fever-like infections. They get into the joints and muscles and produce pain and headaches, coughs, and chills. They produce diseases similar to tuberculosis. They cause emaciation and anemia and ulcerations on the skin. They grow on the face and the neck, and the shoulders and the buttocks of man.

These are just a few illustrations of the enemy-type of activities of molds that come from the soil. You and I are interested in them because the soil produces them. If this were all with which the organisms were associated, we would be justified in simply saying that they are, indeed, the enemies of man, but there are many evidences which indicate that they are good for man.

The by-products of their activity will drive disease from the face of the earth. Our soil fertility problem would be impossible of solution if it were not for these molds. The kind of world that we are living in is great because of the work of these molds.

The common mold is not all enemy by any means. It is distinctly a friend, for it secretes substances that are detrimental to many disease-producing bacteria. About twenty years ago Dr. Fleming, of the University of London, found that a penicillium mold secreted a substance that would kill the organisms that cause sore throat and war wound infections. It killed the organisms associated with pus and with such diseases as gas gangrene, tetanus, boils, and carbuncles. Other investigators followed up Dr. Fleming’s discovery and now it is known that the common penicillium mold, oftimes called a “cheese” mold, has a curative effect for many as eighty-nine different diseases caused by bacteria. The substance secreted by this mold that comes from the soil is known as “penicillin.” Other molds have been found that produced chlavin and glotoxin, and other penicillin-like substances. They work on the same disease germs that penicillin does.

Just recently there has been found a soil fungus, or mold, in the throat of a chicken that had picked up this mold from the soil. This fungus, or mold, was found to secrete a substance known as streptomycin, which has proved to be very effective against undulant fever, tularemia, dysentery, and possibly tuberculosis and bubonic plague.

Another anti-substance has been obtained from the common mold in the soil called eumycin. This substance helps to control tuberculosis, diphtheria, athlete’s foot, and ringworm. Aureomycin from a soil mold was developed recently. Aureomycin will weaken the germs that cause “Q” fever and ricettosial, disease-producing substance responsible for Rocky Mountain Spotted Fever. Some investigators in Venezuela worked with 6,000 samples of soils and obtained...
20,000 molds from these soil samples. These workers found a chloromycetin from one of the molds. This substance is proving to be a cure for typhus fever and certain virus diseases. More and more antibiotic substances are being produced by different molds isolated from our soils.

It is strange that the common soil mold has existed throughout the ages, and has produced these valuable substances. These substances have either been wasted in the soil, or have contributed to the balance in nature. These substances have probably kept in check many organisms that would have given much trouble to man. It is interesting to be living at the time when these molds have been discovered, isolated, and used to help men control disease. Never have we been so near to driving disease from the face of the earth as now, and this because of these wonderful substances secreted by the common soil mold. The soil mold is, indeed, a friend of man.

When one considers the freedom with which the scarlet fever organism has attacked the throats of children and how they killed millions and millions of these children in days gone by, how fortunate we should feel that such does not go on now. The typhoid organism has entered the mouth and passed into the intestines for generations and has gone through these intestines and gorged the spleen and other organs, and produced terrible fevers. Just think how free the Lock jaw organism has been to give trouble to man and how the bubonic plague and many others have kept men’s minds and bodies in bondage, preventing man from unfolding and developing into the kind of man that he is supposed to be. However, these germs have met their doom now because of the progress made in the understanding of soil molds and the antibiotic substances which they produce. Under the hands of man they now control human disease. That the common mold of the soil is, indeed, a friend of man, is most encouraging and satisfying in this day and age.

There is another way in which to look upon the common mold as a great friend to man. There are 300,000 to 700,000 of them in every gram of fertile soil. They do a great amount of work there. That vast number of germs is bound to effect the soil so that the plants will grow much better. They depend upon the organic matter in the soil and decompose it to the point that plants can reap the benefit from the decomposed product.

There are some species of mold or fungi which can actually take the nitrogen from the air and fix it for the use of plants. A typical representative is the group of organisms known as mycorrhizal fungi. This type of fungus attacks the roots of forest trees, taking the place of the root hairs. In that way it helps the plant. The common mold will decompose manures when it is added to the soil. In fact, it is the first organism to bring about a decomposition of the plant tissue, so that the bacteria can carry on further decomposition. Molds cannot complete the decay, but they can start it.

These molds take the proteins and break them down into ammonia. In fact, we depend upon the mold more than any other organism to give us the ammonia for the nitrification process. The whole nitrogen problem in the soil is tied up very closely with the soil mold. The mold body is very resistant to decay. It contains much nitrogen, and because of this resistance, much residual nitrogen would otherwise be lost.

The dead molds are a source of organic matter for the decomposing bacteria. Because of their bulk and the vast number in the soil, they become a recognizable quantity in a fertile soil. They are humus builders. We are learning that some of these molds will kill plant disease germs that are in the soil. We are finding out, because of our continuous investigations about soil molds, that there is a strong relationship between the science of soil microbiology and the science of plant pathology.

The molds help to granulate the soil. Some of the secretions from the molds are gluey in their nature and cement soil particles together into desirable crumbs. The mold threads wrap themselves around soil particles and help to develop crumbs. Thus, the soil is better able to become aerated, and water and temperature are much more under control. They have much to do with the control of soil erosion. When the problem of soil erosion has been solved, it will be found that the common soil mold has been one of the greatest factors in that solution. Which ever way one turns, one finds a use for molds in the soil. We use them for tests to determine the need for phosphate, and the need for potash in the soil.

In summary, then, let us say that the common soil mold causes plant, animal, and human disease; therefore, it is an enemy. The common soil mold develops antibodies which help to control disease; therefore, it is a friend. The common soil mold is helping to drive disease from the face of the earth; therefore, again, it is a friend. It is the preponderant organism in the soil which makes possible the fertility essential for profitable plant production. “The common soil mold—man’s friend or enemy?” can be answered in the affirmative. It is, indeed, a friend to man.

Do You Know When to Prune Shrubs?

The traveling trimmers will soon be around—just be careful they do not get into shrubs that are about to bloom. These spring-flowering shrubs are often robbed of their chief attraction—their bloom at this season—because pruning is done at the wrong time.

REMEMBER: the time to prune spring-flowering shrubs, when they need trimming, is immediately after the flowers have faded, cutting out all shoots that have just produced the flowers. BECAUSE: the bloom is produced on the growth of the previous year. All during the summer and fall these shrubs are getting ready to flower when spring arrives. This year your 1950 bloom will come if you trimmed the shrubs after they flowered in the spring of 1949. This year’s bloom will come on the Lilacs, Pink and White Almond, Mock Oranges, Spireas, et cetera, if you did not prune during the summer, fall or winter.

Helen Fowler
seems to come from its twice-per-year feeding.

Variety and surprises are provided by dividing the whole garden into many distinctive parts. How many gardens today are one large grass plot with perennial borders along the property lines. Their entire story is told in one sentence. “The reasonable complexity of a garden”, says Mr. DeBoer “makes it inviting.”

At the extreme east side, done in circular form, is the rose garden, banded by white Peonies. Outlining these, in turn, are those large grey-leaved iris, lavender and purple in color, giving a season of May and June flowers and an all-season bloom of some five hundred roses.

The large terrace joining the house is furnished in white and soft yellow. The planting here is always in white. This year it is done in Sorbaria sorbifolia,—spirea of a sort, creamy white in early summer with white Tulips for May bloom. At the north end of the terrace are white Lilacs, on either side of well-planned steps entering the greenhouse. On the east side is the evergreen Euonymus radicans shouldering itself up a low brick wall.

In this garden is an opportunity for the study of the blending together of the laws of architecture and of plant life. By catching a few of their secrets we should make more and more beautiful gardens.

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THE DONALD C. BROMFIELD GARDEN

The formality which is found in the Bromfield garden is of as much interest for the lines on which it was laid out as for its restricted use of flowers. Mr. S. R. DeBoer who laid out the grounds says, “All gardens need plenty of green with varying amounts of color. Most of them have too solid a mass of color and too little well-planned green.”

A place was built here of inspiration and promise, and today, as Mr. DeBoer planned, it gives a pleasing appearance of age. He has made the house a part of the garden, with his always-thorough understanding of the tie between the gardener’s art and architecture.

Walking down from the terrace from which the above picture was taken, one comes into an open space of closely-clipped turf. There are evergreens, in large areas on either side, interspersed with careful accents of small tree growth and with groundcovers such as are rarely seen in Colorado gardens. The myrtle over the whole place is especially fine which
An optimistic group of “nature nuts” went out with Mrs. Dickinson to the Deer Creek Valley southwest of Denver on March fifth to help her find the spring that she had written about. We found Spring Beauties all around under the Oak brush and saw some Whiskbroom Parsley and Oregongrape starting to open their buds.

Was ever a day so perfect? Cloudless sky and balmy breezes made us wonder if the calendar was wrong—surely this must be May instead of March. But the little stream babbled along under a roof of crystal ice and we found little pockets of snow in every shaded hollow to prove the calendar right after all.

We could all see and feel, yes, and taste too, many sure signs of the coming of Mistress May. There were tiny green leaves and spears under the brown old leaves. The Willows, Alders and Maples had magically changed the color of their stems and the Aspens looked so clean and expectant. How good the earth smelled.

We saw little furry hoods peeking out of the ground near the sun-warmed rocks—were they little pixie bonnets? No, looking closer they were slowly uncurling to expose the dainty mauve petals of our beloved Pasque flowers. We knew that soon the slopes would be covered with their delicate dove colors. We also knew that soon the pure white, waxy sandlilies would decorate the bare sandy roadsides and meadows and the Easter daisies would keep their date with April. And what would be that bright red rosette, a bit higher on the hillside? The jewel-bright blossom of the ball or pin-cushion cactus, another early visitor.

We realized that a few more days of warm sunshine would start the procession of bloom that would make of every mountain meadow and slope a canvas of riotous color. We felt that this thrill of first finding spring was greater than that which would come later when we would be surrounded with the spring’s full parade of color.

It is very difficult to say which flower blooms first in the Spring, and where one would find it. Along the foothills the Pasque-flower is considered by many as a sure harbinger of Spring, while in the southeast part of the state the Easter Daisy is hailed as the first sure sign. However, I’ve seen both of them well covered by snow. The Sandlily is not far behind, if at all, and these are soon followed by members of the Violet family. The much despised Dandelion may even burst forth on a warm day while Winter is still with us, and golfers will vow that the White Plains Primrose is as early as any.

April also brings us the White Larkspur, earliest of the Delphiniums, and only slightly later the blue Delphinium nelsoni of the foothills, Mer tensia lanceolata and Erigeron flagellaris are to be found on south hillsides. It may seem strange, but flowers in the red shades are poorly represented at this time, and there is not an abundance of yellow, although Puccoon, Yellow Violet and Plains Golden Banner may be in evidence, and later in the month Corydalis, that golden cousin of the Bleeding-heart, is met with quite frequently.

May really ushers in the floral parade; a prelude, as it were, to the sym-
phony of June. Most of the flowers that appear in April will carry on into May and a great many more will add their colors to the panorama that is "Spring-time in the Rockies." This is the month when the brighter colors get into the limelight. Pink Phlox, Loco (several varieties), Indian Paintbrush and the delicate Spring Beauty are all easily found. Dwarf Cornel,
Mariposas, (the most beautiful native bulb), and Canada Anemone are gems worth searching for in the foothills, as well as several varieties of Pentstemon.

Blue Flax, Native Iris, Leather-cup Clematis, Wild Lupine and our Colorado Columbine form a rhapsody in blue, although they will not all be found in one location. In the Southern Plains the Golden Evening Primrose and the largest of the Pentstemon tribe (P. grandiflorus) steal the show from the Yellow Flax and Prickly Poppy, but Sand Verbena and Prairie Cone-flower (Lepachys columbaria) merit a bit of attention. Poppy Mallow sometimes makes its bid during the last part of May, but more properly belong to June.

*Chickweed, one of the common early wildflowers.*

*Globeflower, a common early flower in wet places at high altitudes.*

*The common Chokecherry, found along streams in the foothills and plains.*
IN writing on the subject of Broad-leaved Evergreens, I realize that I am walking on treacherous ground. To my knowledge at least, very little has been done experimentally with this class of plants in this region. After six years of experimental work, I have come to certain conclusions regarding their habits, cultural requirements etc., and in the following paragraphs I wish to tell you briefly of some of my findings.

RHODODENDRONS

For many years I felt that Rhododendrons were completely unsuited to our great Plains region for obvious reasons of too much wind, too much alkali in the soil, too much cold and too little humidity and precipitation. However, the thought occurred to me that, in spite of these obstacles, the rhododendrons themselves might be consulted as to whether or not they might find it congenial here. After considerable argument with certain rhododendron growers as to my sanity, I managed to buy 6 plants of the variety Caracatus and so started my first experiments with three beautiful evergreens.

KINDS

The native eastern rhododendrons are, by far, the hardest and easiest to grow. There are three principal species, namely: Rhododendron maximum, very tall type and with white or pale pink flowers; Rhododendron catawbiense, medium in height with lilac purple flowers and R. carolinianum, a dwarf with rose colored flowers and much smaller foliage than the two preceding species. All three came through the severe winter of 1947-48 with no injury whatsoever even though I had some plants in full sun, others in partial shade and still others in full shade. I see no reason why these rhododendrons should not become common in this region if a few simple but exact cultural practices are followed. As a final remark, I would like to point out that the foliage is better and the flowers last longer in full or partial shade.

The Catawbiense Hybrids, so called because they are derived principally from crosses between R. catawbiense and such European and Asiatic species as R. ponticum, R. Caucasicum and others, are much superior to the native species in flower and foliage. While these hybrids will stand about as much cold as the natives, they are more sensitive to winter wind and winter sun and therefore should be given some protection at least for the first 2 or 3 winters. I have found that they have a remarkable ability to adjust themselves to a given exposure even though it be in full sun but should be hardened to such exposure gradually.

Of the 50 or more named Catawbiense Hybrids, I have tested the following: Mrs. C. S. Sargent, pink with golden spots; Mrs. P. Den Ouden, a low growing compact red; Dr. Dreschhuys, a tall crimson; Roseum Elegans, orchid pink; Purpureum Grandiflorum, lilac purple; Michael Waterer, red with black spots; and Car-
Rhododendron albiflorum, photographed near Gilpin Lake in Routt County.

acatus, a purplish red. Mrs. C. S. Sargent is definitely the hardest of all I have tried but Mrs. P. Den Ouden and Dr. Dresselhuys are very close seconds.

By far the most magnificent of all rhododendrons are the English and Dutch Hybrids. They are not considered hardy except in the Pacific Northwest but some varieties like Pink Pearl, Cynthia and a few others have been found growing successfully in New York state. I have under test at present the following: Pink Pearl, Cynthia and Mme. de Bruin. At this writing they are holding up as well as the Catawbiense Hybrids. However, I would like to warn against using this class until they have been more thoroughly tested.

There are two species that I would like to comment on for the very good reason that they are supposed to grow in limestone soil. Rhododendron hirsutum from the mountains of Central Europe with carmine pink flowers and light green foliage and R. wilsonae from China with small lance shaped leaves and magenta flowers. I have tried R. wilsonae and find it hardy. I use plenty of peat in preparing the soil but find that no other treatment is required as far as soil reaction is concerned. I have not tried R. hirsutum simply because I have not been able to find any plants in this country.

Both species are dwarf—rarely more than 3 feet at maturity.

CULTURE

Soil preparation for rhododendrons is quite simple. About one foot or more of soil is removed from the bed. If the soil is a medium or sandy loam, it can be saved and treated with a mixture of sulphur, aluminium sulphate and iron sulphate in equal parts. This mixture is applied at the rate of 3 pounds to each 100 square feet or up to 5 pounds per hundred square feet if the soil pH is high. A soil test would be the best way to determine the proper amount to be used. Heavy, sticky clays are not desirable but can be used if enough humus is used in the bed preparation. At this point, I wish to stress two very important details. First, the bed should receive a very thorough soaking and second, the mulch should be applied before the ground freezes. I find that the best material for winter mulching is newly fallen leaves. With these I cover the bed to a depth of from 8 to 12 inches. This covering insulates against deep freezing and thereby prevents excessive foliage burn even in very cold or very dry weather.

Pieris floribunda (Lily of the Valley Shrub). Few broadleaved evergreens are harder than this attractive member of the family Ericaceae. Because of its neat habit of growth, its interesting lily-of-the-valley-like flowers and evergreen foliage, it seems to me that it should be more widely used in foundation plantings particularly in shaded or semi-shaded spots. It will also grow in full sun but like most all members of the heath family, should have a constant supply of moisture and a permanent mulch. Otherwise it is easily grown. Most authorities insist that it requires an acid soil but I have grown all of my plants without treating the soil in any way. Liberal amounts of peat moss or leaf mold, however, should be worked into the soil and a mulch of the same materials maintained around the approximate root run of the plant.

Kalmia latifolia (Mountain Laurel). I have tried this beautiful shrub for a number of years but have had only indifferent success with it. Most authorities seem to feel that it is much more adaptable to a greater variety of soil and climate than rhododendrons. Under our conditions, I find that the opposite is true. It seems much more exacting about soil and will not tolerate clay at all. The foliage burns badly each winter when planted in sun (contrast this with the ability of many rhododendrons to adjust themselves to sunny spots), and is subject to severe winter injury in shaded but windy locations. In Denver this shrub may prove satisfactory and is certainly beautiful enough for a good try at least. Its cultural requirements are about the same as rhododendrons.

Hollies are not difficult to handle. I find that they like plenty of humus worked into the soil but so far have not been too particular as to soil reaction. There is some controversy on this point however. Most plantmen in the far eastern states believe that an acid soil is necessary particularly for Ilex opaca, but Dr. Chadwick of Ohio State University states that this species and its varieties will grow in a soil range from 6.5 to 7.5 but concludes that even this is not absolutely necessary.

It seems to me that plantmen in our western plains region have long overlooked a good thing in Boxwood.
While it has its shortcomings and its limitations, I believe that it can be widely used if a little care is exercised in giving the proper exposure. In my experience with it, I find that the worst enemy of Boxwood is an excessive amount of winter sunshine. When planted on eastern, western, or northern exposures, very little if any injury occurs. But when exposed to all day winter sunshine, severe burning usually results. Because there is a great variation in the hardiness of individual plants, I believe that plants in this region could develop strains of Boxwood that could be grown in any exposure.

**Pyracantha coccinea lalandi** (Laland Firethorn). This Firethorn, in my estimation, is one of the very best of all broadleafed evergreens for this region. From a hardiness standpoint, it rates equal to if not superior to many of the common deciduous shrubs that are used around here. True, it stands transplanting poorly but I have had no trouble when B&B or potted stock is used.

**TIRED OF GLADIOLI?**

**Try Gladixia, Coppertip and Tigerflower**

M. WALTER PESMAN

The old Mexican name for "garden" was *Xochitla*. The great Emperor Montezuma begged to be allowed to see his xochitla once again, before being put to death by Cortez. This was granted.

Was the Tigerflower (*Tigridia*) among his gorgeous plants? Most likely: it deserves a place in any show garden. Few flowers are as brilliant; reds, yellows and whites with conspicuous darker spots, arranged in a flaring cup, and fragrant withal—what more can you desire? They are as easily grown as glads, and require similar cultivation. Plant the corms in warm soil, expect flowers in midsummer, dig in fall, store over winter.

The only "but" is that each flower lasts only one day; however, each stalk keeps on sending out new blossoms for a long time, so that there is continuous bloom from just a few bulbs. Buy in Denver.

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Gladixia (*Acidanthera bicolor*) comes from Abyssinia. The Royal Horticulture Society gave it an Award of Merit in 1936, but it is still not well known. Its pure white flowers have a blackish-crimson center, at other times described as blotched-chocolate brown (flower descriptions are never too consistent). Its fragrant flowers occur from July to October. In less warm climates than ours they are sometimes grown in large pots during summer, which are brought inside to blossom in October. Fifteen to eighteen inches tall.

Coppertip (*Crocosmia aurea*) should be tried in Colorado and New Mexico. Like the preceding two flowers, it has summer-flowering corms, to be treated like glads. It has large two-inch luminous orange flowers, quite free from any marking or freckles; blooms in August and should do well here. Its "but" is that it is difficult to get in this country. Perhaps that makes it all the more sought-for? Oh, well, if foiled you can always console yourself with Tritonia (Montbretia)!
EVERGREENS SUITABLE FOR LANDSCAPE USE IN COLORADO

I—Indicates usefulness in irrigated areas.

TALL—20-60 FEET

Ponderosa Pine MP—A coarse, irregular, native tree. Suitable for informal use where there is plenty of room. Drought resistant.

Austrian Pine MP—Similar in size and habit to the Ponderosa Pine, but darker and denser.

Scotch Pine P—The most rapid growing of all pines for this area. Grows in tall open effect, not as beautiful as either Austrian or Ponderosa Pine.

White Pine I—Graceful habit of growth and soft green needles. Subject to winterburn when young.

Limb Pine IMP—Our native white pine. Slow, irregular growth. Should be used more.

Bristlecone Pine IMP—Another native, 9-needle pine. Naturally slow, branching growth which habit may be encouraged by yearly pinching.

Lodgepole Pine IM—A tall, slim native, with yellow-green needles. Makes a good specimen tree when it is given room.

Colorado Spruce IM—Seedlings may vary from green to blue and silver. A stiff, symmetrical tree. Eventually becomes very large.

Englemann Spruce M—A native of high altitudes. Seldom as good in color or shape as the Colorado.

Black Hills Spruce I—Short needles and dense habit of growth. May be kept small by pinching the candles.

White Fir IMP—Our most beautiful native tree. Of much the color and habit of the Blue Spruce, but softer effect. Subject to winterburn when small.

Douglas Fir M—The Christmas tree of this area. Similar in habit to Spruce but of softer effect. Should not be planted with spruce because of insect damage.

Alpine Fir M—Tall erect tree, native to the high mountains. Seldom used in ornamental plantings. The variety known as “Corkbark Fir” seems to have possibilities.

MEDIUM—6-25 FEET

Pinyon Pine IP—Irregularly round in habit. Likes a dry warm place. May be trained to stay small indefinitely.

Rocky Mountain Juniper IMP—Native on the eastern slope of the Continental Divide. Usually tall and symmetrical. Varies in character from seedlings. Named grafts are becoming most popular. Some of these are the “Pathfinder,” “Sutherland,” “Blue Moon” and “Gray Glem.”

Rededar IP—The eastern, native juniper which generally is poorer in color than our Rocky Mountain native. Some good grafts have been introduced. Some of these are the “Canaster,” “Ketleer,” “Cypress” and “Dundee.”

Oneseed and Utah Junipers IMP—Similar in habit. Often irregular and many stemmed. Generally round in character. Tolerates dry, hot conditions. Oneseed Juniper seems to be better suited to Denver conditions than Utah Juniper.

LOW—2-6 FEET

Mugho Pine I—Seedlings from various sources may vary from 2 feet to 10 feet high at maturity. May be clipped to keep them dwarf and dense. Tolerant to heat but not shade.

Mountain Common Juniper M—A hardy native. Variable, but generally beautiful except towards spring when they are often brown.

Pfitzer Juniper IMP—The best all around evergreen of this size. Rapid, feathery growth, virtually pest free. May be sheared into any shape. The “Plume” and “Compact” Pfitzers are smaller than the regular type. “Table Top Juniper” is a spreading type of the Rocky Mountain Juniper. It is used similarly to the Pfitzer.

Savin Juniper I—Well-known but not as good as the Pfitzer as it becomes bare and leggy with age.

Vonehron Savin Juniper I—Very rapid growth, somewhat similar to the Pfitzer. Tamarack Juniper I—Dense, mounded habit of growth, fine winter color. The best of its size, seldom growing over 3 feet tall.

Dwarf Alberta Spruce I—If planted on the north or east side of the residence is hardy and furnishes a specimen plant in miniature that is distinctive and unusual.

CREEPERS—6 INCHES TO 2 FEET

Andorra Juniper I—Irregularly spreading. Turns purple in winter.

YOUR EVERGREEN SPRAYING

Red Spiders, Aphids and Scale Insects sap the vitality of evergreens causing their needles to brown and drop. We recommend our CONTACTCIDE SPRAY to control this condition.

If your soil is deficient in certain nutrients your evergreens go hungry! This year we are including a liquid fertilizer in our spray formula to fertilize evergreens through their needles.

For Healthy and Beautiful Evergreens Call

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Denver, Colo.
Johnny-Jump-Ups

Kathleen Marriage

This is one Viola that really enjoys climate and soil in Colorado or perhaps it is so eager to live and multiply—that almost any soil and climate will serve.

It is not a plant for the connoisseur but it is a wonderful help to the owner of a new garden with wide open spaces to fill. Each plant makes a tidy little green mound about six inches high and wide, above which it carries a great flock of perky miniature pansies. One variety has upper petals dark purple, lower ones yellow with a little wisp of purple chin-whiskers; another all yellow with purple veining. It would be interesting to see a cross between these and Viola tricolor. Some gardener with a broken leg might try this. Other gardeners don’t have time.

Seeds are so eager to germinate that new plants keep popping up any time except mid winter. Plants in sunny protected spots bloom as early as February but the big chorus is about May and June. In early July it is time to be heartless and pull up all the plants that look tired from flowering. There will be seedlings galore for bloom in September, October and next spring.

One of the best ways to start these is to acquire some going-to-seed tops and scatter them in the desired area. This is a fairly safe and lazy way to sow many kinds of seed; from the present ripe seeds through the progressively ripening of other pods there are more opportunities for suitable moisture and temperature than if ripe seeds are sown all at one time.

After a year or two these Johnny-Jump-Ups may be much too prolific but they are no harder to pull up than their neighbor weeds.
PRIMROSE PATH
Frances Binkley

HARDY primroses are plants we are likely to associate with the shade and moisture of English woodlands and gardens. It is a surprise, but a pleasant one, to find how much at home they make themselves in a Colorado garden. They like the cool summer, and if we provide a light shade, and water at the time of blooming, they are quite happy. As for drainage, that is the one requirement that mountain gardens can most easily meet.

Favorite Primula, for its sturdy growth, is the Polyanthus, with its cluster of flowers on a ten-inch stem. Later in blooming than some of the others, its spring blossoms usually escape our last snow and frost, but it will survive a snowfall while it is in bloom, with little injury.

In the half shade of an apple tree, in soil made loose and rich with manure, Polyanthus primrose will increase so rapidly as to require dividing every other year. Winters such as that just past do not injure them. The greatest danger of loss is in late winter or spring, when too heavy mulch, or water standing about them may cause the crowns to rot.

March is an excellent time to start the seeds. They are rather slow to germinate, and if started in a flat and set out doors, the spring frost and showers help them along.

Polyanthus primrose is like the pansy in being a flower with a real personality. It has a modest appearance, neat habit of growth, the bright flowers are gay but not gaudy, and attractive for spring flower arrangements. The dark, crinkled leaves have a fresh appearance in the beds all summer. Where space can be spared, they well deserve to be grown in great masses, at the edge of the shrubbery, or along a path through the woods.

Hobbyists find Polyanthus an interesting subject for hybridizing. The white and yellow Munstead primroses, grown by Gertrude Jekyll in England a generation ago, are still favorites. Large-flowered varieties developed since her day, however, provide an infinite range of colors, in the pink shades and orange-reds. There is a national society, whose members share their experience with Polyanthus and other Primulas.

Success with Polyanthus in a Colorado garden will lead to a try at more difficult primroses. Acaulis is an earlier blooming species. It includes a good blue variety. Among the Asiatic forms are Primula denticulata, which dislikes a dry summer, and P. Sieboldi, which has a creeping habit of growth, and drops its leaves after blooming. Juliae hybrids, from the Caucasus, are hardy and good rock-garden subjects. Candelabra types are suggested for planting at the edge of pools or for low places in a rock garden. Of these the Bulleyana hybrids are the latest in bloom, so that a succession, from the Auriculas in early spring until the Bulleyanas in midsummer may be arranged.

With hundreds of primroses, from all over the world—not forgetting our own high mountain Parry's primrose—the gardener may choose varieties for his garden according to color or season, and find a real challenge in growing the rare or difficult kinds.

If your trees are not growing properly they may be benefitted now by an application of fertilizer. This is usually a job for your expert tree man.
QUESTIONS & ANSWERS

Question: When a maple tree and two evergreens were delivered to me, the place for planting was not ready. They did not appear dry when they were set in the ground; however, the maple lived but the evergreens died, why?—Mrs. H. O. R., Fort Collins.

Answer: The sap of deciduous shrubs and trees is of a liquid nature. While one drying out does not help them, it doesn't kill them either. The sap of evergreens is of a resinous nature—one drying out solidifies the sap to rosin. All the water in the world later is not going to start it flowing again. Even though, for a long time, the plant's foliage looks alive and green the plant is dead. If it is necessary to hold evergreens out of the ground, even though balled and burlapped, it is a good idea to set them in a bed of damp peat moss.

Question: I have a large rose bed. Should I use the hoe here or mulch beds? —L. G., Loveland, Colo.

Answer: Mulching is preferable—it reduces the amount of labor, helps to hold moisture, keeps the soil cool, and does not disturb the roots.

Several new bulletins from the U. S. Dept. of Agriculture.

“Of Husbandry” in 12 books and his book Concerning Trees—L. Julius Columelia (Latin classic in agriculture done in English with citations from Pliny and other authors) London, 1745.

The Theory & Practice of Gardening—done from the French Original by John James of Greenwich, 1709.

MONTAGUE FREE AND HIS GARDENING

Does your garden lead to a few shrubs, or a single tree or perhaps a shy little plant in a clay pot? Have you a pretty little spot with a few good-looking rocks and a small pool, or a touch of woodland, with flickering sunlight and Virginia bluebells? Perhaps you have only a bed of lettuce, a few hills of cucumbers or a row or two of corn and beans; then you need Montague Free to help you in all of these and more problems. Nothing is omitted in the way of advice for the novice—it is all good for the seasoned gardener too.

You can tell by the reading of this valuable book that Mr. Free has answered about all of the thousands of questions that have come to him for a quarter century at the Brooklyn Botanic Gardens. A few years ago he headed the Garden Guide department of the New York Sun and I believe he is still there.

One thing worthy of mention here is with what misgivings the author mentions varieties of plants. He is smart in knowing that those plants which in most cases are the best kinds this year will be superseded by others in next year's catalogues.
QUESTIONs

Question: I am interested in white Peonies only. Please tell me the names of some of the best.—L. H., Arvada.

Answer: Several years ago, Mr. Brand published what he considered the best among the whites in the Bulletin of the American Peony Society. I have the selection from Mr. Brand, who has himself given us many Peonies. Here it is—copying from the Bulletin. In the first place I am going to name ELEVEN splendid whites, not one of which I should ever want to be without. They are GRANDIFLORA NIVEA PLENA, FESTIVA MAXIMA, DUCHESSE DE NAMOURS, MMe. De Verneville, AVALANCHE, JAMES KELWAY, BARONESS SHROEDER, MONS. DUPONT, MMe. EMILE LEMOINE, COURONNE D’OR, and MARIE LEMOINE. Grandiflora nivea alena is the oldest good white. It bears immense flowers of great beauty. Festiva Maxima is an old variety but it is still one of the most sought-after of all Peonies. James Kelway is one of the best whites in existence. Mme. Emile Lemoine, as a rule, creates a sensation when exhibited among the finest Peonies. Marie Lemoine is a late variety; it produces very large beautifully-formed flowers. They are creamy-white, shewing golden stamens. It is the most sweetly-scented of all Peonies. I consider it Calot’s masterpiece.

Question: Shall I plant Lilacs now or is it better in the fall?—T. N., Denver.

Answer: You may plant Lilacs in the spring or fall. Lilacs are among the best shrubs, not difficult to move and will grow under almost any condition.

GARDENER’S TRIBUTE

By the Urbane and Witty
Richardson Wright

Richardson Wright, editor of HOUSE & GARDEN and a gardener himself for over thirty-five years has written here a book to make glad the heart of anyone who loves flowers and growing things. What is this Tribute, to whom or what? In this book he has attempted, he says, “to make the past of gardening and gardeners of the past come alive—“Some of them”, he adds, “were not too respectable.”

There are nine chapters in this book, each one dealing with a famous botanist or gardener of the past—there is Robert Fortune, for instance, who in the days when foreigners dared not travel in China, journeyed all over that country disguised as a Chinese and bearing the name of Sing Wah. There is also the story of the rose garden of the Empress Josephine, others about Rondelit, the great bird man Audubon and many more.

He spends much of his time writing books, not all on gardening. “I enjoy”, he says, “delving into old town histories and the yellowing sheets of obscure country presses for odd bits of information.” Mr. Wright is the “bedbook” man, you know—The Bed Book of Travel, The Gardener’s Bed Book, Another Gardener’s Bed-Book. Around 1910 while in Siberia and Manchuria, he wrote three books on Russia and Siberia.

One of his critics says, “Gardener’s Tribute is the work of a cultivated mind brought lovingly to bear on the subject closest to the author’s heart. He has a delightful summer home in Connecticut where he does most of his writing.—H. F.
PREPARING SOIL

Properly preparing soil for planting is probably the first and most important gardening chore for this month. Grass, trees, shrubs or flowers planted in good soil will thrive so much better than those planted in poor soil that much of the later spraying and fertilizing will be eliminated. All our Colorado soil needs humus to improve its texture and plant-food value. Both heavy clay soil and light sandy soil will be benefited by mixing peat, manure, leafmold or other organic material with it before planting. Soil which contains much lime, plaster or lifeless subsoil should be removed and replaced with good soil.

PLANTING

This is the time to plant woody material such as trees, evergreens, shrubs, roses and vines. Your plans should have been made and orders in before this so that all attention can be given now to getting the plants back into the soil promptly and properly. The ground should be warming up a little now so that lawns may be planted. The grass planted now will not grow much until the soil is fairly warm, but when planted late in the spring it will require closer attention to prevent baking. Always remember that roots belong below the surface of the soil where they are protected from excessive drying out, so protect the roots of plants which are out of the ground with wet burlap or by heel-ing-in in moist soil.

PRUNING

Almost any of the trees and shrubs may now be pruned with the exception of maple, birch and walnut. Do not do more than emergency work on early blooming shrubs if flowers are wanted this year. Extensive work on shrubs is best done right after blooming time. Most tree trimming work will require equipment and experience only available to commercial tree experts. Our trees deserve the best (which is also the cheapest in the long run). Most woody plants which have been transplanted this spring should have a careful thinning or cutting back to reduce the number of buds which the restricted root system must supply with sap.

SPRAYING

Scale insects on Elm, Maple, Ash, Cottonwood, Pine, Dogwood, Lilac or Cotoneaster should be killed now with a dormant oil, lime-sulphur or similar spray. A dormant spray may also help to control certain other insects such as spidermites, and aphids. Sprays of arsenate of lead for the control of codling moth damage to apples are usually made at the time of the first petal fall. DDT is now replacing this treatment, but requires additional attention to prevent a build-up of spider mites. Most contact and stomach poison sprays will be done a little later when the first insects appear. Little can usually be done now for the disfiguring aphids on snowball. They can be controlled in fall just before the leaves fall. More and more attention is being given in recent years to preparations which will kill the crabgrass seed which is on the ground, before it has an opportunity to sprout.
SPRING WILDFLOWERS
THE COMMON MOLD
BROADLEAVED EVERGREENS