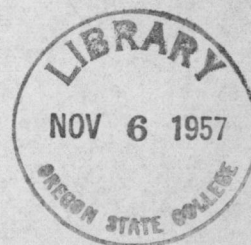


84

INDIGENEOUS HARDWOODS

OF
OREGON



Norman Speck

April 2, 1937

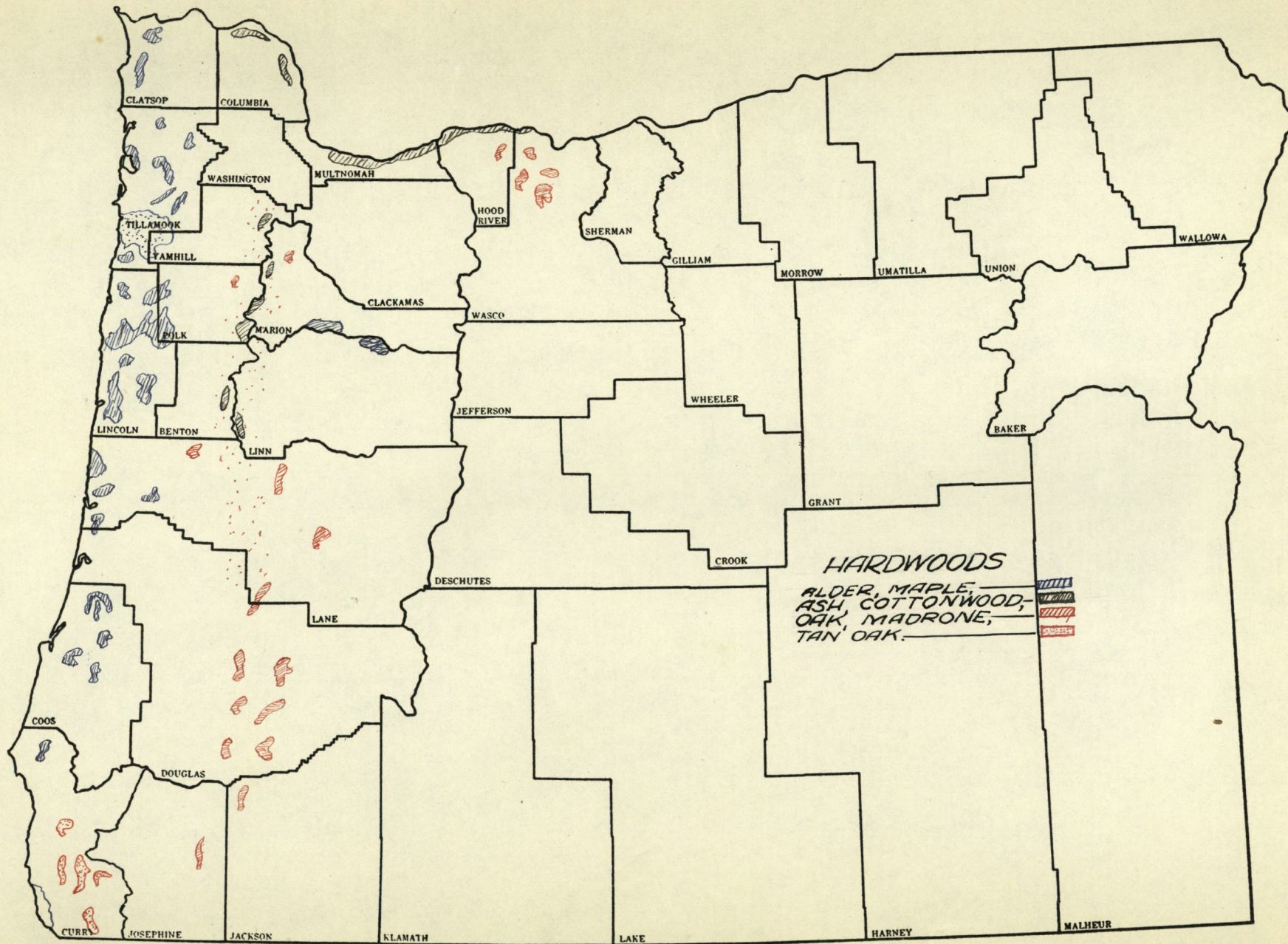
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SCHOOL OF FORESTRY
OREGON STATE COLLEGE
CORVALLIS, OREGON

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The forests of Oregon contain 26% of the remaining coniferous stands of the United States. Scattered among these coniferous stands are sprinklings of commercial hardwoods, which are not plentiful in the sense that they are in the east, but are never-the-less of importance to this region.

Although Oregon's hardwoods can in no way compare in variety and quality to the eastern hardwoods, they were sufficient up to the last 20 years to supply practically all of the local needs and even at present with the state importing large quantities of eastern and tropical hardwoods she is still exporting some of her own hardwoods in the form of burls and logs. Exports from Oregon and Washington for 1936 were 6,000 M board feet of logs taken mostly by France, to be made into veneers.

Since 1910 the cut of our hardwoods has declined, all except alder. This fact is logical, because first our hardwoods have been depleted greatly in the more accessible regions, as in the Willamette Valley, and other settled regions and secondly because it is now cheaper to import eastern hardwoods of good quality than to work our own lower grades of wood into quality equaling that of the eastern hardwoods.

From the time that Oregon was first settled until 1910, the hardwoods were used in steadily increasing amounts and Portland became the heart for manufacturing concerns, set-up to turn these woods into products of commercial value. Today Portland is one of the largest manufacturees of furniture on the coast. However, she is turning to the east more and more for suitable raw material, principally because the immediate supply is practically exhausted. This is a condition which would favor much the development of suitable sustained yield hardwood forests in Oregon. The location of Portland in reference to cheap power, water transportation and local supply of raw material has in the past made this spot paramount for furniture manufacture.

At the present time these industries are being partly supported by local hardwoods, but a great deal of eastern material is also utilized. In presence of a growing business it seems only logical that Oregon's forests contribute at least their share of raw material, which they will soon be unable to do unless some provisions as future stands are made.

As to the relative importance of these industries using Oregon hardwoods, we find that in 1923 Oregon contained 30 factories and Washington 24. The combined output of which was worth \$10,000,000.

They employed 2,900 persons and maintained an investment of \$2,000,000 in lands and buildings. Although this business suffered appreciably at the time of the depression, present indications point to a bigger expansion in the time to come.

Considering the relationship between the present volume of hardwoods in the state, the annual growth, and the annual consumption we have the following information;

Volumes; M b. f. 1936	
Species	Volumes
Red Alder-----	1,496,343
Oregon White Oak-----	88,321
California Black Oak----	63,635
Canyon Live Oak-----	3,344
Tan Oak-----	439,465
Cottonwood and Aspen --	106,659
Bigleaf Maple-----	488,325
Madrone -----	247,127
Oregon Ash-----	30,851
Chinquapin -----	66,852

Current Annual Hardwood Growth M b. f.		
Unit	Acres	Growth
Columbia River	65,716	2,586
Willamette River	121,207	5,142
Oregon Coast	226,363	40,553
Umpqua River	77,118	6,400
South Oregon Coast	119,484	2,891
Rogue River	151,501	273

Hardwood Lumber Production M b. f.						
Species	1925	1927	1929	1931	1933	1935
Ash	787	1,035	400	127	81	5,752
Cottonwood	1,102	1,534	2,011	950	5,120	3,190
Maple	2,091	2,596	2,866	3,094	2,955	1
Oak	295	59	77	4	51	
Walnut	5					
Alder					12,724	
All Other	2,507	1,322	2,596	4,630	6,461	8,383
Total	6,787	6,546	7,950	8,805	27,392	17,326

Oregon today has five native commercially important hardwoods, which named in order of importance are Alder, Maple, Cottonwood, Oak, and Ash, while Myrtle, Cascara, Vine Maple, Tan Oak, Aspen, and Madrone, are not utilized to any extent commercially, but all find minor uses of some importance. A few of these species within the state are more nearly shrub size, as they are near the outer limits of their range, while others reach their full developement within our state.

Red Alder (Alnus rubra)

Range

Red alder is one of the most conspicuous hardwoods on the Pacific coast and the most valuable. It is the only species of the genus alder which has any commercial value. Its commercial range lies mostly in western Oregon and Washington. It is throughout its range a small sized tree. Alder is found mostly along streams, near springs, in river bottoms, and on well watered slopes.

This tree often forms pure stands of commercial sized timber and quite frequently takes possession of burned or cut-over lands which have been slow to reforest with conifers. The majority of the stands are estimated to be within 30 miles of the coast and statistics of 1936 give the volume within the state as 1,496,343 M b. f. all trees are over 12 inches in diameter.

Properties

Red alder has a straight fine uniform grain; the wood has no definite figure, but oftentimes has streaks running in a vertical direction and are known as pith ray flecks. The wood is moderately light in weight, even grained and soft in texture. The strength values are low in comparison with other hardwoods. If properly cared for, red alder does not warp, check, shrink, or swell appreciably in place. The wood turns well and takes a fair polish, and is well adapted to taking paint, and makes an imitation of mahogany or walnut when stained. Durability of the wood is low and logs left lying in damp situations will show signs of incipient decay within three or four weeks. In comparison with white oak it has about one third the durability.

Uses

Red alder is used to a large extent for turned and other exposed parts in all classes of furniture. Its uniform

texture and workableness especially suit it for such purposes. Fairly hard it takes polishes well. It takes and holds screws and nails satisfactorily and is relatively easy to glue. It is adaptable to all types of glue and not difficulty is experienced in making the joints as strong as the wood its self. It compares favorably in gluing properties with yellow poplar, basswood, and red gum.

The most important use of this wood is in furniture manufacturing as the above characteristics make it paramount for such use. The chair industry which is classed differently than the furniture industry, uses alder chiefly in the production of what might be considered as standard goods, but a cheap to medium grade variety. A relatively small quantity is used in the framework of overstuffed chairs, which includes all grades from the poorest to the best.

A small amount of alder is consumed in the production of novelty goods and kitchen woodenware. In the veneer industry, red alder is surpassed by none as a core stock, as it has all the properties essential to this use. Most of the veneer is utilized in the manufacture of furniture. Because of its finishing qualities, red alder is used considerably in the manufacture of fixtures. Another use, which is becoming of more importance is the use of alder in food containers, and dairy-men's supplies.

It is well adapted for the manufacture of honey boxes although basswood is a favorite wood for this article at the present time. Alder is somewhat darker than basswood and other woods used in the food container industry, but this property can be remedied by burning sulphur in the dry kiln just before the end of the drying period.

Miscellaneous uses are paper plugs, handles, molding, shade rollers, spools, and toys.

Consumption

At present, alder is the most valuable hardwood in the state and by far the most abundant. It is principally upon this wood that the furniture industry on the Pacific Coast owes its early success. Data from 1923 show that at this time most of the alder wood (70%) was sawn up by independent alder mills and sold to the factories. At the present time this condition has changed and most of the material is purchased in the form of logs.

At present the Acme Coat Hanger Company of Portland consume on an average of 5000 b. f. daily. The Portland Furniture Manufacturing Co. consume about 16 gondola cars of logs each year, while the Dornbecker Co. uses over 15 million feet of Oregon hardwoods each year, of which alder makes up the greatest part.

Summary of Red Alder used in Oregon
and Washington; M board feet

Industry	1910	1923
Furniture-----	792-----	9,653
Chairs-----	625-----	2,410
Woodenware-----	20-----	560
Veneer-----		290
Paper plugs-----		250
Fixtures-----	196-----	105
Miscellaneous-----		100
Brushes-----		40
Dairy-men's Supp;-----		20
Handles-----	361-----	15
Laundry App.-----		10
Motor vehicles-----		3
General millwork-----	436-----	
Columns-----	240-----	
Saddles-----	8-----	
Pulleys-----	5-----	

Lumber production amounted to 5,734,000 Board feet in 1932; 12,724,000 in 1933, and 7,050,000 in 1934.

Costs

In 1923 good sized stumpage, located close to transportation sold from \$3.50 to \$2.00 per thousand feet. Veneer logs, over 12 inches in top diameter and reasonably clear, straight, and sound sold for about \$40.00 per thousand b. f.. Green alder lumber at this time sold for \$30.00 to \$35.00 per thousand.

Durning 1936 alder lumber was worth \$30.00 per M b. f. in northern California. Kiln dried material is valued at \$40.00 per M, based on four inch by four inch material.

Each additional increase of one and one-fourth inches in thickness increases the price \$1.00 per M b.f..

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Bigleaf Maple (Acer macrophyllum)

Range

This tree reaches its best development on the bottoms and springy hill-sides of the coastal regions of the state. It is usually found in alluvial river bottoms along the margins of foot-hills and low mountain streams. Statistics of 1936 indicate a volume of 488,325,000 board feet (Scribner rule) of bigleaf maple within the state. Although occasionally it forms pure stands of small extent, bigleaf maple commonly occurs throughout its range as an incidental species, in small clumps or as scattered trees in mixture with Douglas fir, western red cedar, western hemlock, lowland white fir, and Oregon ash. The tree averages about 50 feet in height and 18 inches in diameter, although on the best of sites it reaches a height of 100 feet and a diameter of 40 inches.

In the open the trees have short trunks and dense, round-topped crowns, while those in dense stands produce timber comparatively clear of branches from one-half to two-thirds of their height. The boles are rarely free of bad croods, forks, burls, or other defects, which reduce to a considerable extent the value of the species for

commercial purposes.

Physical Properties

Bigleaf maple wood is moderately hard, heavy and fairly strong. It is diffuse porous and the wood appears quite similar to eastern maples except for its light reddish brown color. The wood in comparison to chestnut and yellow poplar (standard core woods) has much less swelling and is readily adaptable to core stock of the veneer industry.

In the furniture industry bigleaf maple has strength qualities excelling red gum and it, along with alder have supplanted red gum in the furniture industry of the Pacific North West. Durability of big-leaf maple is considerably low and logs left in damp situations during the warm months are likely to become infected within three or four weeks. In comparison scale, it is one half as durable as Douglas fir and Oregon oak, and about equal in durability to Oregon ash. The wood is usually straight grained and a fine uniform texture. Curly and birds eye figures accure less frequently than in eastern maples. Burls are quite common and when turned into veneer have a distinctive figure.

Consumption

Big-leaf maple is second in importance among the hardwood trees of Oregon in value and quantity. Statistics

show that the cut of bigleaf maple was definitely on the increase in 1928, but suffered a decrease during the depression. At present there is a definite increase in the use of this wood.

In 1928 about 65% of the bigleaf maple logs were sawed by wood using factories, the remainder by small operators who sold their lumber output in the open market. At this same time the furniture industry utilized 60% of the cut, the chair industry 35% of the cut and veneer 3%. At the present date a big increase has been made in veneer production.

Bigleaf maple burls are exported to the eastern part of the U. S. and to Europe as well. In 1936 exports of this material amounted to 397 tons. Exports in 1928 were valued at \$50,000.

Consumption of Oregon Maple; M board feet			
Product	1910	1923	1928
Furniture	2,916	1,579	4,824
Chairs		2,661	2,823
Handles	40	70	67
Fixtures	19	60	54
Vehicles		17	22
Boats	5		10
Woodenware		250	10
Saddles	6	57	
Miscellaneous	35		4
General Mill	370	137	
Pulleys	22		
Baskets	5	5	
Veneers		50	221

<u>Lumber Production M board feet</u>	
1925 -----	2,691
1926 -----	2,643
1927 -----	2,596
1928 -----	3,560
1929 -----	2,866
1930 -----	5,830
1931 -----	3,044
1932 -----	1,804
1933 -----	2,955
1934 -----	3,955
<u>1935 -----</u>	<u>3,190</u>

Uses

Bigleaf maple has proved an excellant wood for all different grades of furniture, as it works easily, glues and holds screws well, and takes a satisfactory mahogany, walnut, or enamel finish. In strength it compares favorably with most woods used by the furniture industry. Less wood waste in considered to result from its use than from that of any other hardwood.

Bigleaf maple is used chiefly for a medium-grade living-room, dining-room and bedroom furniture of both plain and fancy designs. In dining-room furniture finished in walnut or mahogany, bigleaf maple is used for legs, stretchers, and rails of tables. Small dining tables are sometimes made entirely of bigleaf maple, also enameled breakfast tables and tea wagons.

Its particular use in bedroom furniture depends on the character of the finish. Under enamel finish it is used for all exposed parts of chiffoniers, dressers, bureaus and vanity tables. This wood is seldom used in the manufacture of cheap furniture. About one-tenth of the bigleaf maple consumed by the furniture industry enters into the production of overstuffed and upholstered articles, including davenports, davenport beds, and chairs.

A small percent of bigleaf maple goes into veneer. Two general classes of veneer, termed plain and figured are produced from bigleaf maple. Burls are particularly highly figured with eyelets and bird's eye effects. Most of the bigleaf maple veneer is consumed by the furniture industry in the production of built-up lumber, or plywood, largely in cross-banding and backing of both 3 and 5 plywood panels faced with more expensive hardwoods, and occasionally for facing low grade panels.

In past years bigleaf maple was the favorite wood for long handles, such as broom, mop, and window brush handles, because of its moderate weight, moderate hardness, good qualities, and ability to take an excellent finish. At the present time, however, these articles in the Pacific Northwest are made almost entirely of Douglas fir.

Bigleaf maple because of its finishing and wearing qualities is a desirable wood for fixtures. When the wood is used for furniture and chairs, it is often finished in

walnut or mahogany, with a realistic appearance.

Some wood is utilized in the repair of various types of truck, delivery, and passenger bodies; in ease of working, nail and screw-holding power, shock resistance, and strength in bending and compression, bigleaf maple compares favorably with the eastern maples, which are popular with auto-body manufactures.

Bigleaf maple often enters into the manufacture of woodenware and novelties; The 10,000 feet of wood reported consumed under this general classification in 1928 was largely used in the production of smoking stands, sewing cabinets, and cooking spoons.

Miscellaneous uses are summed up in the following: Maple is well adapted for the construction of small boats; it is used in interior work, for doors, kitchen cabinets, picture frames, molding, shade and map rollers, spools, toys, musical instruments, and saddles. The sap of this tree like that of sugar maple is sweet and can be made into syrup.

Values

Data concerning the values of this wood are available up to 1932. At this time stumpage in small, poorly located units with scattered timber may sell for \$.75 per M, but when stumpage contains a comparatively high percentage of logs suitable for veneer it may bring as much as \$5.00. Stumpage within a mile of existing transportation facilities is usually worth from \$1.50 to \$3.50 per M.

Veneer logs of high grade, yielding plain veneer, se... for \$22.00 to \$26.00 per M feet. Logs yielding highly figured stock sell for \$40.00 to \$60.00 per M. Green bigleaf maple lumber in 1928 sold for \$30.00 to \$35.00 per M board feet.

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Northern Black Cottonwood
(*Populus trichocarpa*)

Range

This tree is found most extensively along river banks in the Willamette valley of western Oregon, also considerable amounts grow along the Columbia river basin from the Cascade mountains to the coast. The present stand in the state is estimated at 106,659,000 board feet, scribner rule.

<u>Volume by Counties M board feet</u>	
<u>County</u>	<u>Volume</u>
Benton	1,500
Clackamas	12,951
Columbia	19,660
Coos	510
Curry	400
Douglas	270
Hoodriver	8,311
Jackson	3,780
Lane	17,019
Linn	11,921
Marion	12,681
Multnomah	11,720
Josephine	275

Properties

The wood is light soft, not strong, close grained, and contains thin hardly distinguishable medullary rays. The sapwood is nearly white and weighs 23,77 pounds per cubic foot. The wood when green is heavy, and in drying out shrinks somewhat more than chestnut, which is a standard core wood for veneers. Cottonwood is of very low durability. It readily takes preservation treatments of creosote and under these conditions ranks high in durability with any species under similar treatment.

Consumption

Black Cottonwood stands third among the states hardwoods in quantity and value. Since 1910 the cut has depleted 50% because of depletion of supply; at the present time the supply is insufficient to meet the demand of pulp industries, which are forced to import the wood from Idaho and Canada. From 1923 until 1933 an average of 15,000 M per year was exported to the Orient to be used for matches.

Consumption 1930 in Oregon and Wash.

<u>Product</u>	<u>M b.f. Volume</u>
Pulp and paper	12,660
Excelsior	2,700
Furniture	1,425
Baskets	1,530
Boxes	976
Chairs	460
Veneers	1,870

Cottonwood lumber production
in Oregon M board feet

1925	1,102
1930	4,494
1931	4,516
1932	3,450
1933	6,022

At the present time 50% of the local demand is by the pulp and paper industry of the state. In 1910 the total pulp consumption in Oregon was 140,000 cords of which 21,900 cords were black cotton wood, in 1930 1,300,000 cords were consumed of which 21,090 were cotton wood.

Six excelsior plants were operating in Oregon in 1910 and consumed 10,740 M board feet of cotton wood. In 1930 four plants were in operation with a consumption of 2,700 M board feet.

Export to Orient Brerton Scale
M board feet

Year	Volume
1929	600
1930	2,000
1931	14,000
1932	2,500
1933	8,500

The cigar box industry used 10,000 b. f. of wood in 1923, while the cooperage industry consumed 1,133,000 b.f. in 1910 and 45,000 in 1923. At the present time both of these industries are not using cottonwood to any extent.

Uses

This wood because of its softness, ease of workability, lack of odor and taste, and color is adapted to many uses.

It is specially adapted for use as food containers and due to its slftness and light color it is well suited for pulp in the soda process, however the fibers are short for a high grade of pulp.

Black cottonwood is an excellant wood for basket material and turned products. It is also well adapted to core material for veneer, as it is light in weight and has little shrinkage. Cottonwood has all the requirements of a good excelsior wood, as it is light, tough, straight grained, lacks resin and has a good clean appearance when in the form of excelsior.

Value

The price of this wood is low compared to its actual value, because the owners of the scattered remaining stands are usually glad to dispose of the timber at any price. The continued use of the wood has been caused by availability at a very low price; lower than the price of other native woods, which could be substituted for it.

<u>Lumber Prices per M</u>	
<u>Year</u>	<u>Value</u>
1910	\$16.33
1923	23.80
1930	14.76
1931	12.51
1932	11.07

<u>Stumpage per M</u>	
<u>Year</u>	<u>Value</u>
1929	\$1.50
1930	1.62
1931	1.51
1932	1.60
1933	1.50

<u>Logs per M</u>	
<u>Year</u>	<u>Value</u>
1929	\$11.35
1930	12.92
1931	8.13
1932	7.15
1933	8.00

<u>Average Price per M</u>	
<u>Product</u>	<u>Price</u>
Pulp	\$5.50
Lumber	9.00
Veneer	14.00

Oregon White Oak (*Quercus garryana*)

Range

This tree is found throughout western Oregon and reaches its optimum developement in sections of the Willamette valley. At present there are 80,321,000 board feet (scribner rule) within the state. The favorite sites are in valleys and on dry gravelly slopes and table lands, while best developement of these Trees are found on agriculture lands. Polk county has 11,588 acres of oak type lands of which only 105 acres lie outside of the agricultural zone.

Properties

The importance of the wood is fourth among the hardwoods of the state. The wood is strong, hard and close grained. It contains numerous conspicuous medullary rays; color is a light brown or yellow and weight per cubic foot is 46 pounds. Wood from the second growth and young

trees is very tough and possesses a good deal of springiness and bending qualities, while that from old growth is brittle and very hard.

In comparison with eastern white oak the wood is harder and heavier, but shrinks less. The appearance of the two woods are quite similar, with the exception that Oregon oak is somewhat of a lighter color and that quartered sections have a greater display of flecks.

Oregon white oak equals eastern white oak in decay resistance and is rated about one half the durability of black locust, which has the greatest durability of any of the eastern hardwoods. Oregon oak has one half the durability of pacific yew and three fourths the durability of western red cedar. Second growth oak posts are known to last for 20 years under average conditions.

Consumption

Although Oregon oak is one of the four most important hardwoods of Oregon its use by secondary wood using industries has decreased nearly 90% between 1910 and 1928. The consumption in 1910 amounted to nearly two and one fourth million feet; while in 1928 it was about one fourth of a million feet. This sharp decline of consumption is a characteristic of all the hardwoods with the exception of alder. Reasons for which may be laid to the better stands having been destroyed and the present sites are

condusive to growth of only poor timber. Also second growth is not so well suited to furniture and fixtures because the grain is of a courser texture.

It is also proving true that manufactures of furniture in this state can afford to ship in a high grade of eastern oak, rather than use Oregon oak, which because of its numerous defects, proves rather expensive to work up to a quality equaling eastern oak.

Consumption Oregon oak thousand board feet		
Product	1910	1928
Handles	1,420	105
Chairs	487	90
Cooperage	200	
Saddles	50	
Boats	51	50
Fixtures	43	
Baskets	12	
Vehicles	12	5
Interior	10	
Miscellaneous		3

The 1930 market did not exceed 15,000 board feet, most of which went into handle stock, The principle markets for this material is in California and Nevada.

Uses

Because of the properties of hardness plus little shrinkage in proportion, Oregon oak is well adapted for flooring. The wood is now chiefly used for handles, chairs, boats and stirrups, however in the past considerable quantities entered into the manufacture of furniture, cooperage and fixtures. It has excellant bending qualities, which make it an outstanding wood for stirrups, saddles, and bow
bushes and braces in chairs. I

backs and braces in chairs. In using the wood for furniture a loss of 40 to 50 percent of the log is had in cutting out defective material. The wood is well adapted to cooper-¹age, due to its impervious qualities and was used considerably for this in the past, but the availability of soft woods, and the present low quality of Oregon oak has eliminated this use.

Oregon oak is used in the construction of boats for places where strength and durability are needed, such as stem posts, strakes, fenders, towing bitts, davits, and hatch wedges. As a fuel, the wood ranks second in the state to Douglas fir. It has 50% more fuel value than Douglas fir (cord for cord) and has 97% the heat value of a ton of coal. The shock resistance of the second growth material makes it well adapted for handle stock. The best material for such use is grub oak or second growth having a large amount of sapwood. The old growth material is hard to work, and very brashy.

Miscellaneous uses of the wood are in the repair and manufacture of farming machinery and equipment, for insulator pins, tree pins, pole steps for scutcheons of flax mills, picker sticks for woolen mills and screen frames for flour mills. Up to the last year a factory at Oakland, Oregon had been making donkey engine friction blocks and rolls for saw mills from Oregon oak.

This wood is also very fine for posts and practically all fences within its range have Oregon oak for post.

Values

Lumber that is produced for chair factories must be of good quality and brings from \$100.00 to \$175.00 per thousand. Small demension material is worth \$50.00 a thousand. At the factory clear logs eight and nine feet long bring \$40.00 to \$50.00 per thousand; four foot handle bolts are worth from \$10.00 to \$ 15.00 per cord. Logs that are 12 feet and longer, suitable for planks and timbers are worth from \$60.00 to \$85.00 per thousand. Fuel wood stumpage is valued from \$.50 to \$2.50 per cord; stumpage for handle stock is worth \$7.00 to \$8.00 per thousand board feet; Stumpage having saw logs 12 to 16 feet long is worth \$10.00 to \$20.00. These figures are taken from 1928 statestics.

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Oregon Ash (*Fraxinus oregona*)

Range

The bulk of the small supply of Oregon ash of the the northwest is found in Oregon. It grows up to an elevation of 2,500 feet in the mountainous regions, and ordinarily occures in vaalleys and along river bottoms especially along the Willamette river and its tributaries.

The supply is so small that it holds the least importance of the commercially important hardwoods of this state.

In 1936 there were 30,851,000 board feet (scribner rule) in this state. In 1936 there were 30,851,000 board feet (scribner rule) in this state.

Properties

The wood is hard, brittle, coarse grained and contains many thin medullary rays. It is ring porous, light brown in color with thick lighter colored sap. The weight per cubic foot is 35.72 pounds. Ash has one half the durability of Oregon oak.

Consumption

Very little of the material is used by the wood plants of this state, although it gains some importance from its burl~~is~~s, which are of good quality and are exported in small quantities to the eastern states and Europe.

Consumption of ash M board feet	
Year	Volume
1925	787
1926	1,253
1927	1,053
1928	237
1929	400
1930	128
1931	127
1932	16
1933	81

Use

This wood is similar to Oregon oak in physical properties and uses, but has not the quality of Oregon oak. Due to the coarseness of grain it is not especially adapted

to furniture of high grade. It is sometimes used for flooring and interior trim in buildings. It is well adapted in places where strength and toughness are needed. As fence post material it ranks below ~~ak~~ with about one half of its durability. Probably ash is valued mostly as a fuel wood.

Value

Ash logs produce only 10 to 5 percent of clear material and as the stands are scattered and thin this wood is not in great demand for any commercial product. One fourth of the material is bought on the open market as logs, the remainder of the material is purchased by utilization plants; if the form of the mill run is one to two inches thick it is valued at \$35.00 to \$50.00 per thousand board feet.

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Miscellaneous Woods

Of the hardwoods which are of lesser commercial importance, cascara (*Rhamnus purshiana*) is the most outstanding. This tree inhabits the moist uplands, especially of the coast range. It is found growing on old burns and areas of logged off land and is usually growing on old burns and areas of logged off land and in mixtures with reproduction of Douglas fir, White fir, Hemlock, and spruce; It seldom appears in pure stands.

Cascara has been practically exterminated in the more

accessible places, as the harvesting of its bark has for a long time been profitable. At present the demand is increasing for the bark, which has properties valued by the drug industry. In 1936 the price was \$0.08 per pound on the dock and future indications point to a rising market. No information is available to the supply within the state or the amount which is harvested each year. Estimations by railroad companies who ship the material in car-load lots, place the figure at twelve carloads per year.

Oregon myrtle (*Umbelluria californica*) is valued highly because first it is not found in any other place in the world and secondly the wood displays a beautiful grain and takes a high polish. Cruise data of 1936 gave a volume of 58,763,000 board feet within the state. It inhabits the coastal region of southern Oregon, extending down along the coast to the northern tip of California, reaching its optimum growth in Coos and Curry counties. This tree requires abundant moisture and favors the bottoms of valleys and flat open land along river bottoms. Although this tree is an angiosperm it does not drop its leaves in the winter.

The wood is heavy, hard, strong and is susceptible of receiving a beautiful polish. The heart wood is light brown, with thick lighter colored sap-wood, composed of 30 to 40 layers of annual growth. The weight per cubic foot

is 40.61 pounds. The leaves and twigs posses a volitile oil usefull for medicinal purposes.

Most of the wood is used by novelty factories, however a factory in Portland cuts the wood into veneer by a special method, producing a ribbon or strip effect in the wood. Lumber is also produced and is of good quality and possesses excellant working properties. Often time the natural color is darkened by keeping the logs submerged in water for a long period of time.

In working up the material, the logs are bucked up into four foot lengths and then into slabs about four inches thick. They are then allowed to season four to six years. The wood is of very low durability and when logs are left in the woods they are speedily attacked by a small worm.

Tan Oak

Tan oak (*Lithocarpus densiflora*) grows in the valley of the Umpqua River of southern Oregon. Although it is the most important tree for tannin in North America it is not used for the production of tannin in this state. In 1936 cruise data showed a volume of 439,465,000 board foot in the state of Oregon. The wood is hard, strong, close grained, and brittle. The color is a bright reddish brown. This wood has no value for construction and probably finds its biggest use as fuel.

Aspen

Aspen (*Populus tremuloides*), which grows east of the Cascade Mountains is little used. The wood is soft, not strong

and has no durability. It is light in weight and not especially desirable as a fuel.

Miscellaneous

Madrone (*Arbutus menziesii*), vine maple (*Acer circinatum*), chinquapin (*Castanopsis chrysophylla*), canyon live oak (*Quercus chrysolepsis*), and California black oak (*Quercus kelloggii*) are all found within the boundary of the state. Madrone is valued for its burls; Volume of this wood within the state from a 1936 cruise was 247,127,000 board feet. None of the above woods are sawed commercially to any extent, they are however used for novelties in certain districts, the extent of which is unknown.

Burls

Madrone, bigleaf maple, ash, myrtle and walnut often form burls, which are highly desired by veneer manufactures. All of this material is shipped out of the state, some of it going to the Atlantic coast and the majority to Europe. In 1936, exports of burls amounted to 6,000,000 board feet. In 1935, 726 tons of burls were exported of which maple (bigleaf) amounted to 37%, myrtle 15%, with ash and walnut making up the remaining 23%. At the present time this material sells for \$0.02 to \$0.10 a pound.

Summary

The hardwoods of Oregon, and the Pacific Coast, although not comparing in quantity and quality to the eastern species,

hold a significant place within this area. Many of them, especially red alder are well adapted to commercial uses and in the beginning their abundance and properties were paramount in helping develop the furniture manufacturing business of the Pacific coast to the present status of this day. During the year of 1923 the hardwood factories of Oregon and Washington produced products valued at \$10,000,000 and employed 2,9000 persons. Possibilities for future growth seem good as approximately one third of the furniture used on the Pacific Coast is shipped from the east. This suggests expansion of local production without the invasion of outside markets. With further depletion of our hardwood forests and in the presence of enlarging industries using these woods the value of the remaining stands are increasing. This undoubtedly means that the future holds in store some kind of a sustained yield for these stands, which may be practiced in a most profitable manner.

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Bigleaf Maple and Cotton-
wood scattered along the
bank of the Willamette
river.



Bigleaf Maple



Second Growth Oak, size limiti-
ng use to posts and fuel.

SCHOOL OF FORESTRY
OREGON STATE COLLEGE
CORVALLIS, OREGON

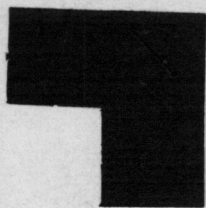
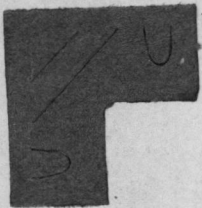
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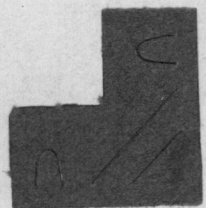
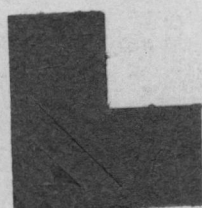
Alder along stream, logs
suitable for furniture
material



Stand of cottonwood
along Willamette riv-
er. Large tree is of
outstanding size,
Five feet, six in-
ches D B H



Picture Missing



Oregon Ash, along
drainage ditch



Oregon Ash growing
in swale, a frequent
habitat of this tree.