"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to encourage the growth of all forms of forest, horticultural, agricultural and ornamental plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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THE GREEN THUMB
George W. Kelly, Editor
Littleton, Colorado

A Bulletin of the COLORADO FORESTRY AND HORTICULTURE ASSN.
Organized in 1884

PINES FOR COLORADO
ROBERT E. MORE

As was done with Flowering Crabs and Hawthornes, questionnaires on Pines were sent to nurserymen and other experts throughout the State. Since Pines vary greatly in form and size, perhaps the most helpful way to classify the returns from the questionnaires will be to group the trees according to height.

LOW PINES: As is pointed out by Hornbrook In his Dwarf and Slow Growing Conifers, "The dwarf pines are not very numerous." Only three have been tried in Colorado, namely, the Mugo Pine (Pinus mugo mughus) the Globe Austrian Pine (Pinus nigra globosa) and the Dwarf Swiss Stone Pine (Pinus cembra pumilla). The last has proved unsuccessful in the few instances it has been tried.

Apparently the source of the seed of the Mugo Pine is of great importance, for this tree is very variable. The color runs from a light yellow green to a dark blue green. If left absolutely untrimmed, the maximum height will be anywhere from four to fifteen feet. However, not only may growth be retarded by cutting off in the spring a portion of the "candles" (the elongated new growth and Hawthornes, questionnaires on other experts throughout the State. Since Pines vary greatly in form and size, perhaps the most helpful way to classify the returns from the questionnaires will be to group the trees according to height.

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LARGE PINES: Four trees in this group were recommended by all who have had experience with it. This tree was fully described in the last issue of the "Green Thumb."

By letting a Mugo of the larger type grow unchecked, an evergreen bush, ten or twelve feet high, can be obtained in a reasonable time, so the Mugo can be utilized in the "medium" group as well as the "low" group. There are many nice specimens around the Museum of Natural History in City Park.

The Japanese Table Pine (Pinus densiflora umbraculifera) has nicer foliage than the Mugo, but usually needs much more codling in Colorado than most people care to give, and was seldom recommended in the questionnaires.

LARGE PINES: Four trees in this group were recommended by all

questionnaires disclose that it sometimes searches and sometimes fails, especially in the South. It is not as hardy as our native trees and should not be utilized in southern Colorado or the mountains, unless protected from snow scald, and spring sun and wind. One variety is a dwarf and it should be used where a low plant is needed.

The Globe Austrian Pine is very slow growing and certainly has performed well when tried and warrants a trial by nurserymen. It is still experimental so far as amateurs are concerned, however.

MEDIUM PINES: These grow to a height of six to twelve feet during their normal life in cultivation. The Colorado Pinyone Pine (Pinus contorta edulis) is enthusiastically recommended by all who have had experience with it. This tree was fully described in the last issue of the "Green Thumb."

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LARGE PINES: Four trees in this group were recommended by all
who had ever tried them, namely, the Ponderosa (Pinus ponderosa), the Austrian (Pinus nigra), the Limber (Pinus flexilis) and the Lodgepole (Pinus contorta latifolia). The questionnaires ranked them in the order just given.

As the Ponderosa is the common tree of our foothills, it was to be expected that more of the persons interrogated would be familiar with it than any other tree, and such was the case. However, wherever actual comparisons were made, the Austrian was preferred. In addition, it is a smaller tree than the Ponderosa and keeps its lower branches better. The Austrian is the Pine most frequently found in our Parks and Boulevards. There are magnificent specimens in City Park and along Seventh and Seventeenth Avenue Boulevards. As the Austrian and Ponderosa Pines somewhat resemble each other, it may be of interest to indicate distinguishing characteristics. Our Austrian Pines have been identified by Professor Rehder as the variety Pinus nigra austriaca. The crown of this tree is usually round, while that of the Ponderosa is pyramidal. The cones of the Austrian are smaller, and usually without spines, while the Ponderosa cones always have sharp bristles on the cone scales. The Austrian never has but two leaves in a bundle. The Ponderosa sometimes has but two, but usually has three. The needles of the Austrian are darker in color. The bark of our Austrian Pines is gray, while that of the Ponderosa is black in youth, and brown in maturity. The winter buds of this Austrian Pine are sharp pointed and almost white, those of the Ponderosa blunt and brown. The same color differentiation is found on the sheath enclosing the bundles of newly formed needles.

The Limber is a grand tree, the typical form of which at maturity is shown on the cover. On mature trees the branches usually "reach up," as shown in the illustration. The largest known Evergreen in Colorado is a Limber Pine the trunk of which is almost 19 feet in circumference.

The Lodgepole has a bright yellow-green foliage that is fine for forming contrasts. Unless given plenty of light and room, however, this tree does not reach its best development.

The White Pine (Pinus strobus) is probably the most beautiful one of all. The silky fine needles, regular growth up to maturity, and attractive bark, make it a joy to behold. Both the needles and the bark are subject to sun scald in Colorado, however. As the tree grows older it becomes less susceptible to sun rays. In a protected location it generally does well. Persons unfamiliar with the beautiful grove on the east side of Downing street just north of Speer boulevard should certainly go by there. This tendency to scorch in the spring caused many of those returning questionnaires to select the Limber Pine in Place of the White. They are quite similar in appearance while young. The growth on each should be retarded in city plantations.
SIMPLE KEY TO PINES
(Native to or appropriate for Colorado)

In the November, 1943, issue of Arnoldia, Dr. Donald Wyman, Horticulturist of the Arnold Arboretum, Harvard University, published a "Simple Key to the Pines." We have been given permission to reprint this "Key." We have omitted, however, the trees that are known to be unsuited to Colorado.

Dr. Wyman states (we have added the comments in parentheses):

"This simple key is offered chiefly for the benefit of the amateur gardener who is frequently confronted with complicated keys which he finds to be difficult for his purposes. The key is based primarily on foliage characters which, in most cases, can be observed without the use of a hand lens. It should be clearly understood that any key based primarily on the length of the leaves—and this key is just that—is open to serious criticism because the length of the leaves of any plant will vary with the individual as well as with soil and climate variations, disease infestations, age and altitude at which the tree is growing. Other pines vary likewise. However, in order to assist the gardener who has an interest in pines, this key is offered in spite of such criticism.***

"All measures of leaf length should be considered as approximately only. On one individual tree needles may vary in length from 2 inches to as high as 8 inches, but in the key the length given would be 1 to 6 inches, meaning that mature needles—not the young ones which are elongating, nor the ones on weak or on over-vigorous branches—are mostly within the 1 to 6 inch length. If this is clearly understood by those using this key, the key will undoubtedly prove helpful in the identification of most of our commonly grown pines.

"The key is designed to be used chiefly with living material, hence the color of the foliage and the general habit of the tree sometimes plays an important part.

"Hardiness is given according to Zones in the Hardiness Map. (See Rehder's Cultivated Trees and Shrubs.) Habitats are also given, because sometimes such information may prove helpful in assisting in plant identification.

"Identifications made by the use of any key, and this one in particular, should not be considered final, but should be further checked against a complete description in some standard text, and available illustrations."

Needles in bundles of 2 to 5, rarely solitary, enclosed at the base by a deciduous or persistent sheath. P. pinea—Pine.

1. Needles 5 in a sheath

2. Needles usually less than 1½ inches long with smooth margin. P. aristata—Bristlecone Pine. California to Colorado, Zone 5 (In Colorado this tree is usually found in Zone 3. Elevation 8,000 to 12,000 ft.)

3. Needles usually 1½ to 2 inches long.

3. Bark of trunk brown to creamy white, needles rigid and stout. Margin smooth. P. albicaulis—White Bark Pine. Zone 3 British Columbia to California. (This tree is common in Wyoming)

3. Bark of trunk black, needles more flexible; needles light green, not twisted, mature twigs glabrous, needles smooth. (Elevation in Colorado 7,500 to 11,500 ft.) P. flexilis—Limber Pine.

4. Needles mostly 2½ to 4½ inches long; leaf margin serrulate, i.e., rough to the touch.

5. Mature twigs glabrous; branches horizontal, tree open, cones usually 2 to 4½ inches long; twigs glabrous or only slightly pubescent. P. strobus—Eastern White Pine. Eastern United States and Canada, Zone 3.


1. Needles 3 and 2 in a sheath

2. Needles less than 2 inches long. P. contorta scopulorum—Rocky Mountain Ponderosa P. Rocky Mountain region, Zone 4. (Elevation Poughills to 9,000 ft. in Colorado.)

3. Foliage bluish-green, bark of upper trunk red. P. sylvestris and varieties—Scotch P. Europe, Zone 2.

4. Foliage green.

5. Needles ¾ to 2 inches long, bark black. P. mugo and varieties—Swiss Mountain P.

6. Dense, almost globose shape P. mugo compacta—(Mugo P.)

7. Shrubby, upright habit. P. mugo pumilio

5. Needles 3 to 5 inches, bark red to reddish. P. demilora umbraculifera—(Japanese Table P.)


3. Foliage yellowish-green, needles, 1½ to 3½ inches long. (Elevation 8,000 to 10,000 ft. Usually in dense stands. Tall slim, cones persistent. P. contorta latifolia.)


(1. Needles 1 in a sheath. P. contorta monophylla, One-Leaf Pinyon Pine; Southern Colorado and to the Southwest.)
Contended Earthworms Make Contended Gardeners—Or Is It Vice Versa?

Editor’s Note: With this issue we introduce another new contributor who prefers to be known only as John Stockbridge. He presents some interesting ideas which should interest all horticulturists.

If you have seen an earthworm writhing in contact with some fresh 4-12-4 fertilizer, you can realize that earthworms certainly applaud and dening. And you can get good. Gardening offers “domesticated earthworms.” And you can get good. California competitor. Another name for the principle involved is Bio-Dynamic Gardening.

The idea is that chemical fertilizers kill earthworms and that earthworms are essential to proper preparation of soil, mixing fine particles of earth and humus, and aerating the ground. Wild, untamed earthworms are probably entirely okay for this purpose, but one advertiser in Organic Gardening offers “domesticated earthworms.” And you can get good. California competitor. The Ohio earthworm farm whose product is “seasoned to hard winters and summers” (which may be a crack at a California competitor).

The main thing is to keep your worms (earthworms) and not to destroy them or drive them away with chemical fertilizer. Instead, you fertilize entirely with properly made compost, thereby providing a more abundant life for your worms (earth) and growing foods which are richer in vitamins on plants which defy disease and laugh at pests. You can also grow your own earthworms by proper planning.

Patron saint of the organic movement seems to be Sir Albert Howard, whose Indore process of making compost and apparently happy earthworms. No one has studied soil and its dimensions and a surprising amount of comment, experience and experiment—enough to fill a respected magazine and to fascinate anyone who has studied soil building or fooled around with compost and artificial manure. Personally, I’m sold to the point of throwing away my modest collection of chemicals, because I’ve seen an obvious health and apparently happy earthworm getting along nicely in ground containing a comparatively fresh mixture of 4-12-4. However, bio-dynamic ideas are easily tested. Half of a vegetable patch or lemonabella be treated exclusively with naturally composted organic wastes, the other half with your favorite chemicals. By the second season, you should find this interesting separation of things.

HARVESTING VEGETABLES

A. M. BINKLEY—Horticulturist, Colorado State College.

High table quality in vegetables means attractive appearance; freedom from blemishes, due to insects, diseases or bruises; high edible flavor and texture; low paring waste or high percentage of edible use and uniformity in size and maturity. In harvesting for high quality it is necessary to understand some of the factors which enter into quality in vegetables.

Quality is affected by (1) the varieties and strains planted; (2) by the environment and growing practices used; (3) by harvesting and handling methods which is related to the changes which take place during ripening or maturing of a product. These are briefly discussed here for what value they may have in providing a better understanding of harvesting.

1. Varieties and strains planted.

Varieties are now developed for specific purposes, such as canning, quick-freezing, storage, home use, and for shipping long distances. Know the high quality varieties:

(a) Appearance—Color, finish, etc.
(b) Table quality—Low percentage of waste and ease of preparation, good flavor and texture.
(c) High yielding ability.

2. Environmental and cultural practices affect quality at harvest time.

(a) Soils and climatic conditions, etc.

(i) Deficiencies or excesses of nitrogen, phosphorus and potash or other elements. Low nitrogen in the soil may produce stunted plants that are tough and fibrous; excess nitrogen may delay maturity and stimulate heavy vegetative growth, etc.

(ii) Softening of tissues; change on pectins and carbohydrates.

(iii) Changes in acids or bases. Increase or decrease, depending on the product.

(iv) Flavors develop rapidly (cantaloupes).

(v) Moisture content may decrease or increase.

(vi) Seeds mature in certain products.

Changes in tomato fruit during ripening is discussed for an example, since changes vary with the product. As tomato fruit ripen there is a slight increase in water content (1) increase in sugars (very rapid).
sizable increase in acid (about 0.5% citric acid), (4) decrease in starch, (5) decrease in crude fibers, (6) decrease in nitrogen, and (7) decrease in solids. Each vegetable could be so discussed. In harvesting four factors should be considered. These are (1) sizes, weight and dimensions; (2) maturity—stage of growth or development a product has attained to be usable; (3) condition—refers to the character of a product as modified by time, temperature, and other factors during and after harvest; (4) color—appearance as an indicator of maturity.

Not all human tastes are the same and each person should be allowed to select the stage of maturity at harvest time, the variety and condition which he likes best. Here are a few of the points to look for on a few of the specific crops:

1. **SNAP BEANS (Dwarf type).** Pods straight, smooth, round, meaty and succulent; absolutely no strings or fiber in the pod. Do not delay harvest until the seeds are fully matured. When seeds are about one-fourth mature is better. Dark green color after processing is desirable.

2. **BEETS.** Free from blemishes, smooth, round. Deep dark red interior, free from white ring zones. Should retain table quality over a long period of time. Free from coarseness or fine texture. 1/2-inch to 2-inch diameter for bunching.

3. **CABBAGE—Solid when mature.** Uniform size, freedom from insect injury and large cores, and have good color. Late varieties should have good keeping qualities.

4. **CARROTS—Uniform, well-shaped, cylindrical roots, free from blemishes. Deep, dark orange color, very small core and it should be the same dark orange color as the rest of the root. 1/2-inch to 3/4-inch diameter at crown.

5. **CAULIFLOWER—Heads short, compact and free from leaves; riceness or fuzziness and as white as possible. Free from bitter flavor. Curds compact and hard to firm.

6. **CELERY—Stems free from heavy strings, crisp, brittle, thick, not flat, and properly blanched. Pascal types not being bleached to the extent it was before the war.


8. **WHITE POTATOES—Smooth, free from blemishes, shallow eyes, good shape for variety, low paring waste and good boiling, baking and frying characteristics. Late varieties should keep well in storage.

9. **HEAD LETTUCE—Hard, solid, heavy, and free from tip burn browning on margins of leaves. Flavor free from bitter tang; no discoloration; no slime or rots. Dark green wrapper leaves.

10. **CANTALOUPES—Flesh thick, fine textured, good orange color, not mealy or rubbery. Seed cavity small. Netting, raised round and well developed above the skin, increase in netting, closed. The stem should be fully slipped from the fruit. This is the full slip stage of maturity when the fruit is ripe. Flavor spicy but not strong. Avoid fruit with soft blossom ends, and those that show flat netting, which may indicate immaturity or that they have matured on drying vines.

11. **ONIONS (Dry)**—Bulbs uniform in size, shape, color. Free from neck rots and blemishes. Well matured and dry for storage. Flavor on Sweet Spanish, mildly pungent and sweet. Wrapper scales heavy for storage.

12. **POD PEAS—Dark green color, pods and peas; pods well filled not over mature; shell easily; free from pod damage; uniform filled pods; flavor rich, not starch. Harvest and process immediately.


14. **TOMATOES—Fruits medium size; smooth, free from splitting and cracking, uniform ripening to deep dark red color. Avoid over size fruit. Both inner and outer walls of fruit should be thick; interior meaty and juicy, but not too soft. Fruit should have depth from blossom end to stem end.

15. **SPINACH—Vigorous and rapid growth important. Leaves large, crisp, thick, free from discoloration, insect or disease damage, and free from dirt. Deep, dark green color is desired.

16. **SWEET CORN—Ears should be uniform in size and color; husks fully covering ears, especially at tips; ears well filled, not over mature. Hybrids should ripen ears uniformly. Flavor sweet and kernel skin tender for canning or quick freezing. Process as soon as possible after harvesting. Yellow kernelled types favored. Check maturity carefully when harvesting. High temperatures increase rate of ripening and sugar to starch changes.

17. **WATERMELONS—Variety difference in adaptation important here. Fruits should be well formed, good size. Flesh deep, dark red, fine texture and free from fibers. Size or outside color of fruit not good indicators of maturity. The area of the melon resting on the soil should be creamy yellow in color and the skin should be tough there so it cannot be easily dented by thumb nail. By tapping melons, hollow metallic sound indicates immaturity and a heavy sound indicates ripeness. Color, sugar content, and flavor do not increase after harvest of watermelons.

18. **WINTER SQUASH—Flesh should be dark orange color, fine textured, good flavor; free from heavy fibres and have good keeping qualities in storage. Avoid storing cut, bruised or damaged squash. Outer shell should be hard and dry before storing.
AVEN NELSON
PIONEER ROCKY MOUNTAIN BOTANIST.

Altho Dr. Aven Nelson's home is in Wyoming, we think of him as belonging to the Rocky Mountain Region and not to any one state in that region. Many years ago the Herbarium at the University of Wyoming, which he founded, and of which he was curator and now is curator emeritus, was formally named "The Rocky Mountain Herbarium. So also the manual of which he is the co-author with the late John M. Coulter, is titled, New Manual of Botany of the Central Rocky Mountains.

Aven Nelson was born on a farm in southeastern Iowa in 1859 and he has charmingly described his early years in these words: 'From childhood up I may classify myself as a 'nature lover.' My father's little hilly wooded farm was to us children a botanical garden. There was real competition in the finding of the first wind-flower and spring beauty. We had folklore names for many others. By the time I was a full farm hand my curiosity extended to the gorgeous flowers that thrived in the protected corners of the zig-zag rail fences. At 17 I was a full-fledged country school teacher. Friday afternoons we took time off for 'nature work,' and I raced up and down the hills and ravines with my whole flock, in hot pursuit of the birds and the flowers. By that time, I had armed myself with a copy of Gray's Manual (6th edition). This, however, was a disappointment, for it was the first and only book on systematic botany I had ever seen. Nothing had led up to the vocabulary that I encountered."

From country school teacher, Aven Nelson went to the Missouri Normal School, and on Commencement day left for home "in possession of a normal school bachelor's degree, a life state teacher's certificate, a gold medal won in an 'oratorical contest,' a girl to whom he was engaged and whom he subsequently married, and a job."

From normal school he went to Drury College, where later he was drafted to teach elementary botany. He says, "I assure you it was elementary indeed. The course drifted into a sort of a glorified course in nature study. I discovered, as doubtless some of you have, that in the absence of knowledge, enthusiasm will do much to cover up the deficiency." In that statement Dr. Nelson has perhaps given us the key to his continued youthful outlook upon life which endears him to all who know him—his boundless enthusiasm for his work.

In 1887 he heard of the proposed state (territorial) university that had reached the incubation period. He decided to go and grow up with the institution. Of his early days in Wyoming he says, "I entered on my work in Wyoming with utterly inadequate preparation. My total library in botany was Gray's Lessons and Manual, to which I soon added Doctor Bessey's College Botany, then rather recently on the market. It was a revelation to me, for up to that time I had only casually heard of algae and fungi. I had never used nor owned a microscope. No money was available at the infant college for equipment or books. After two years, a doctor on the university board sold me his personal instrument for $20."

Four years later when the Agricultural College and U. S. Experiment Station were added to the institution, the new duty of botanist of the station was added to his already varied load. He asked for a leave of absence for a year to study at Harvard, which was granted—without pay. He received his master's degree from President Elliot the following June.

Back in Wyoming Dr. Nelson set out in 1892 to build a department and a botanical library. During his absence Prof. B. C. Buffum, who had substituted for him, had collected extensively and had made up some hundreds of very creditable herbarium specimens. Nelson was asked to name them and get an herbarium under way. He accepted the challenge, and of these days he says, "I had to begin at the bottom. I had no conception of families, to say nothing of genera and species. Provided with a dissecting microscope, forceps and needles, a bottle of water, an alcohol lamp, some watch glasses and a test tube in which to boil up the dried blossoms, the work was on. . . . The whole setup also got me into trouble with the family—I'd often forget to go home to my meals. . . . Each sum-
MRS. RICHARDS LEAVES

Colorado lost one of her most ardent boosters for Forestry and Horticulture when Mrs. Clarence M. Richards recently moved to California. She has been active in promoting things horticultural for a score of years. About 10 years ago she served as president of the Colorado State Forestry Society (The first and only woman to be thus honored), and was on the board of directors of that organization until it was changed to the Colorado Forestry and Horticulture Association. She continued as a director of this organization and served as chairman of the membership committee.

She was a member of the Home Garden Club of Denver since its organization in 1925, and served as its president from 1931 to 1934. She served as president of the Colorado Federation of Garden Clubs from 1936 through 1938. The plans and practices that she initiated for these groups will effect their work for many years to come. She was largely responsible for the establishment of the Garden Center at Alameda and Calamath streets and was always working for such things as highway beautification and parks.

Dignity and ability qualified her as a leader; affability and a willingness to serve when needed brought her popularity and recognition. She proved that “He who makes a garden makes O. so many friends.” —Kathryn Kalmbach.

A couple of years ago about eighty of us visited a private botanical garden in Jefferson County. Our host took a somewhat smug pride in the fact that there was no shrub or flower on the premises that was not a “native.” (He was inconsistent with his own plan, however, because he had evergreens from everywhere.) The collection was interesting botanically. But from an aesthetic point of view it could have been improved by the addition of domesticated plants. I have always felt that the preference for “natives” was based on sentiment rather than sense. There are, of course, some native flowers that will hold their own in any company in the world. Our Blue Columbine, the Mariposa Lily and the Wood Lily, the Yellow Water Lily, the Fringed Gentian (when growing in quantity), and the dainty Calypso are all gems. Some of the Alpines—if you are willing to crawl on your hands and knees—are lovely things. But by and large their cultivated cousins have a lot more to offer. And in the shrub group, I wouldn’t give a dime for more than four or five of our natives. The Colorado Dogwood is a good shrub and the same is true of a couple of Haws. The Golden Current isn’t bad, and the Mountain Ash (if you can transplant it and get it to bear fruit) is lovely indeed. In general, however, native shrubs are leggy, skimpy of foliage, unimpressive of bloom, and hard to get started. With respect to flowers, compare a native Iris with an Elmoeh or a Prairie Sunset, a drab mountain Gallardia with its gorgeous city sister, a Wild Rose with a Hybrid Tea. You take the muddy, stinking Parry Primrose, and I’ll take Primula Auricula Alpina, giant hybrids. What plant of the wild can match the Peony? How about Glads, Dahlias and Zinnias? In the Clematis group, would you prefer a stringy Alpina from the hills, or the large flowering or English hybrids?

Meet the natives, but choose the educated plants as your friends. They not only are better dressed and more intelligent, but they endure longer.
MEMORIAL FORESTS

Memorial groves in memory of men who have lost their lives in military service have been advocated by a number of individuals and organizations. This is a worthwhile movement which should receive every encouragement. Some memorial groves and individual trees were planted after World War I. Undoubtedly some of these have been forgotten or neglected; perhaps some or all of the trees have died.

The Forest Service maintains a memorial grove at the Monument Nursery near the town of Monument, Colorado. A report on this grove may give encouragement to those who are thinking of starting similar projects. After World War I, individual trees were planted at ranger stations and at various places on the National Forests. It soon became evident that these trees would not have lasting value as memorials, because most of the trees were not marked and the records regarding them were buried in the files. The significance of some of these trees was soon lost.

Accordingly, it was decided to have one community grove for all Forest Service employees in the Rocky Mountain Region. On May 30, 1921, a group of forest officers and their families assembled at the Monument Nursery for the planting and dedication of 30 trees in honor of forest officers who had died since the Forest Service was started. This included five men who lost their lives in World War I.

Since that time, 42 trees, mostly Colorado blue spruce, have been planted—a total of 72 trees—in the memorial grove. The trees are irrigated and cultivated until they are thoroughly established. Some of the older trees are 15 to 20 feet in height. Aesthetically, the grove is a beautiful addition to the nursery. Practically, it serves as a wind break to the adjacent seed beds from the winds that sweep down from Mt. Herman, towering high above the nursery. Each tree is marked with the name of the individual and date of his death. A map on which each tree and the name is charted completes the record and with attached instructions insures that, despite changing personnel as time marches on, the grove will be maintained for posterity.

Fred R. Johnson.

BOOK NOTES


Herbs easy to grow in your Victory Garden, for flavoring, for fragrance. 55 actual prints of these herbs. The Botanic Publishing Co., Cincinnati, Ohio. 15 cents.


PLAIN FACTS ABOUT FORESTS

Some of the most frequently misunderstood facts of the forest situation in the United States have been listed by the Forest Service, U. S. Department of Agriculture. These misconceptions, with the truth in each case are:

One-third of the United States is forest land so there always will be plenty of timber... Fact is, of 630,000,000 forest land acres in the U. S., 168,000,000 are not suited or available for growing timber, 77,000,000 are virtually non-productive as a result of destructive cutting and fire, and all but 100,000,000 of the rest has been cut over and produces only a fraction of what it might.

Eleven billion cubic feet of new growth occurs each year—so we shall always have an abundance... Fact is, nearly 17 billion cubic feet, or 50% more than total growth, was cut or destroyed in 1943, while in sawtimber alone drain was almost twice annual growth.

Only about 2 1/2% of the sawtimber stand is cut annually so the supply of some 1,764 billion board feet should last 50 years—even if there was no new growth... Fact is, the cut for lumber is only 60% of total yearly sawtimber drain, while only about two-thirds of the supply, or thereabouts, is accessible to loggers at reasonable cost.

Millions of trees are being planted... True—but up to 1940, all agencies, public and private, established only 3 1/2 million acres of successful plantations, while the National Resources Planning Board sees a 25-year, 32-million-acre planting program as necessary to meet the nation's "most urgent" tree-planting needs.

Public control of cutting practices on private lands—would that not conflict with freedom of enterprise? Fact is, proposed public regulation would require owners only to cut timber according to rules established through thoroughly democratic processes, but would not touch the question of when to cut or how fast. They would stop forest destruction and deterioration and keep the land reasonably productive.

These frequently misunderstood forestry facts are discussed, along with other pertinent present-day forest problems, in Miscellaneous Publication No. 543, "Some Plain Facts About the Forests". A free copy may be obtained from the Forest Service, 403 Post Office Building, Denver, Colorado.
EDITORIAL

We have been receiving some very good comments about our new bulletin, The Green Thumb, which we appreciate greatly. Some have been kind enough to offer valuable suggestions for improvement. We would appreciate any other suggestions. Much more material has come in for publication than we will have room for at once. Many new members have come in in the last two months but we will need many more if we are able to publish all the good articles that are available.

We are very sorry to have made a serious omission in the last number. Credit for the impressive article, "Is Our Colorado Landscape in Danger?" should have gone to Prof. J. V. K. Wagar of Colorado State College.

We also failed to give credit for the fine picture on the front to Andrew Fielding, and to the Colorado Mountain Club for permission to use the cut.

We will have some fine things ready for the next issue. Look for them. We would appreciate suggestions from each member as to what subjects and authors he would like to see in the coming issues.

GEORGE W. KELLY.

ARE OUR ELMS IN DANGER?

There has been some discussion among horticulturists living in Denver about the seriousness of the damage done by elm scale to our elm trees. We plan to have a discussion of this problem by leading experts in coming issues. There is no doubt but that this is a serious threat to our trees and action of some kind should be taken at once.

Victory Garden Show

"No Victory Garden is complete without a few flowers; no Victory Garden Show can be complete without the beauty and fragrance of a floral exhibit," says C. M. Drage, Extension Horticulturist.

For this reason, a floral department has been added to the Denver Victory Garden Show, August 30, 31 and September 1, Annex City Auditorium.

Ribbons provided by the Colorado Forestry and Horticulture Association will be awarded for the best single specimens of roses, dahlias and glads as well as for the best collections of named varieties of roses, dahlias, gladioli, chrysanthemums, perennials and annuals. Ribbons will also be awarded for the best spray or sprays of fruit, the best table arrangement, best tall arrangement and for the best arrangement of fruit.

MEETING OF THE ASSOCIATION SEPTEMBER 7

The program committee is working on plans for a general meeting of the membership Sept. 7. Detailed plans will be given later, but it will probably be a picnic with a botanical walk, and speakers in the evening. Richard White from Washington, one of the highest authorities on post-war planting has promised to talk to us at that time.

GARDEN CALENDAR, OCTOBER, 1944

OCTOBER is the month of harvest. "When the frost is on the pumpkin and the fodder's in the shock." It is well to let up on the watering some before frost and let the plants ripen up, but be sure that all trees, shrubs and perennials are thoroughly watered before they freeze up for winter.

OVERHAUL Prepare both vegetable and flower gardens for winter. Move out some of the rank-growing or undesirable plants, and get in some of the nicer, new things that you have seen and read about. Pot up a few plants of petunia while you are cleaning up and take them in to a sunny window. They will bloom all winter.

COVER Soon will come the frosty nights when partly tender plants such as roses should be protected. Mulch around the perennials. Mulching helps to prevent damage from sudden changes in temperature to the soil around plants.

TRIM Trees should be gone over now to prevent snow damage. Chinese elm are especially subject to breakage. Cut back long heavy limbs. All trees may be trimmed now except Maple. Most shrubs are best trimmed just after they bloom. Set the lawn mower to trim the grass a little higher now.

ORDER Make out lists now of the seeds, bulbs, trees and shrubs needed for next year. Get your order in at once for all bulbs such as tulips and narcissus, hyacinths and crocus. Many are scarce. Keep the other lists until time for ordering in fall or spring.

BURY Vegetables such as cabbage, carrots, beets, and turnips may be buried in pits for later use. Parsnips are better if left in the ground all winter. Carrots will keep crisp until spring if put in a box of damp soil in a cool place. Pumpkins and squash will keep until after Thanksgiving in a cool well ventilated place. Green tomatoes can be brought in and ripened for several weeks. Onions and gladiolus may be thoroughly dried and kept in some place just above freezing. Dahlias must be kept "just so"; not too dry or wet, hot or cold.

ENRICH Arrange to get manure, leafmold, peat or composted leaves to spread on your garden. Where the ground is used for annuals it may be plowed in and should be smoothed in spring and increased decomposition. Commercial fertilizers had better wait until summer.

REPAIR Before winter sets in repair and paint fences, sheds, garden tools and furniture.

Level up walks and platforms. Old lawns may be reseeded or resodded now.
GARDEN CALENDAR, SEPTEMBER, 1944

Frost can be expected sometime in September. It will put a stop to the growing of all tender plants. It is then time to begin to harvest and clean up for the season. There is still much gardening work to be done. Don't let your interest lag now. To make it easy for you to plan the necessary fall work we have arranged an easily remembered list below.

**STUDY** If you would like to develop a Greener Thumb plan now to take up some phase of horticulture for study this fall. While the successes and failures of this year are fresh in mind, decide that you will learn more of the "why" of growing things. It may be that you are most interested in roses, or evergreens, or insect control, or fertilizers. Get all the literature available on the subject and "go back to school" this month.

**ENJOY** The most strenuous work of spading, weeding and watering is now about over. Take time to straighten up your back, look around you and enjoy the results of your season's work. Arrange convenient seats where you can sit and see your garden. Look over the gardens of your friends and neighbors. Arrange for a picnic of several Green Thumb friends and their families.

**PLAN** Now is a good time to make notes on paper of things that you want to improve another season. When the gardening fever hits you next spring it will probably be too late to move plants. Now is the time to make definite plans for new plants and new arrangements of existing material.

**TRANSPLANT** Many perennials should be moved now. Such rampant growers as shasta daisies and iris can be divided now before they crowd out nicer things. Many other perennials have bloomed and can be moved to more appropriate locations. If it becomes necessary to move peonies, oriental poppies, bleeding hearts, rhubarb or asparagus it should be done in the fall. Some shrubs and evergreens can be moved now if it is necessary and if they are carefully handled. It is much better, however, to wait until they have become dormant. If tulips, narcissus and other late bulbs have been in for several years and need dividing, now is the time to do it. They may be planted right back in their new locations.

**ENLARGE** Fall is a good time to make arrangements for larger areas to accommodate those features which are most wanted. Take out a useless poplar and make more room for a garden. Add a strip of lawn where weeds once grew. Lay a good flagstone walk, or add a needed platform, wall, pool or fireplace. Put up some bird shelters and feeding platforms. New lawns may usually be successfully planted between Aug. 15 and Oct. 15.

**MULCH** Vegetable and perennial tops will soon be dead and may be cut off: tree leaves will soon begin to fall and lawn clippings will accumulate. Unless full of insects and disease save all these. Use what is necessary to mulch around perennials and shrubs, and pile the surplus in an odd corner for future use. The decomposition of the compost pile will be hastened by keeping it moist, by turning it over every few weeks and by allowing ventilation under the pile through an old pipe or tile. Proper mulching will do much to correct our two greatest gardening difficulties in Colorado: plants drying out in winter, and the lack of humus in our soil.

**BURN** The smell of burning leaves is always the sign of fall. We all get the urge to clean up now, but consider carefully before burning any leaves or plant tops. If they are infested with disease or insects, burn them, but otherwise save every scrap for mulch and compost. Don't forget the few weeds like dandelion, dock, wild lettuce and parsley which have been missed and are now in seed. Digging them out and burning them will prevent a lot of weed seedlings next spring.

**EXCHANGE** Revive the old gardening custom of swapping. Take a newcomer some of your surplus perennials, and learn new tricks in gardening from him. Exchange some seeds of your fine zinnias and beans for some of your neighbors squash and cosmos. Save seeds of extra nice plants for your own use next year and as trading stock.

**RAKE** Of course we rake in fall. A little cleaning up now will last all winter. Nothing improves the appearance of a garden more than keeping it neatly raked. Save all leaves and plant tops for the compost heap. A few old dead stems and rubbish look bad, but it is not necessary to keep every single leaf off a lawn or rake everything out of a flower bed. Let the winds scatter and pile a few leaves where they will.
