Henry E. Reed

LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, 1904

THE FOREST WEALTH OF OREGON

BY EDMUND P. SHELDON

PRINTED BY DIRECTION OF THE LEWIS AND CLARK EXPOSITION COMMISSION, PORTLAND, OREGON
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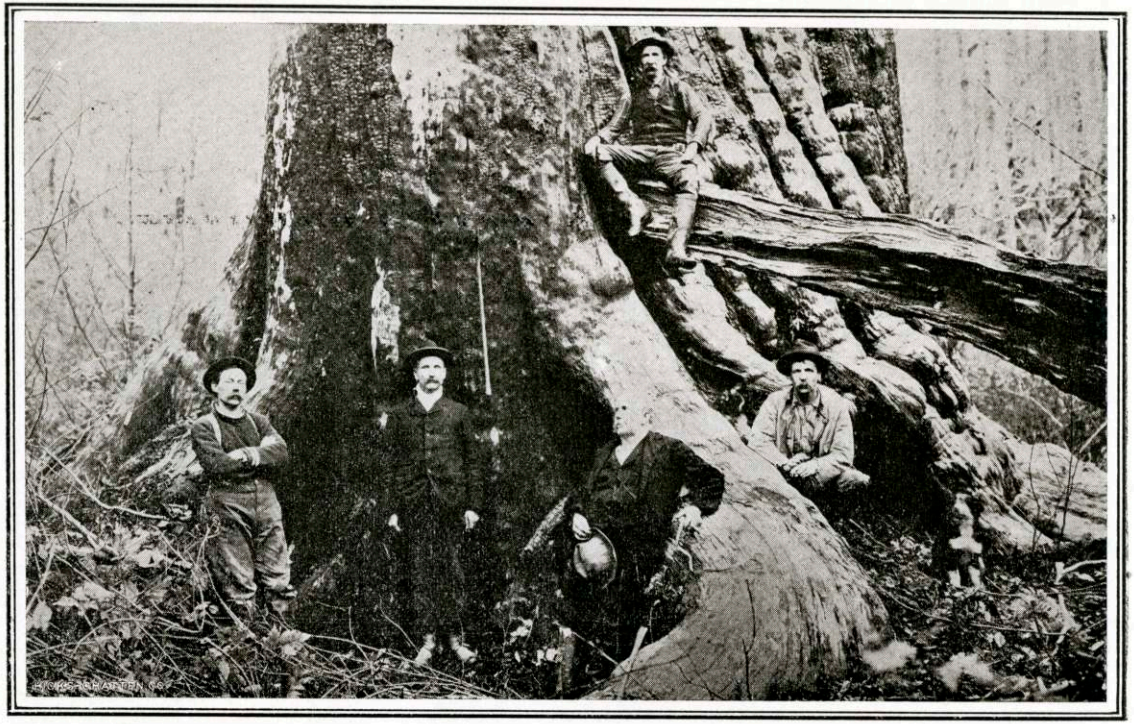

The Largest Tideland Spruce in the World

Diameter 30 feet. This tree grew in Clatsop County, Oregon

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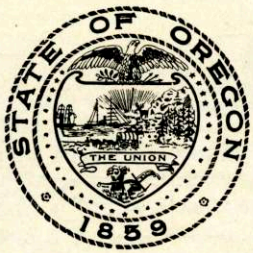

SALEM, OREGON

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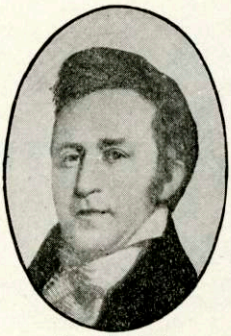
1904

LEWIS AND CLARK'S EXPLORATION

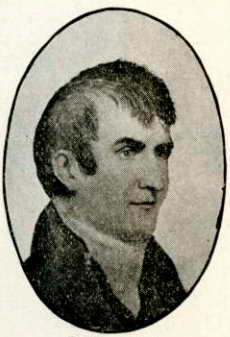
Its National Achievement



Meriwether Lewis.

CAPTAINS MERIWETHER LEWIS and WILLIAM CLARK were the first Americans who reached the Pacific Ocean overland. They headed an expedition sent out by President Thomas Jefferson in 1803, which reached the mouth of the Columbia River in 1805. The Pacific West will celebrate at Portland in 1905 the CENTENARY OF THIS NATIONAL EVENT with an American-Pacific Exposition and Oriental Fair.

The discovery of the Great River of the West by Captain Robert Gray in 1792 and the expedition of Lewis and Clark in 1803–6, added to our National domain a region equaling in extent the whole of the States of the Union east of the Mississippi and north of the Ohio and Potomac rivers. It is a region destined to be the seat of a population of twenty millions within this century.



William Clark.

The original "Oregon Country" now contains three of the States of the Union—Oregon, Washington, and Idaho—and very extensive parts of Montana and Wyoming. It was the acquisition of this region that GAVE THE UNITED STATES ITS FIRST FOOTING ON THE PACIFIC OCEAN and opened the way to our great continental development. In political importance the acquisition of the Oregon Country stands among the greatest events in our National history.

For further information address

BUREAU OF PUBLICITY
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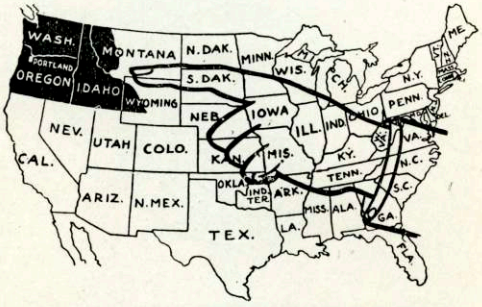
PORTLAND, OREGON, U. S. A.

The Original "Oregon Country."



Lewis and Clark won it for the U. S. in 1805.

CLIMATE.

OREGON presents climatic conditions that are healthful and pleasant. It is a region where sunstrokes, blizzards, cyclones, tornadoes, and thunder-storms are unknown; a region where crops never fail; and which, when the world knows and appreciates its resources will be, yes, certainly is destined to be, the site of the greatest, grandest, most populous civilization on the globe. The two main climatic divisions of the State are Eastern and Western Oregon. The Cascade Mountain Range is taken as the dividing line between the two, although it is by no means in the center of the State. The two factors of temperature and precipitation are, in the case of Oregon, both peculiar and favorable. The Japan Current, or *Kuro Siwo*, is a warm stream moving across the entire North Pacific Ocean in an easterly direction. Its warming influence is so potent that the climatic conditions of the entire coast, from Alaska southward, are affected by it. The warm clouds from the Pacific Ocean striking the western coast of the State shed their moisture over Oregon's magnificent fir forests and drift eastward until they reach the Cascade Mountains, when their career is often terminated by the precipitation of snow on these Alpine heights. The genial warmth of the Japan Current so regulates the temperature of Western Oregon that extreme cold in winter and extreme heat in summer are almost unknown. According to the reports of the State Weather Bureau at Portland, an average of twenty-five years' records shows the mean temperature to be 53°, the highest recorded 102°, the lowest 2° below zero, and the annual precipitation to be 45.85 inches. In the major portion of Western Oregon green grass is to be found the year round, and in Portland roses bloom in the door-yards nearly every month in the year. From the point of view of the botanist or nature-lover it is an ideal locality, as there is not a month in the entire year but what one can find plants in flower or fruit, and the growth of fruit, shade, ornamental and forest trees is continuous. Lettuce, radishes, turnips, and onions can be sown, grown or harvested at any time. Portland and its vicinity has the reputation of having an excessive rainfall, but, according to the reports of the United States Weather Bureau, it has less rain than any state bordering on the Gulf of Mexico, and but little more than most Eastern States. Considering that portion of the State which is east of the Cascade Mountains, we

resources. From this time on until the coming of recent botanists there was a lull in the development of scientific knowledge of Oregon's wonderful woods, but during this scientific lull, Oregon, from a political, social and industrial point of view, took long strides forward. After the first government recognition of the name Oregon, which was on July 5, 1843, Oregon adopted a provisional government and organic laws. Portland is founded by Lovejoy and Pettygrove. Universities are founded. Oregon becomes first a Territory, then a State. A great tide of emigration sets in. A State university and agricultural college are founded. Navigation increases and a growing commerce springs up. Sawmills and factories are established, and on September 11, 1883, the Villard celebration was held in Portland in honor of the completion of the Northern Pacific railroad. From that time to the present day nothing has impeded Oregon in her onward march toward civilization. After the completion of the railroads, scientific men began anew their efforts to exploit Oregon's wonderful resources. And thus we find such indefatigable workers as Thomas Howell, who began collecting Oregon plants in 1876; began writing his Flora in 1882, began printing it in 1896; and on August 10, 1903, completed his work, which is the most valuable treatise on the trees, shrubs and herbs of the Pacific Northwest that has ever been issued. Mr. Howell's valuable collections have been secured by the State University at Eugene, Oregon, and are thus to be permanently preserved. Mr. Andrew J. Johnson, although not a scientific botanist, was one of the most thorough nature lovers the Pacific West has ever had. He was an excellent timberman, and was the first to traverse and make a complete report to the United States Government of the actual amount of timber, brule and cleared land in the State of Oregon. It was through his active field work that the present forestry map of Oregon was completed by the U. S. Geological Survey, and it is due to his energy in collecting and presenting to the world, specimens from Oregon's forests at the different World's Fairs and Expositions during the past twelve years, that Oregon's forests have now become so widely known. The State of Oregon suffered a great loss in the death of Mr. Johnson, which occurred at Portland April 19, 1903. Oregon owes much to the efforts of Wm. C. Cusick, the veteran botanical collector, who has traversed the Eastern two-thirds of the State many times during the last twenty-five years. His collections are known in all the botanic centers of the world. Mr. Martin W. Gorman came to Oregon in April, 1885. Since that time he has been actively engaged in studying the forests of the west. As a most active member of the

Mazamas he has explored the mountain fastnesses of the entire Pacific Coast. His collection of Oregon plants is one of the most valuable in existence. Mr. Gorman has been engaged in Government work in the Washington Forest Reserve and Alaska. As the Secretary of the Oregon Forestry Association he has acquired an incomparable knowledge of the forest and floral resources of Oregon, and has furnished an immense amount of the information now current regarding Oregon plants. The work of many other collectors and students of Oregon's trees might be mentioned. The names of Henderson, Hammond, Bolander, Drake, Dickson, Spaulding, Nevius, Craig, Lake, and Joseph Howell will always be remembered among those whose efforts have helped onward the knowledge of Oregon's magnificent forest resources.

OREGON FORESTS AS A RESOURCE.

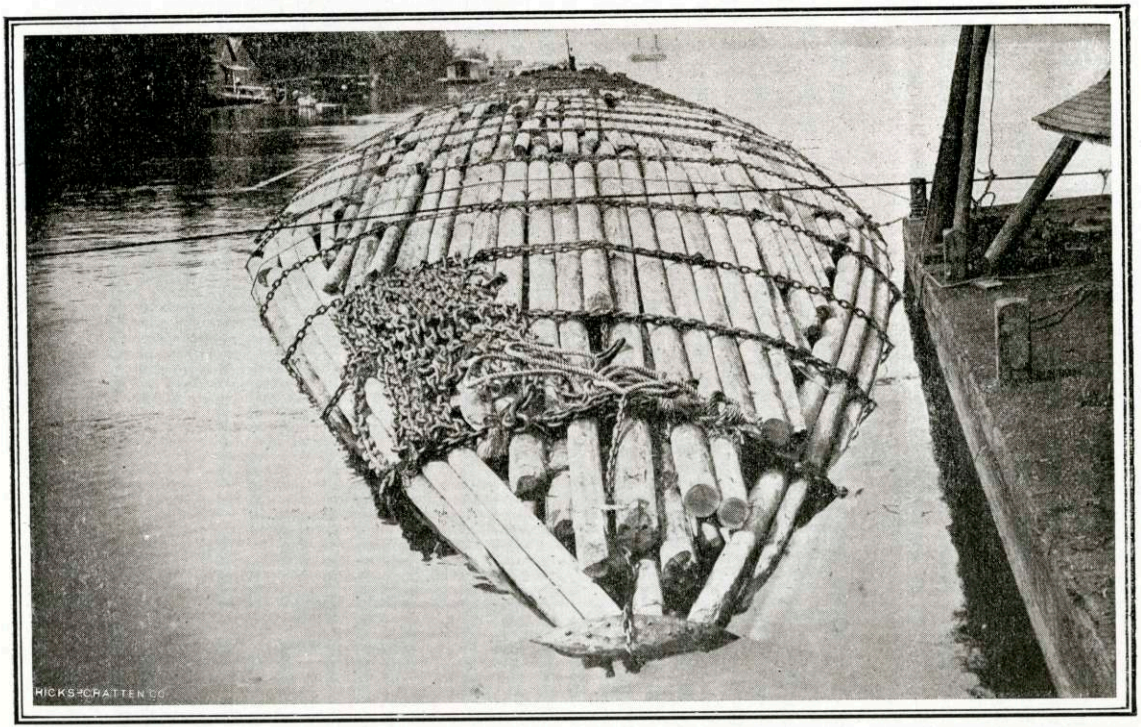
The State of Oregon has approximately three hundred billion feet, B. M., of standing timber according to the average of the estimates made by different timber men and experts who have made the matter a thorough study. This is a much greater amount than is possessed by any State in the Union, and is nearly one-sixth of the total amount of standing merchantable timber of the United States. The value of this immense body of timber is twofold: First, as a source of lumber supply; second, as a factor in the maintenance of a perpetual flow of water in the streams and rivers of the State, by retarding the melting of the snow and holding a continuous supply of moisture in the ground during the summer months. Other minor uses of forests are as a fuel supply, and as a source of ornamental trees and shrubs, and in the production of medicinal and edible products useful to mankind. Commercially, the value of the standing timber of Oregon when manufactured into lumber and sold at the rate of $12 per M. would be $3,600,000,000, a sum in excess of the total amount of money in currency in the United States at the present day. The most densely timbered area in the State is west of the Cascade Range. This is due to more humid conditions, favorable to rapid and abundant development of plant life. Thus we find that eighty per cent of the total stand of timber is found on an area which is thirty per cent of the total area of the State. The average stand of timber on the forested area west of the Cascade Range is 17,700 feet, B. M., per acre. Localities where the stand is 50,000 feet per acre are common, as in portions of Clatsop, Tillamook, Polk, and other coast counties.

Turning for a moment to a consideration of the principal trees of

Oregon, we find that the Douglas fir, the most valuable tree of the Pacific Coast, and one of the world's greatest trees, is the dominant species. It furnishes eighty per cent of the merchantable timber west of the Cascades, and sixty-six per cent of the total timber of the State. The western hemlock, that valuable but little appreciated western tree, furnishes one of the most beautiful finishing woods in existence, and forms five per cent of Oregon's timber. The giant tideland spruce, which grows up to twenty feet in diameter, furnishes another five per cent of the State's available supply of timber.

The lumber industry at the present time is one of Oregon's chief sources of revenue. The total output in sawed lumber for the year 1903 was about 1,000,000,000 feet, B. M. The value of this output was $12,000,000. Besides this, the State had an output of forest products in the form of logs, poles, hardwood, wood for veneering, ties, cordwood, etc., valued at $12,000,000; of paper and wood pulp valued at $2,000,000; of trunk materials valued at $50,000; of boxes valued at $250,000; of shingles valued at $300,000; and cascara bark valued at $100,000. This would make a total of $26,700,000 as the value of the output of Oregon forests during the year 1903. Oregon ships the longest squared timbers in the world; sticks 125 to 150 feet long are often cut in the mills at Portland and at other Willamette and Columbia river points. Portland holds the record for shipping more large lumber cargoes than any other port in the world. One company dispatched seven vessels with cargoes of 2,500,000 feet during 1903. The largest of these ships carried 3,634,495 feet.

A glance at the number of sawmills in the State shows a total of 457. Considering the present condition of the lumber market, this is certainly enough at the present time. Besides this, there are many wood-consuming mills manufacturing shingles, sash, doors, boxes, veneering, boats, furniture, broom handles, matches, and all the necessary articles of civilization of which wood is primarily the constructive material. From any point of view we consider the forests of Oregon, whether from their magnitude when out in their seemingly interminable depths, or a sober study of reliable estimates of the timber they contain, or from watching the immense logs being cut into lumber in the most modern mills in the world, we can come only to the one conclusion, that Oregon's matchless forests are to be a source of wonderful wealth in the future.



Raft of Oregon Logs, constructed at Westport, Oregon

Towed to San Francisco by way of the Pacific Ocean

LIST OF THE FOREST TREES AND LARGER SHRUBS OF OREGON.

The large number of valuable trees useful for many special purposes has called forth the following account of Oregon's trees, with especial attention to the description of the woods, their use, and the area in the State over which each species occurs. A few are included that, while not strictly trees, sometimes attain to that dignity, and are important from an ornamental or medicinal point of view. The total number of species enumerated is 95, which is more than any other separate list of Oregon trees has contained. This is due to recent botanical activity and to the inclusion of the tree willows, which have hitherto been sadly neglected. This is the first list published in which an attempt has been made to give descriptions of the wood characters of Oregon trees. These characters are a result of careful study of the woods in the Oregon State collection gathered for exhibition at the Louisiana Purchase Exposition and the Lewis and Clark Centennial Exposition. The range given for each species refers only to the State of Oregon.

SUGAR PINE.

(*Pinus Lambertiana Dougl.*)

The sugar pine is the largest and one of the most valuable of all the pines. It grows 100 to 300 feet high and 12 to 20 feet in diameter; leaves 3 to 5 inches long; cones 10 to 18 inches long; seeds edible; heartwood pinkish brown; sapwood cream-white; coarse, straight-grained and compact, but soft, light, and easily worked, often curly or spotted.

Use: Lumber, interior finishing, sash, doors, blinds, oars, etc.

Range: Marion, Linn, Lane, Douglas, Klamath, Josephine, and Jackson counties. The last two mentioned containing the largest quantities of this tree. It grows best at high elevations and yields a sweetish substance, which gives it the name of "Sugar Pine."

WESTERN WHITE PINE.

(*Pinus monticola Dougl.*)

This is a very graceful and valuable pine. Its habit of maintaining its diameter well upwards and its freedom from limbs makes it an ideal lumber tree. It grows 100 to 200 feet high, and 1 to 6 feet in diameter; leaves 2 to 4 inches long, in fives; cones narrow, smooth, 5 to 12 inches long; heartwood light brown or red; sapwood whitish; straight-grained, compact, light and soft.

Use: Lumber, inside finishing, sash, doors.

Range: In the Cascade, Blue, and Wallowa mountains.

FINGER CONE PINE.

(*Pinus monticola Dougl. var. digitata Lemmon.*)

A variety of the above, which is smaller, with thick, dark bark, and clusters of small cones about ¾ to 1 inch thick and ¾ inch long.

Use: Lumber, fuel.

Range: Along the sea coast, extremely rare.

ROCKY MOUNTAIN WHITE PINE.

(*Pinus flexilis James.*)

A stout sub-alpine tree, with a short, stout trunk 40 to 80 feet high, and 1 to 5 feet in diameter; leaves 4 to 5 inches long, in fives; cones oval to sub-cylindrical 3 to 10 inches long; heartwood yellow, turning red on exposure; sapwood white, close-grained, compact, with numerous medullary rays.

Use: Lumber, fuel. It is the principal timber tree of Utah and Nevada.

Range: So far as known it occurs only on the north slope of the Wallowa Mountains.

WHITE BARK PINE.

(*Pinus albicaulis Engelm.*)

White-barked, alpine pines, forming the extreme tree limit on the highest mountains, 15 to 30 feet high and 2 to 3 feet in diameter; leaves 1½ to 3 inches long, in fives; cones oval to globular, purplish, brown, 1½ to 3 inches long; wood light, brown, with thin, nearly white sapwood.

Use: Fuel. The Indians and the Clark's Crow use the seeds extentensively for food. Not now used for lumber, because of its inaccessibility.

Range: Around the snow lines of perpetual snow peaks in the Cascade and Wallowa mountains.

BALFOUR PINE.

(*Pinus Balfouriana Jeffrey.*)

Sub-alpine trees, 30 to 90 feet high, 1 to 5 feet in diameter; leaves 1 to 2 inches long, five in a fascicle; cones oblong, nearly smooth, with very small prickles, 3½ to 5 inches long; wood yellowish, with dark-colored bands of small, resinous cells, light, soft, close-grained, brittle, with a satiny surface, susceptible of a high polish.

Use: Cabinet work, fuel.

Range: Reported to occur in the Siskiyou Mountains, Southern Oregon.

WESTERN YELLOW PINE.

(*Pinus ponderosa Dougl.*)

This is a widely distributed, variable and valuable timber tree. It grows to a large size, 200 to 300 feet high, and 5 to 15 feet in diameter; leaves three in a fascicle, 5 to 10 inches long; cones ovate, 2 to 5 inches long; heartwood light red; sapwood white; close-grained, compact, variable, heavy, hard, strong, brittle.

Use: Lumber, railroad ties, mine timbers, fuel.

Range: Throughout that portion of the State lying east of the Cascades. It was first discovered by David Douglas in 1826, between the Columbia and Spokane rivers and afterwards found to be widely distributed.

WILLAMETTE FOOTHILLS PINE.

(*Pinus ponderosa Dougl. var. Benthamiana Vasey.*)

Medium-sized trees in the foothills and valleys of Western Oregon. It resembles the Western Yellow Pine very much, but has longer foliage. The wood is yellow, hard, often having a mottled or curly effect, and has much restless matter.

Use: In Southern Oregon the leaves are extensively used in the manufacture of pine needle fiber for mattresses, sofa pillows, rugs, etc. The oil is extracted from the leaves and is used medicinally.

BLACK PINE.

(*Pinus Jeffreyi Oreg. Com.*)

Trees of high localities, 100 to 150 feet high, 1 to 4 feet in diameter, with dark, finely checked bark, and long outstretched limbs; leaves three in a fascicle, slightly colored by a whitish powder, when broken exhaling a pleasant aromatic odor, 5 to 9 inches long; cones ovate, 6 to 10 inches long, dark brown, pendant, on peduncles ½ inch long, producing a seed; wood yellow, heavy, strong, free from restless matter.

Use: Lumber, fuel, pitch. The latter in medical preparations.

Range: Josephine, Jackson, Klamath, Douglas, Lane counties.

TWISTED PINE.

(*Pinus contorta Dougl.*).

A small tree 10 to 50 feet high, with a short trunk 6 to 12 inches in diameter; leaves 1 to 1½ inches long; cones oval, ½ inch long, tapering toward the apex, oblique at the base; wood whitish, hard, compact, close-grained, receiving a high polish.

Use: Farm purposes, fuel, etc.

Range: Along the seacoast in sandy places. Small, scrubby trees, much twisted and contorted by the ocean storms. Usually growing on sand dunes. It is interesting to note that in traveling along the Oregon coast one finds this tree only on the sandy hills and dunes thrown up near the mouth of streams entering the ocean, and as soon as the sand gives out and the rocky points begin, the place of this tree is taken by twisted trees of the Tideland Spruce and Western Hemlock.

HENDERSON'S PINE.

(*Pinus contorta Dougl. var. Hendersoni Lemmon.*)

Trees larger than in the type, straight, 30 to 60 feet high, bark more or less broken into small square checks, thus resembling an oak; cone-scales uniformly developed, all slightly tubercled at the external base.

Use: Lumber, fuel.

Range: Along the Sandy River, especially near Troutdale.

LODGEPOLE PINE.

(*Pinus Murrayana Oreg. Com.*)

Tall, slender trees in subalpine swamps, attaining a height of 60 to 120 feet, and a diameter of 1 to 2 feet; leaves in twos, 1 to 3 inches long, delicately serrulate; cones oblong—cylindrical, 1 to 2 inches long, oblique at base; seeds black; wood tough, light colored streaked with dark.

Use: Farm buildings, poles, posts, rails, fuel, etc.

Range: Subalpine swamps in the Cascade, Blue, and Wallowa mountains.

COULTER PINE.

(*Pinus Coulteri Lamb.*)

A tree 50 to 75 feet high, 3 to 4 feet in diameter, with dark brown or nearly black bark; leaves in fascicles of three, 10 to 14 inches long; cones the heaviest in the genus, weighing 5 to 8 pounds, 15 to 20 inches long, the scales terminating in large, brittle hooks; wood light red, with thick nearly white sapwood, with conspicuous resinous bands, light, soft, brittle, coarse-grained.

Use: Fuel and as a lawn ornament. Introduced in the gardens of Europe in 1832 by David Douglas.

Range: Josephine County. Mr. Albert Savage reports groves of this within ten miles of Merlin.

NARROW CONE PINE.

(*Pinus attenuata Lemmon.*)

A small tree, 10 to 40 feet high, and 8 to 18 inches in diameter, with rough, dark-red bark; leaves in threes, serrate, 3 to 7 inches long; wood

yellow, hard, close-grained, receives a high polish, usually with a beautiful spotted or mottled effect.

Use: Fancy cabinet work, fuel.

Range: Subalpine slopes, Cascade and Siskiyou mountains.

WESTERN TAMARACK, LARCH.

(*Larix occidentalis Nutt.*)

A large, thick-barked tree, 100 to 200 feet high, and 1 to 6 feet in diameter; leaves small, linear, deciduous; cones small, ovate-cylindric, 1 to 1½ inches long; heartwood light red, sapwood nearly white, coarse-grained, of compact structure, hard, heavy, strong, durable.

Use: Posts, railroad ties, fuel, lumber, flooring.

Range: All over the forested area of the State, east of the Cascade Mountains. In its habit of preferring high, dry ridges this species offers a marked contrast to the eastern marsh-loving species.

WOOLLY LARCH.

(*Larix Lyallii Parl.*)

A small tree, 50 to 100 feet high, 1 to 3 feet in diameter, the branchlets and bud-scales very woolly with whitish hairs; leaves 1 to 2 inches long, deciduous; cones oblong, 1½ to 2 inches long, deciduous; wood bright reddish brown with thin nearly white sapwood, heavy, hard, close-grained.

Use: Lumber, fuel. Its rarity prevents utilization.

Range: High peaks of the Wallowa Mountains. Rare.

ENGELMANN SPRUCE.

(*Picea Engelmanni Engelm.*)

A tree 100 to 150 feet high, and 2 to 5 feet in diameter, with cinnamon-colored bark; leaves divergent; cones oblong-cylindrical to ovate, 1 to 3 inches long; wood pale reddish-yellow, light, soft, close-grained, compact.

Use: Lumber, charcoal, fuel.

Range: High mountains, Cascade, Blue and Wallowa ranges. Noteworthy as a resident of high altitudes.

BLUE SPRUCE.

(*Picea Parryana Parry.*)

A tree 80 to 150 feet high, 2 to 4 feet in diameter; leaves divergent, strongly incurved, rigid, spinescent, blue-green or silvery-white; cones oblong-cylindrical, wood light brown to nearly white, light, soft, weak and close-grained.

Use: Lumber, fancy cabinet work, fuel.

Range: Reported as occurring in the southeastern part of the State.

TIDELAND SPRUCE.

(*Picea Sitchensis, T. & M.*)

The largest tree of Oregon. It grows 200 to 300 feet high, and 4 to 20 feet in diameter; bark thin, scaly, reddish-brown; leaves ½ to ¾ inch long, flat and short pointed; cones oval-cylindrical, 1½ to 3 inches long; heartwood light reddish-brown, sapwood white, coarse-grained and satiny in appearance, light and soft.

Use: Lumber, fuel, paper pulp, piling, barrels, boxes, shooks, excelsior, boatbuilding, interior finish, fencing. An ornamental tree.

Range: Along the seacoast, Clatsop to Curry counties. The tree is distinctly moisture-loving, and is seldom found more than fifty miles inland. In the extensive coast-belt forest which it forms, it is an ideal lumber tree, being free from limbs for a great part of its height. The largest tree of this species known to science stands in God's Valley on the North Nehalem River, Clatsop County, Oregon. (See frontispiece).

WEEPING SPRUCE.

(*Picea Breweriana Wats.*)

A slender tree, 100 to 150 feet high, and 2 to 4 feet in diameter, with spreading or ascending branches, and pendant branchlets: leaves ½ to 1 inch long, sessile; cones 2 to 4 inches long, narrowly cylindrical, attenuate at the base; wood light-brown to white, soft, close-grained, compact, with a satiny surface, heavier than any North American spruce.

Use: Fancy cabinet work. As a lawn ornament.

Range: In the Siskiyou and Coast Mountains of Southern Oregon. Chas. S. Sargent in "Sylva of North America," says: "This species most resembles *Picea Omorika* of the Balkan Peninsula, the least known of European conifers, as this weeping spruce is the most imperfectly known conifer of North America."

WESTERN HEMLOCK.

(*Tsuga heterophylla Sarg.*)

A large tree, 100 to 150 feet high, and 2 to 8 feet in diameter, with rough, thick bark; leaves linear, ¼ to ¾ inch long, abruptly petioled; cones oblong-cylindrical, acute, ¼ to ¾ inch long; wood usually white or reddish-brown, light, hard, straight-grained, tasteless, odorless, tough.

Use: The Western hemlock furnishes superior finishing lumber. It is valuable for flooring, joists, scantling, lath, siding, ceiling, boxes,

turned stock, newell and panel-work, wainscoting, wood-pulp. The bark is used in tanning leather. The hard character of the wood makes it superior to redwood, cedar or fir as a finishing lumber, but the difficulty with the manufacturer of hemlock lumber seems to be in getting rid of the incidental "common."

Range: Throughout the State in moist lowland forests. The first description of this tree was published in 1814 in the journal of the Lewis and Clark Expedition, which passed the winter of 1805 near the mouth of the Columbia River. As an evidence of how a single western tree can be made the subject of an interesting study, see "The Western Hemlock," by E. T. Allen, United States Department of Agriculture, Bureau of Forestry, Bulletin No. 33.

ALPINE HEMLOCK.

(*Tsuga Mertensiana Carr.*)

A medium-sized tree, 100 to 200 feet high, and 1 to 4 feet in diameter, with rough, dark-brown bark, and dark-green star-like foliage; leaves ½ to 1 inch long, angular; cones oblong-cylindrical, 2 to 3 inches long; wood pinkish-white, close-grained and hard.

Use: Lumber, fuel, and tanbark.

Range: Forms dense forests in subalpine localities in the Cascade, Blue, and Wallowa mountains.

DOUGLAS FIR.

(*Pseudotsuga mucronata Sudsw.*)

The most abundant and most useful tree of the Pacific Northwest. One of the world's greatest trees. It grows 100 to 300 feet high, and 2 to 15 feet in diameter; leaves two-ranked, linear, ⅜ to 2 inches long; cones oblong to cylindrical, 1 to 4 inches long; heartwood red to yellow, sapwood nearly white, hard, strong, difficult to work, but extremely durable. The young growth in open woods produces "Red Fir." The older growth on the same tree when the forest has become more dense and the growth slower, produces "Yellow Fir." Young forests, if dense, often produce entirely "Yellow Fir."

Use: Heavy construction, dimension timbers, ties, piling, lath, lumber, doors, flooring, masts, spars, furniture, barrels, railway cars, shipbuilding, veneering. Admirably adapted for the manufacture of all agricultural implements, except those requiring great tensile strength. The pitch is used in the manufacture of balsam, turpentine, and pyroligneous acid.

Range: Throughout the State, except in the arid and alpine portions. Clatsop and Columbia counties contain the finest forests of this tree at present.

ALPINE FIR.

(*Abies lasiocarpa Nutt.*)

A small, alpine tree, 50 to 75 feet high, and 10 to 20 inches in diameter, with smooth, whitish bark; leaves 1 to 2½ inches long, two-ranked below, upwardly curved above; cones cylindric, usually purple, 2 to 3 inches long; wood pale brown or nearly white, with lighter sapwood, light, tough.

Use: The gum is used both commercially and medicinally. The wood is valuable for cabinet-work, and will be much used when the trees become more accessible.

Range: On the highest peaks of the Cascade and Wallowa mountains.

WESTERN WHITE FIR—SILVER FIR.

(*Abies grandis Lindl.*)

A tall, straight tree, 100 to 300 feet high, and 2 to 6 feet in diameter, with smooth bark and long, clear bole; leaves flat, two-ranked, dark-green above, white beneath; cones cylindric, 2 to 6 inches long, easily broken; wood white, coarse-grained, compact, light, soft, durable if not placed in the ground.

Use: Lumber, paper pulp, shooks, interior finish, packing cases, cooperage, shingles. The most durable shakes made in Oregon are of this wood. It is a grand ornamental tree and is well known in cultivation.

Range: Moist places in forests, in the western and northern portions of the state.

WHITE FIR.

(*Abies concolor Parry.*)

A large tree, 100 to 200 feet high, and 2 to 6 feet in diameter, with rough, grayish bark; leaves pale green, 2 to 3 inches long, 2-ranked; cones oblong-cylindrical, 3 to 5 inches long; wood light-brown or nearly white, coarse-grained, compact, light, soft, odorless.

Use: Lumber, butter boxes, packing cases.

Range: Eastern and Southern Oregon. Subalpine in habit, growing at 3,000 to 4,000 feet elevation.

PALE-LEAF WHITE FIR.

(*Abies Lowiana Murr.*)

A tall, graceful tree, 100 to 200 feet high, and 2 to 4 feet in diameter; leaves 2-ranked, 1 to 2 inches long, green above, pale-green with two white stripes beneath; cones cylindric, 2 to 4 inches long; wood white, odorless, coarse-grained.

Use: Lumber, butter boxes, firkins, fuel.
Range: In the Siskiyou Mountains of Southern Oregon.

LOVELY FIR. WHITE FIR.

(*Abies amabilis Forbes.*)

A slender tree, 100 to 150 feet high, and 1 to 3 feet in diameter, with smooth, whitish bark; leaves rigid, ½ inch long, on the lower branches 2-ranked, on the upper branches curved upward; cones dark purple, 2 to 4 inches long; heartwood pale brown, sapwood nearly white, hard, close-grained.

Use: Lumber, fuel.
Range: Cascade Mountains at high elevations.

NOBLE FIR.

(*Abies nobilis Lindl.*)

A large tree, 200 to 300 feet high, and 3 to 11 feet in diameter, with rough dark-gray bark; leaves 2-ranked, upwardly curved, 1 to 2 inches long; cones oblong-cylindrical, 5 to 9 inches long, with exserted bracts; wood reddish-brown to nearly white, close-grained, compact, light, hard, strong and elastic.

Use: Lumber, inside finishing, furniture, fuel.
Range: In the Cascade and Coast mountains.

For commercial purposes the wood of this tree is sold under the name of "Larch", although that is a term universally used as a synonym of tamarack.

SHASTA FIR.

(*Abies magnifica Murr. var. Shastensis Lemmon.*)

This is the alpine variety of the magnificent fir, the largest of the true firs. The species is Californian and grows 250 to 300 feet high, and 6 to 12 feet in diameter, with red bark. The variety is smaller, usually 100 to 200 feet high, and 4 to 6 feet in diameter, with black bark and a more alpine habit; leaves short, whitish; cones large, 3 to 5 inches long, purple, bracts long, protruded tasselated; wood reddish, close-grained, compact, light and soft.

Use: Lumber, construction, sills, finishing and fuel.
Range: Cascade Mountains of Southern Oregon.

REDWOOD.

(*Sequoia sempervirens Endl.*)

Valuable lumber trees, formerly supposed to be confined to California, but now known to occur in Southwestern Oregon. The tree grows 100 to 350 feet high, and 4 to 20 feet in diameter, bark very

thick; leaves 2-ranked, linear; cones oblong, ¾ to 1 inch long; heartwood red to reddish-brown, sapwood nearly white, coarse, straight-grained, compact, light, not strong, durable, not resinous, easily worked, does not burn easily.

Use: Timber, shingles, flumes, fence posts, inside finishing, coffins, railway ties. The bark made into souvenirs.

Range: In Curry County, Oregon, there are about 400 acres of standing redwood timber.

INCENSE CEDAR.

(*Libocedrus decurrens Torr.*)

A tall tree 100 to 150 feet high, 3 to 7 feet in diameter; bark shredded or seamed; leaves bright green in two decussate pairs at each joint; cones oblong, 9 to 12 lines long; heartwood brownish, sapwood nearly white, close-grained, compact, fragrant, light, brittle, soft, durable.

Use: Lumber, farm buildings, fence posts, rails, interior finish, flumes, shingles.

Range: Western Oregon from the Santiam Valley southward. The best groves are found in Josephine and Jackson counties.

PACIFIC RED CEDAR.

(*Thuja plicata Don.*)

A tall graceful tree 100 to 250 feet high, 8 to 17 feet in diameter; foliage light green and shining, leaves plicate; cones ½ to ¾ inch long, ovate, cinnamon-colored; heartwood reddish-brown, sapwood nearly white, coarse-grained, compact, soft, light, brittle, easily worked, durable.

Use: Shingles, fencing, cooperage, interior finish, canoes, siding, farm buildings, posts, rails, sash, doors, telegraph and telephone poles.

Range: In forests throughout the State.

YELLOW OR ALASKA CEDAR.

(*Chamæcyparis Nootkatensis Spach.*)

A slender tree 50 to 150 feet high, 1 to 3 feet in diameter; leaves small, appressed, 4-ranked, glandular, cones globose, ¼ inch long, of four to six thick green scales with prominent central bosses; heartwood clear, light yellow, sapwood nearly white, close-grained, compact, light, hard, durable in contact with soil, receives a high polish, fragrant.

Use: Finishing lumber, shipbuilding, furniture, clothes-closets, chests. Highly prized for cabinet work.

Range: Mt. Hood to the head of the Umpqua Valley, along the west slope of the Cascade Mountains.

PORT ORFORD CEDAR.

(*Chamæcyparis Lawsoniana Parl.*)

A tall tree 100 to 200 feet high, and 2 to 6 feet in diameter; leaves deep green, glandular pitted, cones globular, ¼ inch long; wood yellowish white, close-grained, light, hard, strong, easily worked, fragrant, resinous.

Use: Lumber, flooring, interior finish, cabinet work, matches, broomhandles, clothes chests, trunks, ties, posts, shipbuilding. The resin is used as an insecticide. The tree is cultivated extensively as a lawn ornament.

Range: Coos and Curry counties. The world's visible supply of this valuable tree is limited to the two above-mentioned counties and to a few groves in Del Norte County, California.

RED JUNIPER.

(*Juniperus scopulorum Sarg.*)

A tree 30 to 50 feet high, 1 to 3 feet in diameter; leaves opposite, spiny-tipped; cones berry-like, blue, with a whitish bloom, ¼ inch in diameter; sapwood white, heartwood red, close-grained, odorous and durable.

Use: Cabinetwork, fence posts, and lead pencils.

Range: Along the Wallowa and Grand Ronde rivers in Wallowa and Union counties. Originally discovered by Lewis and Clark in the year 1804.

WESTERN JUNIPER.

(*Juniperus occidentalis Hook.*)

A small tree 20 to 50 feet high, 1 to 4 feet in diameter; leaves in threes, imbricated, cones berry-like, globose, ¼ to ⅜ inch in diameter; sapwood white, heartwood reddish-brown, close-grained, compact, light, soft, durable, receives a high polish. The fruit is eaten by the Indians.

Use: Lumber, fence posts, rails, ties, fuel.

Range: Throughout the more arid regions of the State east of the Cascade Mountains. Abundant in Crook and Wasco counties.

PACIFIC YEW.

(*Taxus brevifolia Nutt.*)

Small, pyramidal trees, 20 to 90 feet high, 1 to 3 feet in diameter; leaves ½ to 1 inch long; berries amber-red, ⅛ to ½ inch long; wood

bright red to brown, with light yellow sapwood, hard, heavy, strong, tough, elastic, and very durable.

Use: Fence posts, fancy cabinetwork, paddles, spearhandles, bows, fishhooks, cultivated as a lawn ornament.

Range: throughout the State, except in the alpine and subarid sections.

WAX MYRTLE.

(*Myrica Californica Cham.*)

A small, evergreen tree, 10 to 30 feet high; leaves 2 to 4 inches long; dark green; fruit globose, purple; wood grayish-brown, close-grained.

Use: Furniture, cabinetwork, wood-turning. The bark and foliage are medicinal.

Range: Along the seacoast from Clatsop to Curry County.

QUAKING ASP.

(*Populus tremuloides Michx.*)

A small tree, 20 to 100 feet high, 1 to 3 feet in diameter; leaves ovate, trembling in the wind, with wavy margins; fruit a drooping ament; wood white, soft, tough, durable.

Use: Lumber, wood pulp, rails, fuel.

Range: Throughout the State east of the Cascade Mountains.

BALSAM POPLAR, BALM OF GILEAD.

(*Populus balsamifera Linn.*)

A large tree, 60 to 100 feet high, 3 to 7 feet in diameter; leaves broadly ovate; fruit a drooping ament, scattering its seeds by a cottony parachute-like coma of long silky hairs; wood grayish white, soft, tough, durable.

Use: Lumber, wood pulp, excelsior, veneer, rails, fuel.

Range: Along stream banks east of the Cascade Mountains.

BLACK COTTONWOOD.

(*Populus trichocarpa T. & G.*)

A large tree, 50 to 200 feet high, and 2 to 8 feet in diameter; leaves broadly ovate, acuminate; fruit a drooping ament, 6 to 10 inches long, the capsules pubescent; heartwood dull brown, sapwood dull white, compact, soft, tough, durable.

Use: Veneer, staves, woodenware, wood-pulp, trunks, drums, barrels, drawer bottoms.

Range: Common along streams throughout the State.

NARROW-LEAVED COTTONWOOD.

(*Populus angustifolia James.*)

A slender tree, 40 to 70 feet high, and 1 to 4 feet in diameter, leaves lanceolate to ovate, 2 to 5 inches long, finely crenulate; capsules ovoid, two-valved.

Use: Fuel, etc.

Range: Rare in Eastern Oregon.

BLACK WILLOW.

(*Salix nigra Marsh.*)

A tree 50 to 120 feet high, 2 to 4 feet in diameter, with rough, flaky, dark-brown bark; leaves linear-lanceolate, serrate; capsules ovate-conical, pedicelled; sapwood white, heartwood brown, close-grained, soft, light, easily worked, dents without splitting.

Use: Basketwork, lapboards, charcoal, fuel, keels, paddles, water wheels.

Range: Along stream banks east of the Cascade Mountains.

PEACH WILLOW.

(*Salix amygdaloides Anders.*)

A small tree 20 to 70 feet high, 1 to 4 feet in diameter, with light yellowish-brown, flaky bark; leaves lanceolate, sharply serrulate; capsule ovoid, about as long as its filiform pedicel.

Use: Baskets, lapboards, charcoal.

Range: Rare, along streams in the interior.

CONGESTED WILLOW.

(*Salix congesta Howell.*)

A small tree 20 to 30 feet high, with ash-colored bark; leaves lance-shaped to spatulate; capsules ovoid, on pedicels a line long.

Use: Baskets, fuel.

Range: Along the Klamath River and southward.

SHOWY WILLOW.

(*Salix lasiandra Benth.*)

A slender tree 20 to 30 feet high, 2 to 4 feet in diameter, with dark, rough, brown bark: leaves lanceolate, acuminate, serrulate; capsules ovoid, acuminate, short pedicelled.

Use: Baskets, veneering, charcoal, fuel.

Range: Along the streams west of the Cascade Mountains.

FENDLER'S WILLOW.

(*Salix Fendleriana Anders.*)

A tree 30 to 60 feet high, with dark-brown, rough bark; leaves lanceolate, crenulate; capsules glabrous, short pedicelled.

Use: Baskets, fuel.

Range: Along streams east of the Cascade Mountains.

SESSILE LEAVED WILLOW.

(*Salix sessilifolia Nutt.*)

A bush or small tree 10 to 30 feet high, 4 to 10 inches in diameter, forming dense thickets; leaves lanceolate, 1 to 2 inches long, remotely toothed, sessile; fruit on the ends of short, leafy branches; capsule lanceolate, sessile.

Use: Would make excellent baskets.

Range: Along stream banks west of the Cascade Mountains.

LARGE FRUITED WILLOW.

(*Salix macrostachya Nutt.*)

A shrub or small tree 3 to 18 feet high, often in dense thickets; leaves lanceolate, 2 to 3 inches long, silvery-white with long, soft, white hairs; capsule sessile, clothed with long, loose hairs.

Range: Margins of ponds and stream banks west of the Cascade Mountains.

SCOULER'S WILLOW.

(*Salix Scouleriana Barratt.*)

A small tree 10 to 50 feet high, 1 to 2 feet in diameter, with light-gray bark; leaves oblong, becoming rusty in age beneath, 1 to 6 inches long; capsule oblong, with a stout beak.

Use: Fuel, charcoal, tool handles, and as a lawn ornament.

Range: This is the most common upland willow throughout the State.

UPLAND WILLOW.

(*Salix brachystachys Benth.*)

A small tree 10 to 30 feet high, 6 to 12 inches in diameter, with gray or brownish bark, the branchlets dichotomously branched; leaves wedge-shaped, 1 to 2 inches long; bud scales lanceolate; aments about ½ inch long; capsule ovate, with a long, slender beak.

Range: A common upland willow west of the Cascade Mountains.

HOOKER'S WILLOW.

(*Salix Hookeriana Barratt.*)

A small tree 10 to 50 feet high; leaves lanceolate or oblong, 1 to 5

inches long; capsules glabrous, lanceolate, with pedicels three times their length.

Range: Along the seacoast from Clatsop to Curry County.

WESTERN YELLOW WILLOW.

(*Salix lasiolepis Benth.*)

A small tree 15 to 40 feet high, with yellow bark; leaves oblong, serrulate, short-petioled; capsules lanceolate, acuminate, glabrous, short-pedicelled.

Use: An excellent willow for basket work.

Range: Along streams west of the Cascade Mountains.

SILKY WILLOW.

(*Salix Sitchensis Sans.*)

A straggling shrub or small tree 6 to 40 feet high, with light brown bark; leaves oblong-ovate, whitish velvety beneath; capsules ovate conical, with white pubescence.

Use: A very showy tree, and well worthy of cultivation as a lawn ornament.

Range: Along stream banks throughout the State.

MACKENZIE WILLOW.

(*Salix Mackenziana Hook.*)

A small tree 15 to 30 feet high, growing in clumps, with yellow bark, and shining whitish yellow branchlets; leaves lanceolate or oblanceolate long pointed, shiny, staminate aments very showy; capsule lance-ovate, with long pointed beak, on a pedicel half its length.

Use: A very showy species, well worthy of cultivation.

Range: Along stream banks throughout the State.

WESTERN BIRCH.

(*Betula occidentalis Hook.*)

A medium sized tree 20 to 60 feet high, 6 to 24 inches in diameter; bark grayish white to dark brown; leaves broadly ovate, sharply toothed; fruiting aments cylindric, pendant; nutlets lenticular, winged; wood yellowish, close-grained, takes a high polish.

Use: Furniture, cabinet work, and when young for barrel hoops.

Range: Along streams east of the Cascade Mountains.

OREGON ALDER.

(*Alnus Oregana Nutt.*)

A large tree 50 to 100 feet high, and 1 to 4 feet in diameter; bark dark brown blotched with white; leaves oval to elliptic, thickish,

with prominent rusty veins beneath; fruits ovoid to oblong, ½ to 1 inch long, the nutlets surrounded by a membranous wing; wood reddish, hard, durable.

Use: Furniture, buggy boxes, cabinetwork, for smoking salmon. It furnishes the most satisfactory fuel known for either camp or household.

Range: Throughout the State in moist situations.

MOUNTAIN ALDER.

(*Alnus rhombifolia Nutt.*)

A tree 30 to 50 feet high, 1 to 3 feet in diameter, with white bark; leaves rhombic ovate, 2 to 3 inches long, irregularly glandular toothed; fruiting aments oblong, ½ to ¾ inch long; nutlets ½ inch long with a thickened margin; wood reddish-brown, hard and durable.

Use: Furniture, cabinetwork, fuel.

Range: Southern and eastern portions of the State. It attains its greatest size in Coos and Curry counties.

PAPER-LEAVED ALDER.

(*Alnus tenuifolia Nutt.*)

A small tree 6 to 20 feet high, with brown bark; leaves broadly ovate, doubly-toothed; fruiting aments ovate-oblong, ½ to ¾ inch long; nutlets obovate, slightly marginal; wood reddish, hard and durable, takes a high polish.

Use: Cabinetwork, fuel, etc.

Range: In the Cascade, Blue and Wallowa mountains.

HAZEL.

(*Corylus Californica Rose.*)

A shrub or small tree, 6 to 40 feet high, 3 to 10 inches in diameter; leaves orbicular to obovate, incised serrate; fruit ovoid, an edible nut; wood brownish, hard, receives a high polish.

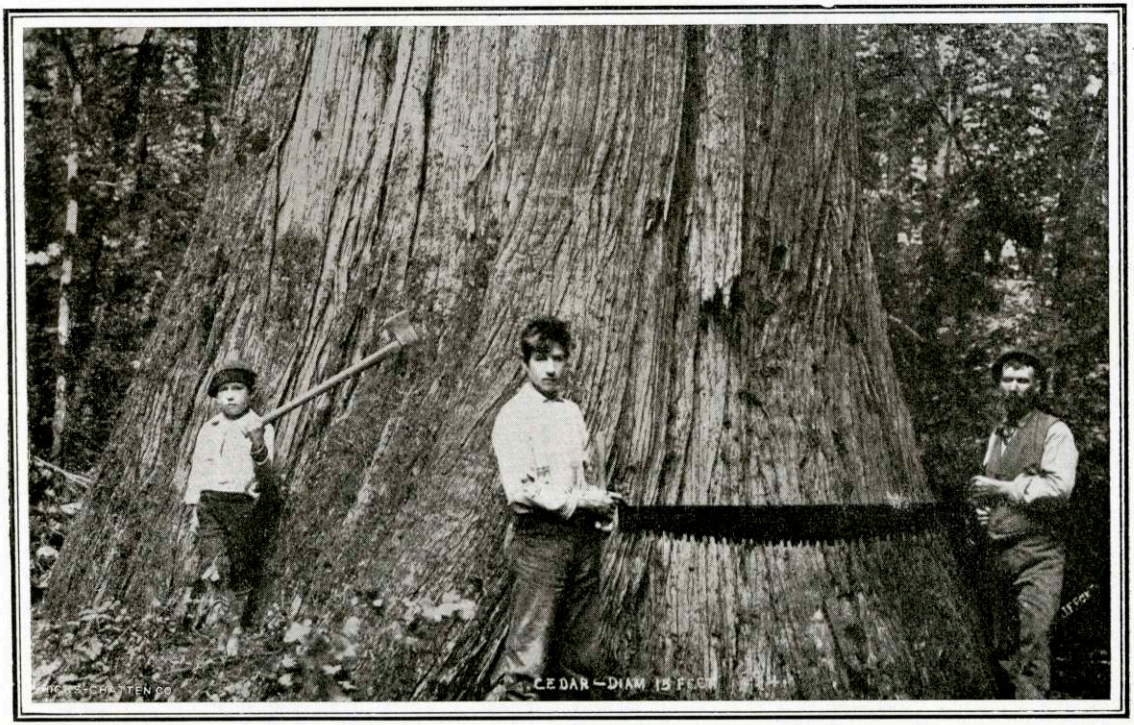
Use: Pioneer brooms, shoe pegs, baskets, barrel hoops.

Range: On low hillsides and forests, throughout the wooded area of the State.

GOLDEN-LEAF CHINQUAPIN.

(*Castanopsis chrysophylla A. D. C.*)

A medium-sized evergreen tree, 6 to 80 feet high; leaves lanceolate, or oblong, golden yellow beneath; fruit, three small, chestnut-like edible nuts, inclosed in a prickly burr; wood pinkish; takes a high polish.



A Giant Cedar

The chief shingle tree of the Pacific Northwest

Use: Furniture, cabinetwork.

Range: Foothills of the Cascade Mountains.

PACIFIC COAST OAK, OREGON WHITE OAK.

(*Quercus Garryana Dougl.*)

A tree 50 to 150 feet high, 2 to 5 feet in diameter; leaves 4 to 6 inches long, 2 to 5 inches wide, coarsely lobed; acorns about 1 inch long, cup shallow; heartwood light brown, sapwood nearly white, compact, heavy, strong, hard, tough.

Use: Furniture, wagon work, shipbuilding, carriages, interior finishing, fuel, veneer, barrel hoops.

Range: West of the Cascade Mountains.

LIVE OAK.

(*Quercus chrysolepis Liebm.*)

An evergreen tree, 50 to 80 feet high, 3 to 6 feet in diameter, with ashy-gray bark; leaves oblong-lanceolate, sharply-toothed; acorns oval, ½ to 1½ inches long; wood light brown, close-grained, hard, heavy, strong, tough, hard to work.

Use: Wagon work, tool handles, implements, packsaddles.

Range: Southwestern portion of the State.

OREGON BLACK OAK.

(*Quercus Californica Cooper.*)

A medium-sized tree, 60 to 100 feet high, and 1 to 6 feet in diameter, with rough, black bark; leaves large, deeply lobed; acorns 1 to 1½ inches in diameter, oblong; wood dark and close-grained, hard, compact, receives a high polish.

Use: Finishing lumber, furniture, wagon work.

Range: From the McKenzie River southward through the Cascade and Coast mountains.

TANBARK OAK.

(*Quercus densiflora H. & A.*)

An evergreen tree, 30 to 100 feet high, 2 to 5 feet in diameter, with smooth-brown bark; leaves ovate chestnut-like, with revolute margins; acorns oval or oblong, 1 to 1½ inches long, thick-shelled; wood light-brown, hard, receives a high polish, difficult to work.

Use: Cabinetwork, tanbark, fuel.

Range: Southwestern portion of the State.

HACKBERRY.

(*Celtis occidentalis Linn.*)

A shrub or small tree, 6 to 18 feet high, 4 to 10 inches in diameter, with rough, dark-brown bark; leaves ovate, thin, oblique and three-nerved at the base; wood white, tough, hard.

Use: Tool handles, packsaddle horns.

Range: In the cañons of the Snake River and its tributaries in Wallowa and Union counties.

DESERT HACKBERRY.

(*Celtis reticulata Torr.*)

A shrub or small tree, 4 to 20 feet high, and 4 to 12 inches in diameter, with light-brown rough bark; leaves ovate, 1 to 4 inches long, oblique at the base, reticulate-veined; wood white, hard, tough.

Use: Tool handles, packsaddle horns.

Range: Throughout the State east of the Cascade Mountains.

OREGON BARBERRY, MAHONIA, OREGON GRAPE, OREGON HOLLY.

(*Berberis Aquifolium Pursh.*)

A shrub, 4 to 14 feet high, and 1 to 5 inches in diameter; leaves oblong-ovate, holly-like, spinulose dentate, 1 to 3 inches long, evergreen; flowers in terminal racemes, which are 2 to 4 inches long, yellow, attractive; fruit a globose, subacid berry, blue; wood yellow, hard, close-grained, with prominent medullary rays.

Use: An ornamental shrub, admirably adapted for decorative purposes. The berries are edible and make an excellent jelly. Root medicinal.

Range: West of the Cascade Mountains. It is to be found in cultivation all over the civilized world. Among nurserymen it is commonly known as Mahonia. Under the name of "Oregon Grape" it was adopted as the State flower of Oregon by a joint resolution of the legislature January 30-31, 1899. The suggestion to adopt this plant as the State flower was first made by Mr. E. W. Hammond in a paper presented to the State Horticultural Society on July 14, 1892. The persistent efforts of Mr. Geo. H. Himes, curator of the State Historical Society, finally secured its adoption by the State legislature. In this connection it might be well to state that while the names Oregon Grape and Oregon Holly are inappropriate, as the plant is neither a grape nor a holly, these names have a local usage that is hard to set aside in spite of the fact that nurserymen the world over recognize it as a barberry, or call it Mahonia.

LAUREL, OREGON MYRTLE.

(*Umbellularia Californica Nutt.*)

An evergreen tree, 60 to 100 feet high, and 2 to 6 feet in diameter; leaves lanceolate, oblong, very aromatic; fruit globose, nearly an inch long. Heartwood light, rich olive brown, close-grained, compact, heavy, hard, strong, receives a high polish. The property of sinking in water is made use of by millmen to improve the color of the wood. The beautiful black myrtle is produced in this way.

Use: Shipbuilding, cabinetwork, cleats, crosstrees, furniture, interior finish. A valuable ornamental tree.

Range: From the Umpqua River south to the State line. The best groves are found in Coos and Douglas counties.

MOUNTAIN MAHOGANY.

(*Cercocarpus ledifolius Nutt.*)

A small evergreen tree, attaining a height of 20 to 30 feet, and 10 to 20 inches in diameter; leaves lanceolate, dark green above, woolly beneath; fruit linear-oblong, with a long, persistent, feather-like style; sapwood white, heartwood reddish-brown, heavy, compact, hard, takes a fine polish.

Use: Cabinetwork, charcoal, tool handles.

Range: In the Blue and Wallowa mountains and on sandbars in the Snake River.

BIRCH-LEAVED MAHOGANY.

(*Cercocarpus betulæfolius Hook.*)

A shrub or small tree, 6 to 15 feet high, with thin, gray, flaky bark and slender branches; leaves deciduous, oblong, with cuneate base, woolly beneath, conspicuously veined; wood brown, heavy, hard, compact.

Use: Cabinetwork, charcoal, tool handles.

Range: On dry hillsides, southwestern part of the State.

OREGON CRAB APPLE.

(*Malus rivularis Roem.*)

A small tree, 15 to 30 feet high, from 6 to 14 inches in diameter, leaves ovate-lanceolate, sharply-toothed, 1 to 3 inches long; fruit yellow, oblong or spherical, $\frac{1}{4}$ to $\frac{1}{2}$ inch long; wood pinkish, hard, heavy, compact, takes a high polish.

Use: Fancy cabinetwork.

Range: In marshes and along streams west of the Cascade Mountains.

WESTERN HAW.

(*Cratægus brevispina Dougl.*)

A small tree, 20 to 40 feet high; spines stout, ½ to 1 inch long; leaves elliptical, irregularly-toothed; fruit globose, black, ⅜ to ½ inch in diameter; wood brownish-white, hard, compact, taking a fine polish.

Use: Fancy wood turning, tool handles.

Range: Along streams and edge of marshes, west of the Cascade Mountains; also local in Union and Wallowa counties.

OREGON HAW.

(*Cratægus Columbiana Howell.*)

A small tree 10 to 20 feet high, and 6 to 10 inches in diameter, spines stout, 1 to 2 inches long; leaves wedge-ovate, 1 to 2 inches long, 5 to 9 lobed; fruit scarlet, obovoid, ¼ to ½ inch long; wood hard, compact, pinkish, durable, taking a high polish.

Use: Tool handles, cabinet work, lash hooks.

Range: Along stream banks east of the Cascade Mountains.

BITTER CHERRY.

(*Prunus emarginata Walp.*)

A small tree 8 to 20 feet high, and 6 to 10 inches in diameter, with a reddish, smooth, shining bark; leaves oblong-obovate, obtuse; fruit globose dark red, ¼ to ⅜ inch long, bitter; wood pinkish, close-grained, taking a high polish.

Use: Furniture, cabinet work.

Range: In mountainous districts east of the Cascade Mountains.

WOOLLY LEAF CHERRY.

(*Prunus emarginata villosa Sudsw.*)

A small or medium sized tree, 20 to 50 feet high, 6 to 20 inches in diameter, with ashy gray bark; leaves obovate, acute, 1 to 3 inches long; fruit bright red, intensely bitter, ¼ to ⅜ inch in diameter; wood pinkish to brown, compact, takes a high polish.

Use: Furniture, cabinet work, as stocks for grafting.

Range: Abundant west of the Cascade Mountains.

WESTERN CHOKE CHERRY.

(*Prunus demissa Walp.*)

A small tree 20 to 50 feet high, 1 to 2 feet in diameter; leaves obovate, broadest above the middle, sharply-toothed; fruit purplish-black or red, edible but astringent; wood gray to brown, hard, compact, taking a high polish.

Use: Furniture, cabinet work, bark is medicinal.

Range: On rocky hillsides and river banks east of the Cascade Mountains.

WILD RED PLUM.

(*Prunus subcordata Benth.*)

A tall shrub or small tree 6 to 18 feet high, and 2 to 8 inches in diameter; leaves elliptical to ovate, 1 inch long; fruit oblong, sub-acid, ½ to 1 inch long; wood pink, hard, close-grained, with conspicuous medullary rays.

Use: As a stock for grafting, cabinet work. The fruit is edible.

Range: On dry rocky hills and open woods, Umpqua Valley, southward, west of the Cascade Mountains.

SERVICEBERRY.

(*Amelanchier alnifolia Nutt.*)

A large bush or small tree 6 to 30 feet high, 1 to 8 inches in diameter; leaves thin, elliptical to obovate, 1 to 2 inches long; fruit globose, blue, ¼ to ½ inch in diameter; wood white, heavy, hard, close-grained, takes a high polish.

Use: Tool handles, cabinetwork, packsaddle horns. The berries are edible.

Range: Common throughout the State except in the alpine districts.

OREGON MAPLE.

(*Acer macrophyllum Pursh.*)

A magnificent tree 50 to 90 feet high, 2 to 5 feet in diameter; leaves the largest of the genus, 4 to 12 inches long, cordate, deeply three-cleft, fruit a samara, densely hispid; wood reddish brown, sapwood whitish, close-grained, compact, often curly, light, hard, strong, receiving a high polish.

Use: Furniture, cabinetwork, tool handles, turned work, veneer, fuel. It is an exceedingly valuable shade tree and is abundant in cultivation.

Range: Along stream banks in most sections of the State, except the alpine and sub-arid regions. Rare eastward. It attains its greatest size in the rich bottom lands of the southern and western parts of the State.

DWARF MAPLE.

(*Acer glabrum Torr.*)

A small tree, 10 to 30 feet high, 4 to 10 inches in diameter; leaves round-cordate, deeply three-lobed, 2 to 4 inches broad and long; fruit smooth, with slightly spreading wings about an inch long; wood whitish, close-grained, strong, durable.

Use: Tool handles, cabinetwork, fuel.

Range: Along streams and on the high mountains; rare; the only localities known to the writer are along the Sandy River, near the base of Mount Hood, and on rocky hillsides near Mosier, Wasco County.

VINE MAPLE.

(*Acer circinatum Pursh.*)

A large shrub or straggling tree, 10 to 40 feet high, and 6 to 18 inches in diameter; leaves round-cordate, 7 to 9-lobed to near the middle, 3 to 5 inches long; fruits reddish, 1 to 1½ inches long, smooth; wood white, heartwood limited in amount, brown, hard, compact, receives a high polish.

Use: Tool handles, cabinetwork, fuel, barrel hoops.

Range: West of the Cascade Mountains, from sea level to about 5,000 feet elevation.

CASCARA SAGRADA. CHITTIM.

(*Rhamnus Purshiana D. C.*)

A valuable tree, 20 to 50 feet high, 6 to 18 inches in diameter; leaves elliptical, 2 to 7 inches long; fruit black, turbinote 3-seeded, wood pinkish, hard, compact but showing large annual growths, receives a high polish.

Use: Wood for cabinet work. The bark is medicinal.

Range: Throughout the State except in the alpine and sub-arid sections.

NOTE — Oregon has for many years shipped large quantities of this bark. During the year 1903 there were 50 carloads shipped out of the State; these contained about 500 tons, and brought an average price of 10 cents per pound. The total value of Oregon's Cascara output for 1903 would therefore be $100,000. It may pay to cultivate the once despised chittim in the early future.

BUCK BRUSH, TEA BRUSH.

(*Ceanothus thyrsiflorus Esch.*)

An erect shrub or small tree, 6 to 16 feet high, with strongly angled branches, leaves lanceolate, finely dentate, 1 to 2 inches long, deciduous; flowers blue, attractive, in terminal racemes.

Range: Clatsop to Curry counties near the seacoast.

TASSEL TREE.

(*Garrya elliptica Dougl.*)

A stout shrub or small tree, 6 to 20 feet high, 6 to 20 inches in diameter; leaves elliptical; flowers in drooping, tassel-like aments; fruit globose, glabrous; wood grayish brown, hard, easily checked, receives a high polish.

Use: Fancy cabinet work, an ornamental shrub.

Range: Along the seacoast. It attains its greatest development in Coos and Curry counties.

WESTERN DOGWOOD.
(*Cornus Nuttallii Aud.*)

A beautiful tree 20 to 75 feet high, 1 to 2 feet in diameter; leaves obovate, usually pubescent beneath; flowers with large white, attractive involucre 2 to 3 inches across; fruits red, crowded among the abortive ovaries in a capitate cluster; wood pink, the hardest and heaviest Oregon wood, compact, close-grained, receives a high polish.

Use: Furniture, wood turning, cabinet work, cogs for waterwheels, for smoking meats, salmon, etc.

Range: Throughout the region west of the Cascade Mountains.

RHODODENDRON, MOUNTAIN LAUREL.
(*Rhododendron Californicum Hook.*)

A bush or small tree, 3 to 25 feet high, with stout, erect branches; leaves broadly oblong, 3 to 6 inches long, evergreen; flowers rose color, large, and showy; fruits 1 to 1½ inches long.

Use: As an ornamental flowering shrub, it is one of the most attractive and beautiful plants of America.

Range: From the Cascade Mountains westward, especially on the high mountain ridges and along the seacoast.

SALAL.
(*Gaultheria Shallon Pursh.*)

A shrub or small tree, 4 to 20 feet high, and 1 to 6 inches in diameter; leaves ovate, evergreen, strongly saw-toothed, 1 to 4 inches long; fruit black, 3 to 6 lines in diameter.

Use: Berries are edible.

Range: Throughout the State in forests. Although not a forest tree, Salal is an integral and characteristic part of Oregon's woods. The thickets of it become in many places impenetrable. It was first made known to science through the efforts of Lewis and Clark, who discovered it near the mouth of the Columbia River in 1805.

MADRONA.
(*Arbutus Menziesii Pursh.*)

A beautiful tree, 20 to 100 feet high, and 1 to 6 feet in diameter; bark red, close and smooth by exfoliation; leaves oval or oblong, evergreen; berries reddish-orange, ¼ to ½ inch in diameter; wood reddish-brown, close-grained, heavy, hard, strong.

Use: Furniture, cabinetwork, gunpowder, charcoal. It is a beautiful ornamental tree.

Range: Throughout the region west of the Cascade Mountains.

MANZANITA.
(*Arctostaphylos tomentosa Dougl.*)

A shrub or small tree, 6 to 20 feet high, and 1 to 8 inches in diameter; leaves evergreen, oblong, densely or loosely hairy; fruit spherical, yellowish to red; wood red to dark-brown, hard, tough, strong, heavy, compact, receives a high polish.

Use: Fancy cabinetwork, woodturning.

Range: Cascade Mountains and westward. Attains its greatest development along the seacoast in Coos and Curry counties.

OREGON ASH.
(*Fraxinus Oregana Nutt.*)

A tree 20 to 100 feet high, and 1 to 4 feet in diameter; leaves compound; leaflets 5 to 7, lanceolate-oblong to oval, acuminate, 2 to 4 inches long; fruit winged, an inch or more long; wood grayish-brown, hard, tough, firm, straight-grained, takes a high polish.

Use: Furniture, inside finishing, wagon work, stair posts, etc.

Range: Along streams and swales throughout the State.

SHRUBBY FRINGE ASH.
(*Fraxinus dipetela, H. & A.*)

A small tree 16 to 25 feet high, 5 to 8 inches in diameter; leaflets smaller than Oregon Ash, usually 1 to 2 inches long; wood yellow, streaked with gray, extremely hard, tough and durable, takes a high polish.

Use: Furniture, tool handles, cabinetwork.

Range: Western Oregon, from Wasco County to the State line.

BLUE BERRIED ELDER.
(*Sambucus glauca Nutt.*)

A large shrub or small tree 12 to 30 feet high, 2 to 12 inches in diameter; leaves compound; leaflets lanceolate to narrowly oblong; flowers in flat open cymes; fruit blue, with a bloom.

Use: An ornamental shrub. The berries are edible and make excellent pies, jelly, and wine.

Range: Throughout the State in wooded sections.

RED BERRIED TREE ELDER.
(*Sambucus arborescens Nutt.*)

A large shrub or small tree 10 to 30 feet high; leaves large, flowers in a thyrsoid cyme ovate in outline, white to yellowish, drying brown; fruit small, scarlet.

Use: An ornamental shrub.

Range: On rich bottom lands along the lower Willamette and Columbia rivers.

Oregon Fir
Diameter 12 feet