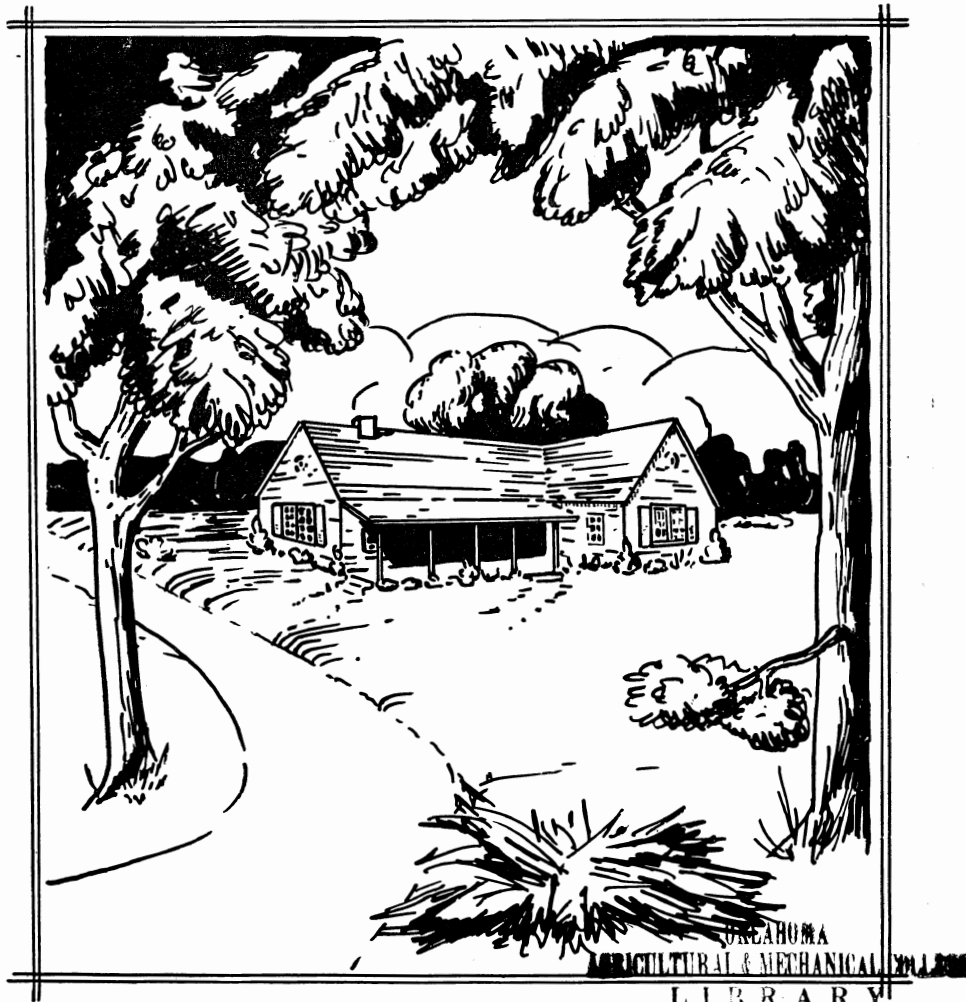


Landscaping

Home Grounds



Circular No. 456

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SHAWNEE BROWN, *Director*, Stillwater, Okla.

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LANDSCAPING HOME GROUNDS

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When a person buys, builds, or rents a home, he usually has two main thoughts in mind: Practical usefulness and attractive surroundings. Every owner knows that if he is able and willing to pay their cost, he can have these things done for him, but what he cannot buy is the feeling of satisfaction that comes with successful expression of his own ideas.

A landscape planting is one enterprise which each year increases in value instead of depreciating. The job can be costly, though, if undertaken in a poorly organized manner. The general design remains approximately the same year after year, but plants grow and make changes which require thinning, transplanting, and other activities. These activities are considered a definite part of the planning program.

Although buildings and related features such as walks, drives, fences, etc., might already be established, a plan should still be made to insure the best organized treatment of landscape surroundings.

THE PLAN

Whether on a large or small scale, everything done under a definite plan, piecemeal or whole, will lead to one unified picture: Each individual plant properly related to the surrounding grounds and buildings.

Often we let customary usage blind us to necessary changes needed such as correct location of walks and drives, moving out-houses to more convenient attractive locations, and correct placement of trees, shrubs, and flower beds. The making of a home grounds plan will awaken one to many of these possible improvement changes. The importance of making a plan, first of existing conditions, then of changes and additions to be made cannot be stressed too strongly.

Under a well thought out plan, there will be no major things to be undone in many years to come. It is easier to move trees, shrubs, roads, and buildings on a plan than on the ground. Once the essentials are permanently placed, it matters very little if mistakes are made in minor details, or in the arrangement of a few shrubs or flowers. Everyone makes a few mistakes in the beginning and improving on the first efforts makes the undertaking even more interesting.

There are several advantages in having a plan. One is enabled to work out a definite landscape program to be gradually completed over a period of several years. By having such a miniature drawing of the various divisions of the surroundings, one is able to fit them together in a unified group. It also helps to know the right number of plant materials needed.

To start a landscape plan, first make a rough sketch of the area to be considered—using the approximate house to yard proportions. Various ideas can be jotted down on the sketch as the surroundings are viewed until a general outline of the desired appearance is made. Several such rough sketches possibly will be drawn before the detailed plan is begun. To make the detailed plan, use a definite scale to get the proper proportions. Cross section paper can be purchased or prepared—each small square can represent one foot. A good workable scale for most average areas is one inch to ten or twenty feet. When all existing structures, along with possible new ones, have been located on the plot, detailed landscape planning can be done.

In some areas, a careful rearrangement of such existing features as walks, drives, clothes lines, etc., might add greatly to the desirable appearance and convenience of the surroundings. Proposed changes should be drawn into the plan, since all the permanent features tend to form the skeleton for the complete plan. Such changes can be conveniently studied by subdividing the yard into three usual landscape areas—public area, service area, and private area.

The *public area* is that portion of the grounds which gives the public its first impression of the home. Do not plant isolated plants, flower beds, etc., in the middle of the lawn, but keep an open view from the highway or street to the front of the house. The drive usually enters and passes to one side of this area. If possible, tree enframing, background effects, and appropriate foundation plantings should be provided.

The *service area* should be to the side or rear of the house, carefully screened off from the house and public area by groups of trees, shrubs, or supported vines. The clothes line, trash disposal and other service features should be conveniently arranged in this area.

The *private area*, or outdoor living room offers more possibilities for variation of treatment than either of the other two. It is here that special flower beds, pools, rock gardens, garden furniture, and other special ornamental features should be located. The area may be developed along formal or informal lines. Informal or naturalistic developments usually require less maintenance.

The following drawings show how the plan should be studied and suggests planting arrangement in an informal development.

The location of buildings is important. When building, people often forget landscaping in the haste of construction only to regret their oversight later. Convenient building arrangements cannot be attained except by careful planning. Gentle slopes to the south are most desirable in Oklahoma. High elevations provide adequate drainage and are best from the standpoint of sanitation. Strive for a simple convenient arrangement of buildings.

Drives and Walks.—Drives are built for service. They should be convenient from road or street with unobstructed views and plenty of turning space. Adequate parking space should be provided at both the front and rear entrances of the house. Drives should be not less than ten feet wide, and twelve to sixteen feet widths are better. Farm drives must be wide enough and have sufficient clearance to accommodate farm machinery as well as cars and trucks.

The driveway should be surfaced with cinders, gravel, crushed stone or concrete, if at all possible. Sharp, well defined lines for the edges of the drive improve the appearance.

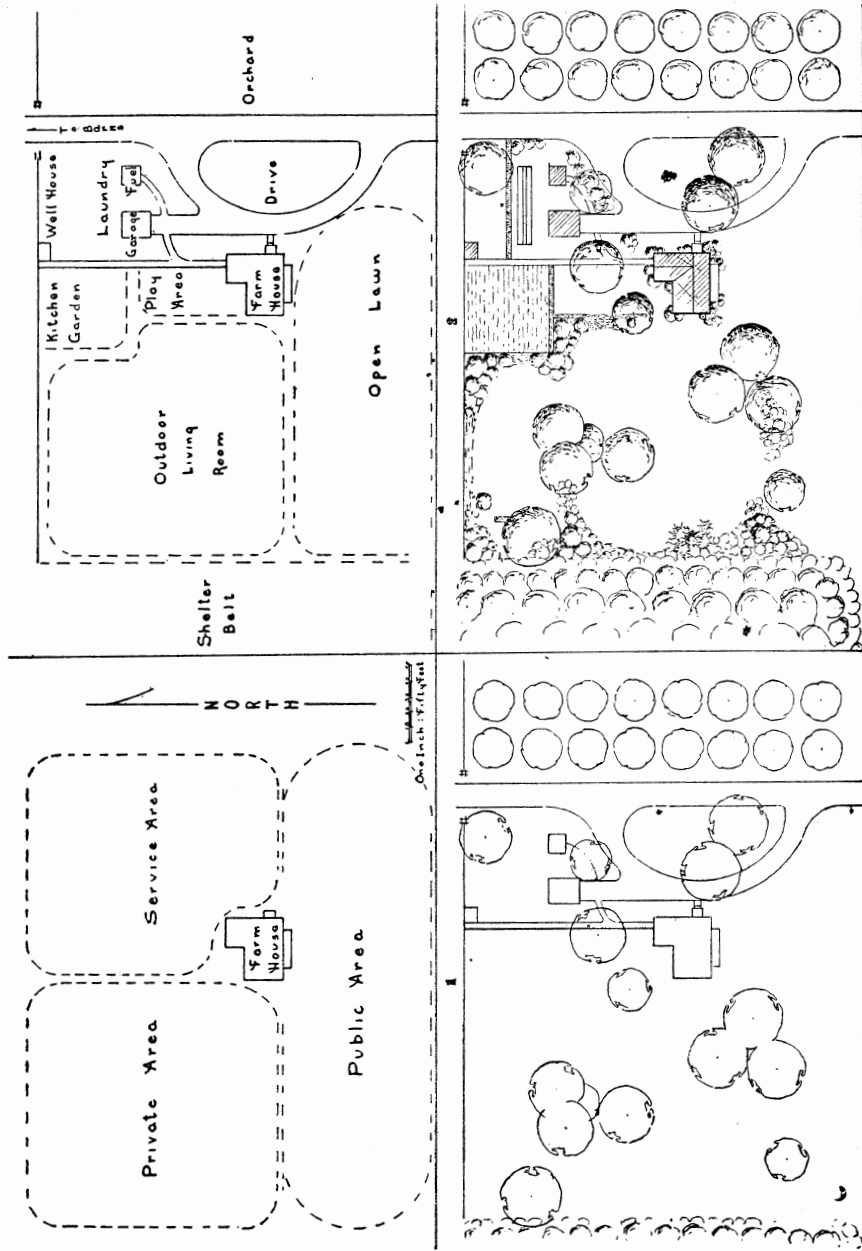
Walks and drives twenty to forty feet long should be straight. Longer ones may be curved gently, if the curving improves the appearance and usefulness.

Walks about the house should be at least five feet from the foundation to allow for appropriate foundation plantings. Service walks may be two feet in width, while walks often used by couples should be four feet wide. The wider widths are always preferable.

Stepping stones are useable and inexpensive. In locations where natural stones are not available, concrete stepping stones can be made at a cost of around five to six cents each. The stones should be made sixteen inches square and two inches thick—no reinforcing is necessary. They should be placed twenty-seven to twenty-eight inches apart—center to center. A good concrete mix for making stones is one part cement, two parts sand and two parts small gravel.

In locating walks and drives, it is well to remember that they should be useable. The same is true of fences and gates which should be drawn into the plan after all walks and drives are in place.

Fences and Gates.—Farm yards will need to be fenced in most instances to provide protection against livestock. Fence the stock away from the house whenever possible instead of fencing in the



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Fig. 1.—Four general steps in making a landscape plan.

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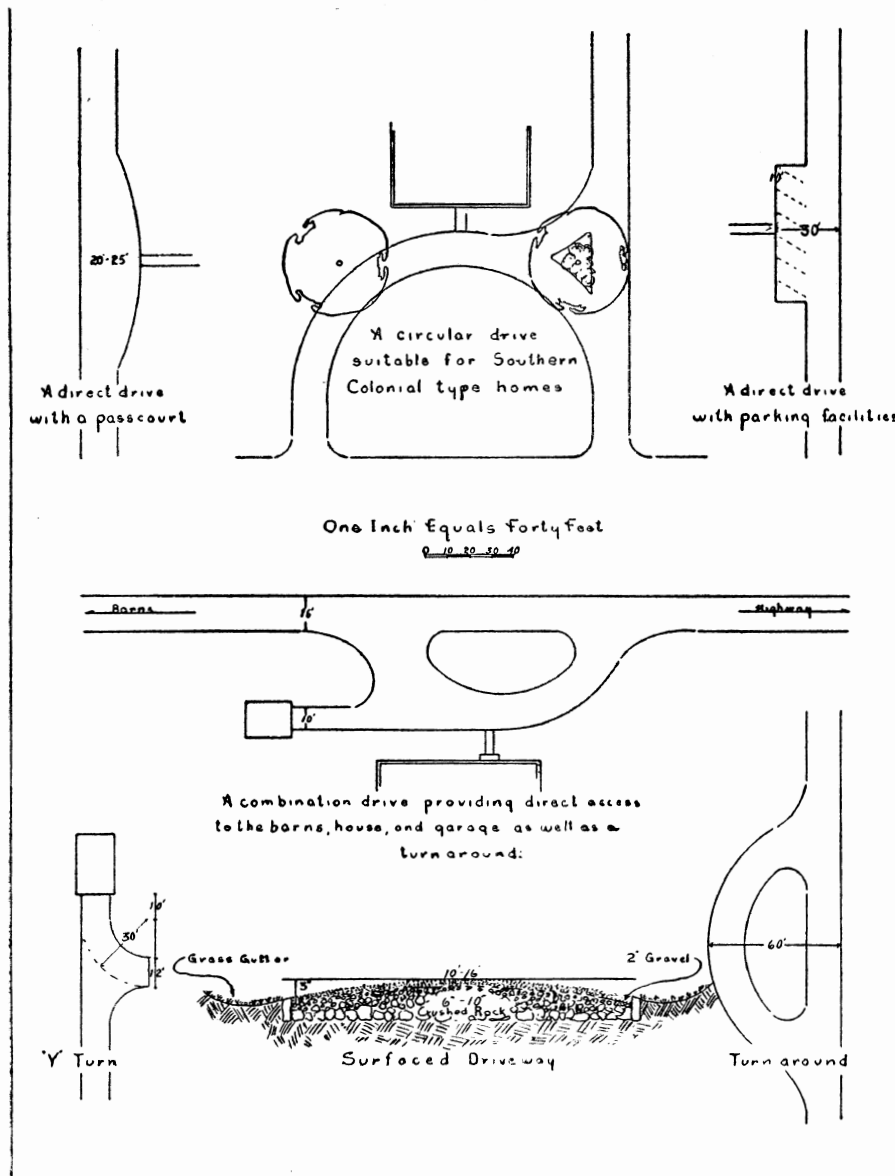


Fig. 2.—A suggested drive arrangement.

house. Locate gates wherever they are needed for convenience. Use a cattle guard at the entrance from the highway if livestock is allowed to run at large.

A good fence means everything because without protection it is useless to make plantings of trees, shrubs and flowers. The fence should be sturdy and of materials that fit into the general pattern of the buildings, walks and driveways, and size of the yard enclosed. For example, a white picket fence does not fit in very well with buildings of native stone or rustic design. On the other hand, a rock fence fits well around stucco, brick or rock houses if built of stone that blends with the material in the house. The height of the fence should also be in keeping with the height of the buildings. If built of noticeable material such as rock or pickets, the fence should be kept low—not over three feet high around one story houses or four feet high around two story houses. Low rock walls topped with a strand or two of barbed wire makes a desirable combination type fence for some locations. Large, high frame houses may be fenced in with pickets. To get a good blend of fence and house, the top of the pickets may be painted the same color as the trim of the house.

A well constructed woven wire fence, stretched tightly to durable posts, is best for general use. If small animals are pests, add an eighteen inch strip of inch mesh poultry wire around the bottom. The smaller the yard, the more common the fence needed—both as to height and material used.

Locating Plants.—Once all permanent structures are in place on the plan, locate the tree, shrub, screen, border, and group plantings. In determining the location of these plantings, it is usually best to first subdivide the three general areas into smaller units according to use. For example, the private area should be separated into the part to be used for play and that to be used for the outdoor living room.

Trees.—Locate trees first, including in most cases an adequate windbreak around the whole farmstead area.

Windbreaks affect the movement of the wind for a distance of approximately five times the height of the windbreak in the direction from which the wind is blowing, and for a distance of from fifteen to twenty times the height of the windbreak on the other side. Belts of trees three to five rows wide along the north, west, and south sides of the farmstead area and around livestock barns, poultry houses, lots, and orchards will prove of great value.

Trees in the windbreak should be planted in rows wide enough apart to be cultivated with the machinery used in other farming operations. It is also necessary to fence windbreaks to keep livestock out of them.

Space evergreens in the windbreak about six feet apart in the row and other trees from six to ten feet in the row. The evergreens, Red Cedar, Austrian Pine, Scotch Pine, or Western Yellow Pine, make good windbreaks along with Chinese Elm, Bois d'arc, Russian Mulberry, Catalpa, and the shrubs Desert Willow and Tamarix. At least one row in the windbreak should be evergreen and one of shrubs. The shrub row should be on the windward side of the planting.

Trees are planted around houses for three reasons—*shade, background, and framing*. Avoid locating trees in rows except in the windbreak or to the back of group, screen, or border plantings. Do not line both sides of the drive with trees. Keep them from in front of the house to avoid obstructing the view to and from the highway or street. Use trees in groups to separate the different areas and to serve as anchors for group, screen and border plantings.

Shade trees are absolutely essential in Oklahoma. They can very easily be overdone, however, as too much shade makes the growth of grass, flowers, and shrubs impossible. Trees to the *southeast, south, southwest, and west* of the house are highly desirable. The facing of the house determines the exact location of trees.

Never plant trees closer than twenty feet to the house. In most cases, trees for framing purposes should be set ten to twenty feet to the front of the front line of the house and twenty to twenty-five feet to the side of the house. If more than one tree is needed, plant several close together in a group.

A shade tree to the southwest of the outdoor living room area is a desirable feature to include in the plan.

The Elms, Hackberry, Ash, Maple, Pecan, and Oaks are good for shade, while framing and background can be provided with Sycamore, Thornless Honey-Locust, Pear, Walnut, etc.

Border and Screen Plantings.—Most shrubs located on the plan should be put in border and screen groups. These plantings define the area around the house, serve to screen out undesirable views and also to provide privacy. The value of enclosure cannot be overstressed. These plantings more than any others provide ease, unity, and naturalness to the surroundings. They are the plantings that tie the various parts of the yard together.

Border plantings have several important purposes and may be of shrubs or a combination of small trees and shrubs. They mark the limits of the home grounds, form a pleasing lower skyline and ground line, screen unsightly objects, divide the front lawn from the rear lawn, give privacy to the outdoor living room, and form a background and setting for flower beds, pools, rock gardens, and garden furniture.

Small trees and shrubs should be planted in irregular groups in informal borders. With the exception of the back row of taller plants, do not plant in rows. The lawn edge of the planting should be pleasingly curved, forming bays and points in the outline of the lawn. There should be a sharp, well defined line between the lawn and cultivated area around the plants.

The small growing trees, such as Redbud, Apricot, Mimosa, Russian Olive, and Purple Leafed Plum along with Tamarix, Butterfly Bush, Vitex, Althea, Firethorn, Desert Willow, etc., are especially useable in informal borders and groups.

In arranging the plants it is well to study the skyline that will ultimately be formed, as well as the ground plan. The taller shrubs and small trees should be grouped in the corners and at points in the borders that will frame attractive views from the house. Around the taller plants, locate the lower growing shrubs that branch close to the ground. Beds of annual and perennial flowers may be located directly in front of low shrubs.

Informal borders are preferred in most cases unless the area is limited. Formal developments have the advantage of allowing more lawn space, and they are less expensive to start with because of the smaller number of plants needed. Hedges are used in formal borders instead of shrub and tree groups, and hedges require clipping. Formal grounds are neat and attractive, but the labor involved in their care makes the informal development better for the average home where space is not a limiting factor.

For hedges, the privets *Ligustrum sinense*—*Ligustrum ibota*, *Ligustrum amurense* and *Ligustrum vulgare*—are good. *Ligustrum sinense* (Chinese Privet) is preferred for its semi-ever-green effect. Red Cedar, Flowering Quince, *Euonymus*, Tamarix, *Abelia*, *Arbor Vitae*, and many other plant species all do well in clipped hedges. A tall formal hedge may be secured without clipping or pruning by planting *Bolleana* poplars four to five feet apart in a row. Poplars are relatively short lived, however.

Many necessary buildings and other structures are detrimental to the general appearance of the home grounds. These should be screened off by using dense trees, large shrubs or vines planted close

to the object to be hidden. Examples of things that should be screened from view are barnyard fences, chicken houses, plowed ground, outhouses, garages, tool sheds, and barns.

Trees making good screens include Red Cedar, Scotch Pine, Arbor Vitae, the Elms, Bolleana Poplar, and Soapberry. Good shrubs for screening include Tamarix, Flowering Willow, Vitex, Chinese Privet, Lilacs, and Bush Honeysuckle. Such vines as Wisteria, Heart-leaved Ivy, Boston Ivy, Hall's Honeysuckle, and Kudzu are desirable for use as screens.

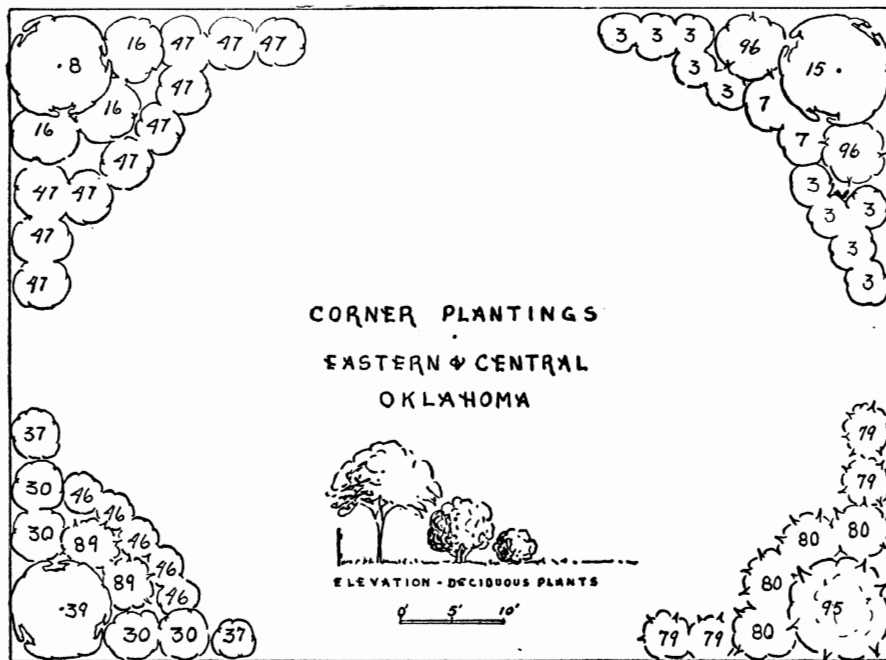


Fig. 3.—For key list of plants referred to, see Plant Tables.

Foundation Plantings.—These are made directly around the house to blend it into its surroundings. That is, tie it to the ground, soften its harsh lines and give it an appearance of fitting into the natural surroundings. Since houses vary a great deal as to type of structure, height of foundation, doorways and windows, no one set type of foundation planting can be recommended.

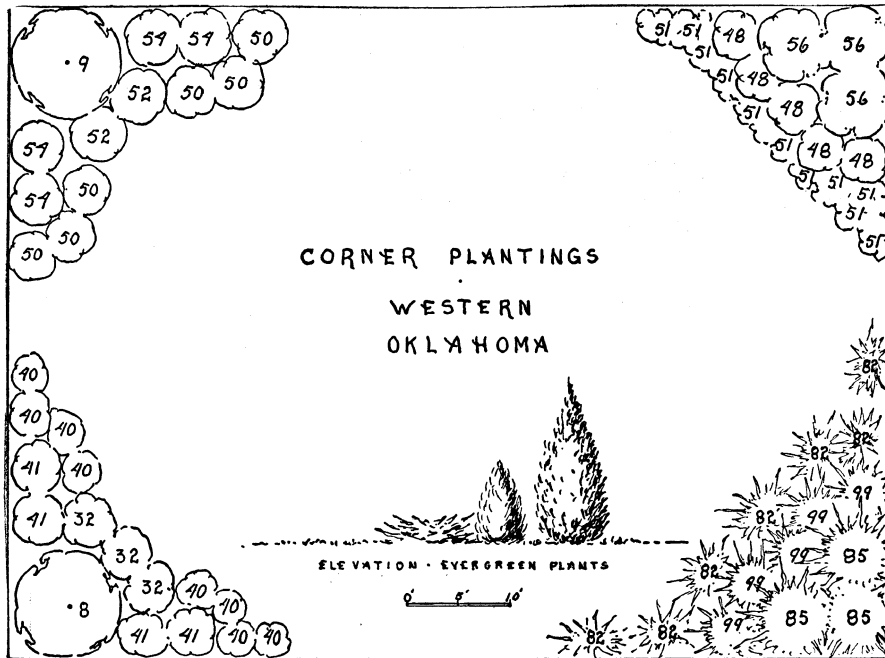


Fig. 4.—For key list of plants referred to, see Plant Tables.

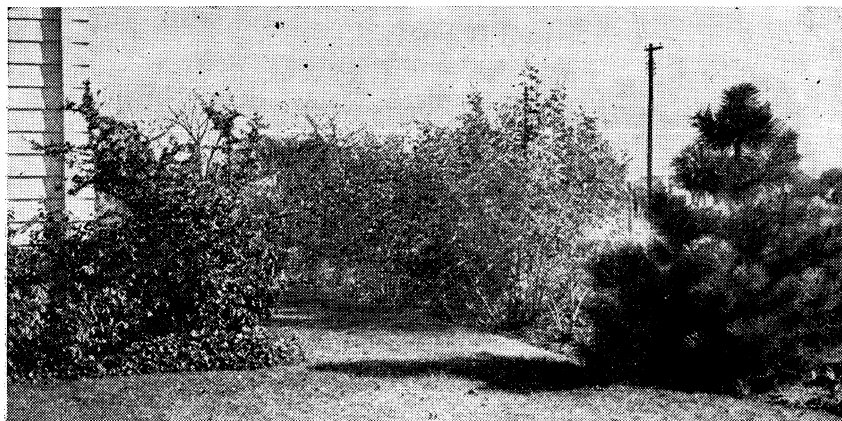


Fig. 5.—Corner planting showing specimen pine with screen planting to cover view of poultry house in background.

The following items, however, are especially important:

1. Don't plant shrubs too close to the foundation; never closer than three feet, and, in the case of large shrubs, as much as five or six feet from the foundation.

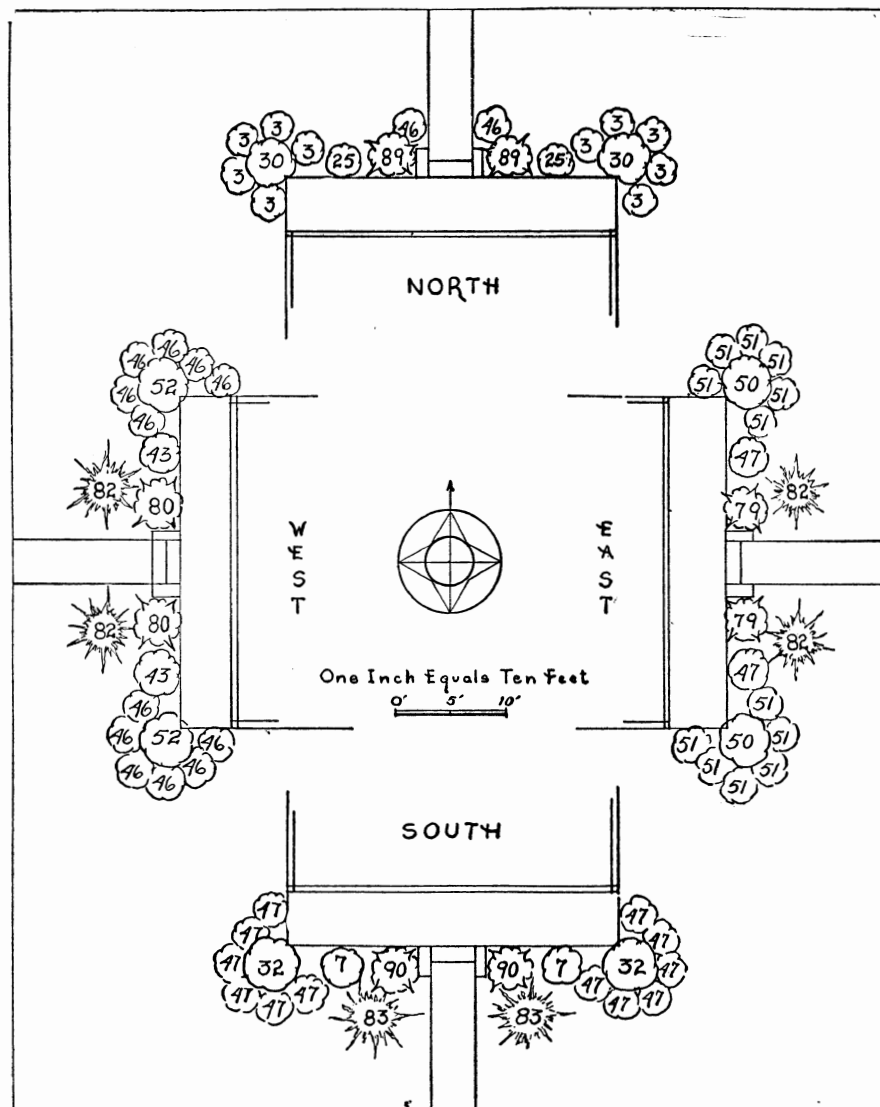


Fig. 6.—Planting plans for house fronts facing four directions. Refer to tables in back of bulletin for key to plant numbers.

2. Don't overplant around the foundation. Use plants that branch at the ground and never grow into trees. Give each plant adequate space in which to develop. It is neither necessary nor desirable to hide the foundation entirely. Leave open spaces where the lawn extends to the foundation, thus tying the three components—lawn, shrubs, and house—together.

3. Don't allow shrubs to cover windows, cut the roof line or other lines of the house, or obstruct entrances. Select low growing plants for the space under windows or leave it free of plants. Keep plants far enough away from walks and entrances so they never grow over the walk or crowd the doorway. Always check the mature size to which the plant under consideration will grow, both as to spread and height, then locate it accordingly. Pruning will be necessary to keep plants in bounds, but it can be kept to a minimum by careful spacing and plant selection to start with.

4. Don't locate shrubs around the foundation in a straight line. Stagger them and arrange them in groups to get "mass" effects. Curve the outline of shrub beds to conform to the general shape of the shrub groups. To secure a gentle curved outline for beds, lay a garden hose or rope down to serve as a guide in marking the boundaries.

Upright growing shrubs fit well at the corners and between windows. Use low, spreading types beneath windows and around low porches. A mixture of evergreens, broadleaf evergreens, and flowering shrubs should be used in the foundation planting. Plants with fine textured foliage are especially good. Strive for balance and interest during all seasons of the year and a pleasing, inviting appearance. Never plant a single species, such as *Van-houtte spirae*, around the entire house, and likewise don't use too many different species. As a general rule 8 to 12 different kinds will be plenty. Arrange plantings to make the entrance attractive and inviting. The entrance is actually the focal point toward which all plantings in the public area should direct attention. This may be done by using plants which vary in color, texture, or shape from those about them. Be sure to locate foundation shrubs to scale on the plan to avoid putting in too many.

The broadleafed evergreens, *Abelia*, *Euonymus*, *Mahonia*, *Nandina*, *Firethorn*, and *Cherry Laurel*, along with the deciduous *Spiraeas*, *Barberries*, *Deutzias*, *Goldenbells*, *Jasmines*, *Quinces*, *Almonds*, *Mock Oranges*, and *Sages*, are the small to medium sized shrubs used widely in foundation plantings. The tall evergreens, *Red Cedar*, *Canaert Red Cedar*, *Colorado Cedar*, *Silver Red Cedar*, *Arbor Vitaes*, and the low growing evergreens, *Pfizers*, *Savin*, etc.,

along with the deciduous Altheas, Vitex, Lilacs, Dogwoods, Smoke Tree, Bladder-senna, Bush Honeysuckles, Crapemyrtles, and Snowballs are the larger growing sorts useful in foundation plantings.

Special Features.—After all other plantings have been located on the plan put in the desired special features which include such things as a rock garden, lily pool, rose garden, etc. These will, of course, need some consideration when the first overall plan is sketched, and appropriate backgrounds for them must be provided when border and screen plantings are located. As a general thing, special features belong in the private area or as a corner arrangement in the service area. They are for individual use and enjoyment for the most part; therefore, should be of special interest to members of the immediate family. Every home—large or small—should have an outdoor living room: A place to give vent to gardening urges, a place to invite friends to lunch and visit; and above all, a place to spend spring, summer and fall evenings where there is more comfort and enjoyment than the indoor living room can provide during these seasons.

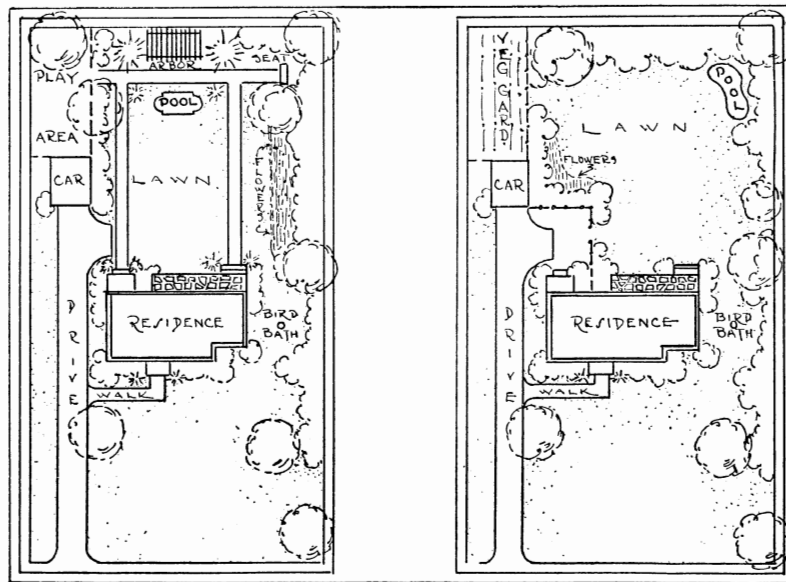


Fig. 7.—The informal or naturalistic development on the right is better adapted to most average conditions. The development on the left, with its straight lines, is a suggested formal development for the same area.

There are many different things that may be put in an outdoor living room, such as a pool, rock garden, flower border, rose garden, perennial garden, specimen plants, pergola, arbor, paved terrace, outdoor furniture, bird bath, sun dial, or fireplace. Select these developments that are of interest to the people using the area and fit them into the plan. Do not try to include more than a few of the above items in any one yard.

The outline of the informal border should be slightly irregular with an occasional promatory or point. These points tend to make the ground interesting by forming bays which are hidden from general view. A person's curiosity is aroused by the hidden portion, and on entering a bay, a pleasing sensation of surprise results. Such a bay furnishes a setting, background and frame for some small development such as a pool, bird bath, or table and chairs.



Fig. 8.—A comfortable, shady nook for outdoor refreshments.

Pools.—Water gardening is popular with some folks, and is a special activity to be considered when developing the plan of the outdoor living room. If small children play in the yard, a pool is definitely undesirable. In all cases, it is well to provide protection with a strong underwater grill or wire.

During drouths the pool is often the only fresh spot in the yard. Unless carefully designed for drainage, and supporting plant materials are carefully selected, a pool can present quite a maintenance problem.

Informal or naturalistic pools, if used at all, should give the appearance of being a definite part of the surroundings. In planning the area, fitting nooks or corners should be provided for the special feature. Connect the pool with the regular plantings so that it seems to be a natural outcrop of the surroundings. Pools having regular lines (rectangular, circle, square, etc.) are used in formal plantings. A formal pool does not fit properly in a naturalistic setting.

Construction of pools is relatively simple, yet a few rules should be followed for success. The pool should be not less than six feet in diameter with a depth of eighteen to twenty-four inches. Walls are usually reinforced-concrete at least six inches thick. The edge of the walls should be flat, nearly level with the ground. The water supply, overflow, and drainage provisions should be simple and efficient.

Water plants and animals offer an interesting variety from which to select.

Following is a suggested list:

Water Lilies.—In small pools plant one for every nine square feet of pool surface and one for every sixteen to twenty-five square feet in large pools. The following are the hardy lilies desirable for pools: Yellow—Marliacea chromatella, Aurora and Sunrise; Red—Attractive, Conqueror and Gloriosa; Pink—Pink Opal, Marliacea rosea and Lustrous; White—Gladstone and Marliac White.

Egyptian Lotus.—Use one in place of two lilies for variety.

Floating Water Plants.—Duckweed, Water lettuce and Waterhyacinths are at home in any pool.

Shallow Water Plants and Bog Plants.—These plants add to general attractiveness when planted round the edges and at the back of the pool. The most popular to be grown in six inches of water are: Cattail, Floatingheart, Parrotfeather, Pickerelrush and Waterpoppy. Those which do best in two inches of water are: Arrowhead, Hardy Calla, Yellow-flag, and Blue-flag, Papyrus, Umbrella Palm, Watercress and Waterice. Plants that like wet feet but do not like to swim or wade are: Butterfly Lily, Calla Lilies, Green Taro, Marchmarigold, and Rosewallow.

Oxygenating Plants.—These help balance the supply of oxygen in the water. The good ones are: Anacharis, Cabomba, Sagittaria, Vallisneria, and Ludwigia.

Rock Plants.—These are attractive where rocks are used around the edge of the pool. (See list of rock plants under Rock Gardens).

Flowers (Iris, etc.) and Grasses.—These make very attractive backgrounds for pools.

Ornamental Fish.—Be sure to include these in the list of pool accessories. They are beautiful and exterminate mosquitoes.

Scavengers.—These are the housekeepers of the pool and relieve you of this responsibility. Snails devour algae and green scum; tadpoles eat decayed matter; clams and mussels act as continuous filters to keep the water clear.

Rock Gardens.—A rock garden, to be attractive, must be in a setting for the display of rock plants—not the display of exotic rocks. Piles of many colored rocks, paths or pools bordered by upended rocks present a disorderly appearance that will spoil the desired effect.

A rock garden should first have the proper location; preferably on a slope. A low rock wall makes an excellent form of rock garden with plants at the base and on top of the wall. If only level ground is available, locate or plan a good background for the rock garden. Never place the rock garden in the front lawn or in the center of the lawn.

Large rocks should be used to produce stability, and flat rocks are more satisfactory than jagged, irregular ones. Observe natural rock formations before starting the rock garden. Try to imitate nature as closely as possible.

Slow growing, dwarf type plants are desired in a rock garden planting. A too-fertile soil preparation is not desirable since retarded growth of plants is necessary.

Perennial Plants Usable in Rock Gardens:

Alyssum saxatile	Iberis sempervirens
Arabis albida	Iris pumila
Cerastium tomentosum	Linum perenne
Dianthus barbatus	Repeta mussini
Dianthus plumarius	Oenothera missouriensis
Gypsophila repens	Phlox subulata
	Sedum (many)

Bulbs for the Rock Garden:

Crocus vernus	Narcissus jonquilla
Erythronium albidum	Narcissus poeticus
Muscari botryoides	

Flower Gardens.—Flowers are popular with everyone. Beds may be small or large, formal or informal, round, oblong or rectangular. The list of annuals, perennials and roses adapted to Oklahoma offers a wide selection from which to choose. Like the pool, the flower garden fits best along the border or in the corners of the

private area. Large formal plantings can, of course, be located in the lawn of the private area, but as a general rule, flower beds should never be located in the lawn. Irregular shaped beds are best since they can be fitted into informal groups. Avoid over planting and arrange beds in such a manner as to have some bloom at all seasons. Bulb beds interplanted with annual flowers make a good combination. Quite often, limited space does not permit an abundance of flowers in the landscape planting for cut-flower purposes. A special plot in the vegetable garden or service area can be used for such a purpose.

THE PLANTINGS

Once the plan is complete and proper preparations are made, actual plantings may start. Not that the plan won't be changed because in most cases alterations will be necessary to fit things together correctly. The plan, however, provides a birdseye view of the goal toward which the whole improvement program is aimed. It also makes possible the development of sections or features of the whole that, when fitted together, leave a harmonious unit. Home grounds improvement is essentially an orderly development.

Planting operations should be preceded by a general clean-up of the premises, the grading and levelling necessary to get proper drainage and the building, painting and repairs to be done. If changes in buildings, walks, drives, fences, etc., are to be made and some existing trees and plants removed, this of course, should be done before any plants are located in the immediate area affected. Usually, some soil improving practices should be carried out. If sub-soil moved from a basement or cellar has been left piled in the yard, it should be removed or spread and covered with six to eight inches of good topsoil. Since plants will grow much better if planted in a fertile, well prepared soil, it is desirable in most cases to plow or disc an application of manure and complete fertilizer into the soil over the whole yard area. It costs less to do this job before plants are set and it pays off in growth dividends. Use well rotted barnyard manure or compost at the rate of a quarter to half pound to the square foot and a complete fertilizer such as 5-10-5 or 4-12-4 at the rate of a pound to 40 square feet. Broadcast both over the soil as uniformly as possible and disc or plow to mix them with the soil. Level the soil and otherwise work it over to the condition of the type prepared for the planting of alfalfa. The first essential in having a fertile, well prepared soil

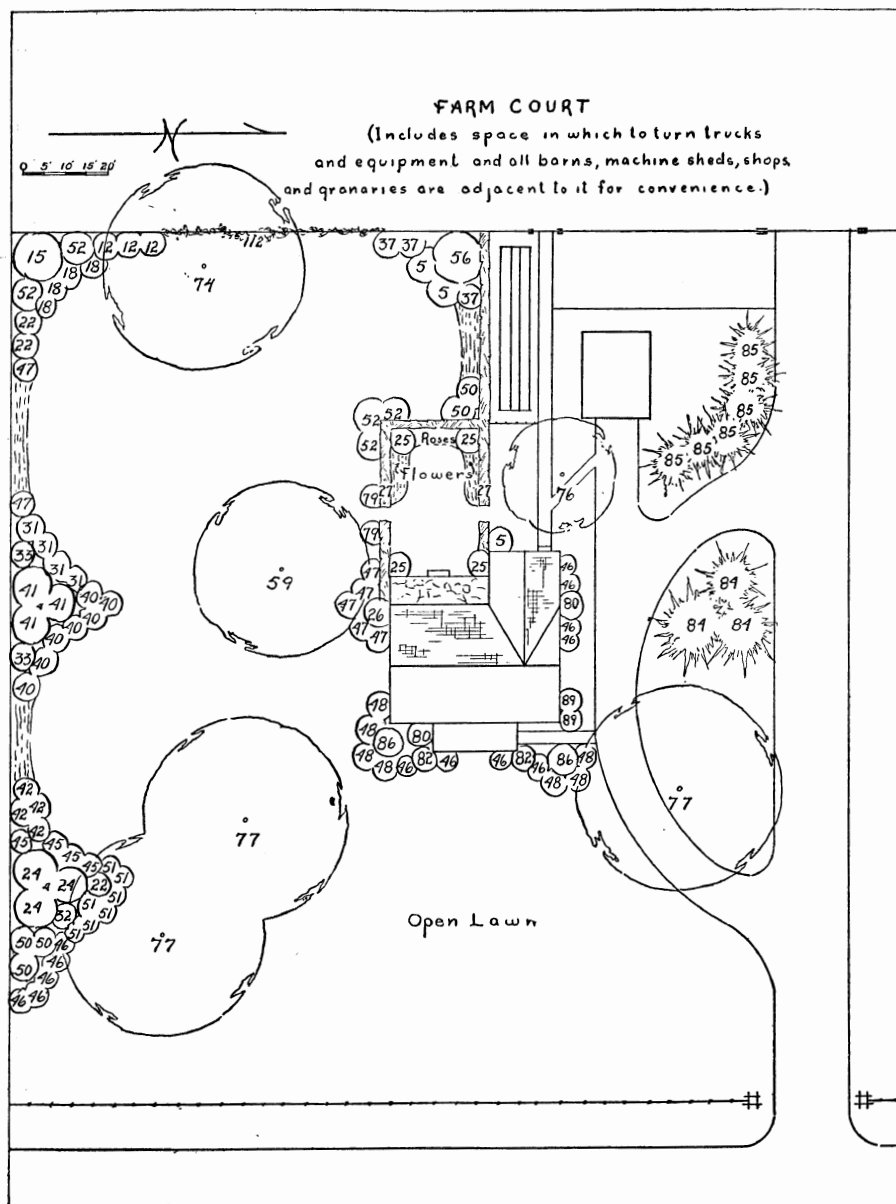


Fig. 9.—A planting plan for a farm home grounds. A large area was chosen in order to show more plant groups and variety of arrangement. A small formal area adjacent to the terrace was included to show the relation of such an area to the house if one is desired. Other than the formal garden, most of the grounds can be kept mowed with the farm power hower.

The planting program will need to be carried out in about the same order as that followed in making the plan. After all repair work, building, grading, fence building, walk making, etc., has been done and the soil is in shape, carry out the planting program in the following order:

1. *Seed or sod the lawn.*
2. *Plant the trees including the windbreak.*
3. *Put in the screen, border and group plantings.*
4. *Set the foundation plantings.*
5. *Finish the job by putting in the special features.*

Trees and shrubs may be planted, as a general rule, November 15 to April 1. In the western third of the state, February and March are the best months for planting. A few plants are exceptions to this general rule. It is best to transplant Snowball, Butterfly Brush, Tamarix, Althea, Pecan, and Walnut trees, Sumac and Colutea in the spring anywhere in the state. Narrow leaf and broad-leaf evergreens do better if planted during February and March. Regardless of when evergreens are transplanted, special care should be taken to see that the soil around them is not allowed to become too dry.

Before buying plant material, set stakes at all the individual plant locations; this will aid in making a final check on spacing, arrangement, and number of plants needed. Order or contract for plants early. Refuse to accept substitutes unless they definitely fit into the plan as to size, growth habit, color, texture, etc. Freshly dug plants from the nursery are more satisfactory than cheaper, bargain plants. Smaller sized plants (Example: 2-3 ft. Vanhoutte Spirea or 3-4 ft. Red Cedar) usually are more successful and are less expensive. Small plants might look lost, but a few seasons' growth will find them filling the vacant space. Temporary plants (fillers: Annuals, perennials, other shrubs) are often used to fill in. Failure to remove the fillers at the proper time will retard desired development of the permanent plants. A lot of native Oklahoma plants are quite useable in landscape plantings. Native Red Cedars, for example, may be trimmed to columnar or pyramidal shapes and serve the same purpose as many other Junipers. Sumac, Tamarix, Elderberry, Deciduous Holly, Native Currant, Redbud, Dogwood and Indigo-bush are a few of the other native shrubs available for use. Select native plants which are small in proportion to the mature size. Ball and burlap evergreens for transplanting. Move other types with a large root system. Avoid leaving the roots exposed to the open air for even a few seconds. During March or April native plants to be transplanted should be root pruned. Dig

a trench around the plant (a 5 to 6 ft. native elm for example) at a distance of 2 to 3 feet from the base of the plant and a depth of 15 to 20 inches. Cut the plant roots encountered in the trenching. Fill the trench with top soil and leave the plant growing in its original position for another growing season. The following season, when the plant is moved, the concentration of feeder roots caused by the trenching will make the chances for survival much greater.

Transplant native plants when other shrubs and trees can be safely moved.

Planting the Lawn.—The lawn is nature's carpet. Like the rug on the living room floor, it should go down first. Thus, the seeding or sodding of the lawn is the first planting job—the starting point in developing the completed landscape plan. The battle for an attractive yard is half won when a good lawn has been established.

Start by preparing a good seedbed. Rake, level and firm the soil to avoid pockets. Use commercial fertilizer and manure as suggested and if the soil is loose, allow it to settle before seeding or sodding the grass. Bermuda, Buffalo, Little Kentucky Blue, Kentucky Blue Grass, African or Egyptian Bermuda and White Dutch



Fig. 10.—There is nothing more beautiful in a landscape planting than a broad expanse of open lawn.

Clover are the common lawn plants used in Oklahoma. They rank in popularity in the order listed.

Ordinary Bermuda grass is the most widely planted lawn grass in the state and is especially adapted to sandy soils. It is, however, difficult to keep out of flower and shrub beds and will not tolerate dense shade. Bermuda can be started by seeding, sodding or sprigging. Sodding or sprigging is usually best and can be done either during the early spring or late summer. Sprigging is done by laying off rows four inches deep and six to eight inches apart. Roots are placed in the rows and covered. The ground is then leveled and watered heavily. A fairly good sod can be established in a few weeks by this procedure if water is applied regularly.

Spot sodding is similar and very successful. Plant clumps of grass three to four inches in diameter a foot apart over the whole lawn. Frequent mowing to encourage spreading will help in securing a complete cover in one season. Bermuda sod pieces can be covered completely and the yard raked as growth starts to keep it level.

To start Bermuda from seed, water the soil thoroughly and rake lightly as soon as it is dry enough to stir. Broadcast good quality seed uniformly over the area at the rate of one to three pounds per 1,000 square feet. Roll or rake lightly to pack the soil around the seed and if the soil is either of a loose or heavy nature, scatter a thin layer of well rotted manure or compost over the area after seed is distributed and roll lightly. Water to keep the surface moist until seed germinates and the young seedlings have become well established.

African or Egyptian Bermuda may be started in the same manner as ordinary Bermuda and during the same seasons. Since sod pieces are more difficult to obtain because these grasses are not as widely grown as ordinary Bermuda they are more often started from seed. Use the same methods and amount of seed as suggested for ordinary Bermuda.

African and Egyptian Bermuda both make attractive lawns. They have finer leaves and are of a deeper green color than ordinary Bermuda. They are, however, more difficult to maintain and equally as sensitive to shade. For best results, lawns will need to be top dressed regularly with nitrogen fertilizer and watered heavily during dry periods. Use three to four pounds of Nitrate of Soda or Sulfate of Ammonia fertilizer per 1,000 square feet, applied broadcast and watered into the soil each spring just as growth starts. These grasses also need to be mowed at regular intervals to avoid the development of brown areas.

Buffalo grass is the native pasture grass found throughout western Oklahoma growing on the tighter prairie soils. It will grow anywhere in the state on the tight clay to slightly sandy loam soils and makes a good lawn that is easy to maintain. The grass requires very little mowing and is easy to keep out of flower and shrub beds and will tolerate more shade than Bermuda. It will not grow in dense shade, however. By selecting sod pieces from female patches of Buffalo, those patches that do not have flower stalks, a very attractive uniform turf can be established. Buffalo can be started either in early spring or late summer and is usually started by sodding. Seed is scarce and germination so slow that it takes a long time to establish a sod by planting seed. Sod Buffalo in the same manner as Bermuda with the exception that the pieces should not be covered. Good results can be obtained by pressing the sod pieces into wet soil to leave them level with the surface. Pull the soil up around the edges of the sod pieces, but do not cover them entirely. A Buffalo grass lawn can be established in one season by this method, plus the liberal use of water during the summer.

Little Kentucky Blue and Kentucky Blue Grass are grasses that will tolerate shade. They are not adapted except in the eastern half of the state, and even in this area require special care. It takes plenty of water, a sweet soil and plenty of well rotted manure or compost to grow blue grass. For this reason, they are only used in areas too shaded to grow Bermuda or Buffalo. Check soils for lime and make a suitable application as the soil is put in planting shape. Plant in early spring or early fall at the rate of four pounds of seed per 1,000 square feet. Spread a layer of well rotted manure or compost over the seed, roll lightly and water. Keep the surface wet until the grass is established. To keep blue grass lawns healthy and attractive, watering at two weeks intervals will be necessary winter and summer alike if rains fail. Make an application of nitrogen fertilizer in the spring at the rate suggested for African Bermuda if growth is not satisfactory.

White Dutch Clover may also be used to provide a lawn in shade. Like blue grass, it thrives best on soils well supplied with lime and requires liberal waterings during dry periods. Seed in the fall or early spring at the rate of one pound per 1,000 square feet. To keep a good turf allow the plants to seed each spring and reseed the whole area every three years.

Italian Rye Grass may be used for a winter lawn. It may be planted over Bermuda or Buffalo and will not damage them, provided it is kept mowed during the early spring before it goes to seed in May. If allowed to go to seed, it is liable to damage the Bermuda and Buffalo by delaying their growth. Seed at the rate of

five pounds per 1,000 square feet during October. Water if rains do not occur. Since Italian Rye Grass is an annual, it will need to be seeded each fall.

Planting Trees and Shrubs.—Plants are received from the nursery packed and wrapped to keep the roots moist. Use every precaution to see that the roots remain moist before and during the time they are being planted. If plants must be kept several days before things are in readiness for their planting, “heel” them in as indicated in Figure 11.

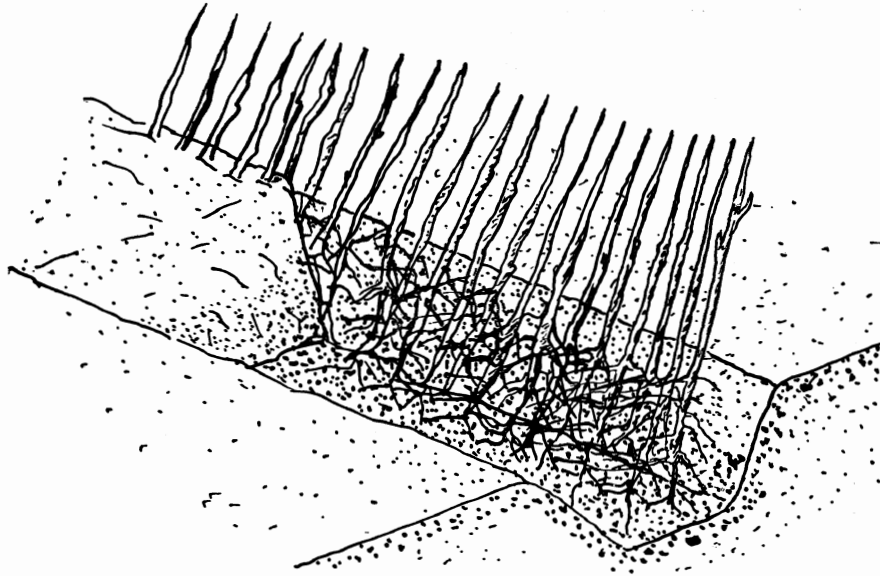


Fig.11.—Plants heeled in waiting to be transplanted.

To heel plants in properly, break the bundle and spread them out in a trench in a horizontal position, pointing their tops toward the southwest, if possible, at about a 45 degree angle. Dig the “heel-in” trench, in a shaded location such as the north side of a building, deep enough to accommodate the entire root system. Slope the plant side of the trench down so that the roots rest firmly on soil. Fill the trench, packing the soil firmly over the roots, and water it down if it isn't moist to get rid of air pockets. The damp straw or other packing material used around the roots in the bundle may be distributed among the roots as the plants are spread out in the trench. If rabbits are a pest, be sure to protect heeled-in plants against them. Balled and burlapped plants are heeled in by digging a trench and setting the plants in at planting depth as close

together as possible. Pack moist soil around them to keep them from drying out.

Planting Bare Rooted Plants.—The following procedure is suggested relative to the transplanting of bare rooted plants:

1. Dig an adequate sized hole, both in depth and width, to accommodate the roots of the plant in their normal position. Set plants at the same depth or only slightly deeper than were growing before they were dug. As the hole is dug separate the topsoil and subsoil into different piles. See (a) in Fig. 12.

2. Remove the plant from the bundle or heel trench after the hole is dug, and use a wet sack to keep the roots moist. Puddling of bare root plants is worth the time involved. Puddling is merely the plunging of the roots system of bare-root plants in a soupy mud of water and clay. The container for the mud can be either a bucket or hole in the ground. The protective coating on the roots helps to prevent drying-out during planting.

3. Prune off any broken, dead or damaged roots.

4. Place the plant in the hole, spreading the roots in their normal position. If the plant has no taproot and the mass of roots spread out around the crown like a fan, it is a good idea to build a cone shaped mound of soil in the bottom of the hole for the crown to rest upon. (See (a) in Fig. 12). This will do away with the pocket of air under the center of the plant that is sometimes difficult to get rid of. Rose bushes are an example of a plant of this type. It is always desirable to turn a heavy low branch or to face the heavy side of bushy shrubs into the southwest toward the prevailing winds.

5. Fill the hole, using the pile of topsoil first to put it around the roots of the plant. Firm the soil around the roots, as the hole is filled, using a blunt stick or shovel handle. When the hole is three-fourths full, fill the remainder with water and let it soak away before completing the filling job. (See (b) in Fig. 12).

6. Finish filling the hole with soil after the water has soaked away and leave it slightly lower than the surface of the surrounding area. *Don't mound the soil around plants.* (See (c) in Fig. 12). Leave an inch of loose soil on the surface or spread an inch or so of well rotted manure or compost around the plant as a mulch.

7. Complete the transplanting job by pruning back the top of the plant to about two-thirds of its original size. (See (c) in Fig. 12). Always stake or guy trees to hold them in position until they become settled.

8. Check the soil moisture at intervals and water as necessary.

Many nurserymen prune plants when they dig them, in which case the pruning job will have already been done. Remove any broken or damaged branches, however. Always prune plants in such a way as to maintain their natural growth habits. Evergreens, broadleaved evergreens and plants that drop their leaves all need to be pruned back. Those moved with a ball of soil should be pruned less severely than the bare rooted plants.

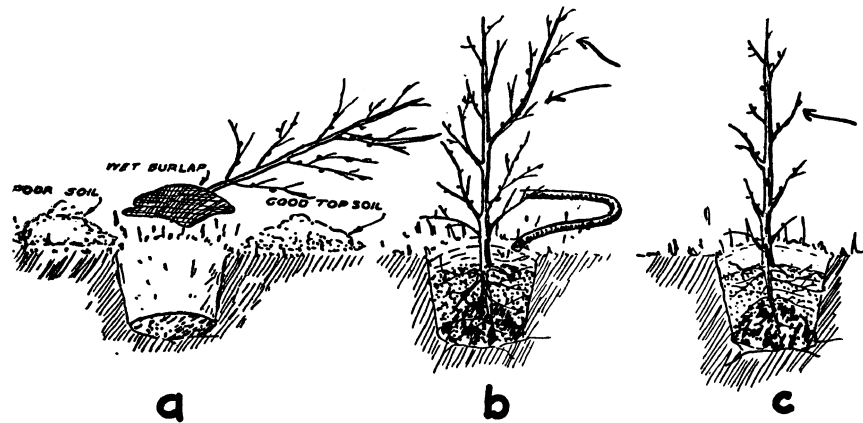


Fig. 12.—Planting bare rooted plants.

Planting Balled and Burlapped Plants.—The procedure to follow in transplanting plants with a ball of soil around their roots is essentially the same as that suggested for the setting of bare rooted plants. The exception, of course, being that the ball is planted instead of the bare roots. In handling balled plants always lift the ball, never use the plant itself as a handle. If the ball is broken, the purpose for which it is kept around the roots is defeated. Set the ball in an adequate size hole, turning the plant to face its heavy side into the wind. *Do not remove the burlap.* Set balled plants only slightly deeper than they were growing in the nursery. Use temporary guys of heavy twine or wire to hold upright evergreens in place until they are settled in position. Use the topsoil around the ball and proceed with the planting operations in the same manner as suggested for bare rooted plants. Water balled plants thoroughly as they are planted and continue watering when necessary until they have established themselves. All plants that hold their leaves during the winter will need to be watered during this season if natural rainfall is deficient. Prune evergreens to shape them and to balance the plants. Remove all broken or damaged branches after the plant is in place.

Planting Perennial Flowers—Herbaceous flowering plants should be an important part of every landscape planting. Iris, Day lilies, Shasta Daisies, Chrysanthemums, Cannas, Columbine, Perennial Pea, Dahlia, Gaillardia, Peonies, Black-eyed Susan, Perennial Phlox and Hardy Pinks are some of the plants of this type adapted to our climate. They are useable in beds and borders of both formal and informal design. They thrive in deep fertile soils, and will require some water during most seasons. Bed and border plantings can be carried through four or five seasons without digging and dividing the plants, in most cases. Dividing is done according to requirements of individual species.

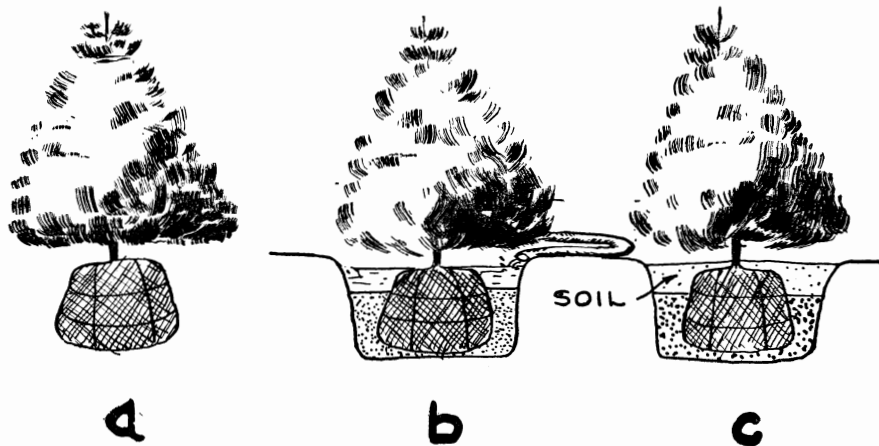


Fig. 13. Planting Balled and Burlapped Plants.

The time to transplant herbaceous perennials depends on the season of flowering and their hardiness. As a general rule, it is best to transplant the spring blooming species in the fall, and those that bloom during the fall in the spring. In planting the clumps of roots, take special care to keep them moist and plant at the same depth or only slightly deeper than they were growing. Give each clump adequate space as determined by its mature size. The liberal use of compost or well rotted manure around herbaceous perennials will pay off in flowers. In sections where cold is liable to damage these plants, protect them by applying a liberal mulch during early winter.

Annual Flowering Plants.—Annual flowers are useful in the home ground planting to get quick effect. Clumps and irregular beds of flowers fit into bays and pockets between the shrubs, trees and herbaceous perennials. The annual plants are especially useful

around rented homes where the expense of a permanent planting would be too great. They not only fill in gaps with their flowers and foliage, but also provide cut flowers for use indoors.

Annual flowers are not difficult to grow. Their culture is about the same as that of small seeded vegetables. Some of them can be sown where they are to grow and bloom, while others do best if grown in a hotbed, box or coldframe and transplanted as plants. Gardeners who grow tomato and pepper plants should have little difficulty in growing annual flowering plants. Since most annual flower seeds are small, it is easy to get the plant too thick. After small plants are well established, thin to give plenty of space to develop into their normal size. Select a variety of plants to provide flowers during the entire season. The following list of plants includes most of the annual flowers adapted in Oklahoma: Marigolds, Ageratum, Globe Amaranth, Amaranthus; Snapdragons, Asters, Ragged Robin, Balsam, Basketflower, Calendula, Poppies, Candytuft, Pinks, Sweet Sultan, Spiderflower, Cockscombs Coreopsis, Cosmos, Larkspur, Phlox, Forget-me-not, Four-o'clock, Strawflower, Nasturtium, Petunia, Pansy, Scabiosa, Portulaca, Salvia, Verbena, Sweet Alyssum, and all types of Zinnias.

THE AFTER CARE

Plants must be cared for regularly if they are to remain healthy. Cultivation, watering, pruning, fertilizing, lawn care, and the control of insect and disease pests are the principal jobs involved in giving established plantings proper care.

Cultivation.—The principal benefit of cultivation around ornamentals comes from the control of weeds. Maintain a loose soil mulch by stirring the soil surface occasionally. Deep cultivation can injure the roots of plants. A shallow cultivation after each rain as soon as the soil is dry enough to work is usually sufficient. Edges of the beds should be maintained as a sharp line, not only to keep the lawn grass out of beds, but to maintain a neat appearance.

Watering.—Water is very important in the proper care of ornamental plants. During the heat of mid-summer, weekly waterings will be necessary, especially the first season after shrubs, trees, flowers and lawn are planted. As a general rule it is best to water late in the evening during hot weather. Sprinkling the surface of the ground is of very little value. Soak the soil to a depth of four to six inches at each watering. If a sprinkler system is used, let it run in each location about three hours. Frequent, light waterings will form a shallow root system near the soil surface. Such a shallow root system is damaged more by drouth and cultivation than roots at a normal depth.

Pruning.—All trees and shrubs that drop their leaves in winter, narrow leaved evergreens, and broadleaved evergreens need regular, systematic pruning. The amount of pruning and kind of pruning varies somewhat with the different groups and species.

Pruning Tools.—Efficient pruning cannot be accomplished without proper tools. Hand pruning shears are for small branches up to slightly larger than a lead pencil. Lopping shears should be used for larger branches up to a diameter of $\frac{3}{4}$ of an inch. Regular "pull-type" pruning saws are needed for difficult crotch correction and larger branches. Hedge shears are necessary for sheared hedges. Keep all pruning tools properly sharpened to avoid injury to delicate plant tissue.

Pruning Transplanted Trees and Shrubs.—Trees and shrubs transplanted bare-rooted usually need a half to two-thirds of the top removed. Such pruning is necessary to make up for roots destroyed when plants are moved. Pruning should conform to the natural shape of the plant. Cuts for removal of branches should be made at side branches or leaf buds. A few species, crapemyrtle, vitex, butterflybush, etc., should have the tops cut back to four to five inches when transplanted.

Properly balled and burlapped evergreens lose less root system when transplanted, consequently, less pruning is needed. Proper shaping, correction of branching habit, etc., should be considered, however. Leave the low branches around the base of the plant.

Pruning Shrubs.—Shrubs should have the necessary pruning done each year. There are two general groups of flowering shrubs which determine the time of year for pruning. Those that bloom early in the spring should be pruned immediately after they bloom. Following is a list of early blooming shrubs:

Flowering Quince	Flowering Almond
Deutzia	Golden Currant
Forsythia	Spiraea thunbergi
Winter Jasmine	Spiraea trichocarpa
All Privets	Spiraea reevesiana
Pussy Willow	Spiraea vanhouttei
Climbing Roses	Spiraea arguta
Fragrant Honeysuckle	Spiraea prunifolia

Dogwood, Redbud, Hawthorn, Smoketree and Lilac should be pruned lightly after blooming. Lilacs should have old flower heads removed.

Shrubs that bloom during the summer should be pruned during February or March. Some of the plants in the later blooming group are:

Japanese Barberry
 Flowering Willow
 Bladder-senna
 Mockorange
 Autumn Sage
 Hybrid Tea Roses
 Tartarian Honeysuckle

Flowering Pomegranate
 Spiraea bumalda
 (Anthony Waterer)
 Bird-of-Paradise
 Tamarix
 Crapemyrtle

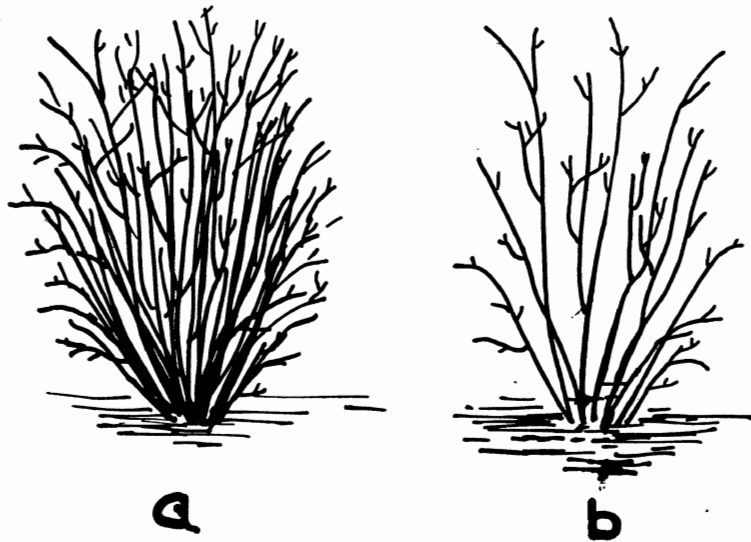


Fig. 14.—a. A typical neglected shrub such as Vanhoutte Spiraea.
 b. The same shrub properly thinned to retain its natural shape.

Pruning of shrubs which have several main stems, such as Vanhouette Spiraea, should consist chiefly of a thinning process. Usually 1/2 to 2/3 of old canes and weak, spindly canes should be thinned out from the ground up. (See Fig. 14.) If such plants have been completely neglected for several years, cut the entire top off at the ground just before growth begins in the spring.

Shrubs of the central leader type should have some correction of interfering branches and thinning to maintain a well balanced appearance. (See Fig. 16.) Althea is an example.

Pruning Roses.—Roses are preferably pruned during late March. Cut away all dead wood and shorten weak growth. Close pruning produces compact growth with large flowers. High pruning results in lanky growth with more but smaller flowers.

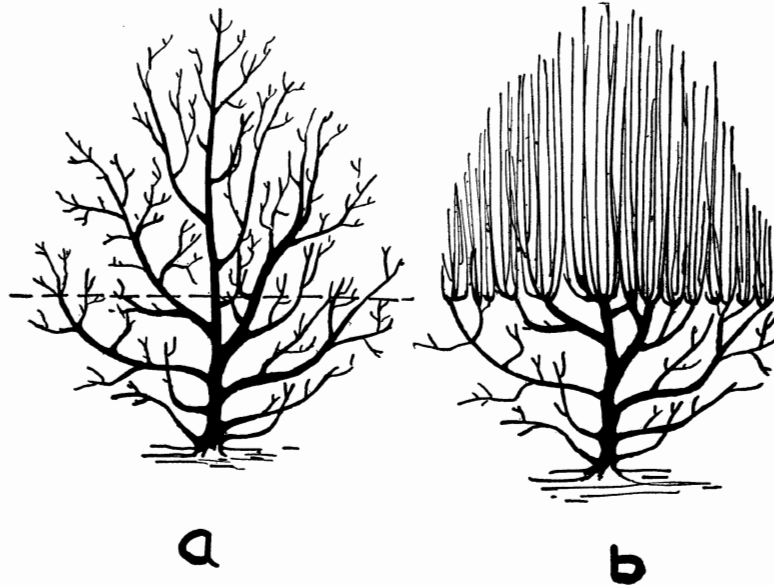


Fig. 15.—Incorrect pruning of a shrub.
 a. Normal growth of a shrub is shown. Dotted line shows where top is "lopped" off like a hedge.
 b. Spindly, dense growth results when such incorrect pruning is done. The natural beauty of the plan is ruined.

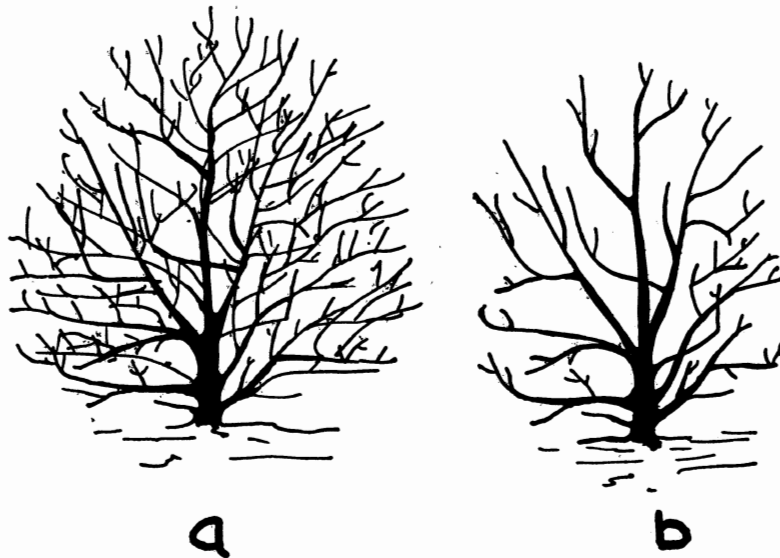


Fig. 16.—a. A central leader type shrub before pruning.
 b. The same shrub with wood thinned but the natural shape retained.

When removing wood, cut back to a point just above a bud or eye. Select a bud on the outer side of the stem to encourage open growth and prevent crossing of stems. See Fig. 17 for correct cutting of canes.

Climbing roses require only the removal of dead wood in the spring. After the plants have finished blooming, shorten the old growth. Every few years remove old wood completely and leave



Fig. 17.—a. A rose bush pruned low and severe.
 b. Resulting compact growth of low severe pruning.
 c. Correct cutting of a rose cane at a bud is shown.

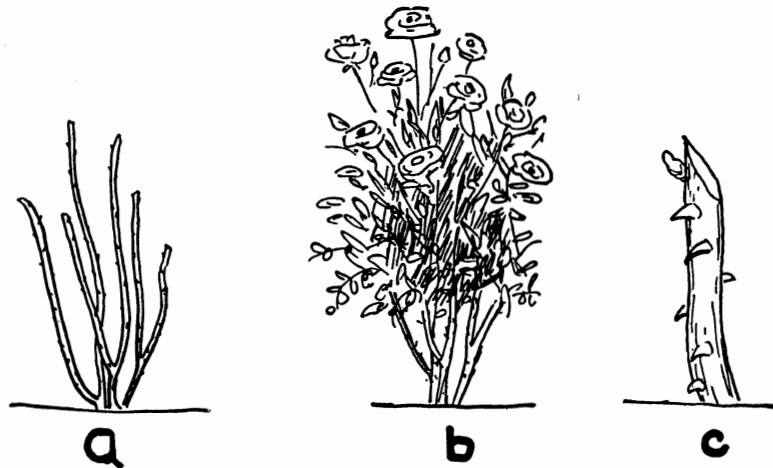


Fig. 18.—a. A rose bush with high, light pruning.
 b. Resulting leggy, open growth.
 c. Incorrect method of cutting a rose cane at a bud.

the new growth. After ramblers have bloomed, remove all wood that produced flowers and encourage new growth.

Polyanthas and floribundas require only the removal of dead wood.

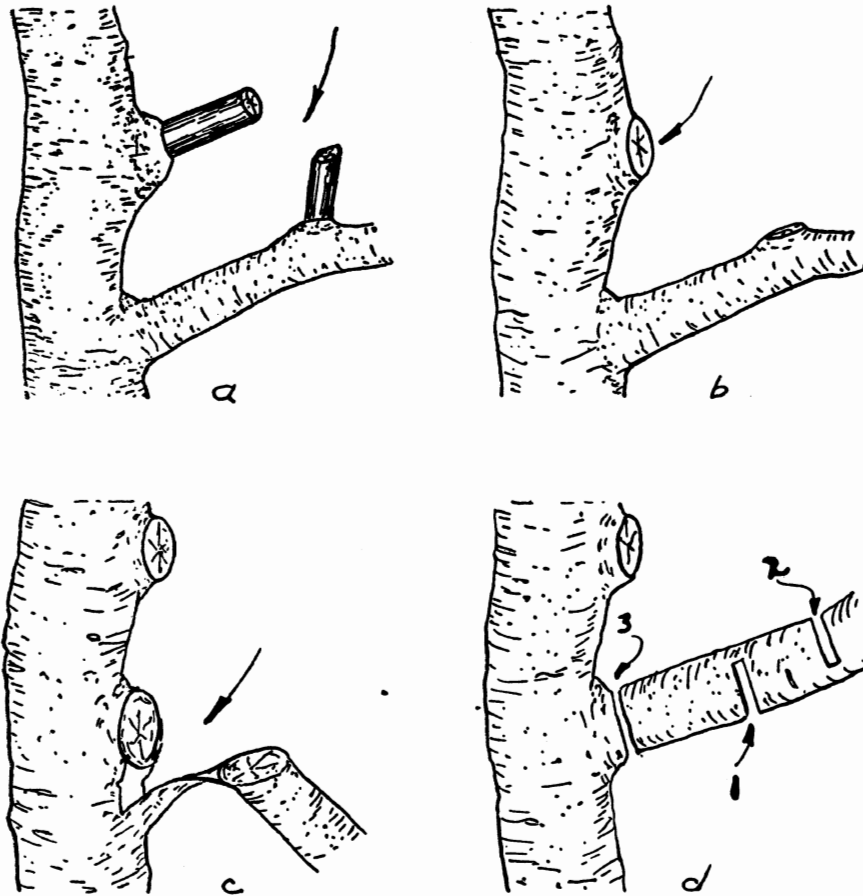


Fig. 19.—Correct and incorrect methods of removing large branches from a tree.

- a. Never leave such stubs.
- b. Make cuts flush with the trunk or side branch.
- c. Avoid breaking and tearing plant tissue by incorrect removal of branches.
- d. To remove a branch without damage to the tree, make the cuts in order shown.

Pruning Deciduous Trees.—Correct pruning during the first few growing years of a tree is of prime importance. Every tree species has its characteristic branching habit, but there are general pruning activities which apply to all types. At the time of transplanting a central leader or stem should be selected (See Fig. 12.) Side branches which tend to grow rapidly and upset the central leader system should be cut back to smaller side branches. Select permanent branches with wide angle forks rather than the weaker narrow angle types. Crotches formed by narrow angle branching break easily. The Chinese Elm has a characteristic weak branching formation.

Street and similar tree plantings usually necessitate removal of lower branches for vision and air circulation. When conditions permit, trees should be encouraged to branch low to the ground. Pin Oaks are typical of desirable low branching types.

When large or mature trees have been neglected, usually some corrective pruning is necessary. Often some thinning is needed to permit more sunlight into the crown area. Dead or damaged branches encourage disease and decay. Short sections of branches should always be removed. Make cuts flush with the main trunk or side branch. Refrain from splitting or tearing sections of the



Fig. 20.—“Dehorning” of trees, an incorrect pruning method.

bark when removing a branch. Two preliminary cuts are made before the third and final cut. Cutting flush with the trunk encourages more rapid healing over of the wound. (See Fig. 19). Paint wounds soon after cuts are made. Orange shellac permits quick healing but provides covering for only one or two months. Waterproof paints such as emulsified asphalt preparations may follow the shellac applications or be applied immediately after the cuts are made. The time from the middle of February to May is considered best for tree pruning.

Trees should never be exposed to butchery as shown in Fig. 20. If a tree is so poorly located that such dehorning is necessary to make it fit the location, complete removal is more desirable. Such drastic pruning merely invites disease, infection, tree borers etc.

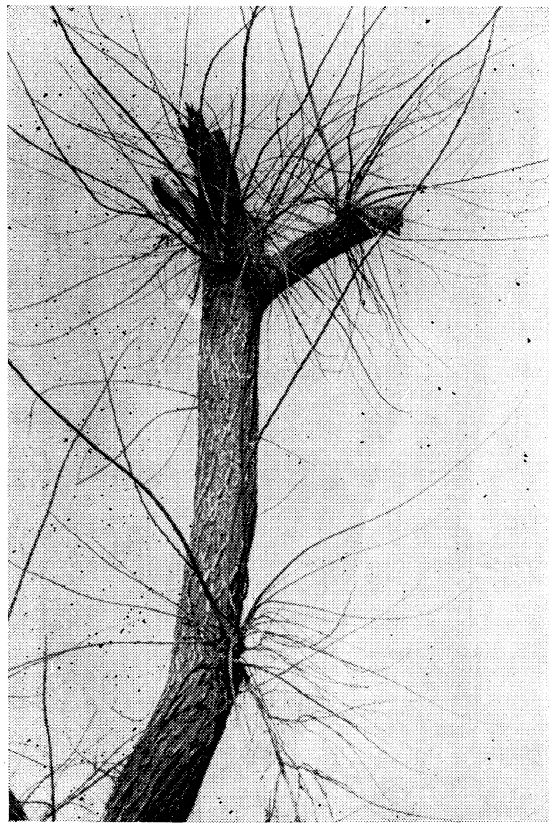


Fig 21.—Undesirable branch growth caused by incorrect pruning.



Fig. 22.—An American Elm which has had the top thinned and lower branches removed to permit lawn growth and air circulation. Necessary pruning can be done without ruining the natural shape of the tree.

Pruning narrow-leaved evergreens.—In locations of sufficient spacing, such as naturalistic plantings, narrow-leaved evergreens require very little pruning. An occasional correction of central leader growth in Juniper types or light shearing of arbor vitae types is sufficient. They can be pruned any time of the year, but about the time growth begins in spring is most desirable.

Unfortunately, most narrow leaved evergreens eventually become too large for average foundation plantings. To prevent

overgrowing the locations, regular pruning or shearing is necessary. Arbor vitae types, to retain an attractive appearance, require occasional light shearings. Shearing should conform to the natural shape of the plant. Encourage a wide, low branching base.

Large Juniper types, such as Red Cedar, will need shearing if growing space is limited. Unless absolutely necessary to shear, a naturalistic type pruning is more attractive. Such a method is especially desirable for spreading types of which Pfitzers Juniper is an example. By careful selection of cuts to be made, drastic pruning can be accomplished without noticeably changing the natural shape of the plant. Make all cuts back to side branches. Maintain a balanced appearance but avoid a globe or geometric shape. Geometric figures or lines are desirable only in formal plantings.

Hedge Trimming.—Regular and correct trimming is necessary to maintain a neat, formal hedge planting.

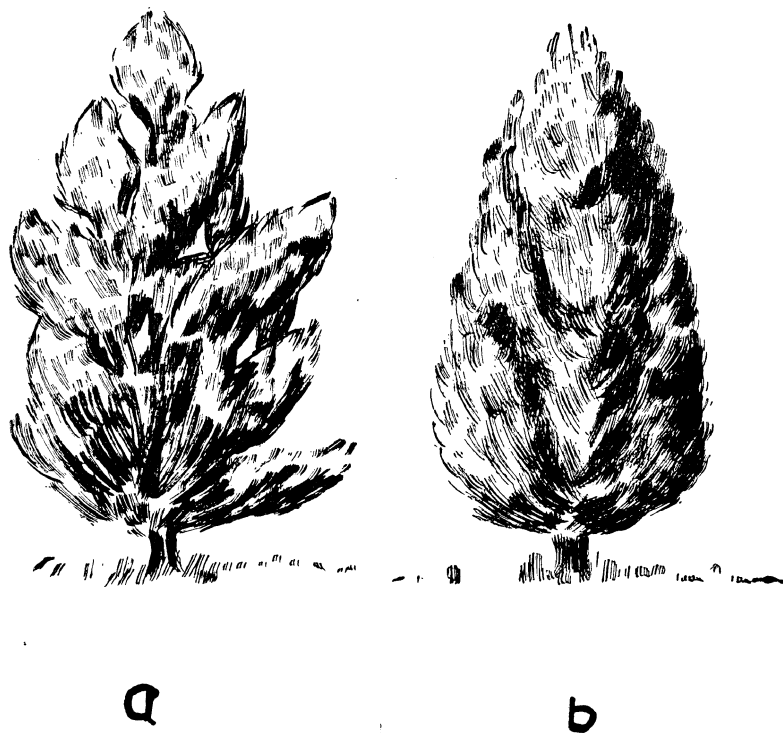


Fig. 23.—a. An arbor vitae showing a common state of neglect.
b. A neat, compact arbor vitae which has been properly pruned and sheared.

When hedge plants of the Privet type are planted, the tops should be cut back to five to six inches. Occasional light shearings will encourage compact growth from the ground up.

To maintain a uniform height and appearance, guides are usually needed until the hedge is well established. Stakes with wires can be used to establish uniform lines and height. Each time the hedge is trimmed, shear to a wedge shape, wider at the bottom. (See Fig 24.)

Privet hedges better maintain a dense growth if cut back to a height of 6 to 8 inches every fourth or fifth year.

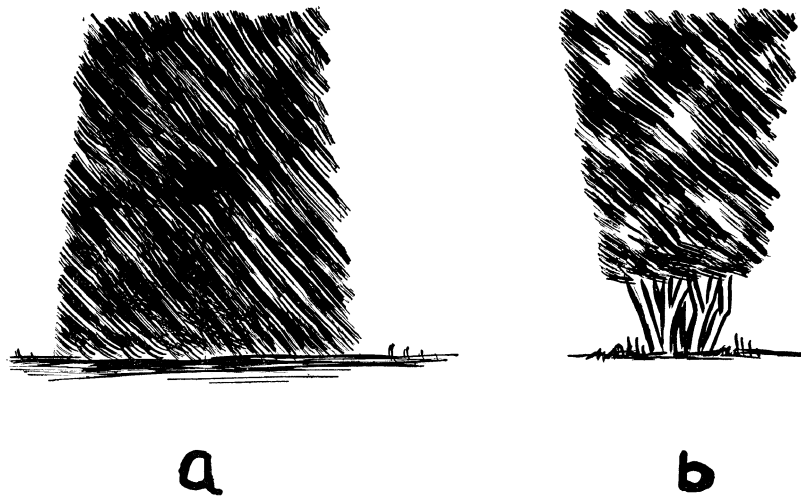


Fig. 24.—a. Correct method of hedge trimming. Note the slight wedge shape, wider at the bottom.
b. Incorrect method of hedge trimming. “Leggy” open growth results when incorrectly trimmed.

Soil Condition and Fertility.—In most cases, the greatest need in soils is organic matter. Organic matter such as well rotted manure, compost, cotton-burrs, peat-moss, etc., can be used for mulching, then worked into the soil. Generally a quarter to half pound of organic matter per square foot of soil surface is sufficient.

Chemical fertilizers are often needed in shrub beds. The complete fertilizers, 5-10-5, or 4-12-4 are recommended for general use. Use them at the rate of a pound to 40 square feet. Spread the complete fertilizer on top of the organic matter in the spring just before growth begins. Work the fertilizer combination into the soil during the first cultivation. Serious injury to plant material can result if too much chemical fertilizer is used.

For flower beds, work the organic matter and chemical fertilizer into the soil in the fall. Use at same rates as for shrub beds.

A compost heap is a valuable asset to any gardening program. Compost is made by piling plant material such as grass clippings, leaves, straw, old plants, etc., in alternate layers with soil. The layers are about six inches thick and built saucer shape to catch and hold moisture. Added moisture will speed up the "rotting" action. Eight to ten months are needed to decompose the material sufficiently for use.

Addition of lime to the soil for ornamental plantings is seldom necessary. Lime should be supplied only after a soil test indicates the need for it. Usually a slightly acid soil is preferred. To acidify the soil, add ironsulfate at the rate of two pounds to 100 square feet, or aluminum sulfate at the rate of four pounds to 100 square feet. Sulfur at the rate of one pound to 100 square feet is slower to act, but longer lasting. Yellow leaved, sickly plants can often be improved by such application for acidity.

Lawn Care.—Organic matter is usually the most needed material for a good lawn. Well rotted manure, free of weed seed, is most useful. Apply just before growth begins in the spring at the rate of about half a pound to the square foot. If sheep, rabbit, or poultry manure is used, half as much is sufficient.

Of the chemical elements, nitrogen is the most needed. Use nitrate of soda at the rate of one pound to 200 square feet, or ammonium nitrate at the rate of one pound to 300 square feet. Applications can be made both in the spring and fall as needed to keep the lawn in a vigorous growing condition. Every second year, superphosphate may be applied at the rate of a half pound to 200 square feet. Spring or fall fertilizers should be applied just as growth begins. To secure even distribution of fertilizer, mark the area off in strips and spread the material evenly. Water thoroughly after the application of fertilizer.

Until a lawn is well established, clippings should be left on the lawn. After a dense sod is established, the clippings may be removed. *Set the mower high*—one and a half to two inches. Mow the lawn regularly as is needed.

There are several common weed pests such as Dandelions, Chickweed, and Henbit. Broadleafed weeds can be killed with the chemical 2, 4-D. The chemical is sold under several trade names. The material is sprayed on weeds, but should be used with caution. Read carefully and follow the manufacturer's directions. Apply the weed killer when the plants are soft and growing vigorously. Use only enough material to wet the foliage. Killing action of 2, 4-D

compounds is slow. A month or more sometimes passes before the weeds die.

2,4-D compounds kill most types of broadleaved plants. Clovers, vegetables, flowers and ornamentals are affected. Spray on a quiet day, otherwise drifting fog might injure other useful plants. Sprayers used for 2,4-D should be thoroughly cleaned after each spraying. Ammonia at a rate of 2 tablespoons to a quart of water is the most effective cleansing agent. Leave the tank filled with the material over-night. Rinse thoroughly with water after emptying. It is safer to use a different sprayer for other purposes.

White grubs and earthworms can be controlled by broadcasting five pounds of lead arsenate over 1,000 square feet of soil surface early in the spring. Mixing the poison thoroughly with fine sand will make better distribution over the surface. One application will last several years.

Ants can be controlled by treating the dens with "high life" or carbon disulfide. One teacupful is sufficient for a large red ant den. Use a teaspoonful for small ant dens. Pour a small amount of water down the hole, then add the carbon disulfide. Plug the den opening with mud. Several treatments are usually necessary. The chemical is highly inflammable, so extreme caution should be used. A new chemical "chlordane" is a good ant killer.

Moles may be killed by trapping or by placing calcium cyanide in the runways. Use two teaspoons of cyanogas in the runway. Cover the opening with paper and soil. The material is *deadly poison*, so handle with caution. Automobile exhaust fumes directed into the runway by use of a hose has been successful in some cases.

Insects and Diseases.—Healthy, vigorous plants are less likely to be attacked by insects and diseases. Clean surroundings can help to prevent a lot of insect and disease trouble. Burn old prunings, diseased foliage, etc.

Several groups of insects attack ornamental plants, but the three most common groups are: Leaf eating types; boring types, and sucking types. There is no recommended "cure-all" dust or spray, but the following table offers control measures for most common occurring insects. Control measures should be used when the first signs of insects appear. Follow instructions carefully for mixing and applying. Dust on a quiet day.

There is an almost endless list of diseases affecting ornamental plants. On the leaves diseases may show up as spots, abnormal shapes and sizes, etc. Diseased twigs and branches quite often have abnormal colors, sunken spots, cankers, etc. Root diseases may

affect natural foliage growth, cause slow growth, and possibly killing of portions of the top growth. Some general suggestions are made in the following table:

TYPE OF INSECT PESTS	SUGGESTED CONTROL	
	SPRAY TO USE	DUST TO USE
<i>Leaf eating insects</i> Apply stomach poison at first sign of attack.	1 T. lead arsenate in one gallon of water.	6 T. lead arsenate mixed thoroughly with 1 lb. of wettable sulfur, hydrated lime, cheap flour or talc.
<i>Bag worms</i> Pick off or apply stomach poison at first signs of attack.	2 T. lead arsenate in one gallon water.	12 T. lead arsenate mixed thoroughly with 1 lb. of wettable sulfur hydrated lime, cheap flour or talc.
<i>Sucking insects</i> Apply contact poison at first sign of attack. Watch under side of leaves. <i>Plant Lice</i> (aphids) are the main pest of this group.	1 t. nicotine sulfate (Black Leaf 40) and an inch cube of laundry soap in 1 gal. of water. Only effective when temperature is at or above 70 degrees.	4 t. nicotine sulfate (Black Leaf 40) mixed thoroughly with 1 lb. of hydrated lime. Use while fresh and store in tight container. Only effective when temperature is at or above 70°. OR 5 oz. of 5% Rotenone dust. mixed thoroughly with 1 lb. of wettable sulfur, talc or cheap flour. Never use lime with Rotenone. This makes 1% Rotenone dust that is effective in both cool and warm weather.
<i>Red Spider</i> Apply sulfur at first sign of attack.	5 t. wettable sulfur in 1 gal. of water.	Dusting sulfur, full strength.
<i>San Jose Scale</i> and other scale insects. Apply oil spray only during winter while plants are dormant.	½ C. dormant spray oil mixed in 1 gal. of water.	Dusts are not effective against scale insects.
<i>Leaf mining insects</i>	Sprays and dusts are not effective. Control by gathering and burning infected foliage.	
<i>Bark and wood boring insects</i>	Sprays and dusts are not effective. Control by mechanical killing or removal, by injecting carbon disulfide into openings, by heavy pruning and fertilization, or by mechanical protection.	
<i>Twig girdlers and pruners</i>	Gather and burn cut branches.	
<i>Gall making insects</i>	Cut off gall infected part of plant and burn.	

KEY TO SYMBOLS:—All measurements are standard level full: t=teaspoon; T=tablespoon; C=cup.

TYPE OF DISEASE PEST	SUGGESTED CONTROL	
	SPRAY TO USE	DUST TO USE
Fungus diseases		
Mildews and leaf spots of roses and other plants. Grey powdery film on foliage or discolored, irregular spots.	5 T. wettable sulfur mixed in 1 gal. of water OR 4 T. low-soluble copper mixed in 1 gal. of water.	Wettable sulfur full strength OR ¾ C. low-soluble copper mixed thoroughly with 2¼ C. hydrated lime, cheap flour or talc.
Rust diseases Appear as rust colored powder on foliage.	Use same sprays and dusts as suggested above.	
Blight disease Appear as die-back, dark and discolored areas on leaves or evergreen twigs.	4 T. low-soluble copper mixed in 1 gal. of water OR Standard strength 4-4-50 Bordeaux mixture.	¾ C. low-soluble copper mixed thoroughly with 2¼ C. hydrated lime, cheap flour or talc.
KEY TO SYMBOLS: All measurements standard level full: t.=teaspoon; T.=table-spoon; C.=cup.		

TABLE I—SHRUBS

Key No.	BOTANICAL NAME	COMMON NAME	HEIGHT IN FEET	LOCATION	EXPOSURE*	BLOOM	
						COLOR	TIME
1.	<i>Amorpha canescens</i> ***	Lead Plant	2- 3	Dry	S.	Purple	Su.
2.	<i>Amorpha fruticosa</i> ***	Indigobush	3- 6	Dry	S. or Sh.	Purple	Su.
3.	<i>Berberis thunbergi</i>	Jap. Barberry	3- 6	Moist	S. or Sh.	Red Fr.	Fall
4.	<i>Buddleia davidi</i>	Butterflybush	5- 8	Moist	S.	Purple	Su.
5.	<i>Callicarpa americana</i> ***	American Beautybush	3- 6	Any	S.	Violet Fr.	Fall
6.	<i>Cephalanthus occidentalis</i> **	Common Buttonbush	5-15	Moist	S.	Yellow	Su.
7.	<i>Chaenomeles lagenaria</i>	Flw. Quince	4- 6	Any	S.	Red	Spr.
8.	<i>Cercis canadensis</i>	Redbud	15-25	Any	S. or Sh.	Pink	Spr.
9.	<i>Chilopsis linearis</i>	Desert Willow	8-20	Dry	S.	Lavender	Su.
10.	<i>Colutea arborescens</i>	Bladdersenna	6- 8	Dry	S.	Yellow	Su.
11.	<i>Cornus amomum</i>	Silky Dogwood	5-10	Moist	S. or Sh.	White	Su.
12.	<i>Cornus asperifolia</i> ***	Rough Leaf Dogwood	5-10	Any	S.	White	Spr.
13.	<i>Cornus florida</i> ** ***	Flw. Dogwood	10-20	Any	S. or Sh.	White	May
14.	<i>Cotinus coggygria</i>	Smoketree	15-20	Dry	S.	White	Spr.
15.	<i>Crataegus species</i> ***	Hawthorn	10-25	Moist	S.	White	Spr.
16.	<i>Deutzia scabra</i>	Fuzzy Deutzia	6- 8	Moist	S. or Sh.	White	May
17.	<i>Deutzia lemoinei</i>	Lemoine Deutzia	3- 5	Moist	S. or Sh.	White	May
18.	<i>Euonymus americanus</i> ***	Brook Euonymus	4- 6	Any	S. or Sh.	Red Fr.	Fall
19.	<i>Euonymus europaeus</i>	European Burningbush	8-15	Moist	S.	Red Fr.	Winter
20.	<i>Elaeagnus pungens</i> **	Thorny Elaeagnus	8-10	Any	S.	Cream	Fall
21.	<i>Elaeagnus angustifolia</i>	Russian Olive	15-30	Any	S.	Cream	Su.
22.	<i>Forsythia species</i>	Forsythia	6- 8	Any	S. or Sh.	Yellow	Spr.
23.	<i>Hibiscus syriacus</i>	Shrub Althea	6-10	Any	S.	Var.	Su.
24.	<i>Ilex decidua</i> ** ***	Possumhaw	10-25	Moist	S. or Sh.	Red Fr.	Su.
25.	<i>Jasminum nudiflorum</i>	Winter Jasmine	3- 5	Any	S. or Sh.	Yellow	March
26.	<i>Lagerstroemia indica</i>	Crapemyrtle	5-20	Moist	S.	Var.	Su.
27.	<i>Ligustrum amurense</i>	Amur Privet	6-15	Any	S. or Sh.	White	May
28.	<i>Ligustrum ibota</i>	Ibota Privet	6-15	Any	S. or Sh.	White	May
29.	<i>Ligustrum sinensis</i>	Chinese Privet	8-15	Any	S. or Sh.	White	May
30.	<i>Lonicera fragrantissima</i>	Winter Honeysuckle	6- 8	Any	S. or Sh.	Cream	Feb.
31.	<i>Lonicera morrowi</i>	Morrow Honeysuckle	5- 8	Any	S.	White	Spr.
32.	<i>Lonicera tatarica</i>	Tatarian Honeysuckle	8-15	Any	S.	White	Spr.
33.	<i>Philadelphus lemoinei</i>	Lemoinei Mockorange	8-10	Moist	S. or Sh.	White	Spr.
34.	<i>Philadelphus virginialis</i>	Virginal Mockorange	5-10	Moist	S.	White	Su.
35.	<i>Poinciana gilliesi</i>	Paradise Poinciana	3- 6	Any	S.	Red and Yellow	Su.
36.	<i>Poncirus trifoliata</i>	Trifoliata orange	15-20	Any	S.	White	Spr.
37.	<i>Prunus glandulosa</i>	Flw. Almond	3- 5	Moist	S.	Pink	Spr.
38.	<i>Prunica granatum</i> **	Pomegranate	6-10	Moist	S.	Red	Su.

TABLE I—SHRUBS—(Continued)

39.	Rhamnus frangula	Glossy Buckthorn	6-15	Any	S. or Sh.	Small	Su.
40.	Rhus aromatica***	Fragrant Sumac	2- 4	Dry	S. or Sh.	Yellow	Spr.
41.	Rhus glabra***	Smooth Sumac	6-12	Dry	S.	Yellow	Fall
42.	Ribes odoratum	Golden Currant	4- 6	Any	S. or Sh.	Yellow	Spr.
43.	Robinia hispida	Flw. Locust	5-10	Dry	S.	Pink	Su.
44.	Salvia greggi	Autumn Sage	2- 3	Any	S. or Sh.	Red	Su.
45.	Sambucus canadensis***	American Elder	6-10	Any	S. or Sh.	White	May
46.	Spiraea bumalda var.	Anthony Waterer	2- 3	Moist	S. or Sh.	Pink	Su.
47.	Spiraea thunbergi	Thunberg Spiraea	2- 5	Any	S. or Sh.	White	Spr.
48.	Spiraea trichocarpa	Korean Spiraea	3- 5	Any	S. or Sh.	White	Spr.
49.	Spiraea reevesiana	Reeves Spiraea	3- 5	Any	S. or Sh.	White	Spr.
50.	Spiraea vanhouttei	Vanhoutte Spiraea	3- 6	Any	S. or Sh.	White	Spr.
51.	Symphoricarpos orbiculatus***	Buckbrush	2- 3	Any	S. or Sh.	Red Fr.	Fall
52.	Syringa persica	Persian Lilac	6-10	Any	S. or Sh.	Lavender	Spr.
53.	Tamarix hispida	Kashgar Tamarix	10-20	Any	S.	Pink	Su.
54.	Tamarix amurense	Amur Tamarix	15-20	Any	S.	Pink	Su.
55.	Viburnum opulus roscum	Snowball	10-15	Moist	Sh.	White	June
56.	Vitex agnus-castus	Lilac Chaste-tree	5-10	Any	S.	Lavender	Su.
57.	Vitex negundo incisa	Cutleaf Chaste-tree	5-10	Any	S.	Lavender	Su.

* Abbreviations: Sh.—Shade, S.—Sun, Fr.—Fruit, Flw.—Flowering, Lav.—Lavender, Var.—Various colors, Spr.—Spring Su.—Summer.

** Adapted in southern or eastern counties only.

*** Native of Oklahoma.

TABLE II—TREES

No. KEY	BOTANICAL NAME	COMMON NAME	HEIGHT IN FEET	LOCATTON	REGION IN OKLAHOMA	USE
58.	<i>Carya illinoensis</i> ** ***	Pecan	70-100	Bottom land	South, Central, East	G, Sh, Sp.
59.	<i>Celtis occidentalis</i> ***	Hackberry	50-90	Any	General	G, Sh, St.
60.	<i>Fraxinus pennsylvanica lanceolata</i> ***	Green Ash	50-70	Any	General	B, G
61.	<i>Gleditsia triacanthos</i> ***	Honeylocust	50-70	Any	General	B, G, Sp.
62.	<i>Juglans nigra</i> ***	Black Walnut	50-70	Moist	South, Central, East	B, Sh.
63.	<i>Morus rubra</i> ***	Red Mulberry	35-50	Any	General	B, G
64.	<i>Platanus occidentalis</i> ***	Sycamore	60-90	Moist	General	G, Sh, St.
65.	<i>Populus alba</i> —H. V.	Bolleana Poplar	40-50	Any	General	G
66.	<i>Populus deltoides</i> ***	Cottonwood	75-100	Moist	General	G
67.	<i>Prunus species</i>	Apricot	20-30	Any	General	B, G, Sp.
68.	<i>Prunus species</i>	Flw. Peach	15-20	Any	General	B, G, Se.
69.	<i>Prunus pissardi</i>	Purpleleaf Plum	15-20	Any	General	B, G, Sc.
70.	<i>Prunus triloba</i>	Flw. Plum	12-15	Any	General	B, G, Sc.
71.	<i>Quercus falcata</i> ** ***	Southern Red Oak	60-80	Any	Eastern	G, Sh.
72.	<i>Quercus macrocarpa</i> ***	Burr Oak	60-100	Moist	General	G, Sh.
73.	<i>Quercus palustris</i> ***	Pin Oak	50-80	Any	General	Sh, Sp, St.
74.	<i>Quercus shumardi</i>	Shumard Oak	60-80	Dry	East and South	G, Sh.
75.	<i>Salix babylonica</i>	Weeping Willow	30-40	Moist	General	Sp.
76.	<i>Sapindus drummondii</i> ***	Soapberry	30-40	Any	General	B, G, Sp.
77.	<i>Ulmus americana</i> **	American Elm	50-100	Any	General	B, Sh, S
78.	<i>Ulmus pumila</i>	Chinese Elm	50-60	Any	General	G, Sh, St.

* Abbreviations: B—Border; F—Foundation, G—Group, H—Hedge, Sc—Screen, Sp—Specimen, Sh—Shade, S—Sun, St—Street, Fr—Fruit, Flw—Flowering, Lav—Lavender, Var—Various Colors, Spr—Spring, Su—Summer Dr—Drooping, Upr—Upright, Gr—Green, Bl—Blue, HV—Horticulture Variety.

** Adapted in southern or eastern counties only.

*** Native in Oklahoma.

TABLE III—EVERGREEN SHRUBS AND TREES

KEY No.	BOTANICAL NAME	COMMON NAME	HEIGHT IN FEET	GROWTH HABIT	LOCATION	REGION IN OKLAHOMA	CHARACTER	USE
79.	<i>Abelia grandiflora</i> **	Glossy Abelia	3- 5	Open	Moist, S.	South, Central	Pink	F, G, H
80.	<i>Euonymus klautschovicus</i> (patens)**	Spreading Euonymus	4- 8	compact	Moist, S or Sh.	General	Or. Fr.	B, G, F
81.	<i>Ilex opaca</i> **	American Holly	10-30	compact	Moist	Southeast	Red Fr.	B, G, Sp.
82.	<i>Juniperus chinensis</i> H. V.*	Pfitzer's Juniper	4- 8	Spread	Any	General	Dark	F, G
83.	<i>Juniperus sabina</i>	Savin Juniper	3- 7	Spread	Any	General	Light	F, G
84.	<i>Juniperus scopulorum</i> *	Rocky Mt. Juniper	10-15	Upr.	Moist, S.	General	Blue Gr.	F, B, G
85.	<i>Juniperus virginiana</i> ***	Redcedar	20-30	Open	Any	General	Var.	G, B
86.	<i>Juniperus virginiana</i> H. V.*	Canaert Redcedar	15-30	Upr.	Any	General	Green	F, B, G
87.	<i>Juniperus virginiana</i> H. V.*	Silver Redcedar	20-25	Open	Any	General	Silver Bl.	G, B
88.	<i>Magnolia grandiflora</i> **	Magnolia	30-60	Open	Moist, S.	Southeast	White Flw.	Sp. G
89.	<i>Mahonia aquifolium</i> **	Oregongrape	3- 6	compact	Moist, Sh.	General	Bl. Fr.	F, B, G
90.	<i>Nandina domestica</i> **	Nandina	3- 6	Upr.	Moist, S.	South, Central	Red Fr.	F, B, G
91.	<i>Pinus mugo mughus</i> *	Mugo Pine	3- 6	compact	Any	General	Gr.	F, G
92.	<i>Pinus nigra</i> *	Austrian Pine	40-60	Upr.	Dry	General	Light Gr.	Sp.
93.	<i>Pinus ponderosa</i> *	Ponderosa Pine	40-60	Upr.	Dry	General	Gray Gr.	Sp.
94.	<i>Pinus sylvestris</i> *	Scotch Pine	40-50	Upr.	Dry	General	Bl. Gr.	Sp.
95.	<i>Prunus laurocerasus</i> **	Cherrylaurel	10-20	Upr.	Moist, Sh.	Central, East	Gr.	F, B, Sc.
96.	<i>Pyracantha coccinea lalandi</i> **	Leland Firethorn	6-12	Spread	Moist, S.	Central, South	Or. Fr.	F, G, B
97.	<i>Santolina chamaecyparissus</i> **	Lavender cotton	1- 2	compact	Any	General	Gray	Edge
98.	<i>Thuja orientalis</i> H. V.*	Bonita Arbor Vitae	2- 6	compact	Any	General	Light Gr.	F, G
99.	<i>Thuja orientalis</i> H. V.*	Excelsa Arbor Vitae	8-15	compact	Any	General	Light Gr.	F, B, G
100.	<i>Yucca glauca</i> **	Small Soapweed	3- 4	Upr.	Dry, S.	General	White	B, G

* Coniferous Evergreen.
 ** Broadleaf Evergreen.
 *** Native in Oklahoma.

TABLE IV—ANNUAL FLOWERING PLANTS

NAME	HEIGHT OF GROWTH	SEASON OF BLOOM	COLOR	LIGHT REQUIREMENTS	MOISTURE REQUIREMENTS	DATE OF SOWING SEED	REMARKS
Ageratum	12"	Aug.-Nov.	Blue	Sun or shade	Med. moist	March	Red spider is a pest
Arctotis	12"	May-Nov.	White	Sun	Dry	March	Very good
Alyssum	8-10"	May-Nov.	White	Sun	Med. moist	Feb.	Edging plant
Basketflower	36-60"	June-July	Rosy Lav.	Half shade	Med. moist	Sept.	Rear border
Calliopsis (Coreopsis)	14"	June-July	Orange	Sun	Dry	Feb.	Reseeds well
California Poppy	10"	April-June	Orange	Sun	Med. to dry	Feb.-Apr.	Reseeds and is easy to grow
Centaurea (Cornflower)	36"	May-July	Varied	Sun	Dry	Aug.-Sept.	Reseeds—Double Blue best
Calendula	10"	May-Oct.	Yellow	Half shade	Med. moist	May	Prolific bloomer
Castor-Bean	6-8'	June-Oct.	Red	Sun	Dry	Apr.	Excellent screen
Cleome (Spider Plant)	24-36"	June-Oct.	Rose, White	Sun	Dry	Feb.	Drought resistant
Cynoglossum	24"	May-Oct.	Blue	Half shade	Moist	Aug.-Sept.	Live through winter
Gaillardia	14"	Apr.-Oct.	Yellow and Orange	Sun	Dry	Feb.	Reseeds well
Larkspur	24"	Apr.-June	Blue Pink	Sun or Half shade	Moist or dry	Aug.-Oct.	Reseeds very well
Marigold	24"	June-Nov.	Orange	Sun or Half shade	Dry	Mar.-July	Guinea Gold variety
Nasturtium	6-12"	Apr.-June	Yellow	Sun	Dry	Feb.-Apr.	Poor soil for blossoms
			Brown				
Pansy	8-10"	Mar.-June	Varied	Sun	Moist	Sept.	Need winter protection
Petunia	12"	Apr.-Nov.	Many	Sun	Dry or moist	March	Reseeds very well
Phlox drummondii	12"	Apr.-Nov.	Many	Sun	Dry or moist	Mar.-Sept.	Fine—Reseeds
Poppy	24"	Apr.-May	Many	Sun	Moist or dry	Feb.-Sept.	Reseeds—Shirley var.
Salpiglossis	24"	June-July	Many	Sun	Moist and well drained	Feb.	Do not crowd
Snapdragon	20"	May-Oct.	Many	Sun	Moist	Feb.	Rust troublesome
Scabiosa	30"	May-Nov.	Many	Sun	Moist	Feb.	Causaisica Blue best
Sweet Pea	Vine	May-June	Many	Sun	Moist (water)	Jan.-Feb.	May need protection
Verbena	6"	May-Oct.	Many	Sun or Half shade	Moist or dry	Sept.	Cuttings for large var.
Vinca rosea	8"	May-Nov.	Pink	Sun or Half shade	Dry	April	Reseeds well
Zinnia	30"	June-Nov.	White	Sun or Half shade	Med. moist	Mar.-July	Fine—many varieties

TABLE V—PERENNIAL FLOWERING PLANTS

NAME	HEIGHT OF GROWTH	SEASON OF BLOOM	COLOR	LIGHT REQUIREMENTS	MOISTURE REQUIREMENTS	REMARKS
Aquilegia (Columbine)	15"- 3'		Yellow to Red	Shade	Moist	Adapted to Rock Gardens
Convallaria (Lily-of-the-Valley)	8"-12'	Spring	White	Shade	Moist	Replant every 4-5 Years
Coreopsis	18"- 2'	Spring	Orange to Yellow	Sun	Dry	Seed in February
Chrysanthemum	6"- 4'	Summer and Fall	Range	Half Sun	Med. Moist	Divide in Spring
Shasta Daisy	2'- 3'	Summer	White	Sun	Med. Moist	Divide in Fall
Daylily	1'- 3'	Spring and Summer	Yellow	Shade	Moist	Divide in Fall
Dianthus	6"-12"	Spring	Orange	Sun	Moist	Seed in February
			White and Red			
Gaillardia	18"- 2'	Spring	Orange	Sun	Dry	Seed in February
Gypsophilla	2'- 3'	Spring	White	Sun	Med. Moist	Seed in February
Helenium	1'- 3'	Summer	Red to Yellow	Sun	Med. Moist	
Hibiscus	3'- 5'	Summer	Red	Half Sun	Moist	Set Plants in Spring
Hollyhock	5'- 8'	Summer and Fall	White, Pink	Sun	Med. Moist	Set Plants in Spring
Iris	7"- 3'	Spring	Red	Sun	Any	Divide in Summer
			Purple, White			
			Yellow			
Peony	3'- 4'	Spring	White, Pink	Half Sun	Med. Moist	Leave Eyes Within 2" of Surface
Phlox	1'- 3'	Summer and Fall	Rose, Red	Sun	Med. Moist	Seed in February
			Range			
Physostegia				Sun		Seed in February
Rudebeckia	1'- 3'	Summer	Yellow	Half Sun	Med. Moist	May Become Pest
Delphinium *	2'- 4'	Spring and Summer	Purple, Pink	Sun	Med. Moist	Seed in Fall
			White			
Dahlia	2'- 8'	Summer and Fall	Range	Half Sun	Moist	Plant Tubers in Spring
Canna	3'- 8'	Summer and Fall	Reds to Yellows	Sun	Any	Dig and Divide Every 3 Years

TABLE VI—VINES

KEY No.	BOTANICAL NAME	COMMON NAME	LOCATION	USE
101.	<i>Ampelopsis cordata</i>	Heartleafed Ampelopsis	Any	Trellis—Porch
102.	<i>Campsis grandiflora</i>	Chinese Trumpet-creeper	Any, S	Trellis—Porch
103.	<i>Celastrus scandens</i>	American Bittersweet	Moist, S	Trellis—Porch
104.	<i>Clematis paniculata</i>	Sweet Autumn Clematis	Any, S	Trellis—Porch
105.	<i>Clematis hybrids</i>	Jackman, etc.	Moist, S	Trellis—Porch
106.	<i>Euonymus fortunei radicans*</i>	Wintercreeper Euonymus	Moist, Sh	Clings to foundation
107.	<i>Hedera helix*</i>	English Ivy	Moist, Sh	Clings to brick or wood
108.	<i>Lonicera jap halliana*</i>	Hall Honeysuckle	Moist, S	Trellis—Porch—Banks
109.	<i>Lonicera sempervirens</i>	Trumpet Honeysuckle	Moist, S	Trellis—Porch—Banks
110.	<i>Parthenocissus quinquefolia</i>	Virginia Creeper	Any	Clings to brick or stucco
111.	<i>Parthenocissus tricuspidata</i>	Boston Ivy	Moist, Sh.	Clings to brick or stucco
112.	<i>Polygonum guberti</i>	Silvervine Fleeceflower	Moist, S	Trellis—Porch
113.	<i>Pueraria thunbergiana</i>	Kuduz Vine	Moist, S	Trellis—Porch
114.	<i>Wisteria chinensis</i>	Chinese Wisteria	Any	Trellis—Porch

* Indicates Evergreen Vine.

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