University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

Nebraska 4-H Clubs: Historical Materials and Publications

4-H Youth Development

1940

4-H Club Yard Beautification : Extension Circular 12-41-2

Follow this and additional works at: https://digitalcommons.unl.edu/a4hhistory

"4-H Club Yard Beautification : Extension Circular 12-41-2" (1940). *Nebraska 4-H Clubs: Historical Materials and Publications*. 266.
https://digitalcommons.unl.edu/a4hhistory/266

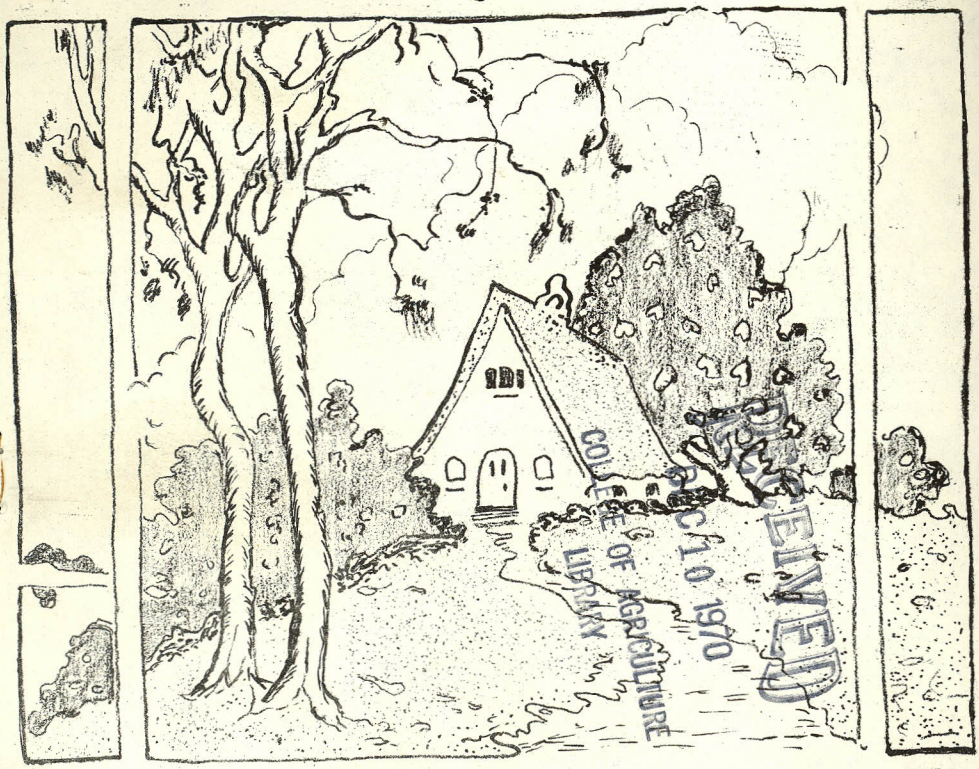
This Article is brought to you for free and open access by the 4-H Youth Development at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska 4-H Clubs: Historical Materials and Publications by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

C.1

EXTENSION CIRCULAR 12-41-2
1940

4-H CLUB

Yard Beautification



RECEIVED
DEC 10 1970
COLLEGE OF AGRICULTURE
LIBRARY

The University of Nebraska Agricultural College Extension Service and United States Department of Agriculture Cooperating
W.H. Brokaw, Director. Lincoln

4-H YARD BEAUTIFICATION CLUB

"A house is not a home until it is planted" is a well-known slogan with more than a grain of truth in it. A house without trees, shrubs, vines, flowers, and lawns around it looks uninviting, bleak, and cold. Plantings properly made and cared for protect the house from biting winter winds and provide shade and protection from the blistering heat of summer. They attract useful birds. The flowering shrubs and trees, the perennials and annuals, provide materials - bouquets and other artistic arrangements in the home.

The 4-H Yard Beautification Club Work affords boys and girls the opportunity to study trees, vines, shrubs, flowers, and lawns and to grow and care for them. They will also have an opportunity to observe various plants in their native surroundings on tours and hikes. They will be required to make simple garden accessories such as bird houses, trellises, garden furniture, and picket fence.

There will be three years of club work devoted to yard beautification and it will be necessary to take the projects in their logical order; that is, a new club will begin with the first year problems. This same club continues with the second year the next year and follows with the third year. The following will be provided the first year:

1. Cleaning up the yard.
2. A study of broadleaf trees suited to Nebraska.
3. A study of evergreen trees suited to Nebraska.
4. A study of shrubs suited to Nebraska.
5. Annual flowers and their care.
6. Making and caring for a lawn.
7. Garden handicraft. Making bird houses, plant tags, and other materials for the garden.

Suggested activities for club members

Activities Required of each member

1. Yard cleanup.
2. Prepare a scrap book with leaves from 5 species of trees and 5 species of shrubs and 10 pictures from catalogues of annual flowers.
3. Plant 2 packets of annual flower seeds and care for them.

Other Activities that may be chosen

4. Two tours or hikes observing native plants.
5. Identification contest (10 trees, 5 shrubs)
6. Demonstration at a club meeting.
7. Exhibit prepared for fair or show.
8. Making or maintaining a lawn.
9. Making bird house or other garden handicraft article.

PROBLEM I

CLEANING UP THE YARD

The appearance of our yards makes a definite impression on people who pass by. In a community where most of the people have neat yards, there may be one yard that is strewn with tincans, ashes, garbage, papers, dead trees, broken branches, old tools, wagons, and other machinery. Such a yard gives the impression that the people who live there are careless and slovenly. That may not actually be the case. The house may be neat as a pin but you would be surprised if that were the situation indoors when the outdoor surroundings are so different.

The first step in yard beautification is the yard cleanup. Gather up all rubbish, paper, tincans, dead limbs, tumble weeds, and other dead plant materials. Things that have value like boards, old iron, or copper wire can be sorted out and either

sold or piled neatly in some inconspicuous place behind a shed. Dead limbs and branches can be cut up into stove wood size and piled up in the back yard where they will be convenient and yet not too conspicuous.

Dispose of Trash

Tin cans and other rubbish that will not burn can be disposed of in a number of ways. In town it may be more difficult than in the country. Some towns have free garbage service that will take care of trash if it is placed in the alley or along the street in bags or baskets. Where such service is not available it can be hauled to a dump or buried. On the farm there may be a gully, or some other place to dispose of it. Occasionally one sees sacks of garbage and tin cans that have been dropped along the road side. Certainly no one who has any community pride would do a thing like that.

Rubbish Burner

A rubbish burner for papers and twigs is a convenient thing. An old piece of woven wire can be attached to this cylinder to keep the burning papers from being blown around. An old oil barrel can be made into a rubbish burner very easily. The top of the barrel can be cut out with a cold chisel. Then 8 or 10 holes are cut in the bottom of the barrel. It is then set on end on top of 3 or 4 bricks or tin cans that have been sunk into the ground an inch or two.

Compost Pile

Leaves, dead grass, or straw are too valuable for the town gardener to burn up. In the summer they may be used as a mulch for shrubs, flowers, and vegetables. In the fall such material can be used to protect tender perennials and tea roses from winter injury. They also have considerable value as fertilizer. They may be spaded into the ground or they may be made into compost. In making a com-

post pile first dig out a shallow pit 6 or 8 inches deep, 3 or 4 feet wide and 6 or 8 feet long. The dirt that is excavated is ridged around the outer edge of the pit so that it will be handy for covering the leaves. The leaves, grass, weeds, and the like are placed in this pit about a foot deep and then covered with a layer of dirt 3 inches deep. If manure is available cover the leaves with 2 or 3 inches of it and then cover with dirt. If more leaves and plant refuse is available put on another layer of them and another layer of manure and dirt. A compost pile may become 3 or 4 feet high during the course of the summer. After the first layer of dirt is applied, wet the pile thoroughly. It takes moisture to bring about the decay of the plant materials. After the next layer of dirt is applied wet that too. If we get plenty of rain it is not necessary to wet the pile again but if it is dry for a month give the pile thorough soaking at least once during the summer. The next spring the compost can be spread over the flower beds or the vegetable garden.

Ashes

Coal ashes are of little value as fertilizer, but they can be sifted and the siftings mixed with the soil to make it more porous. In some parts of the state we have rather heavy sticky clay subsoil. When a foundation is excavated, some of this is bound to find its way into the yard or garden. Coal ashes and compost can be mixed with this clay subsoil and it will be improved wonderfully for plant growth. If your soil is light or sandy, the ashes should be hauled to a dump or used to fill up nearby washouts. They can be used in the chicken yard too. At least they should not be scattered just outside the back door.

Wood ashes have fertilizer value because they contain potash or lye. The early settlers used to wash the lye out of wood ashes and make soap with

it. Most of our soils are rich enough in potash for plant growth without adding wood ashes but a little more will not hurt the soil. A bushel of wood ashes applied to an area 10'x10' will not do any harm and it might do some good.

Removal of Garbage

Garbage (peelings of apples,potatoes and other kitchen waste) attracts flies and provides a breeding place for them if scattered in the yard. In some towns and cities free garbage collection service is provided. Wrap the garbage in newspaper and place where the collector can get it. Where such service is not available it might be mixed in with the compost and kept covered with dirt or it might be buried. On farms it is generally fed to the hogs or chickens since it does have feed value. A convenient way to handle it is to have a small two-wheeled cart with a platform built on it to hold a garbage can or two. The cans should have lids on them to keep out the flies. The kitchen garbage can be emptied into these cans after every meal and then hauled to hogs every day in summer or every other day in winter. Fly traps can be built and set in the barns and near the back porch to keep the flies from getting into the house.

Mosquitoes are another pest that make life miserable for mankind. They breed in stagnant water. If there are nearby depressions where water stands for a week or two after each rain, these could be filled up or a little waste oil poured on the water. Do not put oil in garden pools: gold fish will take care of mosquito larvae.

Conservation of Moisture

If the water from the house is not used for laundry purposes, the run-off may be led into the shrub border or into a basin under a shade tree where it will do some good rather than to let it form a puddle in the yard or roadway. Let's con-

serve all the water we can for the use of trees, grass, and shrubs.

Clean Out Dead Wood

Dead trees and dead branches are rather com mon in most yards in these recent dry years. They are not good to look at and they are dangerous too. Most boys and some girls like to climb trees. One can never tell how strong a dead branch is. Sometimes a branch that was safe to climb on in spring will not hold your weight by fall because of the action of borers and rot organisms. A heavy wind may provide enough additional strain to break off such a limb and then serious damage may be done. It is best to chop down dead trees and work them up into stove or fireplace wood. The stumps may be removed by digging and chopping, but this is quite a chore and it leaves a hole that must be filled up. Some folks prefer to cut the stump flush with the ground and let the roots rot out. This probably is the best way of handling stumps in the front yard. In the border of the yard the trunk might be left 8 or 10 feet high and the main branches cut off 3 or 4 feet from the trunk. Bird houses of various kinds could be fastened to these stubs. A collar of tin or woven wire should be nailed to the trunk 3 or 4 feet from the ground to keep cats from bothering the young birds. Another way of using stumps is to train vines over them. If one of these stumps happens to be out in the open in the backyard it might serve as a base for a bird bath.

Give the yard a thorough spring cleaning,--then a little attention every Saturday or every other Saturday will keep it neat and orderly. See that the playthings are put away and not left strewn about the front yard.

PROBLEM II

TREE IDENTIFICATION

Trees and shrubs are our friends, so let us know them as we know our friends. How many of our common trees and shrubs do you know? Perhaps you know several of them in the summer when the leaves are on, but you should know them in every season of the year. You should know their bark, their leaves, their flowers, and their fruits. You should know where each kind of tree and shrub likes best to grow, and what animals, birds, and insects use it for a home, and the value of its fruit as food for wild-life and for ourselves.

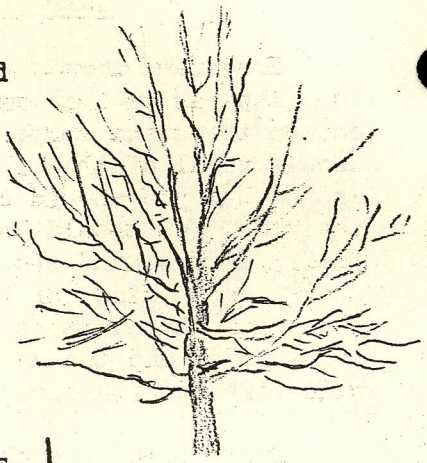
Every tree has characteristics all its own, just as every person has. You know the members of your family and many friends by the way they stand and sit and carry their heads and swing their arms while walking. You don't always need to see their faces. You can learn to know trees and shrubs in that way also. Their characteristics seem to come out more sharply when they have no soft drapery of leaves to hide them.

There are two main groups of trees, those that shed their leaves in the fall, and those which retain their leaves throughout the entire year. The ones that drop their leaves in the fall, such as the Oaks, Maples and Elms we call broadleaf trees, and they are said to be deciduous. Those that hold their leaves through the entire year are called evergreens.

BROADLEAF TREES

The oak looks as if its shape were wrought of iron. There are many different kinds of oaks and no two are alike, but all have a stout and rugged appearance. They have a stubborn look.

The oak leaf is usually irregular in shape. It is a long oval or pear-shaped leaf usually narrowest at the stem and in most cases deeply notched and lobed. It is strong and tough, glossy above and rough underneath, with woody veins standing out like a network of cords. The bur oak, common in Nebraska, has leaves with 5 or 7 broad rounded lobes and narrow partings,



Bur Oak

The oak trees have two kinds of flowers. One kind, a dwarf-catkin or cone has several double pockets full of gold dust or pollen. The egg flower is a tiny pink knob sitting well out on the end of the twig in a scaly cup. These tiny knobs are the seed which develop into acorns. The acorns and their scaly cups from different kinds of oaks are quite different and help us to tell the names of the oaks on which they grow. The bur oak has a very large round acorn with a cup that covers 2/3 of the acorn and which has a mossy fringe around the top and it is called mossy cup oak for that reason. The red oak, common in southeast Nebraska, bears large acorns with large shallow smooth cups.

In autumn the oaks show no yellow and the leaves are of a strong solid color. They range through all the reds from scarlet to wine, and then add warm browns, and bronze greens.

The elm tree's dark trunk, with the bark in deep vertical ridges, often springs many feet into the air straight as a pine, before it branches. Then the long limbs sweep from the top like plumes

from a vase. A certain type of elm is sold by nurserymen as Vase elm. Another very upright, narrow crown type of elm is sold under the name of Moline elm. The elm has an oval or egg-shaped leaf about three inches long, narrowest at the tip and just a little pointed. The elm leaf grows singly, on opposite sides of twigs, each a little advanced beyond the last, making a neat, feathery spray. It is strong, saw-notched, short-stemmed, and firmly set, smooth above, rough underneath. The leaves and also the twigs of the red or slippery elm are covered with stiff hairs and are quite rough on this account. The bark of the American or white elm contains thin white corky layers, while that of the red elm is of a solid reddish color without these corky white layers. From the midrib of the leaves the veins slant upward, making evenly spread broad V's, about a quarter of an inch apart from the stem to the tip. It appears as if the veins were laid out with a ruler. In autumn the elms are in russet yellows, the birches and poplars pure gold, the nut trees yellow.

White Elm

No one can mistake the Chinese Elm with its characteristic grouping of fine lateral branches lined on two sides with almost spherical, very dark colored buds, which look like so many beads. The leaves come out early in spring, and are much smaller than those of the white and red elms and they remain on the trees until late in the fall. This elm is a native of China where it has lived for centuries, sometimes under adverse weather conditions, making it able to withstand the drier sections of Nebraska. Sometimes, however Chinese elm seed is brought from the warmer sections of China and trees grown from seed from such areas are apt

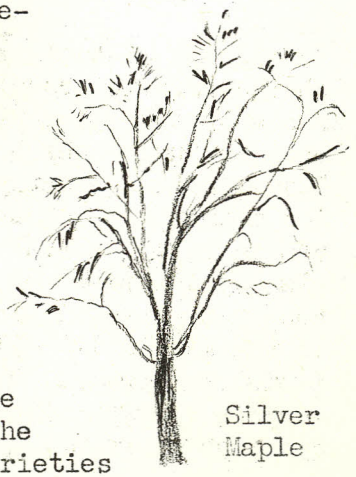
to winterkill in colder portions of this country.

The Maples are graceful trees used very extensively as shade trees because their foliage is dense and beautiful. Their autumn coloring of red, yellow, and orange is especially brilliant.

There are a large number of species, easily identified by their broad leaves and winged fruits, somewhat resembling a thumbscrew.

It is interesting to know that only three families of our large trees have opposite leaves. If the leaves (or in winter, the buds) and leaf-scars stand opposite, the tree (if it is of large size), belongs to the Maple, Ash, or Horsechestnut family. The Box elder, sometimes called ash-leaved maple belongs to the family of maples. The twigs of the maples are reddish or green, polished, often with a bloom which easily rubs off. The leaf-scars entirely encircle the twig and meet at a sharp angle. The flowers are yellowish-green appearing in April before the leaves in pendulous clusters.

Silver Maple, so called because of the silvery color of the leaves and branches, is also known as soft maple because of its soft wood. The leaves are silvery white beneath and green above and they turn yellow in autumn. The bark flakes, exposing a reddish inner bark.



Silver Maple

Poplars are generally large trees of rapid growth. Because of flattened portion of the stem, the leaves of many of the species tremble with the slightest breeze. The Quacking Aspen and several varieties

Lombardy Poplar

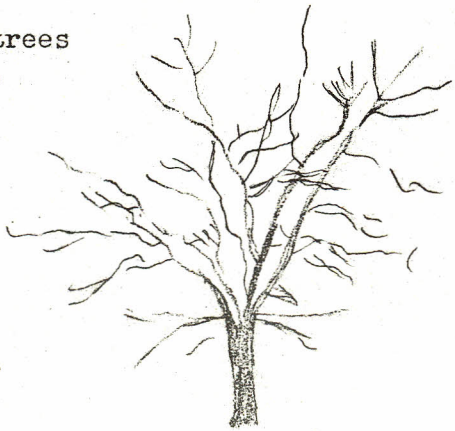
of cottonwood belong to this class. The leaves appear early in the spring and in the first part of June the tiny seeds begin to fall from the feathery catkins, covering the ground with the soft delicate cotton in which they are enclosed. The cottonwood is so-called because of the snowstorm of downy seed it sets loose. The seed-bearing catkins and pollen-bearing catkins occur on separate trees. The male trees which bear only pollen-bearing flowers will not shed "cotton", and so are preferred as shade trees about the home. The leaves are heart-shaped and turn yellow in the fall.

All of the catkin-bearing trees, the willows, alders, birches, and poplars make feathery seeds. All of the common willows have long slender leaves. Each leaf is a narrow, thin, delicately veined blade that grows by itself alternating alonga slender stem, making a sort of feathered branch. The pussy willow leaves are a bright green. The black willow leaf is broader and saw-notched and tapers to both stem and tip like a canoe. It is bright green above and silvery beneath. The leaf of the white willow is a gray-green lined with silver,and it droops from the stems. The weeping willow has long yellowish drooping branches with long slender gray leaves.

The Hackberry is a shapely strongly built tree that may attain a height of 120 feet. Its bark is roughened by uniformly narrow ridges made up of distinct layers. The bark on the trunk sometimes presents a warty appearance. The twigs are smooth, somewhat zigzag with a finely chambered pith. The fruit is smaller than a pea, orange to dark purple

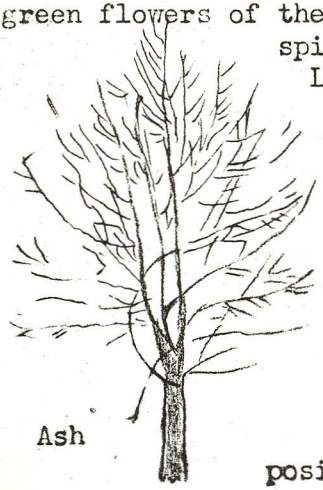
in color. The tree is often attacked by a mite and a fungus which cause the production of numerous twigs at the point of attack resulting in the formation of so called "Witches' Brooms".

The Honey Locust trees have large picturesque, broad crowns covered with a mass of airy leaves, dark green above and yellowish green beneath which turn a clear yellow in the fall. The twigs are zigzag, smooth and glossy. The long three-pointed thorns found on some trees make them very objectionable. There is a thornless variety that is much preferred. It is quite hardy and very attractive.



Honey Locust

The Black Locust is very often called Honey Locust, doubtless mainly because of large clusters of sweet-scented, showy flowers. The yellowish green flowers of the Honey Locust are quite inconspicuous while those of the Black Locust occur in showy, creamy white clusters. It should be remembered that it is the Black Locust that bears the large white bloom.

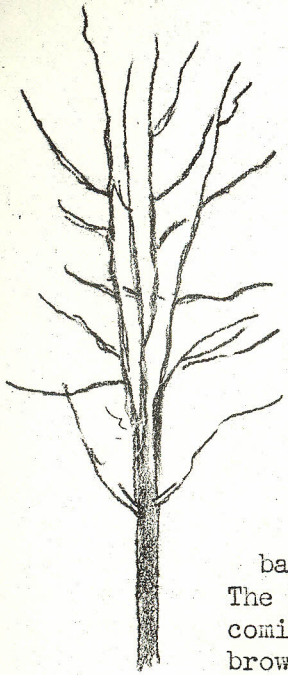


Ash

The Ash is a noble tree with a tall trunk if grown under favorable conditions where it has plenty of room. There are several species, all of which have leaves that are opposite on the twigs and which have

from five to nine leaflets that turn purplish to yellow in the fall. Three species,- White, Green, and Red Ash occur in Nebraska.

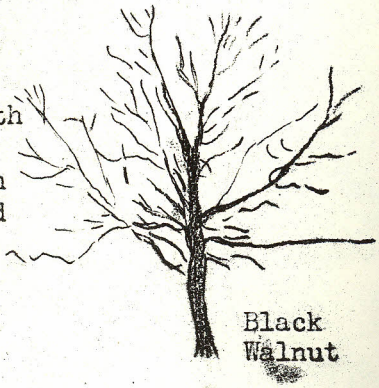
The Kentucky Coffee Tree is rather distinctive in appearance. It is devoid of small twigs and in winter is skeleton-like in appearance. The bark of the trunk is curiously ridged and bears thin, scaly, horny flakes attached at the side. The pith in the twigs is large, salmon to brown in color. The large, flat, black, hard-coated seed are borne in flat, pulpy pods 3 to 5 inches long which hang on the trees throughout the winter.



Kentucky Coffeetree

The Black Walnut is a stately tree grown more for its lumber and nuts than for ornament. Its bark is deeply furrowed and brown. The young twigs are hairy, later becoming smooth. The pith is light brown and chambered. The leaves contain 15 to 23 leaflets, pointed at the tip and rounded at the base.

The Plane Tree, commonly called Sycamore, is a large and beautiful tree with very distinctive, smooth white bark that peels off in thin, light brownish colored plates. In winter its white color is quite conspicuous and the large number found growing on the banks of the White River in



Black Walnut

Indiana were responsible for its name. The leaves are quite large and resemble those of the maple, but the base of each leaf stem is hollow, cone shaped and fits over the newly formed pointed bud.

Sycamore

The trees mentioned above often grow to be large trees. Now let us consider a few of the small trees that are useful in decorative plantings.

One of the most interesting small trees is the Redbud or Judas tree. It is sometimes called Love tree because of its heart-shaped leaves. The trees form broad rounded heads. The buds are usually in clusters one above another. Its rosy purple pea-like flowers nestling close to the twigs and even the trunk, are produced before the leaves in April. The pith of the twigs has red streaks and the wood is generally blotched and veined black, green, and yellow. The seed are borne in small flat pods similar to those of the black locust.

Horsechestnut

The Horsechestnut family, including the Buckeye is one of the three families which have opposite leaves. The leaves are palmate with 5 to 7 leaflets, 7 leaflets predominating in case of the true Horsechestnut, and 5 predominating in the Buckeye. The winter buds are reddish - brown and very large. The wood is of little importance and the trees are grown for their display of flowers which are borne in numerous upright pyramidal clusters.

The large seed are surrounded with a leathery and often prickly capsule which splits along three lines. The fruit is quite useless. Although its flowers are rather attractive, it is of minor importance as a decorative tree.

The ornamental Crabapples are some of the most useful trees for decorative planting. They are small trees; the branches are often wreathed with bloom so thick that leaves cannot be seen. The fruits of some are also quite attractive.

While there are several varieties of the Flowering Crabs handled by nurserymen, Bechtel Crab and Japanese Flowering Crab are the ones most generally recommended for planting in Nebraska. Bechtel crab produces a profusion of double pink, rose-like flowers that are always attractive. The Japanese flowering crab is a small, round-topped tree with single flowers, borne in great profusion. The red fruits the size of a pea are very attractive.

Hawthorn

The Hawthorns are attractive both for their flowers and fruit. They are usually spiny-branched with alternate leaves, various in shape, sometimes almost entire but generally deeply toothed or lobed. The flowers are white, the fruits red and resemble small apples There are several hundred varieties native in North America, but probably not more than two varieties may be found here. Native haws are found in the extreme eastern part of the state, along the Dismal River in the Sandhills, and in Hackberry Canyon in Banner county.

PROBLEM III

EVERGREEN TREES

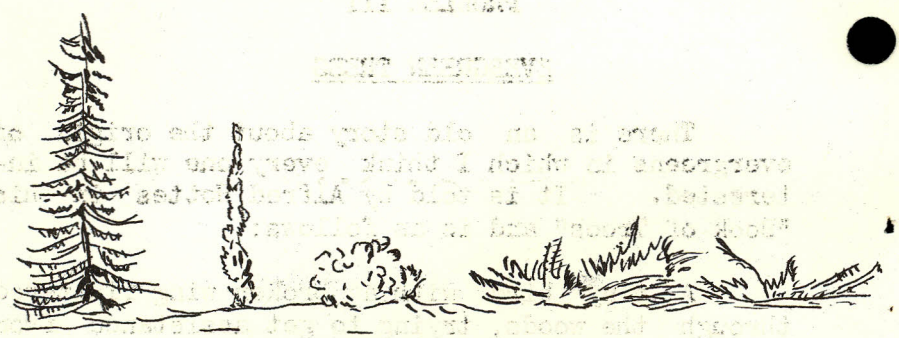
There is an old story about the origin of evergreens in which I think every one will be interested. It is told by Alfred Hottes in his "Book of Trees" and is as follows:

A tiny bird with a broken wing fluttered through the woods, trying to get assistance from the trees. But the Oaks were too busy with their acorns; the Birches were too proud to speak to any one, and the Willows were too laden with their own grief to listen to other people's troubles. But the Fir said, "You may live in my branches". The Pine added, "If you do that I will protect the Fir from the cold winds", and the Juniper promised bright berries for food.

By and by Winter came, and the North Wind asked if it might take the leaves from the trees, but Mother Nature answered, "You may take all the leaves except those that sheltered the poor injured bird". So that is one explanation of why we have evergreens.

Evergreens are of great importance to Nebraska and more of them should be grown. Generally speaking, they are quite drouth resistant and long lived. Since evergreens have their foliage the year round, they give maximum protection both winter and summer. They are, therefore, splendid for windbreak planting and are useful in beautification. Evergreens bring the freshness and beauty of summer into the dreariness of winter. The Junipers and the Pines, particularly the Austrian and Yellow, have proven themselves very desirable for planting in Nebraska.

In most of the conifers the leaves are very



There are types of form and color
of evergreens to meet every need

different from those found in the trees which shed their leaves when winter comes. The pines have long, stiff, needle-like leaves that grow in clusters of from two to five, bound together at the base with a papery sheath. The clusters grow so close together that they spread in fan-like sprays. Spruce have inch long needles that are square and sharp and they bristle all around the stem. In the Firs, the needles are flat and blunt and appear to grow only on two sides of the stem, but actually are distributed over the whole surface.

The one pine which unquestionably stands in greatest favor in Nebraska is the Austrian pine. It grows to be a large symmetrical tree with dark green foliage. It has such a rich, deep green color that it is known in some parts of Europe as the Black Pine. The needles are two in a sheath, straight and rather sharp pointed and four to five inches long. The winter bud is usually sharp-pointed and light in color.

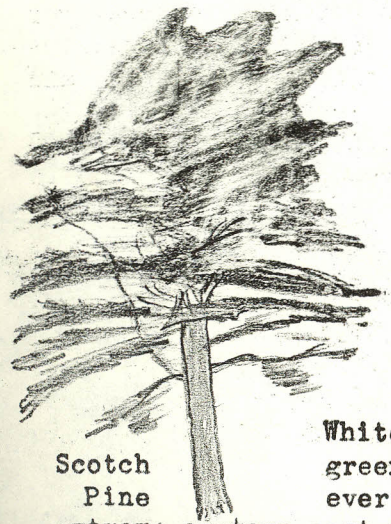
Western Yellow Pine is similar to Austrian pine in type of growth. The foliage is gnerally

lighter in color, the needles are usually more blunt and twisted and occur two and three in a cluster. Winter buds are reddish-brown in color and usually more cylindrical in shape.

Austrian Pine

The Scotch pine is less hardy in Nebraska but a good many were planted here in past years. It grows rapidly and as a young tree is usually compact and formal in outline. The older trees become more open and the bark on the trunk and the larger limbs takes on a distinct cinnamon-brown color, a characteristic which helps to distinguish it from other pines. The leaves occur two in a cluster and are about three inches long.

Jack pines are grown extensively in the sand hill area of Nebraska and are better adapted to that region than for hard land. It is a two-needle pine with leaves usually about one and one-half inches long. It is a small tree in this region, rather scraggly and of little importance except for the light soil areas of the state.



Scotch Pine

White Pine is a fast growing evergreen and very graceful. It, however, is not adapted except in the extreme eastern part of the state. It has very slender soft, pale green leaves, that are borne in clus-

ters of five.

Spruce are often difficult to distinguish one from another, but it is not difficult, however, to identify spruce from other kinds of evergreens. Their inch-long needles are borne singly and bristle all around the stems. The needles are more or less four sided, stiff and sharp. They are attached to the branches and twigs by raised woody projections that leave the twigs rough when the leaves fall. Spruce needles drop rather quickly after the tree is cut. The odor of the leaves when crushed is strong and somewhat unpleasant, while that of firs gives a pleasing fragrance. The cones are oval or cylindrical and generally hang downward.

Spruce twig showing projections remaining after needles have fallen.

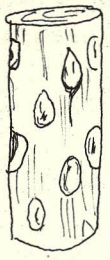
The Colorado Blue Spruce is the most popular of all the spruces. It is very hardy and has withstood drouth and high temperatures the best of any of the spruce. The leaves are rigid, one to one and a quarter inches long, sharp, spiny pointed and ranging from bright green to bluish green in color.

Blue Spruce

Black Hills spruce is a very compact, symmetrical tree with foliage which varies from green to a bluish tint. The leaves are slightly shorter than those of the Colorado Blue Spruce.

Firs resemble spruce more than they do other forms of evergreens. The foliage of the firs is

soft to the touch and the leaves are flat and blunt. Fir needles when they fall or are pulled from the twig leave the bark quite smooth, while in the case of spruce the twig is left rough when the leaves fall. The leaves or needles of firs persist for a long time after the trees are cut and for this reason they are given preference over spruce for Christmas trees. The cones of all true firs stand erect on the branches while those of spruce are pendulous.



Fir twig showing slight circular depressions and smooth bark after needles have fallen.

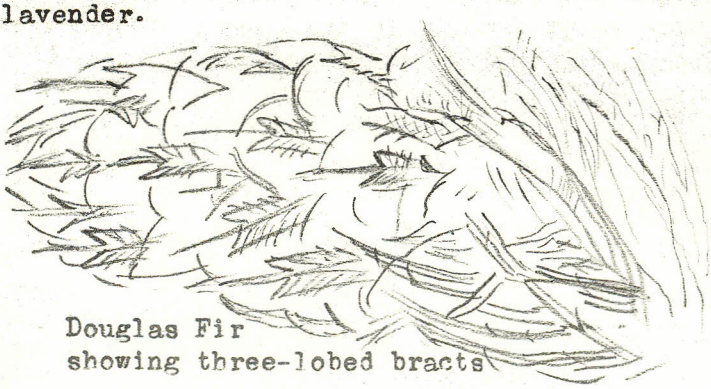
The two Firs grown to any extent in Nebraska are White Fir (silver, concolor) and the Douglas fir.

The White Fir is by far the most outstanding Fir because of its great beauty and its ability to withstand heat and drouth. The twigs are yellowish green, and the buds are round and resinous. The bark is smooth and light gray in color. The leaves are irregularly arranged, one and one-half to two and one-quarter inches long and bluish green in color.

The Douglas Fir is really not a true Fir but is usually recognized as such. The cones of true Fir stand upright on the twigs while those of the Douglas Fir hang down like those of spruce. The cones are very distinctive. They have a bristlly appearance from the numerous three-lobed bracts with sharp points which extend beyond the scales.

The family of Junipers includes a large number of trees of different habits of growth. Some are very narrow and upright, others are low sprangly or globular in form, and others sprawl on the ground and are called creepers. The color of the

foliage also varies a great deal ,ranging from very dark green to light silvery and even pinkish and lavender.



Douglas Fir
showing three-lobed bracts

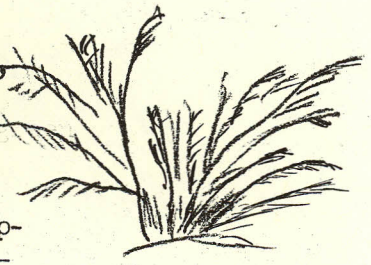
Junipers are characterized by having scale-like or awl-shaped leaves; sometimes both kinds of leaves upon the same tree. This is true of many of our common Red Cedar. The common Eastern Red cedar found growing in canyons, along the streams ,and scattered through the groves is one of the hardiest of trees. Several different types such as Cannart Red Cedar, Silver Red Cedar, Koster red Cedar, Hill Dundee Juniper, and others were developed from the common cedar.

The Juniper found so abundantly in the Rocky Mountain states is known as the western or scopulorum Juniper. It is so much like our common Red cedar that it is often difficult to distinguish between the two. It is ,however ,usually more silvery in color. Many different types such as Pathfinder, Blue Moon, Colorado Silver cedar, Moffetii, and Marshallii were developed by nurserymen from this species.

Two Junipers used a great deal in landscape planting are the Pfitzer and Savin. Both are well adapted to foundation plantings. The foliage of Pfitzer Juniper is green with a slight tinge

of blue, some strains being decidedly bluish in color. It makes a low bushy growth ideal for use in foundation plantings.

The branches of Savin Juniper are spreading, dense, clothed with short, straight tufted branchlets with dark green foliage.



Savin Juniper

Then there are the creepers which are gaining in popularity. They grow close to the ground, forming a dense mat ideal for grave mats and for covering low banks. Andora and Waukegan are two very popular varieties. The foliage of both of these takes on an attractive pinkish color during the winter.

Two varieties of Arbor-vitae, Chinese and American, are often used in landscape planting, particularly in the eastern part of the state. The foliage is flat and lacy-like. The American Indians called the arbor-vitae "Featherleaf," a term descriptive of the lacy feathery foliage. They often turn brown in winter.

The Yew is the least common of the evergreens mentioned. They are mostly tree-like, but when found here are rather small. The foliage is very dark in color. The twigs are usually the same color as the leaves. The leaves are spirally arranged but form a flat spray. The fruit is a bell-shaped red berry with one seed. The upright Japanese Yew and Dwarf Japanese Yew are the two varieties most commonly grown here.

PROBLEM IV

SHRUBS

Shrubs are plants ordinarily distinguished from herbs in having woody stems that do not die to the ground in winter, and differing from trees in generally having several stems from the same root. They comprise a group of plants, many of which are very useful for planting to beautify our home surroundings, for the protection of gardens, and also for erosion control, and to provide conditions favorable for wild-life.

Shrubs add variety to landscape plantings. Their moisture requirement is less than that of trees and in certain situations they are more suitable than large trees. This is especially true in the case of plantings for the protection of gardens and lawns.

Tall Shrubs

Lilacs are ever popular shrubs because of their beautiful blossoms and bright green foliage, and also because of their hardiness. They are well suited for hedge planting.

The heart-shaped,opposite dark green leaves, the large clusters of lavender sweet-scented flowers,and the prolific sprouting habit of the Common Lilac are familiar to everyone. The Persian Lilac is a more desirable hedge plant because it has less tendency to sprout. The leaves are smaller than those of the Common Lilac,being long and narrow. The branches are slightly drooping and willowy and the flower clusters are two or three inches long, lavender or white. Flowers occur on very young plants. It grows about eight feet tall.

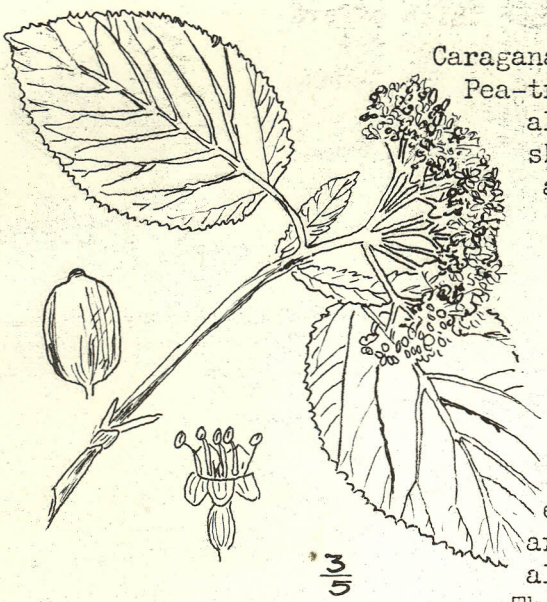
The Tatarian Honeysuckle is one of the most commonly planted Honeysuckles. It is very hardy and attains a height of 10 feet. The young twigs are often a little hairy, the old branches are grayer in landscape effect than most shrubs. The flowers are white or pink and the fruit is red. A variety of this sort produces yellow fruit.

Honeysuckle

The Viburnums constitute a large group of very desirable shrubs. Some do well in dry places, others require wet conditions; some produce red fruits, others produce black fruits some of which are edible.

Highbush Cranberry and Wayfaring-tree are two species of Viburnums which are most frequently planted. The leaves of the Cranberry bush are two to four inches long, three to five lobed. One form of this is the common snowball. Scarlet berries are produced on upright stems in the fall and these hang on the bush throughout the winter as they are too sour to be eaten by birds.

Wayfaring-tree (Viburnum lantana) is an upright shrub with very stout branches which often grows 15 feet tall. The leaves are two to five inches long, wrinkled, rough, coarsely toothed, hairy beneath and heart-shaped at the base. The flowers are white, produced in flat-topped clusters. The fruit ripens in July and August, is red changing to black.



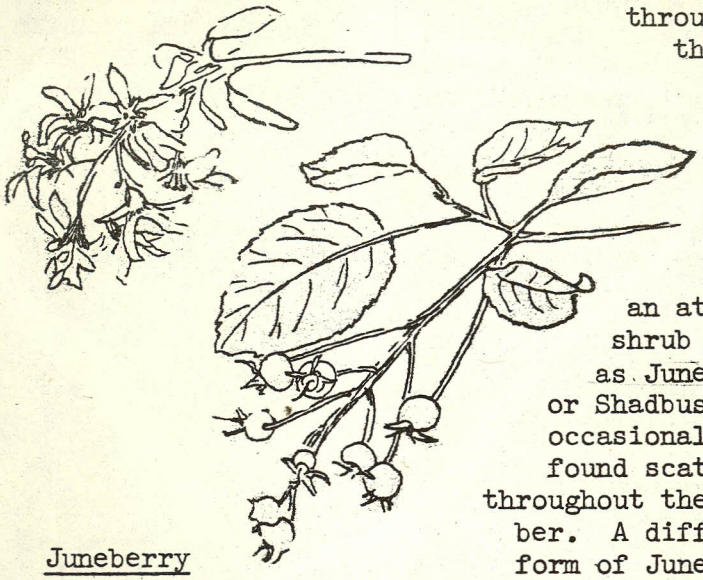
3/5

Caragana or Siberian Pea-tree is an upright almost tree-like shrub which often attains a height of 15 or 20 feet if it is left untrimmed. The branches are smooth and are somewhat spiny. It produces small yellow, pea-like flowers in June which are borne singly along the branches. The leaves are once-pinnate, made up of four to six pair of oval leaflets rounded at the tip. In early spring the foliage presents a very pleasing effect, appearing soft and light green in color. Later the color is a bright green.

Viburnum Lantana

The Cotoneasters are rapidly gaining in popularity as decorative plants and for hedges. There are many different varieties, some producing black and some red fruits. One of the hardiest and the one now grown to some extent in this state is the Peking Cotoneaster. It is one which produces small black fruits usually in abundance, which hang on the bushes until late in the fall. The shrub is erect, slightly spreading, and produces a very pleasing appearance. The leaves are dark, shiny, two inches long, lighter green beneath, slightly hairy while young. The foliage is very bright and shiny early in the spring and in the fall the leaves turn red and persist on the bushes until quite late.

scarlet. The leaves turn red in the fall and with the reddish purple fruits are quite conspicuous.



Juneberry

Here and there throughout the extreme eastern part of the state an attractive shrub known as Juneberry or Shadbush may occasionally be found scattered throughout the timber. A different form of Juneberry known as Saskatoon grows in the extreme western part of the state. The variety in the east is sometimes tree-like attaining a height of 25 feet. The form in western Nebraska is low and shrubby. It is one of the first shrubs to bloom in the spring and the name Shadblow is given these shrubs in eastern states because they are supposed to bloom when the shad fish leave the sea and come up the rivers to spawn. The flowers appear before the leaves are fully formed. The flowers are white, the petals long and narrow, and the bloom presents a rather wilted appearance. Winter buds are long and sharp pointed. The fruits are a maroon-purple that are fine for jams.

Beauty Bush or Kolwitzia is a graceful shrub of extreme hardiness which covers itself in June with clusters of small tubular pink flowers of the honeysuckly type, and borne in great profu-

sion. It grows six to eight feet tall and is an arching shrub with the center always quite upright. The flowers are somewhat lipped and bell-shaped, pale pink with orange veins in the throat. The leaves are opposite, soft hairy above and below. The leaves at the ends of the branches are reddish in color. The young twigs are very woolly, the older twigs are brown and flaky barked.

Low Shrubs

Most everyone is familiar with one or more of the large group of spireas.No other shrub has been so widely used as the Van Houttii except possibly Japanese barberry. Everyone is familiar with its wonderful fountain of white bloom in May. It grows five to six feet high and is valuable for hedges, specimen clumps, and foundation plantings.

Thunbergi Spirea is a bushy,slender branched, tiny-leaved shrub, about three feet high, which is used often for foundation planting. The leaves are about one inch long and very narrow, pointed, toothed, and yellow-green in color. The flowers are white,borne in three to five flowered clusters appearing in March or April.

Spirea Anthony Waterer is a very popular low shrub. It has rosy-crimson flowers in flat-topped clusters and rather narrow leaves. The stems of the new growth are light in color and branches are angled.

Japanese Barberry is a valuable shrub for ornamental planting. It has a close compact habit of growth and will make a dense hedge three feet high. It has large brilliant red fruit in autumn. The Japanese Barberry has numerous sharp single spines about one-half inch long. The spines of the Common Barberry which harbors wheat rust and which is being eradicated has three-parted spines.

One form of the Japanese barberry has red leaves making a glowing red mass of foliage.

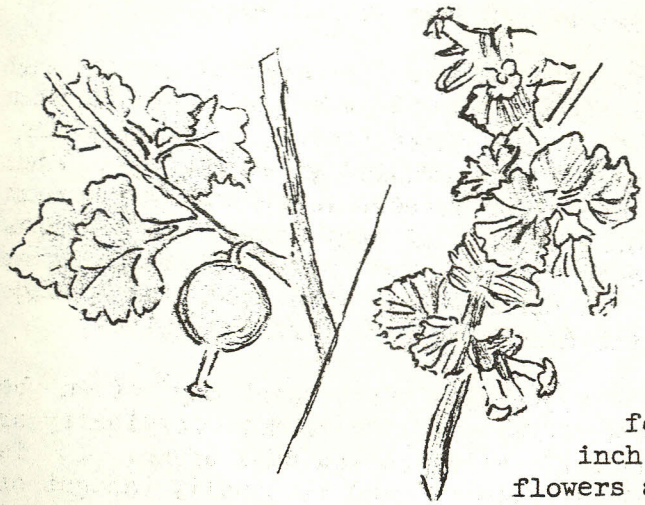
Russian Artimesia or "Old Man" is one of the hardiest of shrubs and will make a three or four foot hedge in a very short time. It has feathery branches covered with grayish green foliage. When the leaves are crushed, there is emitted a pleasant pungent odor like that of sage brush. The branches kill back each winter, but new shoots spring up quickly in the spring. It is a good low hedge plant for the drier and more difficult sites.

Another very hardy shrub which may often be used to good effect is the common Coralberry or "Indian currant", often called buck brush. It is often found in pastures and is usually thought of as a weed but it's attractive when given a good chance. The leaves are gray-green, opposite on the twig and hairy beneath. The flowers are not showy but large clusters of purplish-red fruits borne on the axils of the leaves are very attractive.

Snowberry is very similar to the common coralberry but bears white fruits that are somewhat larger than those of the coralberry. The pink flowers are not very conspicuous but are quite dainty.

Wax Currant is a handsome shrub native to the western part of the state. It is a much branched upright shrub two to four feet high. Its pale grayish-green foliage and pinkish tubular flowers and later the bright red fruits make it a desirable ornamental.

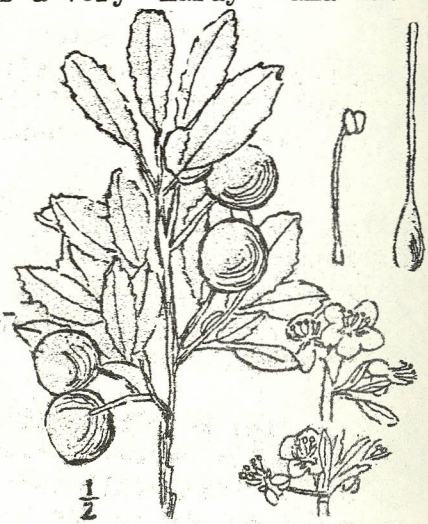
The Western Sandcherry native throughout the sandhills region is worthy of general cultivation as an ornamental shrub. In the wild it is a rather prostrate sort, but an improved variety known as Hanson's Improved Sandcherry is a somewhat taller growing shrub. It can be said that the Sandcherry



Wax Currant

will attain a height of three to four feet. It has gray glossy leaves about 2 inches long and one-half to three fourths of an inch wide. White flowers are produced in abundance and the small black cherries are fine for pies and jams. The leaves turn red in the fall.

Shrubby Cinquefoil is a very hardy and attractive small shrub. It is a low, much branched bush three feet high with grayish-green silky compound leaves. The bright golden yellow flowers appear all summer beginning late in May or early June. The flowers are all very similar to yellow strawberry blossoms. The leaves are three or seven-parted, silky hairy above and silky gray hairy beneath The bark is shreddy.



½ Sandcherry

There are several

hardy roses that are very ornamental which should be mentioned. The Red-leaf rose is unusual, having leaves which are purplish, tinged bluish-green. The flowers are single, pink but small and inconspicuour. The foliage is not brilliant red and is quite pleasing in contrast with other foliage.

Hugonis Rose or Rose of China is very hardy and very attractive both for its clean fresh foliage and the abundance of single yellow flowers. It grows to a height of seven feet with an arching habit of growth and each branch is usually crowded full of the single yellow flowers, about two inches across for a short time in the early spring.

Two very satisfactory Austrian Briar roses which are available in the nursery trade are the Austrian Copper and Austrian yellow. They attain a height of about seven feet and bear a profusion of single flowers two to two and a half inches across. The petals of the Austrian copper are coppery-red inside and orange on the outside. The yellow Austrian flowers are deep yellow, a deeper yellow than those of Hugonis. It occasionally happens that yellow blossoms occur on one or more branches of the Austrian Copper rose. It is from these that the Austrian Yellow was developed.

American Bittersweet or Waxwork is an ornamental plant that should be cultivated to a greater extent. It is a climbing vine native over a wide area and very plentiful along the streams and in the edge of timbered areas some years ago. It has been pulled from the trees and bushes and stripped of its fruit so much for winter bouquets in recent years that it is becoming very scarce. It is a twining shrub with many sprouts and orange yellow pods which burst in autumn and expose fleshy scarlet berries. The berries are relished by a large number of different species of birds and for no other reason should be grown more under cultiva-

PROBLEM V

GROWING ANNUAL FLOWERS

Annuals are those flowering plants whose life outdoors extends from the last killing frost in the spring until the first killing frost in the fall. They are easy to grow. They bloom profusely during the time of year when most other plants are resting; they make an attractive garden in a short time and at very little expense. These are some of the reasons why annuals are so popular.

Where shall we plant annuals? If the annuals are to be used for bouquets for the sick or to decorate graves, then, the best place to grow them is at one side of the vegetable garden in rows where they can be treated just like you do the vegetables. In cutting flowers for bouquets quite a portion of the stem is cut from the plant and this makes the plant unsightly for a time.

Annuals can also be used to improve the appearance of the yard. Tall, coarse-leaved castor beans make a splendid screen to hide objectionable views (on the farm, - the barnyard or hoglot,-in town, the alley). Where the yard is fenced and there is too little room for such large plants as castor beans, spider plants, or cannas,- climbing vines like balloon flower, velvet bean, or even gourds could be used.

Annuals can also be used in the foundation planting to add color and interest to a group of shrubs or dwarf evergreens or if there is no foundation planting at present the annuals can serve as temporary substitutes. Still another use for annuals is in the shrub border. Here they are generally planted in irregular clumps rather than in rows. Where a clipped hedge serves as a border the annuals may be planted in rows in front of the

hedge. They may also be planted in porch boxes and window boxes to provide additional points of interest. Annual vines may be trained to provide shade for the porch. Annual flowers may be grown for sale as well as for pleasure. This is particularly true in the city where many folks live in apartment houses and no space is available for flower growing.

There is one place where annuals (and perennials and shrubs, too) should not be placed and that is in the open lawn. Flower beds in the open lawn interfere with mowing; they are decidedly unattractive from about October 15 until the middle of May; and they are so striking when in bloom that they draw attention away from the home which should always be the center of interest.

Types of Annuals

1. Hardy annuals are those whose seeds can safely be sown outdoors in either late fall or early spring. The seeds and young seedlings can stand considerable cold without being injured. These are the ones with which beginners will be most successful. The tables on pages 8 and 9 give a few of the best ones, together with some of their characteristics.

2. Tender annuals are those which can stand no cold either in spring or in fall, but their growing season is short enough so they can be grown from seed sown outdoors. However, they should be sown outdoors only when the soil has had a chance to become warm after the danger from frost is over. This is usually a little after the apples and cherries are through blooming. The more common kinds that belong in this class are Ageratum, Cosmos, Nasturtium, Castor bean, Spider flower, Salvia, Salpiglossis, Verbena, Stock, Coxcomb, Gourds, and balsam.

3. A third class of annuals is a group which is not only tender so far as cold is concerned but also require such a long growing period that it is necessary to start them indoors in late March. In this class belong Sweet sultan, China aster, Strawflower, Lobelia, Scabiosa, and a number of others. It is rather difficult to grow these socalled half hardy annuals. The beginner would do well, therefore, to confine his efforts to the first two classes of annuals and after he has had some experience with those he can try this group.

Combining annuals. A large bed of a single kind of annual is attractive to be sure, but a bed where several different kinds are used is much more interesting, particularly if they harmonize. In a border the tall kinds are used in the back, the medium tall ones in the center, and the low types in the front. A few pleasing color combinations are listed here.

Blue and yellow.-Larkspur and African marigolds, with nasturtium for edging.

Lavender and orange.- Larkspur with California poppy or calendula.

Pink and blue.- Rosy morn petunia edging with Balcony Blue petunia in the background.

Orange and scarlet.- Giant Zinnias in the background, French marigolds in the middle ground and nasturtiums in the foreground.

Maroon and white.- Black Prince snapdragons bordered with Sweet Alyssum.

There may be many more such combinations.

Preparing the Soil. Most flowering plants like a mellow (loose) rich soil. Soils that are

heavy and stiff are not readily penetrated by the roots of annuals. Freezing and thawing helps to mellow such soils. In order to provide the greatest benefits from freezing and thawing, the soil should be plowed or spaded in the fall and the surface left rough. By spring the lumps will have crumbled and you will be surprised how easily and quickly the soil is prepared for seeding. A few minutes of raking will be all that is needed. The effect of the freezing and thawing lasts only a month or two. Heavy rains or heavy watering will soon pack the soil once more. You will have to mix sand or sifted coal ashes with heavy clay soils to improve the soil texture permanently. When plowing or spading the garden for flowers or vegetables, do not just turn over the surface 4 or 5 inches; 8 inches deep is fairly good but 10 to 12 inches is much better. If there are trees or shrubs nearby, it would be advisable to dig a trench 18 inches deep on the side toward the tree or shrubs in order to cut off their roots at that point. Trees and shrubs have much more vigorous root systems than do annuals, and they will rob the flowers of their share of food and water if no steps are taken to prevent it.

Most annuals like a rich soil, one in which there is an abundance of decaying plant material. Manure is the best type of fertilizer to apply to the garden if the soil is poor. Well-rotted barnyard manure is used at the rate of 100 pounds to 100 square feet. Chicken manure should not be used over 20-30 pounds for the same sized area because it is richer. If the soil is to be plowed, the manure is spread evenly over it before plowing. If the soil is to be spaded up the manure may be placed in the bottom of each furrow before it is filled with dirt. Where animals are not readily available, a compost pile can be made as suggested in Problem I.

Seeding. All of the annuals listed in the

table except sweet peas have tiny seeds and they are easily started out of doors if the soil has been prepared as suggested in the previous paragraph. The seeds take up the moisture from the soil particles they touch. Since the seeds are very small, the soil must not be lumpy but finely pulverized and it must be moist. Take a handful of soil and squeeze it. If the soil particles stick together and make a lump it is moist enough. If you can squeeze water out of it, it is too wet to work. If the particles do not stick together the soil is too dry and it needs to be watered thoroughly before sowing the seeds.

The beginner had better seed in rows in order to more easily distinguish the young flower seedlings from weed seedlings. The distance between rows depends upon the size of the plant when mature; the larger plants need more room than do the small ones. Plants that reaen a height of $2\frac{1}{2}$ to 3 feet should be planted in rows about 2 feet apart; medium sized kinds about 18 inches, and small kinds 8 to 12 inches. If the rows are to be straight, a heavy string stretched between two stakes will serve as a guide. If the rows are to follow an irregular border, place the garden hose to conform with the curved border and sow the seed alongside the hose.

Seeds are usually planted at the rate of 2 or 3 per inch and this is difficult to do. Usually the beginner will plant much too thick. Practice letting the seeds run through your fingers onto a newspaper or white cardboard before seeding in the garden.

After the seeds are sown place a lath over the row and press down firmly to push the seeds in to the dirt. Then if there is sand available, cover the row lightly with it. This helps to keep the surface soil from drying out and cracking and the

young seedlings can push up through the ground more easily, particularly in soils that tend to form a crust.

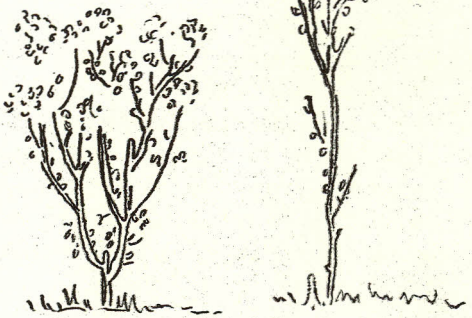
Most annuals need a lot of water to keep them doing well, particularly in midsummer when it is hot and dry. A thorough soaking once a week is better than a light sprinkling each day. Apply enough water at one time to wet at least the upper 6 or 8 inches of soil. Sprinklers of various kinds are good if left in one place long enough. A better way is to make a shallow furrow between the rows and let the water run down these furrows. Less water is lost by evaporation directly into the air than where a sprinkler is used and there is less danger of spreading diseases. If water is not available for irrigating, a good substitute is to mulch the ground with straw or lawn clippings to a depth of 3 or 4 inches.

Cultivating, Thinning, Pinching

Weeds rob the flowers of needed moisture and food materials,-therefore they should be destroyed. The easiest and best time to do this is while they are very small. Frequently the weeds come on before the flower seeds have germinated. If the suggestions on seeding have been followed the row will be definitely outlined and weeding can be started as soon as the weeds begin to show. At first shallow raking will be sufficient; then hoeing. Some of the weeds will have to be pulled,particularly those that are close to the flower seedlings. Deep hoeing is not necessary, in fact it may be dangerous when done close to the flower seedlings, because the roots near the surface may be cut off.

Even the expert gardener is unable to seed in such a way that the young seedlings will be spaced properly in the row. Do not feel badly when the flower seedlings are too numerous. It is easier

to pull out a few where they are too thick than to get them started by transplanting where they are too far apart. Not all plants require the same amount of space to develop. In general small sorts can be left close together, 1 to 2 inches, medium sort 3 to 6 inches and large sorts, 8 to 12 inches. Some annuals do not branch as freely as they might and others go into bloom very quickly and then fail to develop a bushy form. If the growing tip is pinched off when the young plants are 6 inches tall, a more bushy type of plant will be produced. The following sorts are improved by pinching: Calendula, annual Chrysanthemum, annual Phlox, Snapdragon, Zinnia (giant type).



Pinched Unpinched

TYPES OF ANNUALS

Name	Sun or Shade	Kind of Soil	Height of plant	Time of bloom	Color of bloom	Remarks
Sweet alyssum (Alyssum maritimum)	Sun	Poor	4-6 in.	June to October	White Lavender	For edging; cut plants frequently
Baby's breath (Gypsophila elegans)	Sun	Average	1½ ft.	6 weeks after sowing	White Pink	Use in bouquets-Seed three weeks intervals
Calendula (Calendula officinalis)	Shade or sun	Poor to good	8-12 inches	July	Orange	Good for cutting
Candytuft (Iberis amara)	Shade	Any	6-8 inches	June to August	White Pink Lilac	Sow often for a continuous bloom
Four o'clock	Sun	Poor	18-20 inches	June to October	Brown Orange	No good for cutting
Larkspur (Delphinium)	Sun	Good	2 ft.	April to June	Mixed	Self seeds readily
Marigold-French (Tagetes patula)	Sun	Any	6-12 inches	All summer	Orange	Hot dry places
Marigold-African (Tagetes erecta)	Sun	Any	3-5 feet	All summer	Yellow	Hot dry places

Moss rose (Portulaca grandiflora)	Sun	Poor	4-6 inches	August to October	Orange yellow red	Good ground cover Dry hot places
Pansy (Viola tri-color)	Part shade	Rich	5-8 inches	June Keep picked	Various	Use plants in spring or sow seeds in Sept.
Petunia	Sun or shade	Rich or poor	1 ft.	June to frost	White pink purple	Seed outdoors in May. Excellent for drouth. Sometimes seeds self
Poppy (Shirley) (Papaver rhoeas)	Sun	Poor	1 ft.	June	Pink red	Difficult to transplant
Snapdragon (Antirrhinum)	Partial shade or sun	Rich	1-2 feet	June to October	Various	Fine for cutting
Sweet Pea (Lathyrus odoratus)	Sun	Rich	Vine	June	Various	Sow seed in trench in fall
Zinnia	Sun	Rich	8-36 inches	June to frost	Various	Showy, good for cutting. Self-seeds occasionally. Better seeded in late April.

PROBLEM VI

LAWNS: MAKING THEM AND CARING FOR THEM

A good lawn is the foundation upon which a landscape picture is built. It improves the appearance of the home surroundings, but it does more; it makes the housekeeping job easier than when there are only weeds or bare ground about the house.

A lawn is not nearly as hard to make and maintain as most people think it is. There are some places in the country where blue grass has remained alive all through these dry years. Along the roadsides where it has not been pastured or cut with a mower it has done well. In the woods along the creeks and rivers where a little shade was provided it still flourishes. But where people have mowed it short every week or two or pastured it down to the ground it has not been able to survive the hot dry summers unless it has been watered generously.

Kentucky blue grass is still the most popular lawn grass for Nebraska. It does fine in spring and fall but when the weather gets hot it does not do so well. Here is what happens. As the soil temperature rises above 90°, the tender grass roots die and the top turns brown.

Making a new blue grass lawn. Blue grass seed will germinate and grow throughout the period from April 1 to October 15 in most years. Occasionally we have favorable weather for new seedings before April 1st and after October 15. The best time to make a new lawn, however, is between August 15 and October 1st. Seeded during this period it will have no competition from weeds that fall and it can make a heavy enough growth to come through the winter in fine shape. The following spring it starts thickening up early. Before the hot

weather comes, it is well rooted and it shades the ground. If seeded in the spring annual weeds like foxtail will compete with the young blue grass. Mowing will not eradicate such weeds. They have to be pulled out. Furthermore, the blue grass roots do not have time to develop sufficiently before hot weather comes. Occasionally we have a cool wet spring when spring seeding is very successful but usually it is safer to wait until August or September to do it.

Preparing the Seed Bed. Grasses of all kinds require a firm seed bed for best results. A loose fluffy seed bed is bound to give a poor stand. Here is the reason. Soil is made up of small mineral particles. When it rains or when we sprinkle, the water is held as a thin film around each particle. Seeds (and roots, of course) take the moisture from these soil particles where they touch them. In a loose fluffy soil only a few soil particles touch the seed and it is not long until the moisture films are used up. Furthermore, in a fluffy soil, the air circulates more freely and takes away some of the moisture. It is, therefore, not advisable to plow or spade up the soil before seeding for grass unless it happens to be a very tough clay that needs mixing with sand or well rotted manure to make it absorb water better. If plowing or spading is necessary, this should be done in the spring. Heavy rains usually come then and they help to settle the soil. If plowing or spading must be done in midsummer, water heavily with a sprinkler two or three weeks before seeding. When an old lawn is to be reseeded, hoe out the weeds and remove to the compost pile or burn them. Then rake the surface with a steel rake and it is ready for seeding.

In leveling up the surface be sure the general slope is away from the house. Sharp terraces with a south slope should be avoided because they

are subjected to conditions in midsummer that are unfavorable for blue grass. If the rain water from the house, garage, or sheds is not saved for house use, make a slope away from these buildings in such a way that it will run into a basin under a nearby shade tree or into the shrub border.

Seeding Mixtures. Blue grass develops rather slowly from seed. Where a large area is to be seeded or where a quick effect is desired, mix perennial rye grass seed with the blue grass seed at the rate of 5% (1/2 pound rye grass to 10 pounds blue grass). Rye grass is a coarse grass that develops quickly but is crowded out by the blue grass in a year or two. White clover is sometimes used in the same way and in the same proportions as rye grass. White clover is less desirable than rye grass because it grows too rank in a wet season, and then requires much more cutting than is good for the blue grass. White clover winterkills quite easily.

Rate of seeding. Use one pound of seed for each 200 square feet (10 x 20). Seed one-half this amount while crossing the area in one direction and the other one-half while crossing it at right-angles to that direction.

Care After Seeding. After the seed is sown, apply a coat of finely pulverized garden loam not over 1/8 inch thick. Then either roll it or soak it thoroughly to get this soil to settle around the grass seed. Then mulch lightly with peat moss, grass clippings, sawdust, or straw that is free from weed seeds. Finely pulverized well-rotted manure can also be used. A mulch of some kind is certainly worthwhile in hastening germination of the seed and assuring a uniform stand. Sprinkle the new seeding each evening for a week or ten days if it does not rain. A new fall seeded lawn should not be mowed until the following spring.

Mowing is generally overdone in Nebraska and most mowers clip the grass too short. The longer the leaves the deeper go the roots and vice versa. The shorter the leaves are clipped the more shallow is the root system. Recent experiments have shown that Kentucky blue grass roots function best at temperatures between 50° and 80° but they grow some at 40° and less at 85°, but when temperatures of the soil reach 95° the roots are killed. A mulch holds moisture and also reflects the sun. It is well, therefore, to leave the grass clippings on the lawn to build up a light mulch. Mowing can be done 2 or 3 times in spring while growing conditions are good but unless the lawn is to be watered every week in midsummer, mowing should be discontinued about June 15 and not begun again until about September 1st. Raise the mower blade so the grass will not cut shorter than 2 inches. Weeds such as crab grass and dandelions will have less chance to develop when the grass is allowed to grow long. If they become serious, hand weeding is the most satisfactory way of handling them. Usually the clippings can be left on the lawn to provide a mulch. On light, moist soils, however, where the growth is very heavy, the decay of the mulch may bring a root rot of the grass and here the clippings should be taken off.

Fertilizing Lawns. Most Nebraska soils are rich enough to produce good lawns without special fertilization. But most yards have spots where the lawn does not grow as well as it does on others. In order to have a uniformly dark green lawn it may be necessary to use some sort of fertilizer. The safest and best fertilizer is well-rotted barnyard manure. In the rotting process dangerous weed seeds are killed. Chicken manure is very rich in nitrogen (the fertilizer element that causes the grass to become dark green). If too much of this material is used on plants it causes serious burning. A bushel of chicken manure should be scat --

tered over an area 10 feet by 10 feet. Barnyard manure can be used twice that heavy without danger. Manures are generally applied in November or December so that the soluble parts can leach into the ground during the early spring months when the snow melts and spring rains come. By May 1st the coarser particles that remain can be raked off and used in the vegetable garden or mixed with the compost. Commercial fertilizer can be bought and applied to the lawn according to the directions that come with the material. For lawns in Nebraska a complete fertilizer (one containing Nitrogen -N- Phosphorus-P- and Potash-K-) is generally not needed. Most lawns respond to Nitrogen fertilizers such as Ammonium sulfate or Sodium nitrate, some respond also to Phosphorus such as superphosphate, but very few respond to potash (the material found in wood ashes).

Be sure not to apply too much Ammonium sulfate or it will burn the grass. The best way to insure even and safe distribution of this material is to dissolve 1 cupful of it in a sprinkling can filled with water and spread this on an area 5 feet by 20 feet. Repeat until the whole lawn is fertilized and then water the lawn thoroughly if it does not rain the same day.

Watering the Lawn. The fact that blue grass will stay alive along roadsides indicates that our lawns need not be watered. But of course we would have to be satisfied with a brown lawn during the middle of the summer, and since most of us want a green lawn, we water. Water does three different things for the grass.

1.It cools off the soil and makes it possible for the roots to function.

2.It dissolves raw food materials that are contained in and on the soil particles. It carries them up into the leaves where with the help of

the sun's rays they are made into food materials that can be used by the plant to make new leaves and new roots.

3. It evaporates from the leaves and thus helps to cool the leaves.

Water is rather expensive in towns and cities. In the country it may not cost much if a windmill is used to pump it, but the well may not supply enough for the livestock, the house, and the lawn. In any event, let us be economical with the water when it is used on the lawn. This does not mean we should attach a nozzle to the hose and walk over the lawn wetting it as we go. That type of sprinkling does very little good. In a few minutes the water is evaporated into the air and blown away. Some authorities say we should apply 2 inches of water every ten days during the hot months. Two inches of water applied to an area 20 feet by 20 feet (400 square feet) means about 500 gallons. City water systems generally supply about 3 gallons of water a minute through the hose. If a sprinkler would cover 400 square feet at one setting then you would have to leave it in the same place about 3 hours to apply this amount of water. If trees are present on the lawn, their roots would get some of this water too, and this one watering would probably last only a week instead of 10 days.

Buffalo grass is a native short grass that is gaining friends as a lawn grass because it withstands drought very well. It makes a short dense growth that requires very little cutting and is green from about May 1st right through the summer and up to about October 1st. Unfortunately, it turns brown early in the fall and stays that way fairly late in the spring. It can stand much more tramping than can blue grass. In the western two-thirds of the state buffalo grass can be used to advantage because it is easy to get sod and fairly

easy to start. In eastern Nebraska it may be used in the parking spaces along the curb where blue grass has been tried and failed. It may also be used on steep south terraces and close to the south and west side of the house where blue grass cannot seem to stand the reflection of the sun.

Buffalo grass spreads from above-ground runners or stolons. The easiest way to start a lawn of buffalo grass is to transplant small pieces of sod early in the spring. Pieces of the native sod 3 inches square and 2 inches deep are set into the prepared seed bed about 18 inches apart both ways. This is done early in May. The weeds are kept hoed out the first year. If water is provided every week or two there will develop a solid mat of grass by September 1st of that same year. Very little mowing is required to keep this type of lawn looking well, but the runners keep coming and they are objectionable in appearance. These runners can be pulled off by hand on a small lawn. On a large lawn they can be raked and then cut with an ordinary lawn mower. Although this grass is tough, it cuts easiest following a rain.

PROBLEM VII

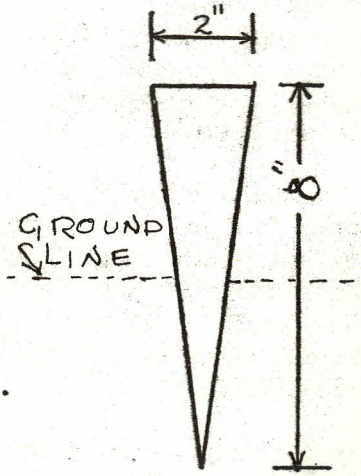
GARDEN HANDICRAFT

A good lawn, nice trees, shrubs, and flowers add a great deal to home surroundings. Working with them brings much pleasure and a feeling of pride to any family. The greatest happiness comes, however, when the members of your family and your friends gather in your garden.

Oftentimes you want to look at the flowers which are in bloom and it is then that everyone appreciates labels which tell you the name of the individual plants, shrubs or trees. There are many types of labels you can buy but you may want to make some yourself.

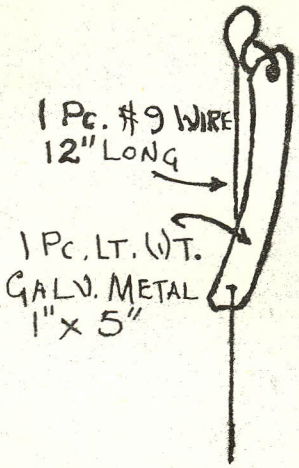
Labels

The most simple home made label is one made of wood. A triangular piece of batten strip will do. This should be about 8 inches long and shaped as shown here. You can write or print the name of it with India drawing ink and then cover this with a coat of good varnish. Such a label, of course, is not permanent as the wood will rot, in a few seasons, when it is pushed into the ground.



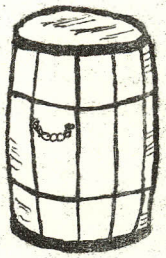
A more permanent type of label is made of a #9 wire and a piece of light weight galvanized metal. They should be bent as shown. Two holes should be drilled in the metal strip so it can be slipped on the wire. The name can be written or

printed on the metal with muriatic acid. A pointed glass rod or a skewer stick works well for this purpose



Anyone interested in gardens is also interested in birds. Feathered friends can be encouraged to make their homes in your garden if you will provide bird houses and feeders. Plans for some simple houses are shown on pages 7 and 9. A bird feeder plan is shown on page 5. There are many other types of houses, and should you want to make another kind, ask your Agricultural Agent for a copy of Farmers Bulletin #1456, "Homes for Birds". You should also provide drinking water for the birds which decide to live with you. Old pans may be used if you do not have a bird bath. If you do use pans, be sure they are kept filled. Remember that the water will evaporate rapidly in hot weather.

Picnic meals in your own garden are a treat not only for you and the other members of your family but for your friends as well. Comfortable seats and a sturdy table will go far in making such meals successful. It is not necessary to have expensive garden furniture since you can make these articles yourself.



Handy seats which are comfortable, which will not be damaged if accidentally left out in the rain, but which can be handled easily can be made from nail kegs. Since kegs are usually rough, you should sandpaper them carefully, hammer

down any rough edges on the metal strips and be sure no nails protrude.

A coat or two of good paint will aid in giving a smooth surface and if bright colors are used will add a gay touch. This paint also gives a protective coating from the weather. A rope handle makes it easy to carry these kegs from place to place.

Portable Table

A portable table will be handier to use than card tables and if sturdily made will prevent many accidents. Details of construction and the materials needed are shown on pages 11 and 12.

Outdoor Fireplace

An outdoor fireplace in one corner of your own garden will be handy for spring and fall picnics. It can be made of field stone, old brick or concrete. If you are interested in having one, ask your Agricultural Agent for a set of plans.

BIRD FEEDER

Food trays can be used to good advantage when birds are too shy to come to window shelves for crumbs. They may be hung from a branch or the clothes line. You should be careful to place them so the food will not be blown away.

MATERIALS NEEDED

Stock: Old orange or lemon crates provide satisfactory material
Base - 1 pc 5/8" x $11\frac{1}{2}$" x $11\frac{1}{2}$"
Posts - 4 pcs 1" x1" x $5\frac{1}{2}$"
(3/4" material may be used but 1" material is better)
White pine
Sides - 2 pcs 5/8" x $2\frac{1}{2}$" x $11\frac{1}{2}$"
" 2 pcs 5/8" x $2\frac{1}{2}$" x 12-3/4"
Rails - 2 pcs $\frac{1}{4}$" x $1\frac{1}{4}$" x $11\frac{1}{2}$"
" - 2 pcs $\frac{1}{4}$" x $1\frac{1}{4}$ x 12"
Nails - 24 3d lathing
- 16 3/4" brads
Screws - 4-2" - #8 flat-head screws
Screw eyes- 4
Wire - 5' of #14 wire

TOOLS NEEDED

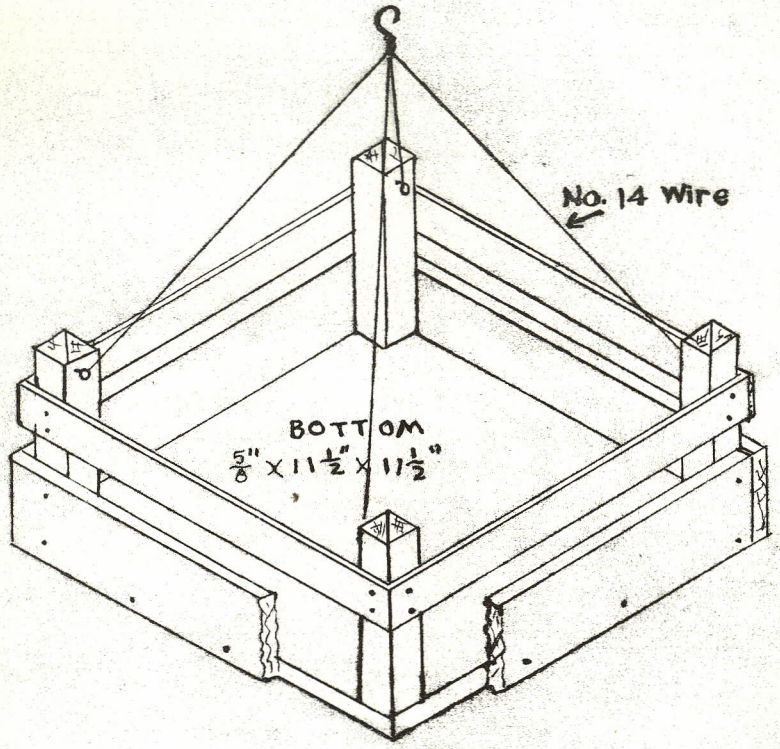
Cross cut or back saw
Rule
Hammer
Try square
Pencil
Screwdriver

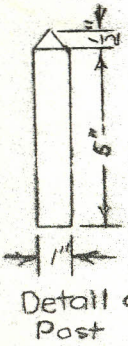
Construction Steps

1. Check base material for size and square
2. Cut corner posts to size
3. Cut side pieces and rails to size
4. Assemble
   a. Tack sides to posts as shown in detail on working drawings.
   b. Tack rails to posts
   c. Fasten base to posts with screws.
   d. Place screw eyes in posts being sure they go at right angles to the grain of wood.
   e. Fasten wires into eyes.

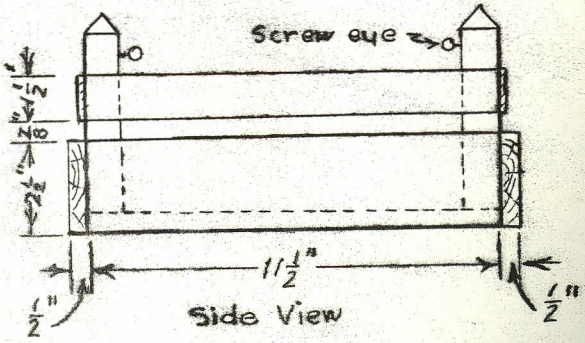
THIS ARTICLE NEEDS NO FINISH

BIRD FEEDER





Detail of Post



Side View

BIRD HOUSE (Bluebird)

Bluebirds are not as common in Nebraska as some other species. If there are some in your community encourage them by build[illegible]uitable houses. A bluebird house should be fa[illegible]d to a slender pole to prevent cats from [illegible]ting to it and should be placed about 7 or 8 feet above the ground.

MATERIALS NEEDED

Stock: An easily workable pine or yellow poplar. The end material from an old orange crate may be used
1 piece - $\frac{1}{2}$" x 6" x 1'-0"
1 piece - $\frac{1}{2}$" x 8" x 2'-0"
1 roof slab 8" x 1'-0"
1 twig $\frac{1}{4}$" diameter, 4" long
Nails: 24 - 2d lath nails
Screws: 4- #1" flat head
Metal Strips: 2 - 1" x 2$\frac{1}{2}$" strips galvanized metal

TOOLS NEEDED

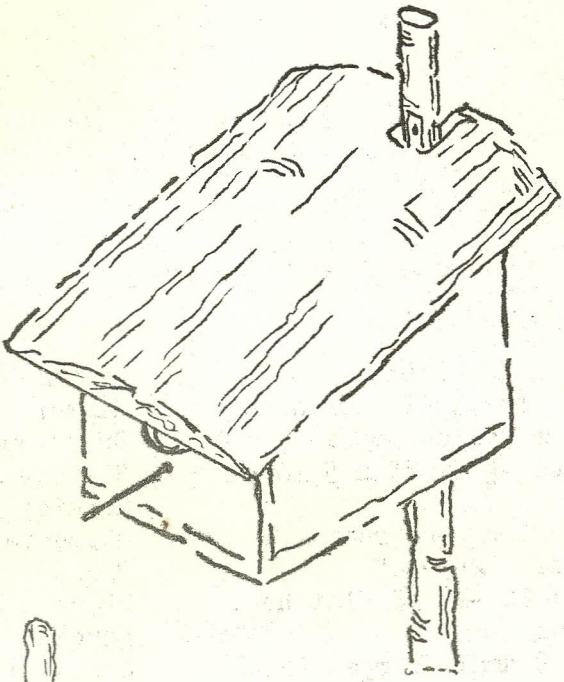
Hammer
Cross cut saw
Rip saw
Plane
Carpenter's or Try square
Screwdriver
Pencil
Brace and 1$\frac{1}{2}$" or expansive bit
$\frac{1}{4}$" bit

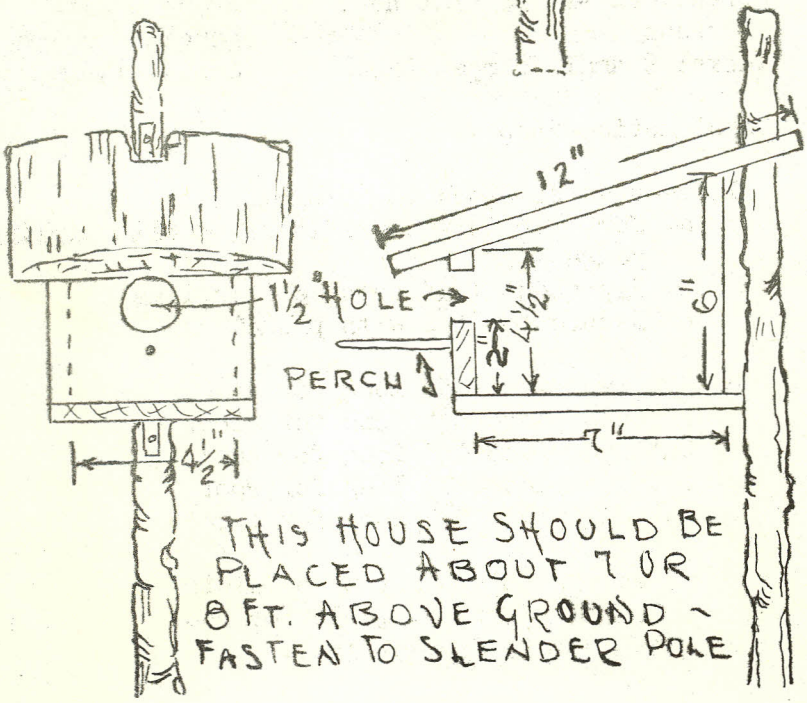
Construction Steps:

1. Reduce 6" stock to 5$\frac{1}{2}$" width
2. Cut from it the front end and bottom piece
3. Reduce 8" stock to 6$\frac{1}{2}$" width.
4. Cut from it back end and side pieces
5. Bore holes in front end for perch and opening.
6. Nail side pieces to front and back pieces
7. Nail floor to these
8. Notch roof slab to receive pole
9. Nail roof slab to house
10. Fasten galvanized strips to back with screws
11. Fit perch in hole under opening
12. Fasten to pole.

Finish: Do not paint. Leave without finish or stain some dark color. Bluebirds prefer houses which have weathered.

BLUE BIRD HOUSE





THIS HOUSE SHOULD BE PLACED ABOUT 7 OR 8 FT. ABOVE GROUND - FASTEN TO SLENDER POLE

BIRD HOUSE (Wren)

Anyone who likes birds is usually interested in bird houses. Different species of birds prefer different types of houses. Since the wren is a popular bird in this part of the country, because of its song and food habits, you may want to build a house for it.

Wren houses should be placed 6 to 10 feet above the ground and so hung that the opening is not facing the wind.

MATERIALS NEEDED

Stock: An easily workable pine or yellow poplar
1 piece - $\frac{1}{2}$" x 8" x 5'-0"

Heavy waterproof roofing
1 piece - 2" x 8"
Screws: 26 -1" #8 flat head screws
Tacks: 8 small carpet tacks

TOOLS NEEDED

Hammer
Cross cut saw
Rip saw
Marking gauge
Carpenter's square
Plane
Brace & bit
Pencil
Screwdriver

Construction Steps:

1. Reduce the stock to 6" width
   a. Mark for correct width of 6" with marking gauge
   b. Rip about 1/8" outside this line.
   c. Reduce to line with plane.

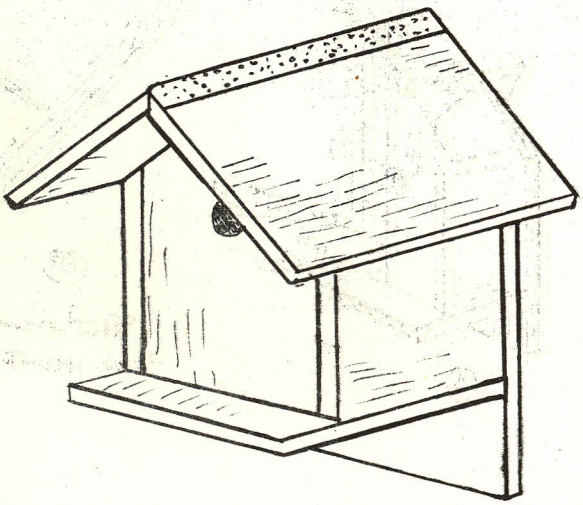
2. Cut two pieces 5" long for sides
3. Cut one piece $6\frac{1}{2}$" long for floor
4. Cut one piece 12" long for back
5. Cut two pieces 8" long for roof
6. Cut one piece $8\frac{1}{2}$" long for front.

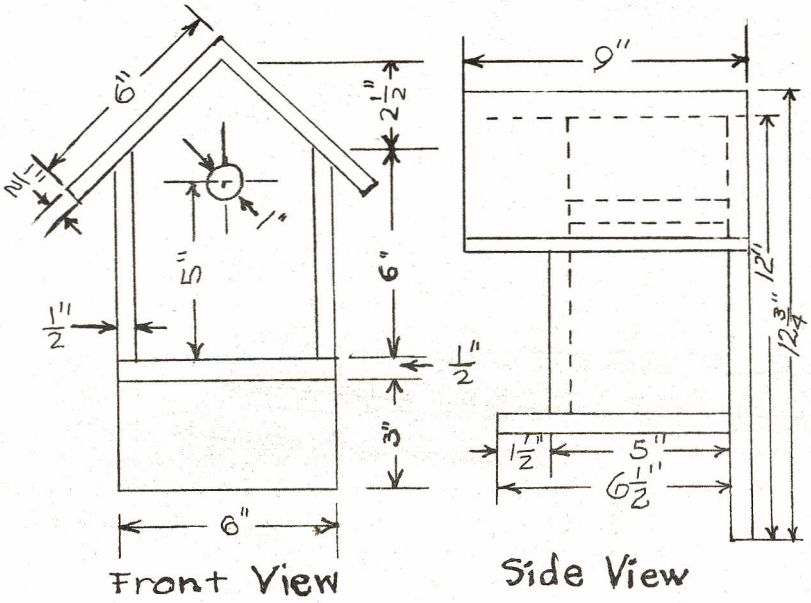
   a. Reduce this piece to 5" width
   b. Cut to correct gable for roof
   c. Bore hole for entrance.

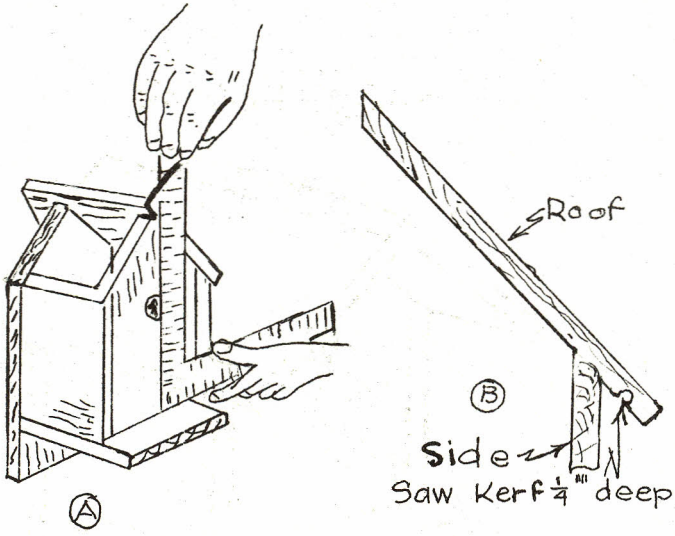
7. Cut back piece to correct gable for roof.
8. Fasten side pieces to front and back piece to them with screws.
9. Plane the top edge of the sides to conform with the slope of the gable ends.
10. Tack one roof board in place as shown at "A" on working drawing and mark for ridge bevel.
11. Remove and plane to correct bevel.
12. Repeat steps 10 and 11 for other roof board.
13. Cut a saw kerf in roof boards as shown at "B" on the working drawing to form a rain drip on under side of the roof board.
14. Fasten roof boards in place with screws.
15. Cover ridge with roofing paper as shown.
16. Fasten floor board in place with screws.

FINISH: This article may be left without finish or it may be stained some dark color.

BIRD HOUSE




6"
2½"
1"
1¼"
6"
1"
2
3"
6"
Front View
9"
12"
12¾"
1½"
5"
6½"
Side View


A
Roof
B
Side
Saw Kerf ¼" deep

Portable Picnic Table

Materials Needed

Table:	4 pieces	1" x 8" x 7'-0"	top
	4 pieces	2" x 4" x 2'-6"	cleats
Trestles:	8 pieces	1" x 4" x 2'-6"	legs
	2 pieces	1" x 8" x 2'-0"	top support
	4 pieces	1" x 4" x 12"	braces
	4 pieces	1" x 2" x 8"	braces
	4 pieces	1" x 2" x 12"	braces

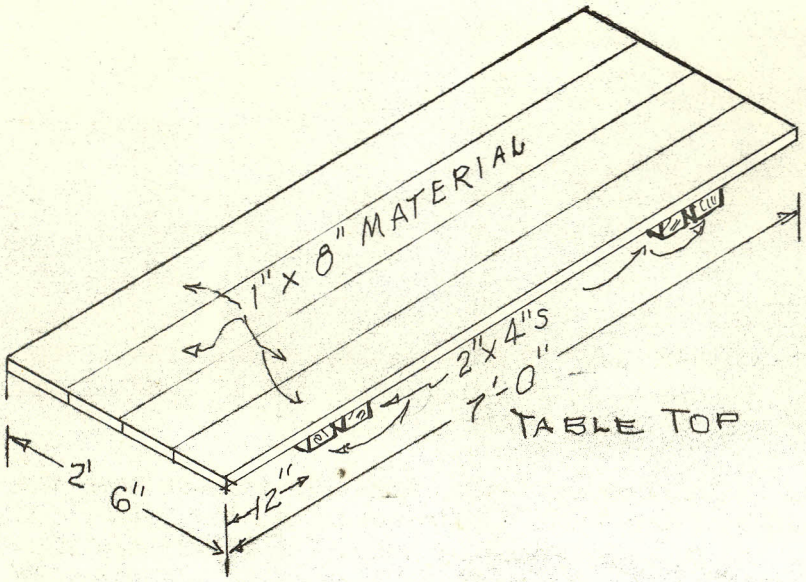
Construction Notes

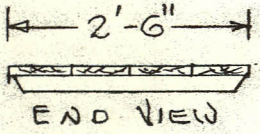
The 2" x 4" cleats on the under side of the top should be spaced to receive the 1" x 8" of the trestles without binding.

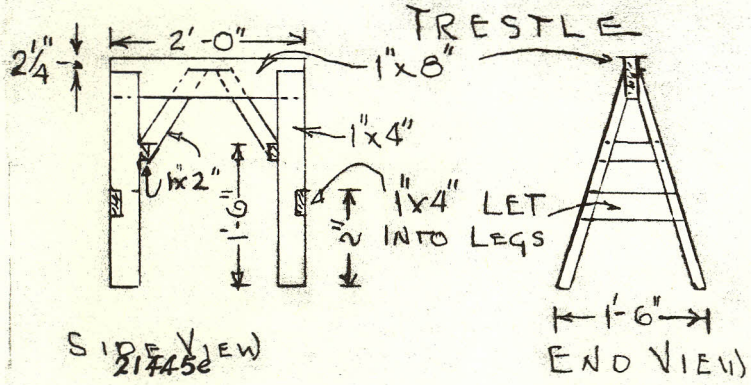
The length of the trestles is less than the width of the table top to make them less bothersome to the people who sit by them. The 1" x8" top support must extend above the top of the legs 2¼ inches so the top can rest on it without difficulty.

The bottom braces are let into the 1" x 4" legs while the 1" x 2" are nailed onto the inside edge of the legs. The diagonal 1" x 2" braces are fastened to the 1" x 8" and the horizontal 1" x2"s to prevent side sway of the table. This table may be assembled with nails or screws. It should be finished either with paint or weatherproof varnish.

PORTABLE PICNIC TABLE







21745e