

LYMAN REED LOVE



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ORNAMENTAL TREES AND SHRUBS.

Lyman R. Love. 1896.

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ORNAMENTAL TREES AND SHRUBS

by

LYMAN R. ^{ad} LOVE,

Michigan Agricultural College,

July 24, 1896.

A Collection and Description of the Flowers and Foliage
together with a Description of each Plant and Some of the
Chief Characteristics of Seventy Trees and Shrubs.

For herbarium specimens, see the appendix in the Botanical Laboratory.

American or White Elm--*Ulmus Americana*.

Leaves glabrous, or nearly so, 1-1/2' to 4' long, oval, ovate, or ob-ovate, apex acute, twice serrate, dark green, two ranked; petiole 1/4' to 1/2', veins straight and very prominent on under side.

There are two distinct forms that are worthy of consideration. The most common form grows from 50 to 80 ft. tall; the branches spreading from 20 to 70 ft. In this form the branches begin at about 20 ft. from the ground and form a fairly compact round or irregular head. The lower branches are often horizontal and drooping at their ends. The tree is seldom symmetrical, and more of the picturesque type. It gives a very pleasing but somewhat open shade. It is one of our largest trees, the trunk varying from 1-4 ft. in diameter. The other, an extremely picturesque form does not branch until 30 to 50 ft. from the ground. It then sends upward at a small angle from 5 to 9 or more large slender feather-like branches. These are covered with numerous small leafy branches and at their ends they curve foldly downward making a very open, irregular head. The trunk is a large straight shaft with light gray, roughened bark. The trunk is often covered with small leafy shoots. This latter form is very valuable for picturesque work.

The elm is one of the most magnificent of our trees. It is probable there is no tree that is planted more or that is a greater favorite than the American elm. Its variety of graceful forms with its size, hardiness, rapidity of growth in varying climatic and soil conditions make it a favorite for highways and large grounds. It is not desirable for street purposes.

Cork-barked Elm--*Ulmus racemosa*.

Leaves large ($2\frac{1}{2}$ to 5'), on very short ($\frac{1}{8}$ ') petiole, two ranked, ob-ovate, or oval, apex acute, margin twice serrate, upper surface smooth and of dark green color, under surface light green or nearly silvery, canescent, young twigs also covered with minute hairs, veins straight.

. A close growing tree with branches at 5 to 8 ft. from ground, irregular, somewhat open, but giving a very good shade. The bark of trunk and large branches very rough and corky. Branches angular and crooked, spreading horizontally or ascending slightly. Branches branching well and covered with an abundance of dark green foliage.

It grows less rapidly than the American elm, but it is a distinct form. It does not attain as great a growth but is especially attractive for its corky bark and fine foliage. It is better adapted to street planting than the white elm. It is a desirable tree for ornamental purposes as well as for shade.

English Elm--*Ulmus campestris*.

Leaves thickly set on many branching shoots, 2-3-1/2' long; ob-ovate or oval, apex sharp, twice serrate, smooth thick and tough, deep green, petiole 1/2' long.

It branches low, with large branches throughout at nearly right angles. It is unlike the American elm in the fact that it has a large central shaft which attains a considerable height. It is quite well clothed with deep green foliage. It is of slower growth but of a more sturdy character than the American elm. It is also much longer lived; often attaining an age of 140 to 160 yrs., and attains even greater size. Gilpin says, "No tree is better adapted to receive grand masses of light. In this respect it is superior to both the oak and the ash." It is well adapted for planting in large grounds in groups or singly.

White Oak--*Quercus alba*.

Leaves pinnatifid with 3 to 5 pairs of lateral lobes and one terminal lobe, wedge shape at base, lobes increasing in size from base; sinuses deep or shallow, rounded; lobes broad and rounded, entire or auriculate, prominent veins running to lobes, leaves 4' to 8' long, light green and smooth above, silvery white beneath, glossy or dull, petiole 1/2' to 1' long.

Tree large with a trunk 2 to 3 ft. in diameter, straight and erect. If grown close in groups will have a large straight shaft 40 to 100 ft. tall with large crooked horizontal branches. Is not very broad, and is irregular, and somewhat open, but gives a very pleasing open shade. The trunk of it as well as of all the other oaks is much roughened, bark of light brown or gray color, and a pleasing light green foliage. Where it is grown in an opening where it has sufficient food and sunshine it sends out long angular and crooked branches at 4° to 8° from the ground, and spreads from 25° to 50° . Grown under these conditions it forms a broad, compact, round head.

The oak is considered the grandest and most majestic of all deciduous trees. It is of rather slow growth, but its strength and hardiness together with its sturdy character and great age to which it attains renders it one of the most useful and desirable of trees. It is a grand tree to use in groups or as single specimens. It has no enemies and grows on nearly all soils. Its great size, vigor and longevity together with its cheerful summer color and its bright autumn tints make it a very desirable tree for all large grounds.

Red Oak--*Quercus rubra*.

Leaves from 4' to 12' long, pinnatifid, sinuses deep or shallow, broad and rounded, 5 to 9 lobes, general form of leaf

oval or ob-ovate, lobes with 2 to 4 prominently bristle pointed teeth, base broad or narrow and rounded, thin, smooth, tough, dark green and glossy, petiole stiff and of yellowish green color.

This oak attains about the same size and same age as the white oak. Its trunk is more angular, crooked and rough. The bark is rough, thick and corrugated, and of a dark brown color. In general form it resembles the white oak very much. The branches are longer, straighter and more nearly erect. When grown in an opening it often spreads to a considerable extent (50-70 ft.) with the branches sweeping the ground. The branches are even more open than in the white oak, yet it gives a very pleasing shade with the sun sifting through the openings in the branches. The foliage is abundant only at the ends of the large branches.

The red oak has the widest range of growth of any of our American oaks. It thrives in nearly every portion of the United States and Canada east of the Rocky Mountains. It is readily transplanted, and none of our oaks grow more rapidly than it. It attains magnificent proportions, and has even a more sturdy appearance than the white oak. It is excellently suited for planting on large places and in parks, and there are few trees that are better adapted for street planting. In the Garden and Forest of 1891, page 338, Sargent says, "If

hardiness, good habit, adaptability to different soils, beauty of foliage, longevity, and freedom from disease have any weight with planters of trees the red oak should receive attention at their hands."

Scarlet Oak--*Quercus coccinea*.

Leaves pinnatifid, 5' to 9' long, with 3 to 5 pairs of deeply cut lateral lobes, terminal lobe ~~after~~^{often} lobed or ariculate, general form of leaf ob-ovate or oval, base truncate, lobes increasing in size from base, lobes with prominently bristle-pointed teeth, sinuses broad and rounded, color dark green and very glossy on both sides, petiole 1 to 2' long.

It has a large rough dark brown trunk tapering quite rapidly from the ground. It forms an open and irregular head with crooked, unequally distributed branches. It attains a height of 60 to 80 ft. but does not have as large a trunk as the white or red oak. Its bright glossy foliage in summer, which turns to a bright scarlet in autumn renders it the most beautiful of our native oaks. It is splendid to group with trees that have brown and green autumn colors for it is in contrast with these that its greatest beauty is apparent.

Yellow-barked or Black Oak--*Quercus velutina* or
" *tinctoria*.

Leaves pinnatifid, 2 to 5 pairs of lateral lobes, general shape ob-ovate, 3' to 9' long, base truncate, lobes wide

and shallow or narrow and deeply cut, sinuses narrow, rounded and shallow or broad and deep, the broad lobes have small spiny teeth while the narrow ones have prominently spiny teeth, color of medium to dark green, surface smooth or often a wooly-like pubescence on one or both sides of leaf and petiole, petiole yellowish green.

The trunk is usually large and erect or crooked and gnarled. It has a very thick deeply furrowed dark brown outer bark. It attains a height of 40 to 80 ft., has somewhat open, narrow, roundish head with irregular, crooked branches along the large trunk. It is sparsely covered with glossy dark green foliage. It is not especially desirable for ornamental purposes and is seldom planted. In sections where it is native it may be preserved for shade and to give variety of form and color.

American Beech--*Fagus ferruginea*.

Leaves 2 to 5' long, on small, smooth stiff, angular shoots, oblong or oval pointed, base narrow, apex acute, serrate, sparsely plumose, smooth, tough, straight veined.

The trunk of the tree is very smooth and varying from gray to brown in color. Branches long, slender and extending horizontally from the trunk and often nearly to the ground. When grown in groups or singly in the opening, it forms a

dense dark green mass of foliage. The tree is very symmetrical, round, and often flat-topped. It attains a height of 35 to 70 ft. and spreads 25 to 50 ft. Its sturdy character, hardiness and fine mass of foliage render it a desirable tree for large grounds. It is easily transplanted, grows slowly, and roots shallow but it is well worthy of being planted. Another undesirable feature of it is, that it retains its leaves until well into the winter.

American Chestnut--*Castanea vesca*.

Flowers, in erect, slender, axillary catkins, catkins 4 to 7' long, yellow, fertile flowers few, catkins very numerous and quite showy.

Leaves, 3 to 7' long, broadly lanceolate pointed, serrate with coarse, pointed, twisted, prominently spine-pointed teeth, glabrous, deep green, straight veined, veins yellow, petiole short and greenish yellow.

The chestnut is a broad spreading tree, with symmetrical round head and lower branches long, slender, straight and nearly horizontal. In July it is covered with showy slender ~~catkins~~ ^{catkins} of yellow flowers. It is one of our largest trees, and it thrives from Maine to Florida. It is noted for its dignity and grandeur, it has the sturdiness of the oak, together with its fine ^{gl} glossy foliage, its hardiness, rapidity

of growth and longevity. It flourishes on rocky hillsides, but does not thrive on low wet situations. It is one of our finest trees for large grounds. It should not be planted extensively in parks for the trees are liable to be mutilated by boys attempting to get the nuts.

Horse Chestnut--*Aesculus Hippocastanum*.

Leaves large (1 to 2' long), broadly pinnate, leaflets 7, leaflets 4 to 12' long, apex pointed, broad and rounded with narrow wedge-shaped base, finely serrated, veins straight and yellowish green, thin and smooth, petiole 4 to 10' long, stiff and straight, leaves abundant on the ends of stiff shoots.

Flowers white, in large open panicle in early May. It is the beauty and profusion of its flowers that gives it prominence for beauty in early spring.

It has a smooth erect trunk with rather large, straight, short branches coming out at a height of 6 to 15° from the ground and at a wide angle with the trunk, often nearly horizontal. The upper branches have an erect tendency. The branches are densely covered with medium green foliage. The general form is broad with round head, very regular in outline. It is a very fine lawn tree, giving a very dense shade; this latter quality renders it undesirable for street planting. It drops its foliage early in autumn and this would

be one objection to planting it in large numbers. In graceful beauty and regular outline few trees equal it.

Dwarf Flowering Horse Chestnut--*Aesculus parvifolia*.

Flowers in long (6-16'), slender, close terminal panicle; small, tubular, yellowish, corolla small, stamens 2 to 3 times the length of the corolla anthers pink. The panicle having a yellowish-pink color and a feathery appearance.

Leaves digillate, 3 to 7 leaflets, ob-ovate pointed or oblong, crenate, acute apex, base narrow and wedge-shaped, slightly rugose, and dark green above, canescent on under side, thin and tender, size of leaf 8 to 18', the petiole being 4 to 8' long and borne on straight gray shoots.

It is an erect growing shrub 6 to 8' tall and spreading 6 to 12'. It sends up from 6 to 20 straight, strong, smooth shoots, which branch but little except at their ends. The bush is flat topped or nearly so and well covered with medium green foliage. It is one of our most beautiful shrubs when in blossom in July. Its numerous long slender feathery panicles are very attractive.

Rock or Sugar Maple--*Acer barbatum* or
saccharinum.

Leaves, 3 to 5 lobed, base broad and truncate, lobes unequal, acute pointed, auriculate or dentate; sinuses broad, shallow and rounded, surfaces smooth, upper surface of medium

green, under surface light green. Fruits in small drooping panicles, seed vessels rounded, wings nearly parallel, curved inward.

It is a large, erect, spreading tree 1 to 3° in diameter and 30 to 70 ft. tall. Its branches are long, slender, and straight, and its lower ones are nearly horizontal. The tree is symmetrical, round-topped, and densely clothed with medium or dark green foliage.

The maple family is very healthy, has few enemies and grows well on nearly all soils. This maple is of a slower growth than the silver maple, but it is longer lived and has a more rugged character and will thus stand more abuse. This last qualification is very essential for a tree for street planting. Many writers consider it the hardiest and the finest of our maples for ornamental purposes. All of the maples take on very pretty tints in autumn.

White or Silver Maple--*Acer saccharinum* or
dasycarpum.

Leaves in close clusters at ends of small shoots, deeply 3 lobed, lobes with 2 or more small lobes and toothed, sinuses acute and angular, base truncate, color light green above, silvery beneath, smooth.

The tree is broad, spreading, somewhat open and quite

irregular in form. Bark of trunk and branches is smooth.

The lower branches are nearly horizontal and are covered with small, slender, drooping branches. It is a rapid grower and one of our most valuable ornamental trees. It is a very pretty tree its foliage presenting as it does a silvery mass as the leaves are gently rustled in the breeze. It is readily transplanted and is quite hardy. Its foliage does not take on as pleasing tints in autumn as many of the other maples. It should not be planted nearly as extensively as the sugar or norway maple.

Red, Soft or Swamp Maple--*Acer Rubrum*.

Flowers in small clusters on short peduncles two weeks before the leaves appear, scarlet color.

Leaves three lobed or unequally five lobed, base truncate or slightly cordate, lobes pointed and unequally toothed, both surfaces smooth and light green above, pale or silvery below, petiole reddish green.

This tree grows naturally on low wet soils in which location it attains a very large size. ~~and a considerable~~ It thrives very well on rich upland but here it attains a height of only 30 to 40° and is of a broad and somewhat irregular form. Its red flowers are often very abundant and are especially attractive. Its blossoms appear in April and at

this time we have no other deciduous tree that equals it in beauty.

Norway Maple--*Acer platanoides*.

Flowers, yellow, in small erect corymbs, they appear at the same time as the leaves. Leaves, large, blade 3 to 6' x 5 to 10', 5 to 7 lobed, lobes acutely pointed with few long, acute teeth, sinuses shallow and rounded, base truncate or infrequently cordate, smooth, medium green, its veins contain a milky juice. Fruits in small drooping raceme, large seed vessels, wings broad and diverging at a wide angle.

In general form and appearance it resembles the sugar maple very much. It has larger leaves and attains a greater growth. It often attains a height of 60 or 70 ft. and is even hardier and longer lived than any of our native maples. As a tree for street planting it has few superiors. Its foliage takes on brilliant tints in autumn; and it is easily grown and readily transplanted.

Sycamore Maple--*Acer pseudo-platanus*.

Leaves, large, blade 4 to 6', petiole 2 to 3', unequally 5 lobed or cleft, lower lobes small, broad, coarsely toothed with acute apex, sinuses narrow and acute, palmately veined, medium or dark green above, light green below, veins below with a fine yellow pubescence.

Fruits in small open panicle, seed vessel medium size, wings large, spreading, light green tinged with purple.

This is the largest, and one of the hardiest, and most thrifty of maples. It attains a very great size in ^a comparatively short period. It has an erect, compact growth and quite regular form; and throws out strong ascending branches. It is a valuable tree for extensive planting along streets, on large grounds and in public parks.

Ash Leaved Maple or Box Elder--*Negundo aceroides*.

Leaves pinnate, leaflets 3, leaflets oval, ovate or ob-ovate pointed, coarsely toothed, smooth, of bright medium green, on smooth, slender, bluish colored shoots.

Fruits in large slender drooping racemes, seed vessels slender and flattened, at angle of 40° , wings slender, not attractive.

It forms a low, irregular, dense head with nearly horizontal branches. It is hardy, easily transplanted, and makes an excellent growth except in dry soils. It is used quite largely where immediate effect is desired. It produces a good mass of foliage but it is inferior to all of the other maples mentioned. It should not be employed for permanent effect.

Yellow Wood--*Cladrastis tinctoria*.

Flowers in long (8-18') branching drooping panicles,

corolla white, flowers very abundant and large, very strong sweet odor.

Leaves 5 to 11 pinnate, 9 to 18' long, leaflets ob-ovate or broad oval pointed, petiole of leaflets 1/4' long, leaflets smooth, entire, light green, veins yellow.

It forms a round compact head branching low with long, slender, smooth, horizontal branches. Trunk is very smooth and of a light brown color. It gives a thick close shade. In May or early June the tree is entirely covered with beautiful, fragrant, creamy-white flowers. At this season it is indeed a beautiful sight. It is a very beautiful ornamental tree, but until it gets well established it is liable to injury from severe winter weather. It is a desirable tree for planting in small grounds and for this purpose few trees out-rank it.

Cottonwood, Necklace Poplar or Carolina Poplar—~~Populus~~
deltoides^{or} Monilifera.

Leaves broadly deltoid or slightly cordate, pointed apex, sinuate margins, glabrous, thick, petiole flattened near leaf, leaf 3 x 4', hanging pendulous.

This is one of our largest and the most rapid growing of our trees. The trunk varies from 2 to 5 ft. in diameter, tapers very rapidly from the ground and has a thick, rough bark. At 20 to 40 ft. from the ground it throws off large

upright branches. It attains a height of 70 to 80° and has a broad flattened head, spreading 50 to 60°. The branches form a very open head which gives an open shade. The large branches have numerous slender, drooping, brittle branches, which are always moving about in even the most gentlest breeze. It attains its full size in 20 to 30 years. It should be used in parks only for temporary effect. The male trees are preferable for planting as they bear no fruit.

Tulip Tree--*Liriodendron Tulipifera*.

Flowers solitary, at the ends of leafy shoots, large (2-4'), tulip shaped, of a yellowish green color.

Leaves large (6x8'), 3 lobed, end lobe truncate and notched, lobes with blunt point, each lobe with two or more points, of a light soft green, petiole 2 to 4', stipule clasping.

The tulip is a very large, rapidly growing tree. It has a large straight shaft and attains a height of 70 to 120 ft. Few large, angular, horizontal or ascending branches extend out at irregular intervals. It most frequently forms a narrow, open head, but sometimes forms a close head giving a good shade. Foliage large and of a soft pleasing green. In cool moist soil no tree in eastern United States equals it in size. It should be transplanted while young as it has few

fibrous roots. For grandeur we have no tree that exceeds it.

Sargent speaks of it as being an excellent tree for street planting.

Linden, Lime, Whitewood or Basswood--*Tilia Americana*.

Flowers in small open irregular panicle, on a large (3' long), floral Bract, which comes from axils of leaves, bract linear, narrow at base, petioled and yellowish green, flowers small, yellow, very abundant, have a strong sweet odor.

Leaves large (2-7' x 2-6'), broadly and obliquely cordate or truncate at base, apex acute, glabrous, prominently serrate, leaf twisted, medium green.

The trunk is erect and rough barked, branches ascending or lower ones horizontal. It forms a narrow head densely covered with light green foliage and ascends to a height of 50 to 80 ft. It is easily transplanted, grows rapidly on damp soil, will stand pruning well and is a very graceful handsome tree. It is a very good ornamental as well as shade tree. It serves equally well for large grounds, parks and for street planting.

White Ash--*Fraxinus Americana*.

Leaves pinnate, 7 to 9 leaflets, in clumps at the ends on stout gray shoots, leaflets on short foot stalks, ovate pointed or oval pointed, base broad, medium green and glossy

above, light green or silvery beneath.

The trunk is straight, tall, and erect and has a dark gray corrugated bark. It forms a slender narrow head, seldom branching low. It is distinct in form in that it seldom branches lower than 20 to 30 ft. from the ground. When grown singly it forms a round compact head, but when grown in groups it is tall and slender and has a bushy top. Its distinct form aids in giving variety in large grounds.

Kentuckey Coffee-tree--*Gymnocladus Canadensis*.

Leaves twice pinnate, 4 to 6 pairs of second leaf stalks each having 10 to 14 leaflets, one pair of leaflets borne on large petiole, leaf 1-1/2 to 2 feet wide by 1-1/2 to 3 feet long, leaflets ovate or ob-ovate, pointed, 1 to 2' long, smooth, entire, light green. The leaflets are turned edgewise toward the sun.

The trunk is covered with a grayish bark roughened in thin scales, head very open and irregular. Lower branches *are* horizontal and crooked. The branches have but very few branchlets each of which bears at its end three or four large leaves. It grows in deep ~~ly~~ rich soil from Canada to Kentucky where it forms an important part of the forest, and attains a large size. It is very hardy in the north, has a distinct character, and when not in leaf it is very odd indeed, no buds showing on its branches. It is a very valuable tree but

should be planted only in small numbers. Sargent mentions it among a number of other trees for street planting.

Common Locust or False Acacia--*Robinia Pseudacacia*.

Flowers in loose slender racemes, on naked branches, peduncle short ($1/2'$), small, white, and exceedingly fragrant.

Leaves opposite, pinnate, 10-16 leaflets, leaflets oval or oblong-oval, smooth, entire, very dark green.

General form of tree is erect, open, and lower branches nearly horizontal. Trunk and large branches rough with few slender twigs at ends of branches. In the latter part of May the tree is covered with drooping racemes of exceedingly fragrant flowers. The tree has a general picturesque tendency. It is not a very desirable tree for ornamental purposes. It often produces suckers from its roots, its leaves fall early and its trunk is often badly injured by borers.

Garden Oleaster--*Elaeagnus Hortensis*.

Flowers, cruciferous, 1 to 3 in axils of leaves, silvery or yellowish, scurvy, small and inconspicuous but abundant and very fragrant.

Leaves, alternate, entire linear oval, upper side light green with some scurvy spots, silvery scurvy beneath, on silvery scurvy shoots, older wood of reddish brown color.

This is a small bushy-like tree 15 to 30 ft. tall,

spreading with lower branches curving downwards. The foliage is very abundant and of a silvery green. Its abundant delicate foliage pretty form and splendid fragrance renders it a tree valuable for a conspicuous position on the lawn. It is quite hardy and has few enemies.

Double Rose Colored Hawthorn--*Crataegus oxycantha flora-plenorosea*.

Flowers in small close corymbs on short leafy spurs, of light rose color.

Leaves singly on young shoots or in bundles of 3 to 6 on older shoots, 3 lobed, cleft or parted, crenate, base wedge-shaped, terminal lobe often three lobed, smooth, thin and glossy, light green.

It can be grown in the form of a bush but preferably as a tree. It forms a tree 15 to 25 ft. tall and a broad round head. It is often very irregular and open. The small rose colored flowers are very beautiful and fragrant when in bloom in early ~~May~~ May. This is only one of a great number of picturesque or beautiful thorns. Many of the thorns can very profitably be used on rocky hillsides, on broken ground and at conspicuous points about large grounds.

Persian Lilac--*Syringa Persica*.

Flowers corolla spreading with lobes reflexed, tubular

and slender, color lilac or lilac-purple, flowers small, in open, loose clusters, clusters medium size and abundant.

Leaves ovate lanceolate or tapering at the base, medium to dark green above, light green below, smooth, entire, smaller, narrower and more abundant than on the *S. Vulgaris*. It is a coarse compact shrub of regular outline and fine foliage. It does not grow as large as the *vulgaris*, it seldom attains a height of more than 14 ft. and about the same width.

Ronen Lilac--*S. Chinensis* or *rothomagensis*.

Flowers very showy, in short close cluster, corolla open, lips large, red or purplish. Leaves small ($1/2 \times 1'$), ovate, pointed, base truncate or narrow, light green on reddish brown shoots.

This very closely resembles the Persian lilac in form and foliage. It is one of our finest lilacs and should be used to displace a portion of our common lilac.

Josikaea Lilac--*Syringa Josikaea*.

Flowers in slender open panicles corolla with short lobes, light to dark purple. Leaves narrow, ovate, narrow at base or linear oval, margins rugose, and presenting a crenated appearance, dark, glossy green above, light green or silvery below, petiole short ($1/2 - 1'$).

It is smaller and has a more refined nature than *S.*

S. vulgaris. It forms a compact mass of foliage down to the ground. The leaves are of a dark glossy green are erect and seldom injured by the hot sun. Its foliage is of a much more cheerful nature than the common lilac. The fact that it blossoms about one month later than the common form adds greatly to its value.

Siberian Lilac--*Syringa Siberica* var. *alba*.

Flowers--corolla small and slender, very light purple, petal lobes white, in very open loose clusters.

Leaves ovate-lanceolate, dark green above, are larger and broader than in the ~~rouen~~ lilac, and are stiffer and thicker than in the common form..

In form and foliage it much resembles the persian lilac. Its flowers are very light purple and quite distinct in form and color from any of the others mentioned.

Syringa villosa.

Flowers in short, dense, broad panicle, corolla large and prominent, light purple or nearly white, at the same season as the common lilac.

Leaves ovate, ob-ovate or nearly oval, pointed at base, larger (3 to 5' long), rugose, margins with very fine bristles, light to medium green above, very light green or silvery beneath, veins yellowish.

A close tree-like shrub with very pretty foliage. It is excellent to contrast its foliage with other syringias.

Smoke-Tree, Purple Fringe or Venetian Sumach--*Rhus Cotinus*

Flowers abortive, in large open panicles, the pedicels lengthen and branch, and are covered with plume-like hair.

Leaves oval or ob-ovate, 1 to 3' long, smooth, entire, medium green above, light green beneath, prominently veined.

This is a large, coarse, compact shrub, and sparsely covered with leaves. It is the panicles of feathery mist-like flowers that gives the distinct character to the shrub. The large clusters of flowers envelope the whole bush with a yellowish or purplish, fleecy cloud-like mass. It retains this appearance throughout the greater part of the summer. It is most attractive when seen from a distance, and grouped with some other coarse shrubs.

White Fringe--*Chionanthus Virginica*.

Flowers in long, loose, open panicles, long, linear petals, white.

Leaves narrow, oval, pointed at apex and base ~~are~~ narrow ovate or ob-ovate, large, 3 to 6' long, entire, upper surface glabrous, light green and glossy, under surface canescent, soft.

In form it is a compact, oval tree-like shrub 8 to 15 ft.

tall. It forms a rounded mass of rich, dark, glossy foliage, which turns to a crimson in autumn. In June it presents a white fleecy mass of delicate fringed flowers. It has been long in cultivation but is very seldom used. It is worthy of the most conspicuous place on the lawn.

Golden-leaved Elder--*Sambucus Nigra* var. *anrea*.

Flowers in large (4-6') roundish cyme, small, white or yellowish, cymes very abundant and quite pretty.

Leaves pinnate, 5 to 7 leaflets, oval lanceolate or ovate lanceolate, serrate, greenish or greenish golden color.

The elder is a large, roundish, compact shrub 5 to 10 ft. tall and very densely clothed with greenish golden leaves. It is a very pretty shrub in its season affording very good contrast with the light and dark greens. Its foliage is often injured by the hot sun during the flowering period. After blossoming new growth takes place and it loses much of its beauty.

Common or Garland Mock Orange--*Philadelphus coronaris*.

Flowers in cymes or corymbs, small, corolla white, stamens numerous, yellow.

Leaves oblong or oval pointed, with short petiole, sparsely crenate, pubescent.

It is a tall, compact, rounded shrub with abundant foliage. No shrub excels it for profuse display of white, fragrant flowers. It is very hardy, grows rapidly and needs but little care.

A variety of this, the Golden-leaved Mock Orange is a very pretty dwarf. It attains a height of 3 to 5 ft. and is especially attractive for its greenish golden foliage. It may be used as a single specimen or to afford contrast of foliage in groups with viburnums, spireas, berberises, and honeysuckles.

Common Snowball--*Viburnum opulus sterilis*.

Flowers in compound, radiant, pendant cymes, sterile, form a large white ball 2 to 4' in diameter.

Leaves 3 lobed, base truncate, lobes broad and coarsely toothed, of medium green, smooth.

It is a large coarse sparsely leaved shrub 10 to 15 ft. tall. Its large balls of snow-white flowers covering nearly the entire bush makes it one of our finest shrubs, and unquestionably the finest at its season. It is worthy of a position on nearly all grounds.

cranberry Tree--*Viburnum opulus*.

Flowers in flat umbel-like cymes, marginal flowers much larger than the neutral ones, cymes 3 to 5' in diameter, white,

quite fragrant. Leaves 3 lobed, lobes pointed, toothed, margins pubescent, thin, smooth, light green, veins of golden color, petiole reddish green.

This is a very large shrub unless trimmed back, of a tree-like form and may attain a height of 20 to 25 ft. Its flowers are quite pretty but are much inferior to the common snowball. Its large clusters of fine red fruits remain until late in autumn, and at this season it is the finest of the genus.

Bladder Nut--*Staphylea trifolia*.

Flowers in small, slender, drooping racemes; greenish white, with bright yellow stamens, 3 to 10 in each raceme. Leaves pinnate, leaflets three, ovate pointed, crenate, medium green and glossy above, light colored and pubescent beneath, petiole long (2-3') and slender.

This is a large, coarse shrub 8 to 10 ft. tall, with shoots curving outward and downward. The flowers are small and in pretty drooping racemes. The flowers soon fall. The foliage is very sparse, giving the shrub a very open appearance. It is not considered a valuable shrub and is seldom used.

Tartarian Honeysuckle--*Lonicera Tartarica*.

Flowers in axillary clusters on very leafy shoots, small, pink or yellowish.

Leaves oval or ovate, entire, small, base often cordate, 1 to 1-1/2' long, more or less wrinkled and curved, dark green, smooth.

This is one of our largest shrubs, often attaining a height of 12 to 15 ft. When full grown it forms a broad, spreading shrub with long recurving branches often reaching nearly to the ground. It is very hardy, has few enemies and produces a rapid growth. Early in May its small, fragrant, pink blossoms begin to appear, and it continues to blossom for about a month. In July it is loaded with small, scarlet berries, which often remain for a month or more. It has been long in cultivation, is very common in shrubberies and it is attractive at all seasons of the year.

Rose-colored Weigelia--*Diervilla rosea*.

Flowers in loose axillary clusters, corolla long, narrow, tubular, lobed, rose color, calyx lobes lanceolate, green, tomentose, persistent. Leaves ob-ovate pointed, petiole short, large (2-4'), crenate, thick, crinkled, tomentose beneath, dark green foliage abundant.

It is a very pretty, medium sized shrub of spreading habit. It is only half hardy in this locality, being considerably injured in winter, in this locality, but it is considered to be the hardiest of the genus. It should be planted in a protected location.

Common European Barberry--*Berberis vulgaris*.

Flowers in drooping, many flowered racemes, very small, yellow.

Leaves compound, petiole very short, in the axils of sharp stiff spines, leaflets 5 to 9, ob-ovate spatulate, margin with small sharp spines, leaflets $1\frac{1}{2}$ to $1\frac{1}{2}$ ' long, dark green.

This is a medium sized shrub of erect form with long recurving shoots, and is of symmetrical oval form. It is sparsely covered with dark green foliage. The flowers are very pretty and quite abundant. It is not nearly as attractive as the purple-leaved variety. It is very hardy and makes a rapid growth.

Purple Leaved Barberry--*Berberis vulgaris* var. *purpurea*.

Flowers in small, drooping, many flowered racemes, small, sepals purple with yellow margins to lobes, corolla yellow.

Leaves in small bundles in axils of branched spines along the axis of young shoots, ovate, margins spiny, purple or greenish purple color.

The chief difference between this and the species is the color of foliage and flowers. The foliage has a fine dark purple color and the flowers and fruits are colored somewhat differently. The fruits are quite pretty and they remain until late autumn. The value of this shrub lies in its color.

For grouping with the various shades of green and the golden tints it is ~~very~~ excellent.

Japan Quince--*Cydonia Japanica*.

Flowers in small axillary clusters on short, stout spurs, large, conspicuous, bright red, very abundant.

Leaves oval or ob-cordate, serrate, thickish, smooth, very glossy, dark green.

This is a large, broad, spreading shrub with part of its branches recurving and drooping. It attains a height of 8 to 10 ft. and spreads 10-14 ft. There is no early flowering shrub that equals it in profuseness of brilliant flowers. It is among the first to blossom. Its flowers appear before the leaves, they are of a dark red color and are produced in great abundance. It has but little beauty at other seasons of the year.

Japanese or Ramanas Rose--*Rosa rugosa*.

Flowers large (2-3'), single, petals of purplish scarlet or white, calyx lobes linear lanceolate, persistent, tomentose, light green.

Leaves pinnate, 7 to 11 leaflets, leaflets oval or ovate, margins crenate, rugose, glossy, dark green above, lighter and tomentose beneath, stipules large, crenate, light green.

It is an erect, open shrub of medium size, attains a height of 3 to 6 ft. It has very pretty dark green foliage, which is produced in abundance and maintains its beauty throughout the season. It is one of the few roses that has no insect or parasitic enemies. It continues to blossom for nearly two months, producing fine large buds and an abundance of very pretty roses. The hips are very large, they turn to a red color and remain until late in autumn. This shrub is valuable for its healthy foliage, hardiness and for the continued beauty of its foliage, flowers and fruits.

Spiraea Thunbergii.

Flowers in small umbels along the slender spray-like shoots, white, very small, very early.

Leaves linear lanceolate, sharply crenated, small, yellowish green.

This is a small close growing shrub 3 to 5 ft. in height. It is the earliest of the spireas, often blossoming by the twentieth of April in this locality, and it produces an abundance of delicate white flowers. Its foliage is very soft and picturesque. This is one of the finest of our small shrubs, it being attractive throughout the season.

Plum-leaved Spiraea--*Spiraea prunifolia* fl. pl.

Flowers three to five in sessile umbels, double, white,

very abundant, closely arranged along the shoots on short pedicels.

Leaves ovate-oblong, finely and sharply serrated, thin, glossy, smooth, of medium to dark green color.

This is one of the early flowering spiraeas, its blossoms appearing in early May, a few days later than the Thunbergii. It is hardy, and is pretty at all seasons of the year. Its foliage is of a delicate glossy green in spring, it later changes to a dark green and in autumn to a deep red color. In size it varies from 3 to 7 feet.

Spiraea trilobata.

Flowers in sessile umbels on closely leaved shoots, from 10 to 30 in each umbel, small, white, extremely abundant.

Leaves wedge oblong or on young shoots large, broad, three lobed, and lighter green, 5 to 7 toothed at end, thin, dark green above, light green beneath.

Of all the spiraeas in cultivation there is none more extensively used than this. It is very hardy as is nearly all of the genus, thrifty and rapid growing. In form it is broad, round topped, spreading with long slender recurving shoots. It spreads from 6 to 12 feet and is 4 to 7 feet tall. Its foliage is of a bluish tint or of a dark green and very abundant. It has a perfect bank of snow-white flowers when in

bloom. It is one of our best shrubs for extensive use and no collection of shrubs is complete without it.

Spiraea Crenata.

Flowers in umbel-like corymbs, on leafy shoots, corymbs not so numerous as in *trilobata*, white.

Leaves ovate, 1-1/4 to 2' long, crenate, light green, thin.

This is a compact, low, regular, densely foliated shrub. It is a very good shrub but it has many superiors.

Spiraea lanceolata.

Flowers same as *crenata* except smaller.

Leaves linear or linear lanceolate, crenate, of medium green color.

In form and habit it is a low and spreading shrub with straight shoots. The foliage on the young shoots is light green and often of a golden color. It blossoms at about the same time as *trilobata*. It has an abundance of flowers and a graceful habit. It is considered one of the finest shrubs in cultivation.

Golden-leaved *Spiraea*--*Spiraea opulifolia* var. *aurea*.

Flowers in short close panicles, pedicels situated close together on the rachis, a rounded cluster of small white flowers.

Leaves large, blade of leaf 1 to 4' long, broad, coarsely crenate, color golden green above, especially on the larger leaves, light green below, veins green.

Few shrubs have a brighter and prettier golden colored ~~leaves~~ ^{foliage} than this at its blossoming period. It is of medium size, varying from 3 to 8 feet high, and of strong rugged growth and hardy. It is one of the most cheerful and pleasing shrubs grown. It is excellent to group with shrubs having green and purple foliage, and is also well suited for use as a single specimen in an opening to enliven the surroundings.

White Pine--*Pinus strobus*.

Leaves-indeterminate, 5 leaves in each sheath, sheaths small or wanting, needle shaped, 2 to 5' long, triangular, very slender, bluish or silvery green to dark green.

This is one of our largest forest trees, but on open grounds it attains a height of only 60 to 100 ft. It is irregular in form with distinctly stratified branches. The bark of the trunk is rough and dark brown. Its branches are long, slender, and horizontal or drooping slightly. It is of irregular pyramidal, and its trunk tapering gradually from the ground. We have no pine in cultivation in this section, that equals it in hardiness, picturesqueness, and beauty of foliage. Few trees are better adapted for general ornamental

purposes. It should not be planted on wet or heavy clay soils unless the ground is underdrained.

Scotch Pine--*Pinus sylvestris*.

Leaves, 2 to 2-1/2' long, twisted, semicylindrical, 2 in each sheath, stiff, sharp blunt point, of a dull, silvery or bluish green, on strong greenish shoots.

In form this has a short rounded head, quite regular in outline and of a general smooth appearance. It frequently has a more slender form and is quite irregular. Branches are stout, irregular and well clothed. The bark of its trunk is rough and of a reddish or brown color. It usually attains a height of 30 to 60 ft. It grows rapidly in nearly all soils and is very hardy. It is not a tree of especial beauty, its foliage being of a dull bluish green, but it is quite extensively used. For beauty it is much excelled by both the white and Austrian pines. In its native home or where it takes on the picturesque form it is a very desirable tree.

Austrian Pine--*Pinus Austriaca*.

Leaves, two in each sheath on stout shoots, 3 to 6' long, semi cylindrical, very stiff, sharp points, arranged in close bunches at end of branches.

Cone conical, 3' long, scales smooth, in clusters of two or three.

The bark of the trunk and branches is light to very dark brown, rough and scaly, and the young shoots are of a yellow color.

The branches are arranged in whorls 1-1/2 to 2 ft. apart, and extending horizontally or drooping slightly and curving up at the tips. The branches are large and strong, and have very large buds at the ends of the twigs. These buds are larger and more prominent than in any of the other pines. In shape the tree when young has a conical form while the older specimens are round headed or ovate. This is one of the largest of the European pines often attaining a height of 50 to 60 ft. and sometimes 90 ft. This is a very hardy species, it is even more hardy than the white pine as it does well even on the heaviest clay soil. It grows very rapidly and is well suited to general planting. It has none of the beauty, delicateness and airy nature of the white pine.

Mugho Pine--*Pinus Mugho*.

Leaves two in each sheath, 2 to 3' long, stiff, with dull points, semi-cylindrical, dark green, on small shoots.

Cone 1/2 to 1' long, scales few and rough, in clusters of two or more.

It forms a low, broad, round head from 6 to 12 ft. high and often 15 ft. in breadth. The branches are very close together, making it a dense bush rather than tree. It often

sends up several central shoots. It has a rich dark green color, is very hardy and is more extensively used than any other dwarf pine. It is one of the best evergreens for small grounds.

Red or Norway Pine--*Pinus resinosa*.

Leaves, 2 in each sheath, 5 to 8' long, in compressed clusters at ends of twigs, closely set on the branch, inner side of leaf slightly hollowed, not stiff, very dark green.

Cone 1-1/2 to 2-1/2' long, in clusters, scales not armed.

The tree gets its name from the distinct red color of the trunk. In form the tree is often conical with an ovate base and is quite irregular. It sends out large, horizontal, irregular branches in whorls 2 to 5 feet apart. In size it is somewhat smaller than the white pine. It is a native pine of strong and vigorous growth. It has a coarse, and open appearance. Nearly all writers consider this an inferior tree for ornamental purposes but in Michigan it does exceedingly well and is one of our finest pines. For artistic beauty I should consider it better than the Scotch or Austrian.

Dwarf or Mountain Pine- *Pinus pumilio*.

Leaves two in each sheath, slightly diverging, stiff, 3 to 3-1/3' long, twisted, semi-cylindrical, very close together, medium to dark green or silvery cast.

This is a low creeping shrub spreading from 10 to 30 ft. in diameter and only 2 to 4 ft. in height. It is sometimes of a bushy nature but is more frequently of the creeping habit. It is well suited for rock work or for the border of large groups of pines.

Swiss Stone Pine--*Pinus cembra*.

Leaves in bundles of 5, sheath obscure, 1-1/2 to 3' long, triangular, soft and flexible, dark in winter, in summer of a bluish cast, in close bunches at ends of large flexible twigs.

The bark of the trunk and branches is smooth and of a light brown color. The branches are coarsely branched and slightly ascending. In shape it is erect, conical and slender. It is a slow, close growing tree, regular in outline and symmetrical. It attains a height of 20 to 40 ft. It is very hardy and of slow growth. Its lower branches retain their foliage and vigor even until the tree is mature. It has a characteristic grace, and for beauty it has few equals among the pines.

Norway Spruce--*Picea excelsa*.

Leaves 1/2 to 1' long, medium green, four sided, stiff, thickly set on twigs.

Cone 4 to 6' long, cylindrical, smooth, tapering at both ends.

The branches are thickly set on the tree and are horizontal or drooping gracefully. In good soil it attains a height of 60 to 90 ft. but by pruning back it can be kept back so that it may be used in small grounds. In form it is slightly irregular but it conforms closely to a narrow conical. It is probably the most universally cultivated of the evergreens. It presents a graceful appearance at all stages of its growth and at all seasons of the year; but it should be understood that it often has a somber appearance in old age which renders it unfit to use in very large numbers. Some of the weeping varieties are especially beautiful in May and June, when the foliage is of a light green or bluish cast.

White Spruce--*Picea alba*.

Leaves $1\frac{1}{2}$ ' long, four sided, slender, blunt but sharp pointed, curved, medium or silvery green.

The young shoots are of a grayish color. When the leaves are crushed in the hand they give off a pungent odor. Branches are horizontal with the ends curving upward, and they are very rigid and with many fine branchlets. It is a tree having a perfect, conical form and attains a height of 30 to 50 ft. It preserves its dense mass of silvery or bluish green foliage, well with age, it is very hardy and grows well throughout all of the northern states. It is very formal in outline but its delicate color gives it grace and beauty.

It is not nearly as desirable for extensive use as the norway spruce.

Colorado or Silver Spruce--*Picea pungens*.

Leaves $1\frac{1}{2}$ to 1' long, slender, stiff, needle pointed, extending radially from the branchlets, incurved, medium to light green above, silvery beneath.

The branches are stratified and thickly set on the tree, and they are stiff and covered with many branchlets. In size it varies from 40 to 75 ft. It is one of the most beautiful spruces, it is a native and is adapted to widely varying conditions, but it seldom does well in a dry climate. It presents a compact conical form and maintains a beautiful bluish green color throughout the season. It is of rather slow growth. In June it is the prettiest of the silver spruces, and there is no evergreen shrub that excels it in beauty when it is about 4 to 10 ft. tall.

Oriental Spruce--*Picea orientalis*.

Leaves $1\frac{1}{4}$ ' long, four sided, blunt, very thickly set on the branches and twigs, of a dark rich green.

The branches are small but are stiff, and are very finely branched at the end. The twigs are also very much branched, and are densely clothed. It is a small, erect, conical tree, quite regular in outline, and attaining a height of 20 to 40

feet. It is a very pretty tree with a dense mass of pleasing foliage. It is not as hardy as many of the other species. It is used only in a very limited amount.

Douglas Spruce--*Picea Douglasii*.

Leaves $3/4$ to 1' long, thin, blunt, flat, arranged radially around the branchlets, soft, light to dark green.

The bark of the trunk is of a brown color and smooth while the young twigs are of a reddish cast. The branches have a graceful downward sweep with a curve upwards at the ends, and they are limber and sway gracefully in the wind. The branchlets are drooping, presenting a feathery appearance. In spring the twigs terminate with very pretty, red, ovate conical buds. The tree has an erect, slender, irregular outline, and somewhat open branches. In California its native home it attains a great size but east of the Rocky Mountains it seldom exceeds 50 to 80 ft. in height. It is hardy in most sections and does well in all situations except low wet places.

It has a soft rich foliage, and is one of the most beautiful and graceful of the evergreens. It should not be planted in large numbers; but no collection is complete without it.

Balsam Fir--*Abies balsamea*.

Leaves $1/2$ to $3/4$ ' long, flat, blunt at tips, arranged closely on the twigs, quite decidedly flattened in two ranks,

medium to light green with silvery stripes beneath.

The branches are smooth, slender, stiff, and extending horizontally. The young twigs are covered with a dense, fine, light brown pubescence. It is an erect, conical tree with dense silvery green foliage. It is very stiff and formal having but little natural grace. When young it is very beautiful, but when it approaches a height of 30 or 40 feet it is sure to take on a gloomy aspect. It is not hardy, and is seldom used by skillful gardeners.

Nordmann's Silver Fir--*Abies Nordmannii*.

Leaves $1\frac{1}{2}$ to 2' long, flat, broad, toothed at the point, thin, a light glossy green, flattened into 2 ranks, soft, silvery stripes beneath.

The branches are prominently stratified and curve upward at the ends. The prominently stratified appearance comes from the flattening of the branchlets and twigs on the branchlets into two ranks. It has a very regular pyramidal form, and reaches a height of 40 to 70 feet. It is one of the most beautiful of the silver firs. It is hardy, and produces pleasing effects at all seasons of the year and in all stages of growth from five to thirty years after planting.

Hemlock Spruce--*Tsuga canadensis*.

Leaves, $1\frac{1}{2}$ to $3\frac{1}{4}$ ' long, two ranked, flat, thin, petioled, blunt at tip, medium green above, grayish beneath.

Cones, $3/4'$ long, ovate, scales thin, regular, entire, of a reddish cast, drooping from branchlets.

The bark of the trunk is of a dark brown color, and roughened by small thin scales. The branches have many, fine, slender, drooping branchlets, and are of drooping nature. When grown in light soil it forms an open, airy, slender tree, but when grown in rich humid soil it presents a compact form which is not so delicate yet very graceful and more in keeping with its natural form. It is a native of this state, and is very hardy. A natural grove of hemlocks is a very pretty sight. It is an excellent tree for rocky hillsides and for bleak exposures. It is often of very picturesque form. It attains a height of 40 to 70 feet.

American Arbor-vitae--*Thuya occidentalis*.

Leaves, scale-like, imbricated, blunt pointed, on flat branchlets, small gland near apex, light green or greenish yellow.

Cone $1/4$ to $1/3'$ long, oblong, scales thickened, no points, 5 to 9 in number.

The branches are slender, horizontal or nearly so, rather stiff, with many small branches arranged in two ranks. It attains a height of 20 to 40 feet. It forms an erect pyramidal tree with narrow rounded top. Its foliage is of a dull green varying but little with the season, It is much inferior

to the firs and spruces as an ornamental tree. There are a large number of dwarf varieties of it that are desirable for planting. The golden and the heath-leaved varieties are two of the best. Parsons says of the Thuyas "They are more lovely in winter than in summer, yet their winter tints are dull and uninviting."

Plume-like Retirisporea--*Thuya plumosa*.

Leaves, $1/8'$ long, narrow acute, bract-like, light green above silvery white on under side of branches.

The branches are open, spreading, nearly erect, slender, with many; fine, two ranked branchlets presenting a beautiful plume-like appearance. It grows to the height of 5 to 12 feet and has an ovate conical form. Its foliage is of a beautiful delicate green. It grows rapidly but is not very hardy. It has several hardy dwarf varieties that are worthy of cultivation.

Red Cedar--*Juniperus Virginiana*.

Leaves $1/12$ to $1/6'$ long, very small and scale-like on young shoots, on older branches awl shaped. On some of the young shoots the leaves are awl-like, and spreading from shoots.

On the older branches and the trunk the bark is thin and scaly, and of a reddish brown.

The branches are horizontal, stiff, slender, straight and with many small branchlets. It is of pyramidal habit, regular in outline and growing from 20 to 60 feet high. When young it is of a compact form with dense foliage, which is of a soft, pleasing, light green color; but when it reaches a height of 15 to 20 feet it becomes more open, slightly irregular, and the foliage takes on a brownish cast. It is exceedingly hardy in the northern states, thriving well in any soil or exposure, in bright sunlight and in shade. It is admirably adapted for use as a wind brake.

Irish Juniper--*Juniperus Hibernica*.

Leaves $1/4$ to $1/2$ ' long, in whorls of three's, slender, stiff, needle pointed, curved slightly, medium green beneath, striped with silvery white above.

The branches are slender and erect. It is erect, very slender, spire-like, and has a very beautiful silvery green color in summer, which changes to a brownish cast in winter. The Irish Junipers are among the most beautiful of the junipers, and they are hardy. They are most attractive in winter when their spire-like forms peer above the snow. They need protection in winter but as this is the time when we enjoy their beauty most, they are seldom protected. Their chief use is to give variety to form.

