

( C O P Y )

THE GOVERNMENT OF  
THE PROVINCE OF BRITISH COLUMBIA

DEPARTMENT OF LANDS  
WATER RIGHTS BRANCH

Victoria, B.C.  
October 23rd, 1930.

E. C. Ward, Esq.,  
C/o Mrs. C. H. Meredith,  
1019 Gramercy Drive,  
Los Angeles, Calif., U.S.A.

Dear Sir:

We are, as requested, sending you under separate cover thirty-six photos from Marble River Power Report and six prints of plan #2739-H.

Attached hereto you will find a list of titles of photos according to the file Nos. on back of prints.

Yours very truly,

J. C. MacDONALD

Comptroller of Water Rights

per (Signed) E. P. McKie

EPH:PR  
Enc.

Titles to Photos

- 685 - Alice Lake from Bluff near Narrows.
- 686 - Alice Lake and Snow Saddle from Trig. Station #5.  
(With the Kicker on a bath tub)
- 687 - Alice Lake near head.
- 688 - Launch of "Bushbucker".
- 689 - Benson River, foot of Canyon.  
Possible site of diversion line.

Mr Fletcher

This copy will advise you as to how to secure more pictures of Alice Lake.

McKie

( C O P Y )

ORTEOUS & COMPANY  
FOREST ENGINEERS  
919-20-21 LICHT Building  
SEATTLE, WASHINGTON

Sept. 29th, 1931.

Mr. Willis C. Ward,

Orchard Lake, Mich.

Dear Sir:

I wish to apologize for the length of time I took in answering yours of August 7th, but the fact is I have been out of touch with my office for the past two months and your letter was held for my attention.

Regarding your timber on the western end of Vancouver Island, the question isn't what it is worth today, but what one could get for it. As there is no timber changing hands at all and the temporary low price of logs, makes stumpage not worth very much. If possible, I would advise you not to attempt to sell it now as this period we are going through in the timber industry can only be temporary, as the amount of standing timber that is commercially valuable is limited on the Pacific Coast.

In western Washington about 70% of the privately owned timber is owned and controlled, through their ownership, by one corporation, so that instead of Washington cutting out in the next 20 years at the present rate of cutting, a great many operations will be through in the next five years, leaving a few larger ones with about thirty years life. I believe this will work to the advantage of timber owners in British Columbia, as the dropping off in Washington will have to be taken up there and in Oregon.

We would be glad to handle your property on a 5% commission but as I said before, I don't believe there is any hope at the present time.

Do you wish me to return the maps and photographs?

Yours very truly,

ORTEOUS & CO.,

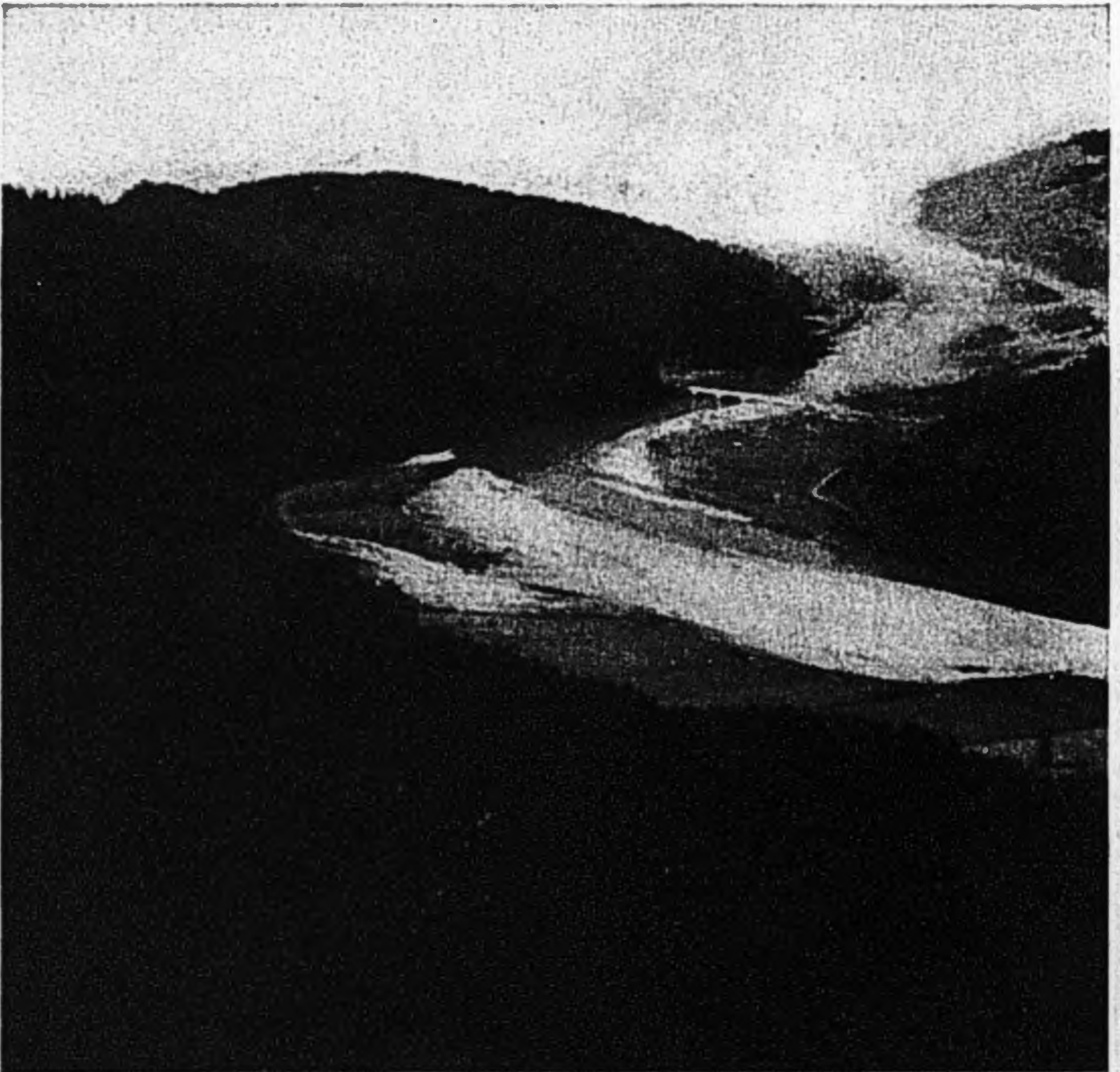
BY (Signed) Norman Porteous

NP/MT



*Marked*

# THE STORY OF THE TIMBER



*Shore Timber*



# *The Story of the Timber*

A STUDY

by

WILLIS C. WARD



**F**AMILIARITY of the Ward family with the timber business began a century ago. The author's grandfather, Nathan Ward, began locating tracts of pine timber in northeastern New York State for New York capitalists during the early 30's of the last century. During the 50's, the author's father, David Ward, located cork pine tracts in Michigan and Wisconsin for Detroit capitalists, and carried on logging operations and lumber manufacturing from 1857 until his death in 1900. The active business experience of the author has been that of a logger and manufacturer of white pine in Michigan from the early 80's of the last century to 1913.





## HIGHLIGHTS of Softwood Lumber Production

Two hundred and twenty years after the Pilgrims landed at Plymouth or 90 years ago the annual production of lumber in the United States had reached but 1 billion feet.

90 years ago in 1840 with a population of 17 million the annual cut was 1 billion feet of hard and softwood lumber.

60 years ago in 1870 with a population of 38 million the annual cut was 13 billion feet of hard and softwood lumber.

30 years ago in 1900 with a population of 76 million the annual cut was 26 billion feet of *softwood* lumber alone.

3 years ago in 1928 with a population of 120 million the annual cut was 28 billion feet of *softwood* lumber alone.

### Approximate Cut

1620 to 1840—220 years cut *hard* and *softwood* lumber equalled 50 billion feet.

1840 to 1870— 30 years cut *hard* and *softwood* lumber equalled 210 billion feet.

1870 to 1900— 30 years cut *softwood* lumber alone equalled 561 billion feet.

1900 to 1930— 30 years cut *softwood* lumber alone equalled 840 billion feet.

Over 50% of all the softwood lumber that has ever been cut in the United States has been cut in the past 30 years or at the rate of approximately 280 billion feet each decade.

The cut shown above has swept away all the original growth pine and hemlock in the states north of the Ohio River and 95% of all the original growth southern pine and cypress, besides considerable second growth southern pine, the only variety of softwood that has reseeded and reforested successfully enough in the United States to be a factor in lumber production.

It has also swept away 80% of the easily accessible first growth fir of the Northwest, which is that growing from sea level up to 1500 feet elevation. Nearly all of the remaining timber in the Northwest stands above the 1500 foot level. This takes it out of mass log production territory.

While future supplies of minerals are hidden and these supplies may be inexhaustible, the supply of softwood trees several hundred years old and capable of producing high grade lumber is in sight and has been approximately measured. As soon, at least, as the limited remaining mass log production territory of the South and the states of Washington and Oregon is cut, over-production of lumber in the United States must cease, on account of the physical and financial obstacles of operating in rough mountain country. Therefore, as mass log production territory diminishes, the Redwood Belt in becoming the most accessible original growth timber will gain greatly in importance. Human agencies cannot prevent these underlying factors from asserting themselves. No other natural resource, such as oil, copper, coal, rubber, and crops in general, nor any manufactured product has any such brake imposed by nature on its future overproduction. With this advantage, softwood lumber manufacturers can dismiss their fear complex as to the ultimate future of the softwood lumber market, and investors can buy carefully selected tracts of timber with full confidence in the future of their investment.

## The Story of the Timber

**T**HIS story is not fiction. It portrays the impending changes in the lumber world. It has to do with the romantic history of the lumber industry in America, its long career of prosperity, its recent difficulties, and its outlook for the future.

In spite of the rapidly diminishing supplies of accessible timber, the price of lumber at the mills has fallen during the last decade. To many lumbermen the over-production of lumber is a vital question. It has overshadowed a much larger question for the whole people as to an impending timber shortage. To clear the atmosphere and present a true perspective, it is necessary to consider American lumber history from the beginning.

When people from England settled at Jamestown and Plymouth in the seventeenth century, they found forests of vaster extent than they knew. In that respect they had landed on a continent unique among all others on the globe. A belt of softwood forest several hundred miles in width bounded pretty much of its shore line along the Atlantic Ocean and the Gulf of Mexico. Another belt of lesser width bounded the western shore of its northern portion, along the coast of the Pacific Ocean. All other continents put together had but a small fraction of the *coast* softwood forest that North America was favored with. The pines of other continents were on mountain ranges and headwaters of streams in their interiors. North America was also favored with a softwood belt penetrating its interior up the waterways of the St. Lawrence River and the Great Lakes. Extending from the mid-Atlantic Coast westward to the prairies and lying between the Northern Pine and Southern Pine Belts, magnificent hardwood forests covered a vast area with the finest and best stand of Temperate Zone hardwoods on the globe. This completes the original forest picture with which to compare our present inventory of remaining original forests.

The early inroads on forests in America progressed slowly, but in time fully kept pace with increasing population. Two great tides of emigration finally led westward toward the middle of the last century—one down the Ohio River, the other via the Erie Canal and waters of the Great Lakes. The flat and rolling timbered land, whose soil was

Copied  
in Senate  
Copeland's  
Resolution  
passed by  
U.S. Senate



suitable for farms, was rapidly cleared up. This was timbered with hardwood. The hardwood was quite largely wasted; felled and burned up in log heaps, not, however, by that popularly supposed vandal, the lumberman. It was done by the settler himself in clearing the land for his farm. The lumberman followed the pioneer, keeping pace westward in the pineries of the Great Lakes. The greatest emigration of civilized man was in progress. Ocean fleets, far beyond any known before, were built to carry emigrants from the old country to the land of opportunity where a free gift of a farm from Uncle Sam awaited each adult. Shortly, the rich prairies were overtaken. With no timber to clear away, it was ready for the plow and the first season brought abundant crops. The northern pine forests were swept away to provide homes for this swarming immigration and shelter for live stock, crops, and farming implements. Meanwhile, the vast southern pine forests were called on to assist in providing lumber, and soon the largest production of lumber known before or since in all the world was in progress throughout the southern area.

Soon a demand for hardwood appeared beyond what was afforded in clearing up farms, where so much of it had lately been burned up in log heaps. There remained the practically untouched mountain areas of virgin hardwood in the States of Kentucky, West Virginia, Tennessee, and a large territory in parts of surrounding states. This had been left behind along with some hardwood in the low lands of the Mississippi Valley and a belt of hardwood in Northern Michigan and Wisconsin as not being on land desirable for farms, either on account of rugged topography, cold climate, or its position on land subject to overflow. These hardwood areas were now attacked. With the exception of some low lands in the lower Mississippi Valley, they are now virtually cut over so that only a small percentage of first growth hardwood remains. There also remains only a small percentage of first growth southern yellow pine. The deciduous cypress, a softwood of the southern swamps, a much lesser stand of timber than the southern pine is also largely cut. When it is realized that during the first 30 years of the present century we have cut and consumed over half of all the softwood lumber that has ever been cut in the United States, it is manifest that we are fast approaching a timber famine.

The cutting of the timber in Canada has been a near repetition of that of the United States, but on a smaller scale.

The original stand of first growth timber in the United States occupied an area of approximately 670 million acres east of the prairies, and 140 million acres west of the prairies. The original timber on this combined acreage is estimated by the U. S. Forestry Service at 5,200 billion feet of commercial timber.

The combined *hardwood* and *softwood* lumber cut ran from an annual consumption of one billion feet in 1840 up to an average *softwood* lumber consumption alone of 30 billion feet annually between 1906 and 1916. Then it dropped back to an average of 28 billion feet of *softwood* lumber, where it remains. Substitutes for lumber are said to have caused the consumption to remain stationary of late years. Otherwise it would have kept on mounting to perhaps 40 or 45 billion feet annually.

In the meantime this immense consumption, stationary as it is of late years, has swept away nearly all of our original softwood timber east of the prairies and nearly all of our original timber growing on flat land in the Pacific Coast States.

Although the first growth hardwood is largely cut, a considerable stand of second growth has taken its place on mountain areas and farmers' wood lots, being self-seeded in each case.

The cypress does not re-seed successfully, other growths of inferior hardwood species choking out the seedlings. The southern pine is probably the best re-seeder of all the native conifers and large areas of second growth forests of this species have been growing throughout the older southern states of Virginia, the Carolinas and Georgia upon slashings of the first growth. The older second growths in the southern states now furnish the major output of lumber of southern pine sawmills. The second growth pine is practically devoid of durable heartwood lumber, which can only be obtained from a growth of large matured trees requiring a long period to grow. With a given output of lumber by the sawmills, the areas of second growth southern pine will be cut out much faster than the first growth has been cut, because the average contents of the smaller second growth trees are much less than they are in the large first growth trees.

#### TIMBER WEST OF THE PRAIRIES

The topography of the land on which our original softwood forest west of the prairies grew presented a marked contrast to that east of the prairies upon which the eastern softwood forests stood. While the eastern softwood forests were generally the extreme in accessibility owing to



their low altitude and the generally flat or gently rolling surface of the land (especially in the South), the western forests with very limited exceptions were in high mountain districts. The exceptions are flat or hilly low altitude land and constitute a very small percentage of the entire timbered area west of the prairies. These favored locations are practically limited to a narrow strip of land along the shores of Puget Sound and the ocean coast in Oregon, Washington, and Northern California, and also to certain valley lands, mainly in the Columbia River basin. The forests of western Canada stand on lands presenting a similar small percentage of low altitude areas compared to the total forested area west of the Canadian prairies, which is generally mountainous.

The character of the western timber is different from the eastern softwoods, being generally much larger, especially in the lower altitudes.

The lower areas mentioned in Washington and Oregon were in the main timbered with Douglas fir, next in size and height to the redwoods of northern California. The redwood and Douglas fir are the two tallest softwood trees in the world. As indicated above, by far the greatest area of timbered land was in the high mountains, Douglas fir and sugar and western yellow pine being the principal species in the mountains. These pines are the largest of their species, and some are about the size of the large low altitude fir but not so tall. The fir on the mountains varies greatly in size but is short bodied. Much of it is as large as the low altitude fir but none approaches it in quality.

The pines in the mountains vary greatly in quality and size, especially in the western yellow pine. The best of the pines run high to upper grades, and particularly the sugar pine.

The redwoods average very high in upper grades, especially in the northern half of the redwood belt.

Western hemlock is one of the major woods and occupies quite large areas in Washington and British Columbia. It provides a good grade of common lumber but runs low in higher grades. It is largely mixed with fir on certain altitudes. It is not nearly as large as fir nor as tall.

Washington red cedar is next in stand to hemlock. It is mixed with other species more or less. It is large but tapers greatly and is scrubby, the limbs running low on the trunk. About two-thirds of the contents of the tree is often cut into shingles on this account.

Other species are balsam and spruce, within certain ranges of the sea shore, chiefly in British Columbia, Washington, and Oregon, all of

small to medium size for western timber (save a limited stand of large spruce), and used largely for making paper. Other woods are Idaho white pine and larch in Idaho and Montana, mixed firs on the mountains over broad areas, and in very limited stands sprinkled among different species are Port Orford cedar on the coast of southern Oregon, and yellow cedar in the higher timber altitudes of British Columbia.

The cut has not been large in amount in these western timbers compared to southern yellow pine, except in Douglas fir. Since about the year 1905, one hundred and forty billion feet of Douglas fir have been cut.

Douglas fir is found from near sea-level up to 5,000 feet altitude. It reaches its greatest perfection in Washington and northern Oregon, down to a few miles south of Yaquima below the 2,000 foot level, where it cuts out about 35% No. 2 Clear and better. Further south of Yaquima the first growth fir is smaller, coarser-grained, and harder, and cuts out about 15% No. 2 Clear and better.

Western yellow pine reaches its greatest perfection in texture (but not in size) around Klamath Falls, near the Oregon line. In this district the pine covers a quite extensive comparatively level area, conducive to cheap logging.

Sugar pine reaches its greatest perfection east of Fresno in the Sierra Nevada Mountains. Sugar and western yellow pine and large mountain fir are intermixed in varying proportions all the way along the Sierra Nevada Mountain Range from opposite Fresno to the Klamath Falls region. The percentage of No. 2 Shop and better lumber in both sugar and western yellow pine varies from 10 to 60%, being affected greatly by varied altitudes and latitudes, both in texture, size and tallness. Forestry people say the sugar pine's range in altitude is from 3,000 to 6,000 feet with best growth at 5,000 feet altitude; Jeffrey pine from 4,000 to 9,000 feet with best growth at 5,500 feet; Ponderosa pine from 2,000 to 7,000 feet with best growth at 4,000 feet; while Idaho and Montana white and yellow pine also range from 2,000 to 7,000 feet. (Ponderosa and Jeffrey pine are both included in the term "western yellow pine.") *Coast* fir ranges from near sea level to 3,000 feet with best growth from lower levels up to 1,500 feet elevation. Above this it deteriorates as it ascends and hemlock also intermingles increasingly, and gradually takes its place above this height. Most of the coast fir left is above the 1,000 foot level. There is comparatively little Douglas fir on the virgin areas between the Olympic range and the ocean. The timber



in this region is mostly hemlock and balsam. Over 75% of the Douglas fir tributary to Puget Sound in Washington has been cut. The remainder will disappear in much faster ratio on account of present increased annual cut over several years ago.

Alaskan timber is mainly fitted for pulp wood, being generally too small for lumber.

Vancouver Island now contains the greater part of the low altitude virgin timber remaining in British Columbia. It is on a very narrow belt, however, skirting the shore of the Island in the main, but extends across it on the north end at Quatsino Sound, and also at Alberni Canal near its southern end.

The timbered areas of the Rocky Mountains generally contain isolated scattered tracts and thin stands of low grade timber, mostly firs, of small size in a greatly extended area of rough mountain country, and will remain indefinitely inaccessible on account of prohibitive costs in reaching this timber with railroads. Only certain districts in Idaho, Montana, Arizona and New Mexico are of better quality and greater accessibility, due to overland railways, than the average Rocky Mountain timber. These districts, however, are quite limited and have been operated for some years past, so much so in fact that the cut is on the decline in Idaho and Montana.

Lumbering commenced in California in the fifties of the last century about the period that the softwood cut of the states east of the prairies began assuming considerable proportions. It began in Washington in some volume when the overland railways reached Puget Sound, and in British Columbia when the Canadian Pacific Railway reached the coast. It also began in Idaho and Montana about the same time and in Arizona in the early nineties. It will thus be seen that our western timber reserves have been tapped for some time as well as those of Canada. In fact Washington has been the leading state in the Union in softwood lumber production each year for the past quarter of a century, with the exception of one single year.

#### REMAINING WESTERN STAND OF TIMBER

In Table 1 following, are forest figures for the Pacific Coast States, compiled by the Western Forestry & Conservation Association, E. F. Allen, Forester, and jointly endorsed by State, private, and Federal agencies in California, Oregon, Washington, Idaho, and Montana. The report was made in 1926 or thereabouts.

TABLE NO. 1

#### REMAINING WESTERN STAND OF TIMBER (BILLION FEET)

	California	Oregon	Wash'g'n	Montana	Idaho	Total
Western Yellow Pine.....	77	76	14	10	17	194
Sugar Pine .....	32	....	....	....	....	32
Douglas Fir .....	33	246	136	*20	*23	458
White Fir (Balsam).....	33	....	....	....	....	33
California Red Fir.....	18	....	....	....	....	18
Incense Cedar .....	9	....	....	....	....	9
White Pine .....	....	....	....	2	14	16
Redwood .....	70	....	....	....	....	70
Douglas Fir in Redwood	6	....	....	....	....	6
Miscellaneous .....	7	....	....	....	....	7
Other Varieties .....	....	**75	†133	‡18	‡28	254

\* Larch included  
\*\* Hemlock and Balsam (probably)

† Hemlock, Cedar, Balsam (probably)  
‡ Lodgepole Pine

	Billion Feet		Billion Feet
Western Yellow Pine.....	194	Redwood .....	70
Sugar Pine .....	32	Douglas Fir in Redwood.....	6
Douglas Fir .....	458	Miscellaneous in Redwood.....	½
White Fir .....	33		
California Red Fir.....	18		
Incense Cedar .....	9		
White Pine .....	16		
Miscellaneous .....	7		
Other .....	254		

Outside of Redwood Belt..... 1021 Inside of Redwood Belt..... 76½

TOTAL BILLION FEET... 1097½

	Commercial Areas of Virgin Timber (Acres)	Total Virgin Timber Stand (Feet)	M Ft. Average per Acre
California (Other than Redwood Belt)	13,100,000	208 billion	16
Oregon .....	18,730,000	396 "	21
Washington .....	12,050,000	282 "	23
Montana .....	8,340,000	50 "	6
Idaho .....	9,580,000	81 "	8
	61,800,000	1017	16
California (Redwood Belt) Redwood....	1,100,000	70 "	63
Douglas Fir in Redwood.....	.....	6 "	5
	1,100,000	76 "	69

It will thus be seen that there was standing in the principal timber states of the West in 1926, some 1,097 billion feet of virgin softwood timber out of the supposed 5,200 billion of all kinds of timber originally standing in the United States.



The great bulk of this 1,097 billion feet stands in the mountains, small inroads upon which have been made as yet. The timber logged so far has been taken chiefly from near sea level altitudes, upon which very heavy inroads have been made in the Northwest. The most accessible parts of the mountain ranges are now being attacked where the timber is of sufficiently high grade and in stands thick enough to warrant it.

**HOW HAS THE ESTIMATE OF ORIGINAL FIRST GROWTH TIMBER IN THE UNITED STATES MATERIALIZED**

The original stand of timber in the United States has been estimated by the U. S. Forestry Service at 5,200 billion feet. The first census (see Table 2) taken of lumber production in the United States, that of 1869, showed an output of nearly 13 billion feet of lumber, softwood and hardwood combined. Until 1899 the censuses of softwood and hardwood were taken together, but for the following thirty years they were taken separately, the output of hardwood during this period being about one-fifth of the total production. By approximation to the ten year censuses from 1869 to 1899, and deducting one-fifth for the hardwood cut, we arrive at the figure of 517 billion feet as the production of softwood lumber for the thirty-year period of 1869 to 1898, inclusive.

From 1904 we have had an annual census of both softwood and hardwood separately (see Table 2). By the same approximation as above for the intervening years between 1899 and 1904, together with the later annual censuses, we arrive at a production of 852 billion feet of softwood lumber for the thirty-year period from 1899 to 1928, inclusive. Hence we have the following:

*Total original stand of softwood and hardwood timber in United States* .....5,200 billion ft.

	Softwood	Hardwood	Total
Production of lumber for 30-year period, 1869 to 1898, inclusive	517	129	646
Production of lumber for 30-year period, 1899 to 1928, inclusive	852	213	1,065
<b>TOTAL</b> .....	<b>1,369</b>	<b>342</b>	<b>1,711</b>
Indicated Remaining Stand.....	3,489 billion ft.		

During the past sixty years therefore (during which the great expansion of lumber production has taken place), we have produced and consumed approximately 1,369 billion feet of softwood lumber, of which amount approximately 230 billion feet has been produced in the West Coast states since 1904.

This indicates that we might expect some substantial returns from the original timber out of the difference shown of 3,489 billion feet. But this figure does not make allowance for the large amount of hardwood cut and burned in clearing up farms, nor for the timber destroyed in other ways. So whatever timber we are able to harvest out of this indicated remainder of the original stand will come very largely out of the recent estimate of 1,097 billion feet of original timber standing mainly in the mountains of California, Oregon, Washington, Idaho and Montana; for the original timber is practically all cut east of the Rockies save a comparative dribble of hardwood and southern yellow pine.

**ACCESSIBILITY OF STANDING TIMBER**

To lumbermen operating in softwoods of the East, the term "accessibility" had little meaning and gave no concern. The vast smooth softwood forested areas were grid-ironed with either railroads or rivers capable of floating logs, which brought the standing timber within almost as easy access to its outlet as the farmers had for their crops. The environment of the standing timber west of the prairies is mountainous, the extreme opposite of that of the softwoods of the East.

Accessibility is a relative term. Perhaps if we consider the extremes of accessibility one can get a better idea of its significance in regard to timber.

The great market in the United States east of the Rocky Mountains (the greatest in the world) is the goal. We wish to gather the standing timber, saw it into lumber, move it to this area, and distribute it there.

There are two prime factors to maximum accessibility of timber; viz.:

- (a) The least cost per M. feet. This requires the least physical effort per M. feet to log, saw, convey, and distribute the lumber.
- (b) Quality—The higher the quality, the higher cost it will stand in operating and conveying it to market.



**TABLE NO. 2**  
**CENSUS OF LUMBER PRODUCTION IN UNITED STATES**  
**(M ft. board measure)**

Year	All Kinds	Hardwood	Softwood	Spruce	White Pine	Hemlock	Southern Yellow Pine	Cypress
1869.....	12,755,543	.....	.....	.....	.....	.....	.....	.....
1879.....	18,091,356	.....	.....	.....	.....	.....	.....	.....
1889.....	23,845,046	.....	.....	.....	.....	.....	.....	.....
1899.....	35,084,166	8,634,021	26,153,063	1,448,091	7,742,391	3,420,673	9,658,548	495,836
1904.....	34,135,139	6,781,827	27,353,312	1,303,000	5,332,000	3,268,000	11,583,000	749,000
1905.....	30,502,961	5,588,343	24,914,618	1,165,000	4,983,000	2,804,000	8,771,000	753,000
1906.....	37,550,736	7,315,491	30,235,245	1,644,000	4,583,000	3,537,000	11,661,000	839,000
1907.....	40,256,154	9,254,929	31,001,225	1,726,000	4,192,000	3,373,000	13,215,000	757,000
1908.....	33,224,369	7,678,363	25,546,006	1,411,000	3,344,000	2,530,000	11,236,000	743,000
1909.....	44,509,761	10,612,802	33,896,959	1,748,000	3,900,000	3,051,000	16,277,000	955,000
1910.....	40,018,282	8,857,426	31,160,856	1,449,000	3,352,000	2,836,000	14,143,000	935,000
1911.....	37,003,207	8,100,819	28,902,288	1,261,000	3,230,000	2,555,000	12,896,000	981,000
1912.....	39,158,414	8,631,998	30,526,416	1,238,000	3,138,000	2,426,000	14,737,000	997,000
1913.....	38,387,009	8,084,460	30,302,549	1,046,000	2,568,000	2,319,000	14,839,000	1,097,000
1914.....	37,346,023	7,939,184	29,406,839	1,245,000	2,632,000	2,165,000	14,472,000	1,013,000
1915.....	37,011,656	7,526,893	29,484,763	1,400,000	2,700,000	2,275,000	14,700,000	1,100,000
1916.....	39,807,251	8,475,351	31,331,900	1,250,000	2,700,000	2,350,000	15,055,000	1,000,000
1917.....	35,831,239	6,657,117	29,174,122	1,125,000	2,250,000	2,200,000	13,539,000	950,000
1918.....	31,899,494	6,222,963	25,667,531	1,125,000	2,200,000	1,875,000	10,845,000	630,000
1919.....	34,552,076	7,144,946	27,407,130	979,000	1,723,000	1,754,000	13,062,000	656,000
1920.....	33,798,800	6,989,300	26,809,500	825,000	1,500,000	1,850,000	11,091,000	625,000
1921.....	26,960,864	4,775,360	22,185,504	629,000	1,273,000	1,201,000	10,959,000	770,000
1922.....	31,568,888	4,924,554	26,644,334	731,000	1,382,000	1,534,000	11,500,000	868,000
1923.....	37,165,505	6,261,524	30,903,981	757,000	1,571,000	1,872,000	12,948,000	819,000
1924.....	35,930,986	6,525,301	29,405,685	717,000	1,530,000	1,878,000	12,486,000	877,000
1925.....	38,338,641	6,628,163	31,710,478	751,000	1,521,000	2,139,000	13,235,000	902,000
1926.....	36,935,930	6,466,586	30,469,344	647,000	1,366,000	2,158,000	11,751,000	752,000
1927.....	34,532,420	6,089,898	28,442,522	529,000	1,344,000	2,070,000	10,891,000	609,000
1928.....	34,142,125	5,797,028	28,345,095	571,000	1,366,000	2,221,000	10,610,000	501,000
	900,567,930	179,330,626	721,228,202	27,272,000	65,680,000	58,241,000	316,502,000	20,878,000

NOTE: A study of this table is interesting. It furnishes data for a number of conclusions. From 1906 (the first year apparently that the total softwood production reached 30 billion feet), to 1928 inclusive, the average annual output was 29,085,229 M ft. Six-year periods since 1906 the annual production of softwoods has averaged as follows: 1st, 30,123,763 M ft.; 2nd, 30,037,764 M ft.; 3rd, evidently due to the great war and after effects, it dropped to 26,602,996 M ft.; and for the past five years, 29,674,624 M ft. This table also shows that while the 1928 production of hardwood has dropped 45% from its zenith year in 1909, softwood production dropped but 16% from same.\*

It further shows that the 1928 production of softwood was but 2 1/2% less than the average annual production of softwood for 23 years past, or since the annual production of softwood first reached 30 billion feet in 1906.

Year	Douglas Fir	Western Yellow Pine	Redwood	Cedar	Larch	Sugar Pine	Lodgepole Pine	Balsam and White Fir
1869.....	.....	.....	.....	.....	.....	.....	.....	.....
1879.....	.....	.....	.....	.....	.....	.....	.....	.....
1889.....	.....	.....	.....	.....	.....	.....	.....	.....
1899.....	1,736,507	944,560	360,167	232,978	50,619	53,558	.....	.....
1904.....	2,928,000	1,279,000	519,000	223,000	31,000	.....	.....	88,000
1905.....	4,319,000	988,000	411,000	363,000	140,000	123,000	.....	104,000
1906.....	4,969,000	1,386,000	659,000	357,000	289,000	133,000	.....	200,000
1907.....	4,748,000	1,527,000	569,000	251,000	324,000	115,000	.....	168,000
1908.....	3,675,000	1,275,000	404,000	272,000	382,000	99,000	.....	198,000
1909.....	4,856,000	1,499,000	521,000	346,000	421,000	97,000	23,000	198,000
1910.....	5,203,000	1,562,000	543,000	415,000	382,000	103,000	26,000	206,000
1911.....	5,054,000	1,330,000	489,000	374,000	368,000	117,000	33,000	207,000
1912.....	5,175,000	1,219,000	496,000	329,000	407,000	132,000	22,000	206,000
1913.....	5,556,000	1,258,000	510,000	358,000	395,000	149,000	20,000	192,000
1914.....	4,763,000	1,327,000	535,000	499,000	358,000	136,000	18,000	237,000
1915.....	4,431,000	1,293,000	420,000	420,000	375,000	117,000	26,000	225,000
1916.....	5,416,000	1,690,000	490,000	410,000	455,000	169,000	30,000	315,000
1917.....	5,585,000	1,960,000	487,000	265,000	360,000	132,000	12,000	306,000
1918.....	5,820,000	1,710,000	443,000	245,000	355,000	111,000	12,000	295,000
1919.....	5,902,000	1,755,000	410,000	332,000	388,000	133,000	16,000	291,000
1920.....	6,960,000	2,290,000	476,000	260,000	390,000	146,000	31,000	365,000
1921.....	4,642,000	1,432,000	467,000	234,000	213,000	133,000	11,000	215,000
1922.....	6,831,000	2,080,000	565,000	334,000	274,000	194,000	13,000	330,000
1923.....	8,222,000	2,804,000	592,000	364,000	351,000	228,000	15,000	354,000
1924.....	7,461,000	2,602,000	604,000	300,000	305,000	245,000	23,000	341,000
1925.....	8,154,000	3,127,000	510,000	372,000	306,000	306,000	29,000	368,000
1926.....	8,806,000	3,172,000	487,000	367,000	254,000	306,000	13,000	295,000
1927.....	8,443,000	2,798,000	569,000	305,000	288,000	282,000	26,000	301,000
1928.....	8,499,000	2,975,000	486,000	266,000	250,000	305,000	26,000	301,000
	146,418,000	46,338,000	12,662,000	8,261,000	8,061,000	4,011,000	423,000	6,162,000

The trend of the output of individual varieties down to 1929 is significant. Of the southern timbers, southern yellow pine has declined 35% from its zenith year in 1909 while cypress has declined 55% from its zenith of 1915.

Of the northern timbers, white pine declined 82% from its earliest census in 1899. Hemlock declined 37% from its zenith in 1906, and spruce declined 67% from its zenith of 1909. All three of these northern timbers have, however, been bolstered up by the cuts of western varieties of same respectively; viz., pine from Idaho and Montana, and spruce and hemlock from the West Coast, which have been added to the cuts east of the prairies.

Of the western timbers, cedar has declined 47% from its zenith year of 1914, and larch has declined 45% from its zenith year of 1916. However, only one-third of the cedar cut goes into lumber, the other two-thirds going into shingles, the equivalent of one-half billion feet of lumber.

The only timbers that have advanced their output are the three western varieties, Douglas fir, western yellow and sugar pine. Since the first annual census of 1904, Douglas fir has increased its cut 190%, western yellow pine 133%, and sugar pine 148%. Redwood output has been about stationary during the same period.

\* The zenith year of 1909, however, is one of the decennial years in which the government makes special effort to get the cut of the smaller saw-mills in addition to that of the larger mills; and so the cut of other years about that period is really closer to the cut in 1909 than the table indicates.



Doubtless a very limited percentage only of the remaining timber in western United States yet comes under the head of extreme accessibility. Where is the other extreme?

Much of the virgin timber in our western and Canadian mountains is practically inaccessible, perhaps for all time. The great physical effort and high cost per M. feet of getting out thin stands and small isolated tracts of inferior timber in the most rugged portions of our western mountain ranges relegates it to the fate of remaining where it is indefinitely.

There are all degrees of accessibility between these extremes.

### THE NIGGER IN AMERICA'S WOODPILE

Considering all this, where shall we look for the "nigger in the woodpile," namely, the underlying cause of declining lumber prices of late years at the sawmills, while standing timber has been rapidly growing scarcer? He has, indeed, done well to keep out of sight for so long, but he is easily discovered now. His entrance into the woodpile occurred a generation or more ago, and so insidiously under cover of the huge growing demand for lumber at that time that it was unnoticed. The growing demand for lumber obscured his presence, but with a restricted or stationary consumption his position in America's woodpile becomes evident. We will christen him **mass log production**. Under this caption we will name the factors necessary for his existence which are fast dwindling away. **Mass log production** naturally co-ordinates with **mass lumber production**. One is the child of the other. As it is **mass lumber production** that directly affects the market, we will describe it first.

### MASS LUMBER PRODUCTION

A mass lumber production sawmill plant might be defined as one that has the ability to turn out lumber every day in the year, and night, too, for that matter, with uninterrupted regularity. A mill doing this lowers its overhead to the minimum and increases its annual output to the maximum, thus killing two birds with one stone in lowering production costs, a paramount advantage.

For maximum results in mass lumber production a number of essentials must co-operate in orderly manner all the time. A market for the output must be at hand. An uninterrupted daily supply of raw materials (logs) must be on tap.

Mass lumber production was generally impossible in northern white pine. While it had the growing market for its output, it lacked an uninterrupted supply of logs. Both its physical ability to saw lumber and obtain daily log supplies throughout the year were subject to seasonal interruptions which cut down the otherwise annual capacity of the mills possibly a half. The logs were generally put in streams on sleigh haul during the winter. In the spring came the heroic task of breaking roll-ways, breaking log jams, and wading icy waters to float the logs down small and shallow rivers and bring down the rear of the log drives by refloating stranded logs. This latter was called "sacking," and often called for all the log drivers that could get a peavy hold around a log embedded in the sand to roll it back into floatable water again. Time was the essence of success in bringing log drives down the rivers before spring freshets subsided. If not taken by the forelock and the drive well managed, the logs were hung up for a year and sawing curtailed for that period. At best the mills could saw only during the warm or open season. Such were the seasonal interruptions in the north that prohibited mass log, and likewise mass lumber production.

In southern pine the very favorable climate and terrain for logging with big wheels over level land in winter as well as in summer, together with the easy building and operation of logging railroads at minimum cost were underlying factors in creating mass log production and mass lumber production. Under the rising demand for lumber of that period, mass log and mass lumber production settled down to the prosaic task of daily turning out an orderly flow of logs and lumber at a minimum cost, year after year, throughout the greatest area of mass lumber production territory on earth. Thus did the nigger steal into America's woodpile unnoticed.

The essential factors of mass lumber production are:

- (a) A large volume of lumber consumption.
- (b) An unfailing supply of logs (raw material) every day in the year (preferably of a single marketable species).
- (c) A sawing season for lumber prevailing all the year around.

As intimated above, the southern pine belt enjoyed all three to a high degree in its original stand of timber, and is still enjoying it largely in its second growth stand.



DAVID WARD'S LOGGING CAMP ON THE MANISTEE RIVER, MICHIGAN, IN 1883



A typical Michigan logging crew of the early 80's. The author scaled the sleigh load of cork pine logs (matured white pine) and painted the total number of feet on the end of the top log as shown in the pictures. Since then he has logged nearly half a billion feet, during which period approximately 75% of all the softwood lumber ever consumed in the United States has been cut.



It is improbable that Cork Pine Logs such as these will ever be produced again.



### MASS LOG PRODUCTION

The essentials for maximum results in mass log production are:

- (a) An extensive area of flat or moderately rolling well-timbered land, timbered preferably with a single marketable species.
- (b) A climate permitting logging all year round.
- (c) Railways or waterways for transportation of logs from the timbered area to sawmill plants.

These first two natural essentials were provided in the southern pine belt to a degree unobtainable elsewhere on the globe. One of the third essentials, railways, were easily and inexpensively constructed and operated, owing to the remarkably even character of the country.

A second mass lumber production district was developed later around Puget Sound, both in Washington and British Columbia, in which Douglas fir was the dominant marketable species. This district was of very limited area compared to the southern pine belt, but with a much heavier stand of timber per acre, probably five or six fold. This area, besides enjoying the first and second natural essentials for mass log production, was further favored with a third that largely answered for railroads; viz., the inland waterways of Puget Sound, Strait of Georgia, and Queen Charlotte Sound, lying between Vancouver Island and the mainland of British Columbia. The use of these waterways, several hundred miles long, for towing log rafts to mills, enabled operators to minimize railroad building for logging operations, while it greatly extended the radius of the sawmills in obtaining logs along the waterways at minimum transportation costs, through the towing of logs to mills. This mass logging area covered a narrow belt of flat land bounding the waterways and extending in a measure over hilly land and a certain distance up the mountain sides. The whole natural layout was ideal. Due to the extended radius afforded by these quiet and deep waterways for towing logs, along with abundant water storage for logs, the life of a sawmill there was greatly extended for securing logs. The distance for railroad log supply for a sawmill has its limitations owing to increasing cost of operation and maintenance with increasing distance from the mill. The cost of building these waterways which answered for railways was nil and consequently no overhead followed. The cost of water that answered for cars to carry the logs was nil. The maintenance of waterways which answered for the two above purposes was nil. All the

loggers had to furnish were locomotives (tug boats) to pull the log trains (log rafts) over railroads (waterways), all built and maintained by nature. This was truly a great advantage over the southern pine belt, in saving first costs of railroads and cars and overhead in the maintenance and operation of both. It was an even greater advantage by far over land-locked and mountain-locked timber in the west, where cost of railroad building is excessive.

### SIGNIFICANCE OF WATER IN PROMOTING ACCESSIBILITY OF SOFTWOOD TIMBER

Water is a factor of tremendous import in all shore timber that is light enough to float. Rivers, ponds, lakes, and the sea are all important. As a whole they furnish free tracks, maintained by nature, for either logs or lumber from the forests to the ends of the earth. Small streams unnavigable for vessels are nevertheless often navigable for individual logs. Here they furnish not only the track but also the vehicle for conveying the logs and even the motive power (the current) for pulling each individual log down to the mouth of the stream where it can be sawed and the lumber product loaded on vessels for ports of destination. In this way small streams throughout the north in former years furnished conveyance from the forests to the outside world for white pine logs that would otherwise have had to await the arrival of a railroad for egress. On larger streams and the Great Lakes, logs were towed in rafts by tug boats to distant sawmills. Owing to this method, mills at Tonawanda, New York, Cleveland, Ohio, and Detroit, Michigan, were supplied with logs from Georgian Bay on Lake Huron, and the sawmills on Saginaw River prolonged their careers for years from logs towed across Lake Huron after the pine forests were exhausted on the Saginaw and its tributaries. On the larger rivers, sawmills in the heart of the prairie country sawed logs towed hundreds of miles down the Mississippi River from northern pine forests. In sawmills on the lower waters of the Cumberland and the Tennessee, and other rivers of the South, the light yellow poplar logs from the forests on their headwaters were sawed, while the heavy unfloatable oak trees intermingled with them in these forests remained until reached long afterwards by railroads. (The Parana pine on the headwaters of Brazilian rivers is as badly off as this



oak was, as it is too heavy to float.) In the West, mills at Seattle, Tacoma, Vancouver, and on the Columbia River, sawed logs towed from considerable distances but the crowning event of all is Southern California mills being supplied with elaborately built, ocean-going rafts of logs from Oregon, containing several million feet in a single raft. Of late the Diesel engine has come into use for towing logs, greatly reducing the costs.

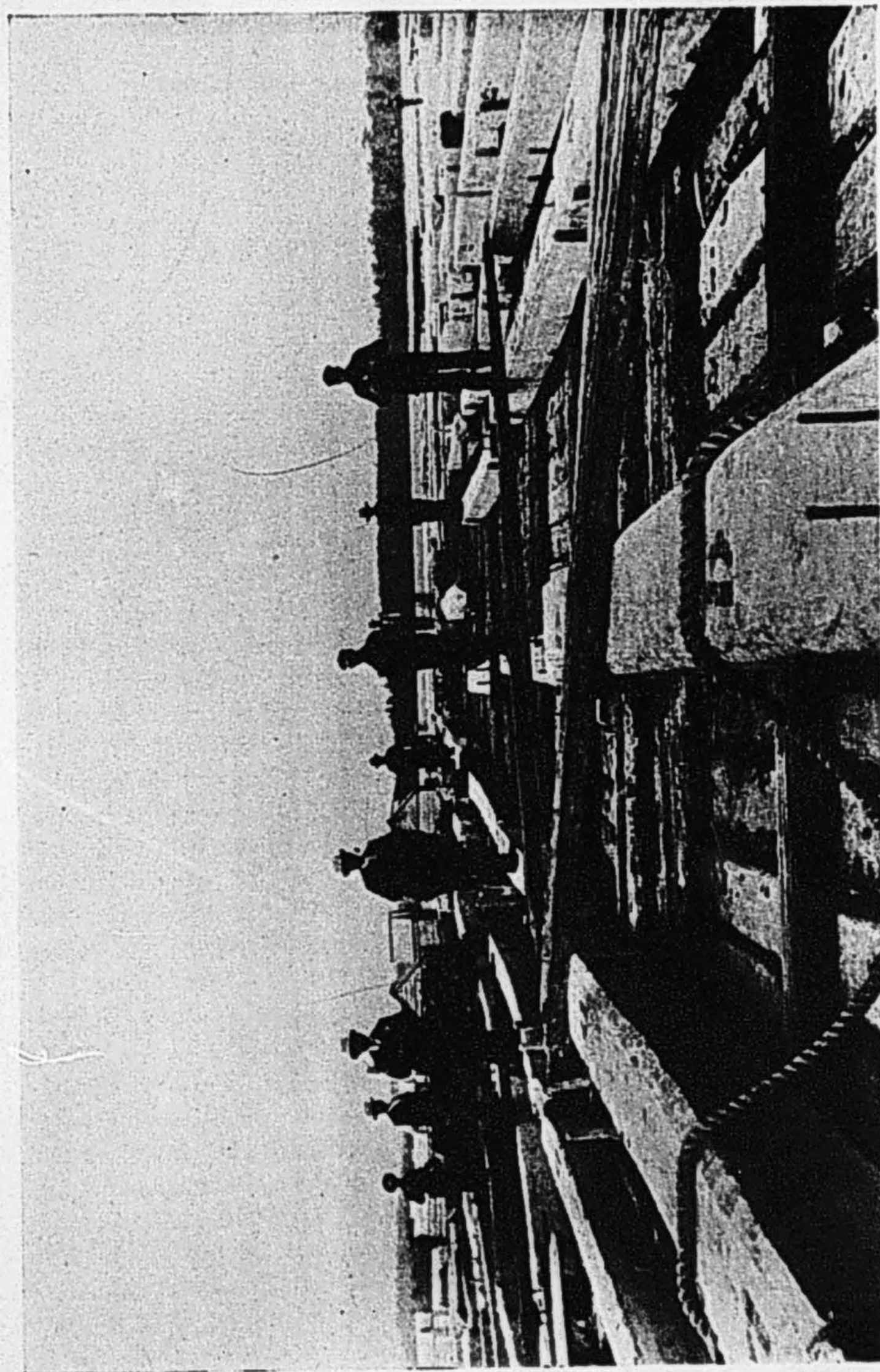
Log raft tows to Puget Sound mills are steadily being lengthened. One raft of spruce logs was towed 800 miles from Alaska, and rafts of fir logs some 350 miles down the ocean coast to the south. In this way the Washington, Oregon, and British Columbia mills will prolong their sawing careers the same as the Saginaw Valley sawmills lengthened out theirs a generation ago with logs towed across Lake Huron from Georgian Bay.

It is thought that in some instances certain types of scows will be found more serviceable than log rafts for transporting logs.

Shipping logs on vessels is in its infancy in the West, but the great size of western timber favors log shipments by water on account of furnishing large units that can be handled very much more efficiently by modern machinery than a generation ago. Other advantages in manufacturing near main centers of consumption also favor it.

Logs partially squared up by hewing on four sides with broadaxes were shipped to England for resawing in the early days of Canadian logging, and this practice was pursued until the cork pine timber gave out. These logs were from the best cork pine trees and were called "board timber." Later the hewing was replaced by sawing on the four sides.

A photograph taken many years ago is shown herein of a typical log raft of cork pine board timber that was floated down the Ottawa River in Canada by Alexander Fraser, a lumberman contemporary of my father's, and towed down the St. Lawrence River to Quebec for shipment by vessel across the Atlantic to be resawed in England. The trip of the log raft was some seven hundred miles to Quebec. The later trip of the logs on vessels across the ocean was several times farther. And so log rafting and shipping logs long distances on vessels is ancient history in American logging, perhaps not generally known, and was pursued under difficult and inefficient methods compared to those of the present day.



An early Canadian Board Timber Raft containing one million feet. See description.



The raft in question contained about one million feet of board timber. In its construction a face was hewed off of four sides of each log by hand with broadaxes. The logs were drawn on sleighs over thick ice on to one of the small lakes which abound on the upper waters of the Ottawa. The raft was built in sections on the ice that could be attached and detached from each other when floating in the water. The stream flowed through a number of lakes and there were rapids between some of the lakes that the long raft as a whole could not safely traverse. Hence it was necessary to float it through the rapids in sections. As soon as the ice melted a crew of rivermen who had helped log the timber conducted the raft on its long voyage. They had cabins for cooking, eating and sleeping accommodations built on the raft. They rowed the raft at a snail's pace through the lakes with long sweeps. They detached the sections above the rapids and attached them together again below each rapids. They rowed the raft down the river until navigable water for tug boats was reached after which the raft was towed to Quebec. They lived many weeks on the raft during its romantic voyage.

Some shipments of squared timbers from the Pacific Coast have been made of late to southern and Atlantic Coast mills for resawing, in which loading and unloading in the holds of vessels was found partly unsatisfactory. Two improvements have been made to remedy this. One is eliminating the shipping in the holds and merely filling out deck loads, using the holds for other freight. The other is the discovery that round logs can be easily shipped in deck loads by binding them with chains to the gunwales of the vessels just as logs were bound on logging sleighs in early Michigan logging. This method, along with water storage for logs at both ends of the vessel route, solves all difficulties heretofore encountered in sawing West Coast logs by Gulf and Atlantic Coast mills, as the sawing of the entire log can be done in the East, thereby saving the cost and running expense of a squaring up sawmill plant on the Pacific Coast.

Ocean paths greatly decrease costs for bulky freight in distant transportation compared to railways. The Panama Canal has shortened ocean paths from the Pacific to the Atlantic coasts of the United States tremendously as well, which with the decline of the southern pine output is being taken advantage of. The United States Forest Report of September 3, 1929, shows approximately two billion feet of lumber having passed through the canal in 1928, 72% from Washington, the balance probably from Oregon or mostly so, the leading wood by far being Douglas fir.

### APPROACH RAILROADS

When lumbermen built their sawmills on the shores of Puget Sound 40 odd years ago they needed no approach railroads. The timber began at the mill and was a solid and continuous body of the finest quality. Every rod of railroad built into the timber paid its way in collecting its tribute in logs from alongside the track as it progressed. This was a true 100% logging railroad.

However, that part of a railroad built to furnish an outlet for logs that runs *across barren country before entering the timber tract that is to be harvested is a horse of an entirely different color*. To distinguish it we will christen it an *approach railroad*. If such a road is fated never to transport anything but logs to a sawmill it is a liability that must be carried by the logging operation in question. It has cost money to build, and its maintenance and operation will continue to cost money. If the *approach railroad* is but a mile long it is a small burden for a sizeable tract of timber to carry. If it is a thousand miles long it would obviously be impossible to build, operate, and finally junk it when the timber gave out, no matter how level the land, how favorable the climate, how perfect the local environment for cheap logging, how large the tract, or how high the quality of the timber. Only other freight would make the building of such a railroad possible. It is well, therefore, to look carefully into all these factors in any case where *approach railroads* are required; for accessibility depends on every factor and our vast **expanse of high mountain timber with every favorable factor missing cannot be enrolled in our list of timber resources by merely repeating the glib phrase, "not at present accessible,"** that is so often applied.

By contrast, where the timber originally met the shore a half century ago on Puget Sound and at Eureka, California, and still does meet the shore on quiet navigable waters in a few other places, the timber is accessible to the whole world with only a nominal transportation cost.

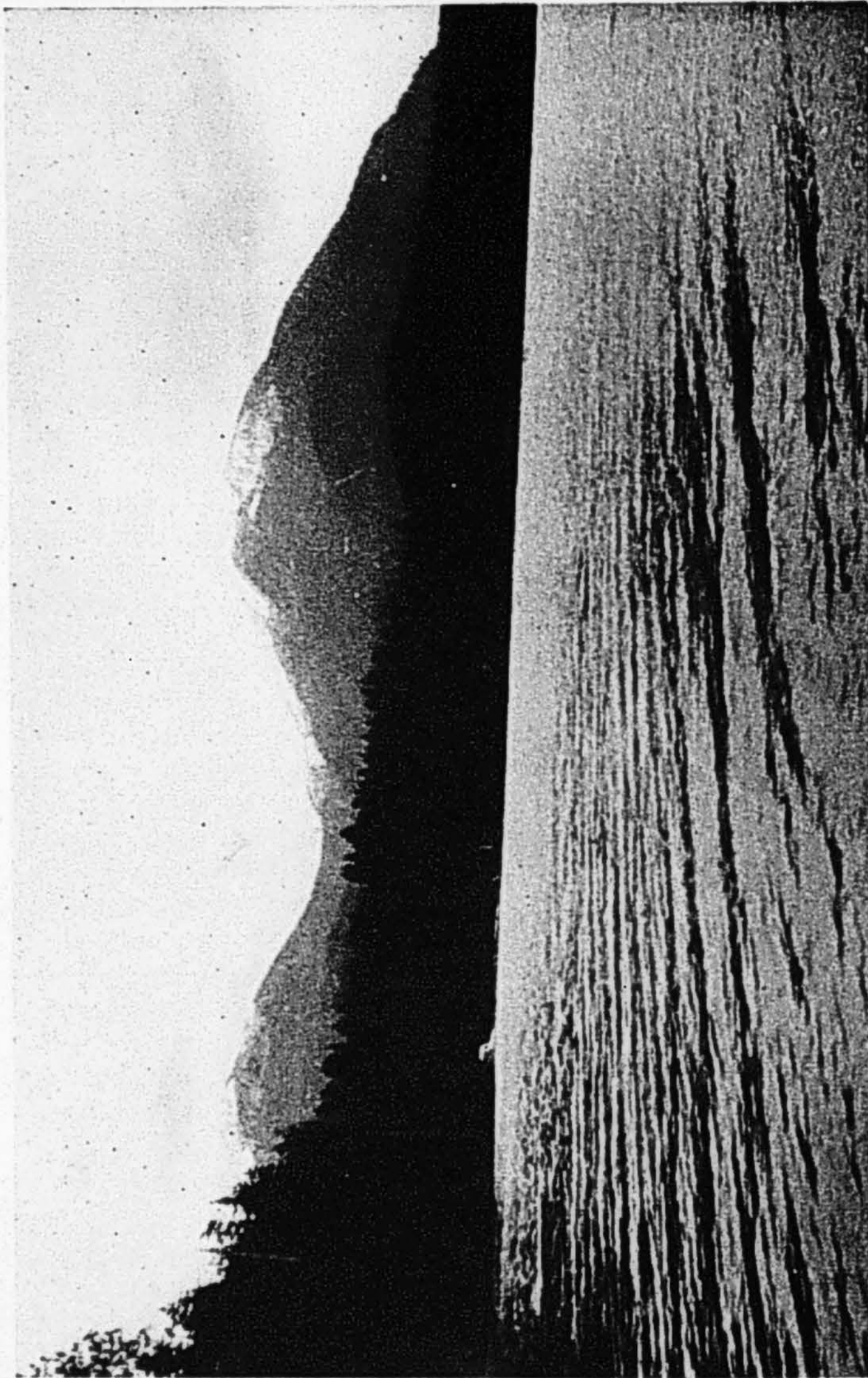
Such were the extremes as to the original accessibility of our timber resources in the West. It seems strange that the vivid contrast is not more realized by people concerned with our timber prospects. One cannot escape the conclusion that the annual output of the poor quality high mountain fir lumber must always remain very small. When one realizes what a factor the half dozen trunk lines crossing the Sierra Nevada Mountains have been in providing *approach railroads* for the high mountain pine that is being harvested, he begins to ponder. An



examination of Rand McNally's black and white railroad map of the United States will show him how little of the mountain timber can be reached from the transcontinental lines.

The overland railways that have crossed the Sierra Nevada Mountain Range to reach the coast in the past have furnished the *approach railroads* to the high mountain pine that has been and is now being logged. **This is a circumstance that will not be repeated.** New trunk line railroads are not in demand, and when the Interstate Commerce Commission recently ordered a trunk line to build a branch from east to west partly across the Sierra Nevada Range, the railroad refused to do it. Hereafter, high mountain timber will have to stand on its own legs in getting *approach railroads* to come over the mountains after it. When it is realized that some kind of a road must reach within a few rods of every tree harvested, the impracticability of gathering this thinly sprinkled timber from vast expanses of high mountains readily becomes apparent.

Probably no one is better fitted to realize the coming difficulties in high mountain logging than the professional Washington logger, who has already had a taste of mountain logging. Unlike any other district, it is pursued there in a large way as a separate business, distinct from sawing and selling lumber, and is, therefore, obliged to stand on its own legs for profit. A former president of the Pacific Logging Congress is impressed with prospective future changes in logging "because," as he says, "of nearly all logging operations being conducted gradually on rougher and rougher ground under infinitely more difficult physical conditions than most of us have encountered up to this time." It is plain this authority is not optimistic over our great reserves of mountain timber. When a poor quality of timber is substituted for good quality on top of this growing obstacle and a long *approach railroad* is necessary, it forbids development until low grade lumber values *far exceed* any known in the past. Even with financial obstacles banished by higher lumber prices it must be a very slow and long drawn out development on account of physical obstacles. As an instance of how physical obstacles slow down mountain logging, one sugar pine operation halts its traffic to convey its output on a cable across a deep canyon from one mountain plateau to be reloaded on cars on another. This bottle neck in traffic would effectually prevent harvesting of low grade mountain fir, whereas the high grade of the sugar pine financially permits overcoming the obstacle.



An Ideal Logging Opportunity



Table No. 3 is an attempt to give the *relative* accessibility factors of the major varieties of softwood timber, past and present. Seven factors of accessibility, namely *climate, quality, terrain, approach railroads, approach water roads, density of timber stand and patchiness of timber stand*, are taken into account, and the aggregate total of these factors in each species with their varying environments and qualities are shown; also the quantities of each species of timber that have been cut and remain uncut, as well as can be judged from U. S. censuses and other official reports. There is still another factor that is not shown, because it does not apply to our softwoods, but is deadly in preventing development in Brazilian timber. This factor is multiplicity of varieties of hardwoods sprinkled among each other in the forests of the Amazon, together with a very small percentage of softwoods. Brazil took first prize at the Centennial Exposition at Philadelphia in 1876 for the greatest variety of beautiful woods on exhibit there, but her forests are still practically untouched.

Of the factors used in Table No. 3, perhaps the one called "*patchiness of timber stand*" needs some elucidation. It is meant to denote the degree in which each species of timber is divided into isolated groups, which in turn vary in size, number, and the distances between them. It shows the comparative patchiness of high mountain timber as contrasted with the even distribution of timber in the fog belt on the coast. Patchiness can easily become more serious than the main *approach railroad* problem, for it calls for an auxiliary *approach railroad* from patch to patch of timber, in which increased distances between patches and smaller size of patches multiply the degree of difficulty of harvesting these groups. One can easily imagine railroads being removed after larger and more densely timbered groups of high quality pine have been taken out of a mountain district, leaving smaller groups, thin stands, and poor quality timber in the vicinity stranded and impossible ever to harvest. This feature involves a major problem that cannot be dismissed by the soothing phrase of "not at present accessible."

Density of timber stand, another of the factors, affects the length of logging railroads necessary *within* a tract of timber. The more dense the stand the less railroad needed per M. feet to remove the timber, which is an important item.

As will be seen an effort is made in Table No. 3 to show the probable amounts of fir, pine and redwood there are left in the Pacific Coast States according to different environments of each species as to altitude, etc.

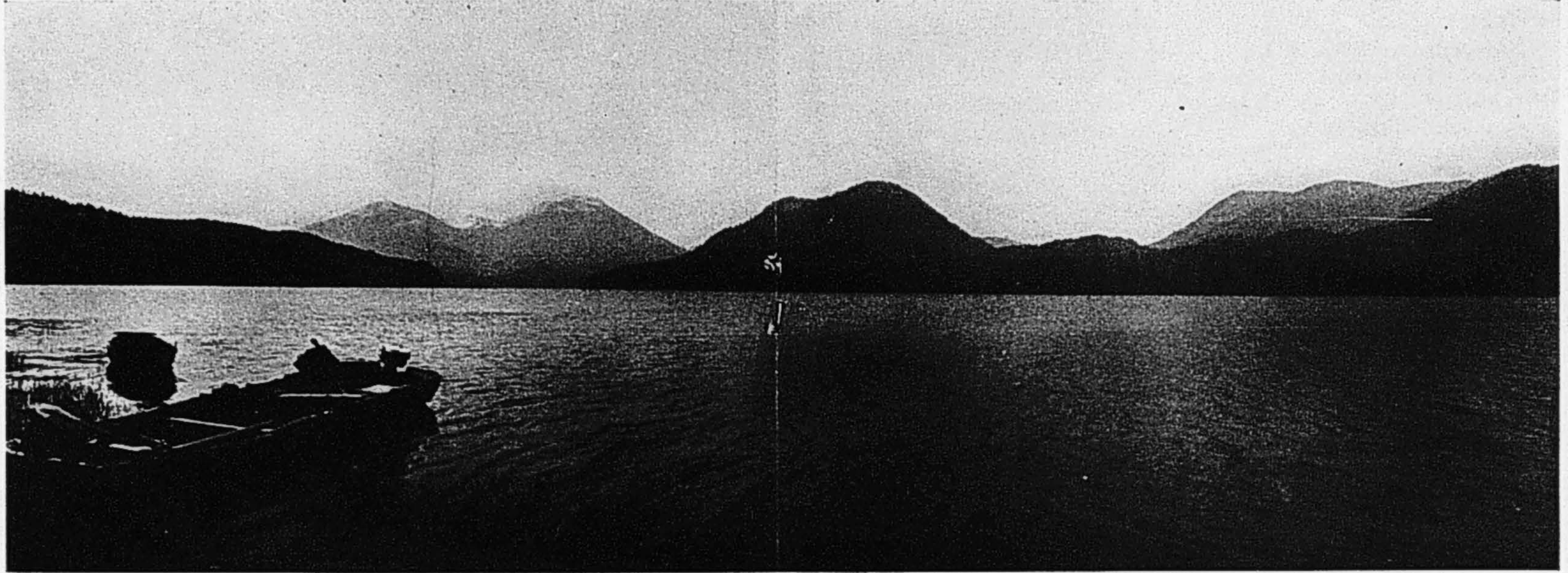
TABLE NO. 3

The Higher Numbers in This Bracket Show Factors Favoring Maximum Accessibility

	Climate	Quality	Terrain	Ap- proach Rail- roads	Ap- proach Water Roads	Den- sity of Timber Stand	Patch- iness of Timber Stand	Accessi- bility Totals	Billion Feet		
									Total Cut	Balance Left	Original Stand
<b>Pacific Coast Timber—</b>											
Original Fir below 1000 ft. altitude..	100	100	90	100	100	80	100	670	125	10	135
Original Fir 1000 to 1500 ft. altitude	100	90	75	100	100	70	100	635	35	35	70
Original Fir 1500 to 3000 ft. altitude	90	75	50	100	100	35	100	550	10	131	141
Original Fir high mountain.....	60	20	10	1	1	7	10	109	1	60	61
Small Fir high mountain.....	60	20	10	1	1	5	5	102	.....	222	222
Sugar Pine 3000 to 4500 ft. altitude..	60	80	50	30	1	15	30	266	.....	8	8
Sugar Pine 4500 to 5500 ft. altitude..	50	100	40	20	1	25	50	286	5	17	22
Sugar Pine 5500 to 6000 ft. altitude..	50	80	35	10	1	15	30	221	.....	7	7
West. Yel. Pine 2000 to 3500 ft. alt.	60	40	50	40	1	15	25	236	10	37	47
West. Yel. Pine 3500 to 6500 ft. alt.	50	90	40	25	1	25	40	271	45	120	165
West. Yel. Pine 6500 to 9000 ft. alt.	50	40	25	10	1	10	20	156	5	37	42
Redwood below 1500 ft. altitude.....	100	100	80	100	100	80	100	660	18	50	68
Redwood 1500 to 2000 ft. altitude.....	100	80	60	100	100	50	100	590	.....	15	15
Redwood 2000 to 3000 ft. altitude.....	100	60	40	80	100	20	50	450	.....	5	5
West. Hemlock above 1500 ft.....	90	30	50	100	100	25	75	470	.....	.....	.....
West. Hemlock low altitude.....	100	30	75	100	100	25	75	505	.....	.....	.....
Washington Red Cedar (1/3 of tree in lumber).....	100	60	60	100	100	7	40	465	12	.....	.....
Washington Red Cedar (2/3 of tree in shingles).....	100	20	60	100	100	14	40	434	24	.....	.....
<b>Timber East of The Prairies—</b>											
Northern White Pine (Lake States)	50	80	100	50	80	25	80	465	*	.....	350
Lake States Hemlock.....	50	15	100	50	20	20	80	335	*	.....	.....
Long Leaf Southern Pine.....	100	65	100	100	60	12	100	537	.....	.....	.....
Short Leaf Southern Pine.....	100	50	100	100	30	12	100	492	.....	.....	650
Loblolly Southern Pine.....	100	1	100	100	50	12	100	464	.....	.....	.....
2nd Growth Southern Pine.....	100	20	100	100	50	8	100	478	.....	.....	.....
Southern Cypress.....	100	80	80	80	50	20	70	480	33	.....	35

\* All cut  
† Largely cut





ONE OF THE RARE PLACES WHERE THE TIMBER STILL MEETS THE SHORE

Owing to no census ever being taken of the softwood lumber output prior to 1904 showing the different species separately, with the lone exception of the year 1899 (as will be seen on Table No. 2), no authentic data is obtainable as to the amounts of the individual eastern species that have been cut. It should be easy to find out approximately what is left of the original stands, and it is so with northern white pine and hemlock east of the prairies, for they are practically exhausted and no longer a factor.

In southern cypress there remain 4 large operating holdings in Florida and one in Louisiana with an aggregate of one and one-quarter

billion feet. There are also 2 large non-operating holdings in Florida aggregating 450 million feet, and one bordering Louisiana and Texas of one hundred million feet, a total altogether of 1 billion, 800 million feet. These are the last holdings of cypress that will be a factor. Against them the following yearly cutting is going on:

	Million Feet
4 Plants in Florida cutting 30 million ft. each annually.....	120
12 Plants in Florida cutting 10 million ft. each annually.....	120
1 Plant in Louisiana cutting 30 million ft. each annually.....	30
	<hr/>
	270



There are besides driblets being cut by many hardwood mills making up a total annual output of half a billion feet. Six or seven years, therefore, should practically exhaust the large holdings if the present mills continue their present cut, and the output will thereby be reduced to a comparatively nominal amount. The total output of cypress lumber since 1903 is approximately 22 billion feet.

No one seems to know clearly how much original southern pine is left or what the cut is as distinguished from second growth southern pine, and indications must be relied on to point the way. According to U. S. Forestry figures, out of something over 200 million acres of original pine timber, there seems to be about 6% of the original acreage left, 43% of which is in Florida. Texas also has large holdings compared to other southern states. The annual cut is confounded with that of the second growth output, because some mills cut some of each. Probably the large mills in general cut original growth pine.

A summary of plants belonging to subscribers of the Southern Pine Association, each with a daily capacity of 50 M. feet and over, is as follows, viz.:

	No. of Mills	Daily Capacity	Annual Capacity	Average Daily Capacity
1923 .....	162	20,425 M. ft.	6,127,500 M. ft.	126 M. ft.
1931 .....	81	10,845 M. ft.	3,253,500 M. ft.	133 M. ft.
Decrease .....	81	9,580 M. ft.	2,874,000 M. ft.	

This indicates half of the mills cutting out in the past 7 years with a nearly corresponding fall in output.

In 1923 an exhaustive report was made of the southern yellow pine stand by southern pine interests, including second growth, and it was found to be 211 billion feet. It seems that the U. S. Census does not get all of the yellow pine lumber production, owing to its not obtaining that of all the portable sawmills due to their roving character. As an instance, it is said that over 15 billion feet of southern yellow pine lumber was actually produced annually during the years 1919-20-21 and 22, or a total of 60 billion feet for the 4 years; while the U. S. Census shows only 47 billion feet for this period. Assuming the same rate of cut and not allowing for growth, there would be left in 1931 about 105 billion feet out of the 211 billion feet standing in 1923.

It is predicted by some lumbermen that a sustained yield of 6 billion feet from second growth southern pine will be eventually realized. This would require a growth of over *sixteen million feet per day throughout the year*.

The U. S. Forest Report on Senate Resolution No. 311, page 21, in 1920, states that "second growth stands average at most 2½ logs per tree and the logs run 15 to the thousand feet." This figures out 167 feet board measure per tree. The smaller the tree that is sawed into boards the greater is the percentage of waste due to a greater percentage of edgings compared to the output in board measure. The slab percentage of waste is also greater due to greater taper in a small tree. Cutting such premature timber would seem like economic waste and, therefore, bodes ill for production of durable heartwood in reforestry.

One fair-sized redwood tree will produce 100 times the amount of lumber that one of these second growth pines would produce, and the lumber out of the pine trees would be *sapwood*, while the redwood would be durable *heartwood*, lasting many times longer than sapwood, and largely clear.

About 29% of the cut-over southern pine acreage "supports second growth of merchantable sizes" presumably the size running 167 feet per tree.

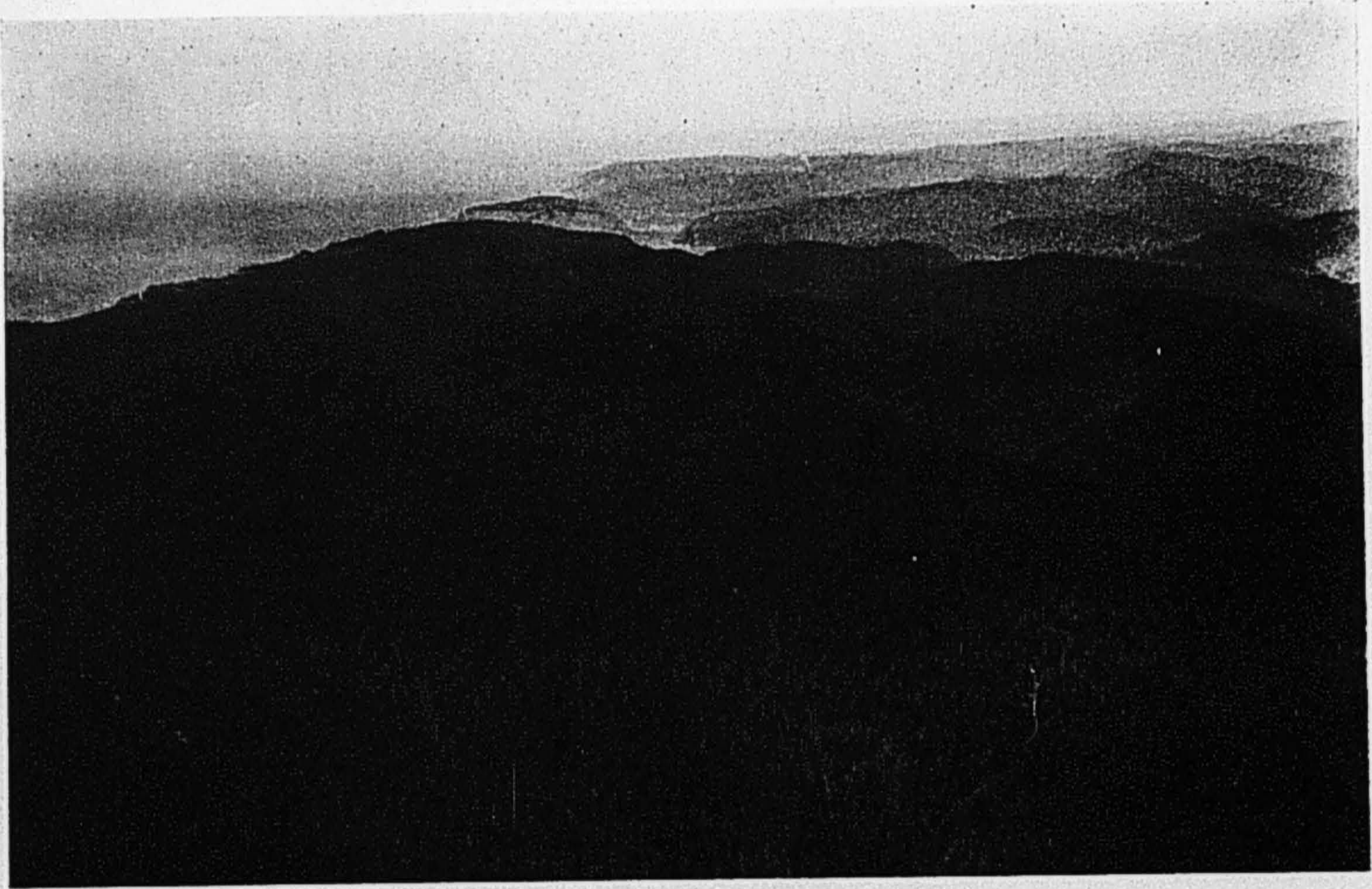
On 31% of the cut-over land the second growth is not merchantable. About 31% has not come back to pine.

The largest areas of original growth pine in 1920 were in Texas, Louisiana, Mississippi, Alabama and Florida, and the most extensive areas of second growth in the older South Atlantic States of Virginia, North Carolina, South Carolina and Georgia.

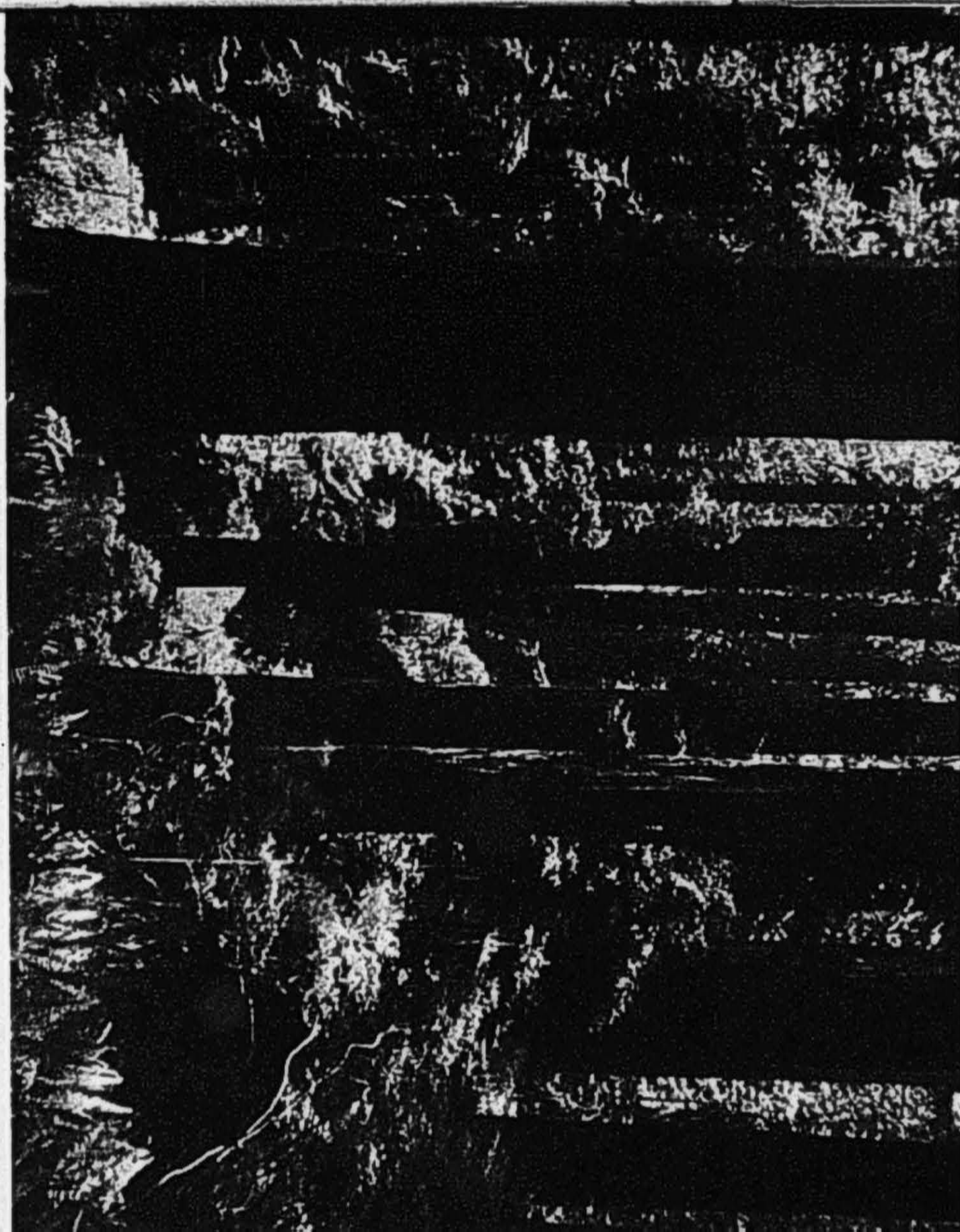
The older South Atlantic States have a better reseeded of second growth than the Gulf States, due to cleaner cutting of original timber in the latter so that the latter states do not give promise of as bountiful a production of second growth pine as the former ones do. The proportion of original pine *arca* between the South Atlantic States mentioned and the Gulf States is about equal.

Altogether it would seem that claims of an annual sustained reproduction yield of 6 billion feet of southern yellow pine lumber was over optimistic under present conditions of reforestry in the South, where razor-back hogs and annually set fires cause much havoc among the seedling pines. If an annual cut of 12 billion feet has wiped out prac-





**A DENSELY TIMBERED REDWOOD TRACT**  
Several billion feet stand between the river and the ocean.



**IN THE REDWOODS**  
Note the man in the lower center background.



tically all of the original southern pine in the past 40 years, it is difficult to see how half of this cut can be maintained indefinitely. It would seem more likely to drop down to 2 or 3 billion for a time at least until reforestry conditions radically change there. However, if an annual growth of 6 billion feet is realized it will about offset the consumption of lumber in the states south of the Ohio River and east of the Rocky Mountains, thus leaving the rest of the U. S. with an annual consumption of over 20 billion feet to look elsewhere than in the South for lumber supplies.

### FOREIGN TIMBER SUPPLIES

Brazil, Russia and Manchuria have the greatest timber reserves outside of North America, but the United States is a principal exporting country, at present exporting about 2 billion feet of timber annually.

Brazil has vast forests of tropical hardwoods in the Amazon Valley. They consist of many varieties mixed together, nearly all much harder and heavier than our temperate zone hardwoods, so much so in fact, that present hardwood working machinery will not work them successfully. However, still another factor, above mentioned, consigns it to a restricted production and slow growth in output. This factor is the multiplicity of unknown varieties, sprinkled among each other. To this handicap add the plagues of the Tropics, both of which are absent in American softwood lumber production, and we have a formidable barrier to efficient and rapid output of lumber. Although Brazil took first prize at the Centennial Exposition at Philadelphia in 1876 for the greatest variety of beautiful woods, it has been of little avail in marketing her timber in general. Moreover, hardwood is not popular where softwood can be obtained, as evidenced by our pioneers burning up their hardwood on their farms in log piles and importing pine lumber for their buildings. Brazil also has some softwood in the shape of Parana Pine growing on the headwaters of some of her rivers, but being too heavy to float, it is landlocked and will have to come out by rail, which is a handicap for softwood. It is not exported and our forestry service says it will all be needed in South America.

Asia and Russia have the greatest area of softwood forests on the globe. The population of the two most populous continents in the world surrounds them, except on the Arctic side. Magnificent distances separate them from ports on the Atlantic and Pacific waters. Russia cuts

nearly a third of the lumber that the United States does. The per capita consumption of lumber is low there and in Asia. It will rise if a higher plane of living should obtain. A large emigration of Chinese is taking place into Manchuria, second only to that of the great one of Europeans to North America. They are occupying rich prairie lands of nearly the area of Texas. They will need lumber out of the Manchurian forests. Japan and China need lumber on the Pacific side. Europe needs lumber on the Atlantic side.

Observation from Siberian railway trains discloses short bodied trees of medium size and less only,—the lengths and sizes that are lacking in upper grades of lumber. That country is as far north as James and Hudson Bays and consequently the growing season is short, which perhaps accounts for absence of large trees. The timber areas extend further north, even as far north as Iceland. But the trees must be still smaller, following the continued shortening of the summer season.

Some hysteria is being indulged in over Russian lumber imports. However, it has its handicaps. Russian shore timber is confined to a coast near the Arctic Circle so that its restricted shipping season on the ocean alone prevents mass lumber production. Siberian streams flow north and empty into the Arctic Ocean. The timber is mainly landlocked and thereby handicapped for export by long rail haul to the sea. Physical obstacles of this kind cannot be obliterated. Under them *mass lumber production* cannot take place. The total exports from Russia are a bagatelle of our consumption and their exports to the United States are a small percentage of her total exports. Certainly, low grade lumber imports can never be a menace to our high grade softwoods of the West Coast States, the like of which is unknown elsewhere on the globe. Although she may intrude on our European exports, which are but 40% of our foreign lumber exports, her intrusion on our tropical exports is unlikely because of the realization that our redwood is termite resistant, a prime requisite in the tropics. However, we do not export much lumber, only some 2 billion feet annually, and we import a similar amount from Canada to offset it.

Canada has about 1/3 of the saw timber the United States has. It is largely inaccessible. \*She consumes 3/5 of her cut.

Mexico has some pine on her mountains that is more inaccessible than our western pine. The United States Forestry Service thinks she will need it all for home consumption.

\* Page 8, Circular 21, U. S. Dept. of Agriculture.



A greater cause for worry is how we will ever be able to obtain imports of 15 or 20 billion feet of lumber annually (the need of which can be seen some day), from such far away countries under such physical obstacles, and distribute it among our consumers throughout the land. The physical task is prodigious. It is obvious that our accessible original timber will be consumed first and will be greatly preferred, as well, on account of its higher quality.

### SUBSTITUTES FOR LUMBER

Perhaps the best answer to the fear of some lumbermen that the use of lumber will be absorbed by other materials is Table Nos. 2 and 4, as far as softwood is concerned. Substitutes are thought to have checked the expansion of use of softwoods, but their effect seems to have ended there. Substitutes for wood are a very old story, and were introduced with the earliest metal age. Unfortunately, substitutes have their limitations even now. It seems fortunate that other materials have enabled substitution, for it has conserved our supply of standing timber for a while longer.

Perhaps the best explanation of the fears of lumber manufacturers over substitutes is that he is the spoiled child among manufacturers. I can realize this when in looking back I recall that our sawmill operations during their career, sold 450 million feet of lumber without spending a single dollar in advertising. We had a line of customers that took it all. There seemed to be no competition against lumber. Substitutes gradually brought a check to an expanding lumber market and the lumbermen failed to trim their sails to it, and instead increased their sawmill capacity. This situation must remedy itself by the junking of sawmills through the exhaustion of the remnant of mass log production timber. Then a seller's market for the lumber producer will again assert itself.

Nature's great and universal laboratories (the forests), conducted without man so much as lifting a finger in their operation, produce a product of such physical and chemical perfection that it is fit for a great many different uses in which the combination of strength, durability, grain, bulk, lightness, easy shaping, and many other properties would seem to defy the ingenuity of man to imitate, even though Nature should leave him in the lurch by going on a permanent strike and ceasing to grow any more trees. It has been said in verse, "Only God can make a tree." It might be said with equal truth, "Only God can make wood."

TABLE NO. 4

Showing Approximate Growth of Softwood Lumber Consumption

Year	U. S. Census of Population	No. Years	Billion feet* Consumed
1620			
1790	3,929,214	170	25
1800	5,308,483		
1810	7,239,881		
1820	9,638,453		
1830	12,866,020		
1840	17,069,453	50	25
1850	23,191,876		
1860	31,443,321		
1870	38,558,371	30	170
1880	50,155,783	10	125
1890	62,947,714	10	185
1900	75,994,575	10	255
1910	91,972,266	10	280
1920	105,710,620	10	290
1930	120,000,000	10	270
			1,625

With a population almost 60% greater than at the beginning of the 20th century we have been using nearly 300 billion feet of softwood lumber each decade since 1900. We now have left about 25 billion feet of original timber East of the prairies and about 175 billion feet of original Douglas Fir, redwood, cedar and spruce in the West below the 1,500-foot altitude with which to supply the needs of our present population of 120 million people.

Timber taken from below the 1,500-foot altitude has supplied 90% of consumption in the past.

How we are to revolutionize our logging system within a few years, and get most of our timber in the mountains above this altitude is a big problem.

### REFORESTING

It takes from 300 to 1,000 years and upwards to grow the giant fir, pine and redwood trees of the Coast States. These are the trees that furnish the highest grades of lumber. Their environment in soil and climate must have been perfect for many centuries, for in redwoods there are living trees more than two thousand years old. In these old trees the heartwood virtually fills the whole diameter of the tree between the barks. The shell of clear wood resting between the bark and the knots

\* See Table 69, Page 112, Statistical Bulletin No. 21, U. S. Dept. of Agriculture.

*Copied  
in Senator  
Copeland's  
Resolution  
passed by  
US Senate*



that abound near the heart of the tree is thick; so thick, in fact, that it is feet in thickness where it is only inches in any *durable* timber that can be reforested during a single century. Hence it is obvious there can be no hope of individuals growing heartwood lumber free from sap wood and knots through reforestation. Unless the government undertakes this task, we must content ourselves with what clear heartwood lumber there is now already grown, the product of centuries of time.

We can, however, grow trees quite rapidly that will produce sapwood and common grades of lumber. If you were to plant a forest in the Northern States while your baby is in arms, it would, if successful, provide a harvest of common grades of lumber for his great grandchildren.

The planting of conifers in the Southern States (our most promising reproduction territory) is not impressive, however. Forty thousand acres planted in the Southern Pine Belt out of an original forest of 125 million acres\* is about the sum total up to this time, only .00032 of the original forested area.

The natural re-seeding of these pines, however, is quite general on cut-over lands in the older Southern States and would be vastly more effective if men did not burn over the stump land for pasture and kill the seedlings. Sky-cutter hogs also grub around the seedling long leaf pines, which is the variety producing the most durable lumber, and feed on the tender bark of the tap root. I recall reading an account by a man who had taken the trouble to watch one of these hogs for a whole day and it destroyed over 300 young pines. The fires are secretly set by an extremely small minority of the inhabitants who own a few scrub cattle but do not own the lands in general that they fire. A forenoon's auto ride at an opportune time and place in any year in the South will likely bring into view more freshly burned acres of pine seedlings than has been planted by man to date.

But otherwise all is not gold with southern pine re-seedlings. It seems that one of the several varieties of southern pines widely distributed in area, namely Loblolly pine, produces the least durable lumber by far of any of them. Unfortunately, it is a veritable weed among pines for re-seeding and rapid growth. The consequence is, I am told, that the Loblolly preponderates in the re-seeded areas, whereas in the original forests the more valuable variety of Long Leaf predominated.

\*One hundred million additional acres is said to have had pine on it mixed with hardwood.



Such lofty trees produce great quantities of clear durable lumber.



The next most promising softwood re-foresting territory in the United States is the limited one of the fog belt of the Pacific Coast. Although it is very narrow it reaches from British Columbia to Monterey, California. Here, as in the South, a long tree growing season is obtained, owing to the warm Japan ocean current, while the summer fogs prevent fire damage during the season in which there is no winter rain.

The southern pine belt and the fog belt of the Pacific Coast have the maximum of all favorable factors for successful reforestation of useful conifers, far outstripping any other regions of the world in this regard. With a latitude as far south as Northern Africa, combined with near sea level altitude and all year round rains, the environment in the Southern States provides a long growing season, insuring rapid growth. The fire risk on this generally level land is at a minimum and the accessibility at a maximum. Altogether it is ideal for reforestry of softwoods. It is, therefore, a great national asset. It could be made as efficient for producing pine trees, if properly cropped with them, as our best prairie land now is for producing wheat and corn, and unlike the prairie land cannot be duplicated on the globe. But present reforestation is a long way from being efficient, and the land is largely being sacrificed to rear a few scrub cattle and sky-cutter hogs.

Long Leaf pine is the most immune from grass fire damage (but the poorest re-seeder), of the different varieties of southern yellow pines, which comprise the Long Leaf, Short Leaf, Slash and Loblolly, named in the order of the durability of their lumber product.

It is estimated that a stand of trees of an unchecked growth of Long Leaf Yellow Pine will arrive at an average diameter of 12 inches breast high and will provide 3 to 5 logs to the tree in 100 years' growth. Sound saw logs from a sawing standpoint are composed of boards, edgings and slabs in varying proportions that are controlled by the size, taper and straightness of the log. Both edgings and slabs are largely waste. The smaller the log, the greater the percentage of *edgings* compared to the lumber obtained. The greater the taper, the greater the percentage of *slabs*, while crooks in a log greatly increase the percentage of both edgings and slabs. In reforestry crooked trees can be largely avoided by planting the straightest growing species, while edgings and slabs can also be decreased in percentage compared to the lumber produced by growing larger trees. I have seen a small sound top log sawed up that must have been 75% slabs and edgings. Time and

geometry are the factors necessary to determine the most economic size at which trees should be harvested in order to produce the most fruitful results in lumber.

The factors for successful reforestation of softwood are at a near maximum in the fog belt on the Pacific Coast, and lumbering firms there are gaining courage in the idea of its becoming profitable, which could materialize in the case of corporations with government assistance. I was told by a member of a prominent nursery firm at Niles, California, that the redwood tree was the most reliable and dependable evergreen in surviving neglect and forging along in its growth of any of the many varieties in their nursery. The redwood is the most tenacious of life of all temperate zone conifers. Unlike others, it will send up numerous sprouts around the stump of a tree that has been felled. The suckers forced on by the powerful root system of the parent tree grow very fast and soon become sizeable trees. All of the coast softwoods also grow rapidly in the fog belt.

Reforestation in the high mountain country of the west is not nearly so promising. The growth is slower here, but the great drawback is the open exposure to destruction by fire for a century or more, and the pronounced inaccessibility of the timber after it is grown. The fire hazard is at a maximum because of no rain for several months of the year, during which the dead grass over the mountains becomes tinder for flames on a tremendous scale at the drop of a match or cigarette stub. These fires rage far more fiercely on mountain slopes than on level land.

I have followed the planting of trees in a number of small groups in southern Michigan for many years for entertainment and experiment.

Of trees planted 39 years ago the diameter of the largest specimens of different varieties are as follows, measured inside the bark breast high from the ground: White Pine, 14 in. Ponderosa Pine, 12 in. American Sweet Chestnut, 14½ in. The average of these trees is considerably less.

I have trees of the following varieties planted twenty-three years ago, the largest measuring as follows, inside the bark, breast high from the ground: White Pine, 8½ in. Norway Pine, 7¾ in. Ponderosa Pine, 8¾ in. These show maximum size that can be expected in the North from practice in reforestation. It would seem that present prospects for the sustained yield from reforestation in the Northern States will not



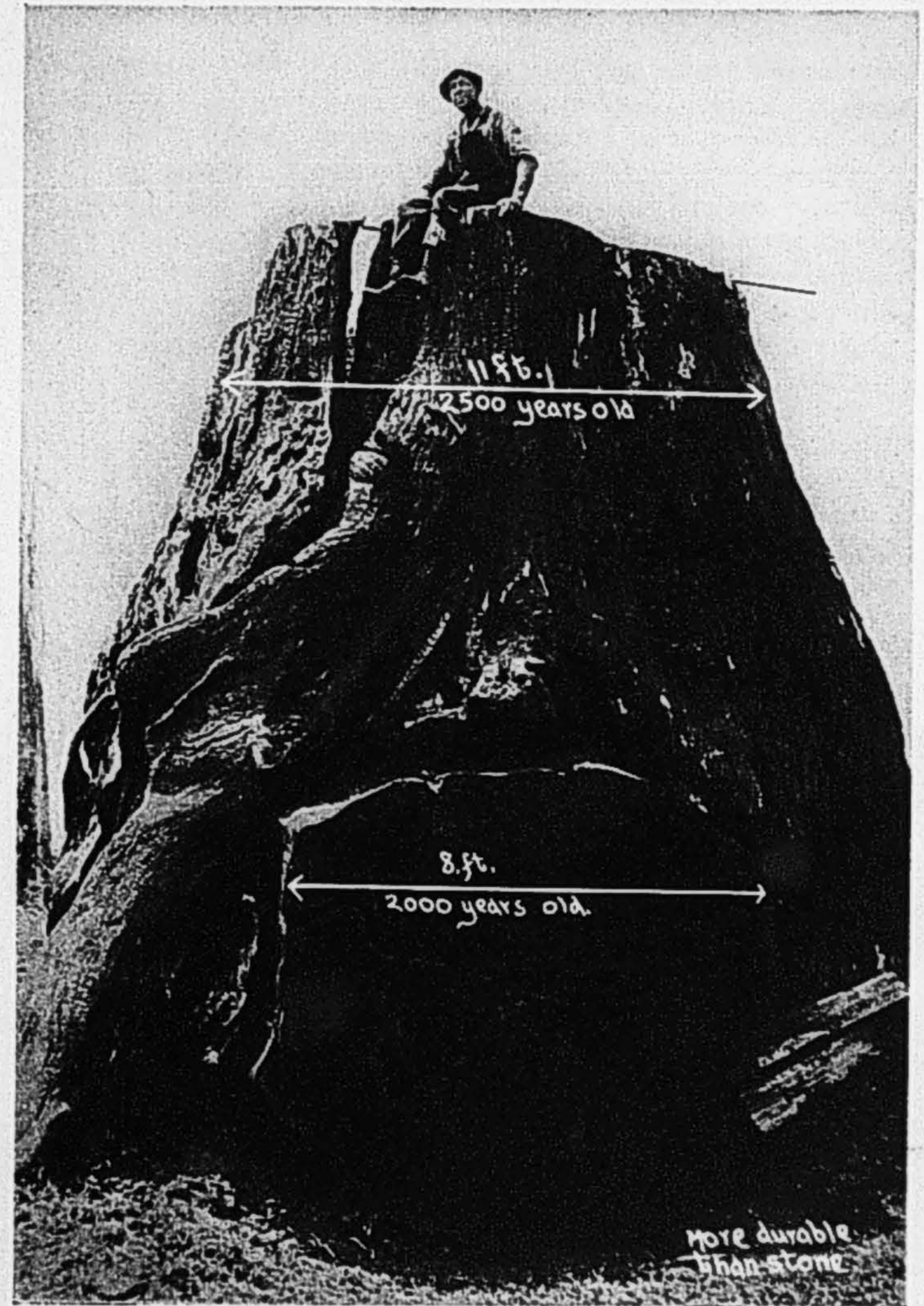
help out our present rate of consumption much except perhaps in hardwood. Two thousand acres only have been planted to pines in Wisconsin, a bagatelle of the original pine area.

As concerns softwood production from conifers it is manifest that reforestry needs the serious and efficient attention of the Federal Government, and even with maximum results obtainable thereby we must eventually import, for an interval at least, a large part of the softwood lumber we use. Only with the southern pine belt under the control of the United States Forestry Service could such maximum results be reached. Life is too short for the individual to get interested with profit alone in view. A corporation can live longer, but the government lives on indefinitely. It can outlast generations of forest growths. It should plant and husband our future forests and the situation should be faced as such.

Growing the most durable timber is an efficient way of helping out, by lessening ultimate requirements of consumption thereby. As an illustration of durability, prostrate redwood trees will last a thousand years or longer after they have fallen on the ground. The proof is obtained by finding live trees of that age whose stumps straddle prostrate redwood trees, the wood of which is still good for use. The opposite extreme among softwoods is probably found in Loblolly pine, a fallen tree of which rapidly decays. The lumber of the two species presents a similar contrast when used in exposed places. One thousand feet of heartwood Long Leaf pine lumber might ultimately answer in service, merely through its lasting capacity, in lieu of several times the replacement of that amount of Loblolly lumber, thus saving the growing of many times its volume of undependable lumber, besides the cost of a number of replacements which latter cost with labor requirements would be by far the greater economic loss of the two. True, Loblolly pine is valuable for making wrapping paper and cardboard, but constructive practice requires that it should be confined to that use and not reforested for the production of lumber.

### SAWMILLS

It might be taken as an axiom that the life of a sawmill is but a fraction of that of other manufacturing plants, not because it is worn out, but because, unlike manufacturing plants in general, it is doomed from the start to run out of raw material. Shore mills have a wider radius for collecting their raw material due to logs coming in by water



### DURABILITY DEMONSTRATION

The prostrate trunk commenced its career 4,500 years ago.



from great distances, and hence have a longer life than inland mills. But they must all be junked at the end of a short career. The grim reaper that has mowed down the timber across North America from East to West has likewise mowed down the sawmills in its wake. These sawmills have come on in successive crops to meet their fate. I have witnessed two main crops being mowed down and am soon to witness another one if I live. It is the last big crop I think that can come. These three crops are as follows:

First, the Northern Pine and Hemlock crop.

Second, the Southern Pine and Cypress crop.

Third, the Low Altitude crop of Washington, Oregon and British Columbia.

There is a fourth crop of sawmills in the South of lesser capacity, in the aggregate, although far greater in numbers (over 7,000) that has sprung up of late years like a mushroom. These are largely portable mills and form a flexible and virile crop. Although an inland crop, its individual mills will not throw up their hands and die when their fodder gives out at home. Instead, they will travel to other forest stands, for about all of their number are portable and use gasoline engine power. Such is the privilege of small portable sawmills sawing small second growth timber in mass log production territory. They make a stand in one location for as little as 150 M. feet, cutting trees running from 6 to 12 inches in diameter. This will prove a voracious crop of sawmills. Every road to every tree was made throughout its entire domain when the parent trees were harvested. There is no hindrance to its taking all second growth trees and turning them into money. They are cutting over 50% of the southern pine lumber at present. As the stands of trees grow less in numbers it will not lessen the output of lumber, for these mills can move and concentrate on remnants of timber until the latter all vanish pretty much at the same time. Many will be surprised at the suddenness with which this end will come, and the crimp it will put in lumber production.

There is a fifth crop of sawmills not so favored for obtaining fodder as the last. It is the crop of the high mountain areas of the Western States. Although it got its start when the overland railroads crossed the Rockies, it has grown slowly, and the portable second growth southern pine crop of sawmills, although starting years later, has rushed by it to maturity with a dash. This fifth crop is doomed to very slow growth indeed. It requires the forbidding auxiliary of long and difficult

*approach railroads* which the other four crops of sawmills did not have to cope with. While in the case of the first four crops of sawmills, only the sawmill must be junked at the end of its career, in the case of the high mountain crop of sawmills, the accompanying costly *approach railroad* must also be junked along with the sawmill.

There is also the crop of the redwood belt sawmills, which is a minor crop and has not been much of a factor in lumber production. It was kept from growing because of the mass log production territory in Washington, Oregon and British Columbia fir. However, as the fir logging ascends above the 1,500 foot level and becomes increasingly mixed with hemlock the redwood belt becomes the more accessible in comparison, for probably 80 to 90% of the timber in the redwood belt lies below the 1,500 foot level. The redwood belt contains 70 billion feet of redwood and 6 billion feet of fir mixed in with the redwood, both kinds of which are marketable, and is now among the most accessible timbers of the West. It is the only territory left in the United States that can materially enlarge its present crop of sawmills.

It can be seen that while the major first four crops of sawmills have been built and what is left of them are in the running, most of the high mountain crop of sawmills, throughout whose domain the major part of our western timber now lies, is yet to be built along with the additional accompanying crop of costly *approach railroads*.

This situation certainly does not look propitious for any more *great* crops of sawmills that can prolong over-production of lumber.

I have seen a forest map showing almost all of British America as being timbered with conifer forests, the inference being that it is a vast timber reserve. Imagine such a vast waste, barren of railroads, crossed by mountain ranges, and harassed by arctic weather and deep snows, being exploited for scrub timber. And remember, every tree harvested must be reached with some kind of a road. This is the forbidding field for a sixth crop of sawmills. When one wakes up from such a dream he will perceive this supposed vast timber reserve practically simmer down into a very narrow belt of timber around the shore of Vancouver Island, some of the best portions of which have already been logged.

An analysis of the situation shows that the great sawmill crops of the past and present are impossible of repetition for the reason that logs will no longer be available to supply such a crop of new mills. The present mills in mass log production territory may continue to feverishly cut their remaining timber as rapidly as each generation of sawmills has



done in the past; but without new crops of sawmills, present production of lumber cannot be maintained, and the environment of the remaining timber in the West will permit comparatively few new sawmills to be built. The mountains will prohibit it.

TABLE NO. 5

	1920 Population	Sq. Miles	1924 Lumber M. Feet	Consumption Board Ft. Per Sq. Mile
<b>NORTHEASTERN REGION</b>				
Maine .....	768,014	29,895		
New Hampshire .....	443,083	9,031		
Vermont .....	352,428	9,124		
Massachusetts .....	3,852,356	8,039		
New York .....	10,385,227	47,654		
Rhode Island .....	604,397	1,067		
Connecticut .....	1,380,631	4,820		
New Jersey .....	3,155,900	7,514		
Pennsylvania .....	8,720,017	44,832		
Delaware .....	223,003	1,965		
Maryland .....	1,449,661	9,941		
District of Columbia.....	437,571	60		
		173,942	8,521,154*	49,129
<b>LAKE REGION</b>				
Michigan .....	3,668,412	57,480		
Minnesota .....	2,387,125	80,858		
Wisconsin .....	2,632,067	55,256		
		193,594	3,597,373	18,129
<b>CENTRAL REGION</b>				
Illinois .....	6,485,280	56,043		
Indiana .....	2,930,390	36,045		
Kentucky .....	2,416,630	40,181		
Missouri .....	3,404,055	68,727		
Ohio .....	5,759,394	40,740		
Tennessee .....	2,337,885	41,687		
West Virginia .....	1,463,701	24,022		
		307,445	7,440,400	24,200
<b>SOUTHERN PINE REGION</b>				
Alabama .....	2,348,174	51,279		
Arkansas .....	1,752,204	52,525		
Florida .....	968,470	54,861		
Georgia .....	2,895,832	58,725		
Louisiana .....	1,798,509	45,409		
Mississippi .....	1,790,618	46,362		
Oklahoma .....	2,028,283	69,414		
Texas .....	4,663,228	262,398		
		640,973	4,675,671	7,290

\* See Table 68, Statistical Bulletin No. 21, U. S. Dept. of Agriculture.

## TREND OF LUMBER TRADE CURRENTS

The mountain timber of the Pacific Coast States must obviously go east by rail. It has the slight advantage of shore mills of one cent per 100 lbs. for Chicago and midwest points.

The shore lumber is heir to the privilege of going by vessel to all ports of the world, including Atlantic Coast ports.

Freight rates on lumber are approximately as follows:

Mountain mills to Chicago 72 cts. per cwt., or \$18.00 per M. ft.

Mountain mills to Boston 90 cts. per cwt., or \$22.50 per M. ft.

By vessel, shore mills to Boston, \$10.00 per M. ft.

The above enables a saving of \$12.50 per M. ft. over rail shipments on lumber to Boston.

It is manifest that as the *shore* timber of the Pacific Coast nears exhaustion there is to follow a comparatively sudden jump in cost from the stump to the consumer of Atlantic Coast cities of the difference between rail and water freights amounting to some \$12.00 or more per M. feet. The non-operating investor can easily at this time place himself in position to profit by this impending rise in costs, by investing judiciously in standing shore timber on the Pacific Coast.

As will be seen by Table No. 5, the Northeastern Region of the United States consumes about 29% of the total lumber consumption of the United States, or about 8½ billion feet annually. Its density of population and wealth undoubtedly contribute to this. This region is peculiarly fortunate over other eastern coast regions, because of this density in population, in being able to draw on the shore timber reserve of the Pacific Coast States by vessel. Aside from its large coast cities, its interior cities are not far inland, allowing inexpensive delivery inland from ports by rail, truck or inland waterways.

The overland railways are assured of all lumber shipments from mountain timber in the West whenever these come along, so naturally will not be over solicitous about losing the freight it provides except as among themselves. Not so with lumber at the shore mills, for all lumber that goes out by vessel is entirely lost to the overland railways. The incentive is strong, therefore, for them to secure lumber freight from shore timber tracts until it is exhausted when they can then turn their



attention to their reserve of inland mountain timber. In the meantime they will not be solicitous to help out the latter in the way of *approach railroads*.

It is significant that while most of the remaining timber in Washington, Oregon and California, when manufactured, must be sawed by inland mills that the bulk of all the lumber and pulp is at present produced by shore mills.

On the Olympic Peninsula between the mountains and the Pacific Ocean stands the last large timber reserve of shore timber in Washington. Various species of timber are intermingled in this reserve. The Northern Pacific, Union Pacific and other railroads are rivalling each other to penetrate this area. The two mentioned contemplate building a joint line at a cost of six million dollars, to which 26 billion feet of timber will be tributary, with hemlock predominating and only 27% Douglas fir.

This natural exertion by the railroads to secure as much *shore timber freight* as they can for destinations in the Middle West, where vessels cannot deliver, will tend, of course, to shorten the period in which the Northeastern Region can receive shore lumber from the Pacific Coast by water. So if the Northeastern Region was organized as well as the overland railways are it would naturally endeavor to ensure as much of the Pacific shore timber being delivered to its ports as possible. This, however, can only be done by ownership of shore timber tracts. There would naturally be an incentive after the situation was understood by the large retail dealers of lumber at ports in the Northeastern Region to acquire holdings of standing shore timber on the Pacific Coast, and thereby save for themselves the eventual paying of the difference between rail and vessel freight rates to the Atlantic Coast on whatever lumber they handle in their future requirements. This should especially be the case with high qualities of standing timber that can never be reproduced, and, therefore, cannot be obtained again after the original growth is exhausted, thus providing a double incentive for them to acquire it.

It will be seen that the consumer in coast cities of the Northeastern Region can be reached with shore timber of the Pacific Coast at a lessened cost of \$10.00 or \$12.00 per M. feet due to the difference between rail and vessel freights. This can last, however, only so long as the shore timber lasts on the Pacific Coast and as heretofore indicated the railroads will naturally wish to hold the inland mountain timber in reserve and obtain all the shore lumber freight they can in the meantime. In

the measure that they can do this it will redound to the advantage of the Midwest and to the disadvantage of the Atlantic Coast and the Coast of the Northeastern Region in particular.

But the saving in the difference between the water and rail freight is not the only saving that will accrue to the Northeastern Region if another opportunity is taken advantage of. That is the saving possible by shipping the large West Coast softwood timber to the Northeastern Region in the log, by vessel, and sawing it at tide water mills on that coast. This is due to the great size of the units in the log that can be efficiently handled by modern machinery in contrast with the very small units after they are reduced to boards in the West that must be loaded and unloaded by hand. The combination of these two privileges is where the great opportunity of the Atlantic Coast cities lies over the interior of the country, which obviously cannot receive *logs* from the West *by water, nor by rail*, for excessive weight of green logs makes the latter impossible. Who reaps the benefit of this combined advantage for Northeastern Coast cities remains to be seen.

#### INVESTMENT OPPORTUNITIES

Straight thinking demands that the standing timber situation be not confounded with the present plight of lumber operators due to temporary excess sawmill capacity. This excess capacity only stimulates the faster cutting away of the forests and only hastens the time when a famine in standing timber will be at hand. True, temporary under-consumption of lumber due to the depression, doubly felt on top of over-production, has had the psychological effect of thoroughly deflating standing timber on the West Coast. Its intrinsic value, nevertheless, has never ceased growing, and this unusual deflation but presents to the sagacious investor unusually profitable investment opportunities.

It is said that the greatest opportunities are present in any business when a depression occurs in it. This is true of timber, but circumspection must be used. The different factors must be studied and taken advantage of to insure success, and when this is done success in no other line seems surer or destined for larger profits.

The most important factor is high quality of timber, which will bring the *highest price at retail*. Other factors being favorable, the deflated prices of such standing timber in the West at this time are so nominal when compared to retail values of the product they are capable of pro-





A Michigan Sawmill Lumber Yard of 25 Years Ago Full of Cork Pine Lumber.  
White Pine Timber of this character is all gone.



One of the Railroad Spurs in the Yard Above.



ducing, that they amount to an option in reality on the retail price for an indefinite period. It is doubtful whether retail prices of lumber have been lowered much on account of declining prices of lumber at the saw-mills. It seems more likely that retailers have taken advantage of a buyer's market in the cross currents of competition between the different species engaged in *mass lumber production*, and while purchasing cheaply have kept up their prices, reaping larger profits than ever before. My personal experience is that of paying higher retail prices in the past few years. The most successful sawmill plant on the Coast operates in high quality standing timber and is interested in a line of retail lumber yards in California. This operation accordingly *does not suffer from low prices received at the mills* as its competitors must. Running retail yards in favorable localities will likely be the trend of the large operators of the West in the future. At any rate the buyer's market for the retailer is apt to cease as mass lumber production ceases and a seller's market will, accordingly, be restored to the lumber manufacturer. Furthermore, retail prices will naturally work higher as lumber production lessens.

It is obvious that while investing in standing timber, it is no time at present to enter into the lumber manufacturing business if it can be avoided. Part of the present generation of sawmills will have to run out of timber before lumber prices at the mills are restored. In the meantime excess sawmill capacity stimulates the cutting away of the forests. It is plain that non-operative timber land is the present field for investment. In fact, the big profits in the lumber field in the past have been made in the rise in value of standing timber instead of the operating end as a rule. The factors for maximum attainment in the rise in the price of stumpage might be enumerated as follows:

(a) The greater the spread between the stumpage cost and the retail price of the manufactured lumber from the same, the greater the percentage in rise there will be.

(b) The standing timber that can be logged, sawed, transported and distributed to consumers at the least cost has an advantage.

It is obvious that in securing non-operative timber tracts combining both the above factors, the maximum prospects for large profits are assured. By adhering to the following rules one cannot go astray:

1. Secure a quality of timber that has the widest spread between the cost on the stump and the retail prices in the markets east of the prairies.
2. Secure shore timber located at the lowest altitude possible.
3. Secure timber that has the greatest density of stand.
4. Secure timber that has the least patchiness in stand.
5. Do not buy western timber except in tracts large enough to support a sawmill plant by itself.
6. Avoid tracts requiring long *approach railroads*.
7. Do not buy standing timber unless you have abundant resources to carry what you buy.

In obeying the above simple axioms one is complying with fundamental principles and his position is unassailable as an investor and must result in maximum profits no matter whether he is a lumberman or not. During these last few years, while excitement has run rife in the automobile, aircraft and radio business, and in unprecedented stock market speculation, attention has been diverted from the opportunities in old-fashioned investments in which big money has been made in the past and in which it can be made again with certainty if proper procedure and underlying principles are adhered to. Whatever the mob psychology for over-popular and superficial investments with high risks, it does not disturb the fundamental requirements of mankind.

West Coast timber, the highest grade softwoods on earth, which have taken even thousands of years to mature matchless clear lumber, and which can never be produced again, are naturally a legitimate investment for large retail lumber dealers of the Northeastern Region. This high grade lumber can be freighted to New York by vessel nearly as cheaply as the low grade second growth North Carolina pine lumber can be shipped there by rail, while the stumpage price of the latter is much higher. A combination of large retail yards in the large cities can at present secure from non-operators control of billions of feet of the highest grade shore timber on the globe ("which is scarce the world over"\*), for a bagatelle of the retail price of the lumber product. In this way the lowest cost from the stump to the consumer of the Northeastern Region would be assured for the future. Their timber acquisitions could be conserved to give them a monopoly while the curtain is

\*See page 59 of Forest Service Report of June 1, 1920, on Senate Resolution No. 311.



lowering on the final drama of American lumber production. But it is not retailers alone that can profit by this opportunity, as it is not necessary to operate in order to do so; for the greatest profit in the past has often been made in the rise of standing timber values of each species in its turn during the final era of its production, the greatest profit naturally being in the higher grades. Hence investors with broad vision often step in at opportune times and share in the profits with the far-seeing portion of the lumber fraternity.

One ponders, when contemplating the billions of dollars that are represented by office buildings throughout the land, whether the great majority of these buildings were not individually the apple of the owner's eye at the time they were built and whether pride rather than good business judgment was not the factor instigating their erection, without thought of the business center traveling on and leaving them stranded and helpless in a part of the city where paralyzing decadence will set in. Doubtless a majority of the existing business blocks of today are an anxious and unsolvable problem for their owners. With lowering rents from competition of new buildings and mounting repair bills coming with increasing age, one wonders what the end will be. A new office building as a rule must be at its maximum in net returns as soon as filled with tenants. Thereafter it generally becomes more or less a disintegrating property.

With standing timber judiciously purchased the entire opposite is the case. Its settled prospects are not decadence in substance and value as in the case of business blocks. On the contrary its substance is maintained *without care* and its value has prospects of increasing many fold.

The opportunities for building a business block are legion and will never be lacking. The opportunities to buy the best original growth softwood timber on the globe at deflated prices will shortly draw to a close, and can never occur again.

While future supplies of minerals are hidden and these supplies may be inexhaustible, the supply of softwood trees several hundred years old and capable of producing high grade lumber is **in sight and has been approximately measured**. It is also obvious that no more such trees will ever be produced. If the supply of any useful mineral was known to be so limited, it would cause worry and consternation throughout the country.

### WHO SHOULD INVEST IN STANDING TIMBER

Legitimate investors in standing timber are by no means confined to lumber manufacturers. Neither is the latter's judgment necessarily the most accurate of any. His vision may easily be restricted in some measure to the species he is operating in or by the exigencies of his particular environment. The most promising investments may be in his own species in his home vicinity and be unrealized by him for want of comparison with the general situation. On the contrary it may be in other species far removed, with whose comparative conditions and environment he is more or less unacquainted, and a wrong selection in his own limited field is the result.

The opportunities of the present depression in the lumber business should be taken advantage of by investors, for as soon as the remaining limited mass log production territory of the South and of the states of Washington and Oregon is cut, over-production of softwood lumber must end throughout America, on account of physical and financial obstacles in operating in rougher country. Human agencies cannot prevent these underlying factors from asserting themselves. No other natural resource such as oil, copper, coal, rubber and crops in general, nor any manufactured product, has any such brake imposed by nature on its over-production. With this advantage, softwood lumber manufacturers may dismiss their fear complex as to the ultimate future of the softwood lumber market, and investors can buy carefully selected tracts of timber with full confidence in the future of their investment.





San Francisco, Calif.  
March 14, 1932

Mr. Newton B. Drury, Secretary  
Save the Redwoods League,  
114 Sansome Street,  
San Francisco, California

Dear Mr. Drury:

Owing to the depression, I believe it is an opportune time to acquire the Ward Redwood Tract for Park purposes, and I will outline the proposition that I have in mind, viz:

The Tract contains 26,882 acres and cruises 2 billion 719 million feet of all kinds of standing timber.

Of Mill Cut timber there is the following, viz.

1,542,532,000 ft. Mill cut redwood at \$1.50 per M ft. \$2,313,798.00

396,000,000 " " "whitewood" .75 " " " 297,000.00

The Ward family to give 1/2 of this value of...\$2,610,798.00 and to accept an issue of State of California tax exempt bonds for \$1,305,399.00, bearing 5% annual interest, for the other half, said bonds to be serial bonds running until the year 2040, one per cent of the bonds to fall due in the year 1940 and annually thereafter for 100 years until the entire issue is paid.

The advantage of this is that it would distribute the cost among several generations of future citizens in which immigrants of the future would share said cost, which, in consideration that the present generation is foresighted and considerate in securing the perpetuity of these redwood trees for their inspiration and pleasure, is just and would be appreciated by them.

Mr. Newton B. Drury

March 14, 1932

By this plan the Park would be secured for less than 2¢ annually per capita, which would die away to nothing with the increase of population and the passage of time.

I have looked upon Michigan, Florida and California as the three unique states of the Union and that they must ever act as magnets that will draw recreationalists from other States and Nations. Neither Michigan or Florida can ever lose the extensive shoreline surrounding them which cools the summer climate of the one and warms the winter climate of the other. California cannot lose its magnificent scenery or delightful summer and winter climates but it can lose its wonderful redwood trees. It should preserve a hundred thousand acres of them, which, as time goes on, will prove a drawing card for visitors that will pay the cost over and over again for all time to come.

Should this proposition interest you, I will proceed to obtain the consent of the various owners, some fifteen in number.

Very respectfully yours,

(SIGNED) WILLIS C. WARD,  
Orchard Lake,  
Oakland County,  
Michigan



WILLIS C. WARD  
ORCHARD LAKE, MICHIGAN

September 26, 1933

Col. E.F. - 3

corn there was in the fenced field a great deal quicker by a few trips through the field than he could in the unfenced field, which would require a much more minute examination to ascertain if the corn ran evenly on it. You might say that this would not apply to timber as it would be a guess with the corn. However, a cruise of a timber tract is merely the total of a great many guesses as to the amount of timber on it with the exception that it is dignified by the term of timber cruise or estimate.

It must now appear to you that a buyer's cruise of the Alice Lake tract is vastly facilitated by the views of the tract from around the shores of Alice and Kathleen Lakes. There is also a road across the tract to a mining camp that facilitates it.

However, as we are asking but a third cash down payment based on the cruise sent you and are willing that no more be paid until the scale of the Government on the timber as it is cut exceeds one-third of the cruise, the buyer is amply protected as determined by the pictures of the tract alone. I also think my partners would (as I am) be willing to take (in lieu of interest) an annual advance in the price of the timber as it is cut of 2 1/2 cents per M annually on the unpaid two-thirds of the timber (or whatever the same cuts out under the Government scale after said scale exceeds one-third of the cruise sent you) as the timber is cut. I am sorry I have no elaborate cruise to send you, but such cruises are costly and are not made with stumpage on which the price is as cheap as this is.

Yours truly,

Willis C. Ward

WCW:T

Fontenoy Apts.  
1811 N. Whitley Ave.  
Hollywood, Calif.  
April 3, 1934

Dear Colonel Fletcher:

I returned from British Columbia Sunday. The Parliament there has passed an Act postponing collection of license fees to June 30th.

Regarding your request in your letter of the 2nd inst. I hesitate to advise you as to how to answer Hickox' letter to you. The factors are so intricate that with my partial knowledge of them, I would surely put my foot in it.

I have no knowledge of who is knifing you in the back. It may be some one pretending to represent us. Suggest you write Colonel Strong about it.

Hickey asked me last winter to call on a Chicago man and pressed a letter of introduction to him, which I enclose. I thought it politic not to call on him. This letter was given to me before I knew you had had any connection with Colonel Strong. In all of my contacts with owners out here I have always appeared as the most bullish one among them. I have surmised, in my contacts with Hickey, that he was endeavoring to find out our minimum price so as to be able to undersell us. Am enclosing a letter of introduction - perhaps you had better return it to me.

Am tired from my journey but will write you further tomorrow.

Sincerely yours,

*W. C. Ward*



Col. Ed Fletcher, #2, April 4, 1934

Fontenoy Apts.  
1811 N. Whitley  
Hollywood, Calif.  
April 4, 1934

Colonel Ed Fletcher  
San Diego, Calif.

Dear Colonel Fletcher:

I think the Yawkey people might be a good prospect. They are lumber as well as pulp people. Cyrus Yawkey's son-in-law told me two years ago that the St. Paul R.R. (which is hard up for traffic) and would like to keep the paper mills in Wisconsin from being abandoned for lack of hemlock timber) were talking of making a very low rate on pulp from the Puget Sound to Wisconsin, so as to keep that going. There is a vast amount of pulpwood in the Quatsino Sound district, consisting of balsam, spruce and hemlock, but the saw timber is not so plentiful, the Alice Lake tract being considerably the best tract there. I was told by a logger in the Quatsino Sound District that the hemlock on the Alice Lake tract was very tall and fine and would average about 20 inches in diameter on the stump. It should find a good market in Pennsylvania, where the hemlock market has been established a long while, and the West Coast hemlock is of better quality than Pennsylvania hemlock.

An official of the Forestry Dept. in B.C. told me a natural market for lumber and logs from Quatsino Sound was the Orient, on a low ~~market~~ freight, it being nearer to Japan and China than mainland timber, as you can perceive by examining a map of the globe. Freight on lumber to Japan has, I understand, been as low as \$4.50 per M feet at times. Japan imports normally several hundred million feet of West Coast logs. China's imports of lumber from British Columbia increased from 9,000,000 ft. in 1927 to 130,000,000 ft. in 1933. During this interval the annual exports of lumber from British Columbia were as follows:

1927	740,000,000 ft.
1928	765,000,000
1929	801,000,000
1930	712,000,000
1931	566,000,000
1932	446,000,000
1933	662,000,000

I am sending a copy of ~~the~~ contract which I shall personally be pleased to make with the Yawkey people and give you a 5% interest in the contract, as commission. I think my nephews will also be willing. They own one-half interest in the licenses. The Yawkey's have some wealthy cousins who perhaps might help them. Would not require them to commence logging for three years if they paid \$25,000 cash down, same to be credited toward the latter end of the cut on the tract.

Sincerely yours,

*W.C.W.*

P.S.

Am enclosing letter from Noel Humphrey & Co. of April 5, 1930, which please return. At that time he thought \$1.00 was the right price for pulp timber on the stump.

The steamship companies might be possible prospects for timber tracts on a leasing basis to insure future freight traffic without competition.

I recall about forty years ago, a big steel concern operating from Cleveland, Ohio, advertising for bids from all ship-building plants on the Great Lakes, for two large ore and coal carrying barges. To the surprise of everyone, the steel company accepted all bids submitted, without regard to price. It then became known that the steel company really wanted a dozen barges as quickly as possible, instead of only two, and by this ruse probably succeeded in getting them cheaper than if it had been known that they were in a great hurry for a dozen, which any one plant could not have turned out as quickly as required.

*With reference to 1st growth redwood.*

If anyone wanted a large amount of timber, this same ruse might be worked, by playing on owners of the different tracts and accepting the offers of all of them. This would be the wise thing for both ~~original~~ foresters and Government to do, if they wanted all the standing timber, and it would also be wise for them to want all the first growth. The second growth would take care of itself, without any chance of its being purchased by lumbermen,

*while the original growth may be grabbed up by investors if pushed down to low by regional foresters.*  
W.C.W.



Fontenoy Apts.  
1811 N. Whitley  
Hollywood, Calif.  
April 4, 1934

Dear Colonel Fletcher:

Complying with your request to let you know what I found out in the Northwest, I would state that between the parties named below I gathered the following information, namely:

Norman Portius, Logging Engineer, of Seattle, Wash.; editor of The Timberman, Portland, Oregon; and one of the head forestry officials in the Land Office at Victoria, B.C.; all of whom I called on -

1. The greatest fire in destructiveness in history occurred southwest of Portland last summer, killing eight billion feet of the finest fir, outside of the Weyerhauser and affiliated companies' holdings. This burned timber will have to be cut within four or five years to save it. Part of it will have to be towed to Grays Harbor, to be cut by mills there that are nearly out of fir timber.
2. The loggers will be hard put to find fir timber soon. The Weyerhauser affiliations own 7/8ths of the remaining high-grade fir timber and will not overstock the market after they have a monopoly. (This confirms what I was told by a National City Bank official in New York several years ago who had investigated the fir situation, which was that three or four companies would own all the remaining high-class fir in a very few years, and have a monopoly thereof. My family had a monopoly of Cork Pine in Michigan in 1900 and netted \$6,000,000 in cutting 350 million feet of it. The talk of the attorney who told you that timber in the north end of Del Norte County was worth only 25¢ per M shows that he lacks comprehension regarding the timber situation. At that price it would be a gift to the purchasers.)
3. The editor of The Timberman says the drop in annual lumber consumption is from 34 billion in 1928 to 10 billion since was not due to Reese use of substitutes but was instead due to the general depression in which substitutes suffered as well as lumber. He expects the annual softwood lumber consumption to recover to between 20 and 25 billion feet as soon as business in general recovers. (This annual cut will produce a famine in high grade lumber inside of a decade, the fir on the mountains of the interior being low grade and also inaccessible.)

Col. Fletcher, #2, April 4, 1934

As to claims that re-growth will furnish the demands of lumber consumption in the future, I take no stock in, after viewing during my business career the depletion of first growth pine, hemlock and hardwood in the North, the same of yellow poplar and hardwoods in West Virginia, Kentucky, Tennessee, and adjacent states, also of cypress and southern pine in the southern states, and the inroads made in Oregon, Washington and British Columbia; (The last stronghold of first growth softwoods wherein a pin head on the map of North America must furnish the remaining first growth of softwood for world ports.) One has only to submit to common sense to realize that reforestation will not furnish it off the same territory that the original timber was taken. Especially is this so with softwoods which are more easily killed by fire than hardwoods. It should be realized that the first growth of softwood timber in North America (the accessible portion of which is now nearly cut) was produced before match and cigarette factories were built, and that second growth must now run a gauntlet from fire ~~for~~ a century and upwards before it can arrive at a size to produce soft timber of quality. It should be realized that softwood trees are more easily killed by fire during the first century of their growth than later on.

Facing all this, how can first growth softwood become less and less valuable as its exhaustion approaches, which some may ask one to believe? Admitting that such a claim is true, it raises a question as to whether it is worth while for the United States to support a costly forestry organization to attempt to grow a crop, taking a century to fit it for harvesting, if the remnant of a matured crop of it a thousand years old is now claimed to be of so little value.

The position taken by the State (as I understand it) that it has forbidden the United States to own any more timber land in California, is also faulty. It puts the State in a position of forbidding the preservation of any more of the original redwood forests, the inspirational value of which to future generations (not only of the United States but of the world) is beyond estimating, and condemns California as being a poor guardian of Nature's greatest exhibit of ancient living things in the world, which lie within her borders, immune from fire damage, which other States may be not only willing but even anxious to help her preserve.

Very truly yours,

*W. C. Ward*



Fontenoy Apts.  
1811 N. Whitley Ave.  
Hollywood, Calif.  
April 4, 1934

Dear Colonel Fletcher:

I am enclosing copy of contract which I neglected to do in today's letter before it was sealed.

It seems to me that endeavors to sell the redwood to operators should go hand in hand with endeavors to sell it for preservation, for it is best to have as many strings to one's bow as possible.

In this connection the feature of a stabilized income would suit the owners, according to my idea, for when one reflects it is really the one essential that every one requires to exist in comfort and peace of mind during their existence.

This plan on the part of the seller facilitates and extends, with particular force, the capability of the buyer to handle the purchase and pursue the manufacture and disposition of the product during a long period wherein bunched burdens are not forced on the purchaser at any one time. As you will perceive, the inclosed contract contemplated with the Yawkeys, enables this to be done in fairness to the mutual benefit of the seller and buyer. In this connection the features of a lease instead of a sale might be considered. Redwood is as indestructible as coal and through a lease might be handled on nearly the same

Colonel Ed Fletcher  
Page #2, April 4, 1934

basis under similar graduated provisions enumerated in the inclosed contract. Through this agency the buyer or lessee would be relieved of any extended initial outlay or of burdensome payments during the long period of operation. This seems to me the rational procedure in all fairness to both parties, while it at the same time effects the multiplying of prospective buyers in this temporary period, in which funds for outlay are abnormally scarce. I fancy that this plan of buying the timber on both sides of the line might be particularly inviting to Japanese firms for securing a long drawn out supply of lumber, or to steamship companies in securing a continuous supply of freight without interruption from competitive lines, or both.

Kindly reflect on the above and let me know your reaction. I am sending copies of this letter and the contract to Colonel Strong and my son.

Sincerely yours,

*W. C. Ward*



THIS AGREEMENT made the 28th day of November

1932:

BETWEEN:

WARD, FAYS AND DUNN  
(hereinafter called "the Sellers")

OF THE ONE PART

- and -

YANKEYS  
(hereinafter called "the Buyers")

OF THE OTHER PART:

WHEREAS the Sellers are the owners of (\_\_\_\_\_) perpetual timber licenses numbered (\_\_\_\_\_) inclusive, situate around Alice and Kathleen Lakes in the north end of Vancouver Island, in the Province of British Columbia (hereinafter called "the said lands") and have agreed with the Buyers to grant to them the sole and exclusive right and license to fell, cut and remove the trees and timber situate standing and being upon the said lands but only on the terms and conditions hereinafter stated:

NOW THEREFORE THIS AGREEMENT WITNESSETH that the parties hereto have agreed each with the other of them as follows:

Fontenoy Apts.  
1811 Whitley  
Hollywood, Calif.  
April 5, 1934

Dear Colonel Fletcher:

While in Seattle I interviewed the maker of the map of remaining standing timber made in 1921, which I showed you in San Diego. In 1921 about ninety one billion feet of fir lumber had been cut. Since then about sixty seven billion feet of fir lumber has been cut, a total of one hundred fifty eight billion feet to date. An up-to-date map would further riddle the 1921 map of standing timber, in consequence.

Eight billion feet of the best fir timber left was killed by fire in western Oregon the past summer and must be cut as soon as possible to save it. The Weyerhaeuser and affiliated companies own four-fifths of all the best first growth fir that is left and will soon have a monopoly of it.

I copies points as follows from The Timberman of November 1930, regarding a fifty-nine mile railroad extension by the Northern and Union Pacific Railroads, northward into the Olympic Peninsula.

"The Olympic Peninsula carries the last large undeveloped stand of timber west of the Cascade Range in Washington."

"The line will lie along the western slope of the Olympic Mountains. The road will tap an area estimated to contain twenty eight billion feet of timber. It is estimated that about 65% of the timber in the Olympic Peninsula, outside of the National forests, is hemlock and probably best marketed in connection with pulp and paper operations."

Another statement in the January 1930 issue says the timber on tracts tributary to this extension will run from 8% to 27% to Douglas fir.

All this serves to show the leanness of the remaining fir timber stand of quality, as there will probably not be over twelve or fifteen billion feet of fir in this last great timber reserve, lying between the Olympian Range and the Pacific Ocean.



1. The Sellers hereby grant to the Buyers until the 31st day of December 1950 the right together with their agents servants and employees during the term of this license to enter and to cut and remove all merchantable timber upon the said lands and to take and use upon the said lands all logging equipment of every description for the purpose of carrying on a general logging business upon the said lands and to erect on the said lands such buildings railways camps and other structures as the Buyers may find advisable for the prosecution of their enterprise. PROVIDED however that after the said 31st day of December 1950 the interest if any of the Buyers in all timber not so removed shall revert to and become the property of the Sellers and all rights of the Buyers under this agreement shall be at an end.

2. The Buyers covenant with the Sellers as follows:

(a) To commence development work upon the said lands forthwith or in due time, such development work to consist of erecting camp buildings building logging roads and moving logging equipment upon and into the said lands suitable for the logging operations to be carried on under the terms of this agreement.

(b) To commence logging operations and the cutting of timber upon the said lands before the 1st day of March 1939.

(c) That they will not cull or leave any merchantable and accessible timber on the lands cut over but that they will clear off all merchantable and accessible timber from

Col. Ed Fletcher  
Page #2

I am enclosing a table made by Norman Porteous a forest engineer of Seattle, showing in acres the rate of timber denudation in Washington. It is presumable that the best qualities and heaviest stands in general of original fir were cut first, as the cost of logging increases while being extended up the mountain side, and at the same time the more valuable fir thins out and is gradually replaced by hemlock. Hence the yield of original fir per acre on remaining timbered areas must run much lighter per acre than on lands cut in the past, and yield a corresponding lighter harvest of original fir.

Hope I am not overburdening you with information.

Think I will be returning to Michigan about the 19th inst. via San Francisco, Seattle and Victoria. My return ticket reading that way.

Very truly yours,

*Ed C. Ward*



each area as they proceed and will log the said lands in a good and workmanlike manner to the reasonable satisfaction of the Sellers cutting all timber of the diameter breast-high fourteen (14) inches and upwards and falling all timber when practicable not more than three and one-half (3½) feet from the ground and will not log in a manner which will be calculated to depreciate the value of the remaining timber on the said lands more than shall be necessary in the premises.

(d) To observe and carry out the provisions of all laws and regulations of the Province of British Columbia now or hereafter in force in any way relating to logging operations.

(e) To take all proper and usual precautions against fire and in the event of same occurring to take all necessary steps to extinguish the same and limit the scope thereof.

(f) That so soon as their logging operations upon the said lands have commenced such logging operations shall be carried on continuously in a diligent proper and workmanlike manner PROVIDED that failure by the Buyers to carry on logging operations when prevented from doing so on account of bad weather shall not be considered as a breach of this agreement.

(g) To cut and remove from the lands not less than one million five hundred thousand (1,500,000) feet of merchantable timber in each and every month during the continuance of this license until the whole of the timber upon the lands shall be cut and removed.

Ocean paths annihilate cost for bulky freight in distant transportation compared to railways. But the Panama Canal has shortened ocean paths from the Pacific to the Atlantic coasts of the United States tremendously as well, which with the decline of the southern pine output is being taken advantage of. The United States Forest report of September 3, 1929, shows approximately two billion feet of lumber having passed through the Canal in 1928, 72% from Washington, the balance probably from Oregon or mostly so, the leading wood by far being Douglas fir.

#### UNIQUENESS OF REDWOOD

Redwood is unique among woods in several ways; first, as a forest,—second, its trees,—and third, its lumber.

The uniqueness of its forest lies in its congestion, for although one of the major softwoods, it is confined within abrupt boundaries on a limited area in the state of California, for it is native to no other part of the world save that the northern tip of its belt extends into Oregon a very few miles. The fact that it forms a long strip of forest, several hundred miles in length, and perhaps a dozen miles wide, has given it the appellation of the redwood belt. The southern tip of this belt commences a few miles south of San Francisco, with quite small timber for redwood. It is much broken until it reaches Mendocino County, consisting of groups of timber of comparatively small extent, the great body of the timber by all odds lying in Mendocino, Humboldt, and Del Norte Counties. The belt is fairly continuous through these three counties, save that it is split at Garberville in southern Humboldt County by a gap of several miles in width of grazing land. In Mendocino County the trees are smaller than in Humboldt and Del Norte Counties, wherein they reach their greatest perfection in size and quality, forming an extensive forest of the tallest trees in the world. The belt follows the coast more or less in Mendocino County, recedes several miles back in southern Humboldt County, and again hugs the ocean coast generally throughout northern Humboldt and Del Norte Counties. As closely hugging it on the east side are barren mountains. These can be seen plainly in some of the aerial views of the Ward tract. The belt is pierced through this tract by the Klamath, the largest river in northern California.



(h) To pay to the Sellers at its said registered office in lawful money of Canada the said stumpage mentioned in the Schedule to this agreement payments to be made monthly on the 20th day of each month following that month in which any timber has been cut and sealed and sold.

(i) All timber cut by the Buyers under the powers herein contained shall be and remain the property of the Sellers until the stumpage as hereinbefore provided shall have been paid whereupon the property in the said timber shall pass to the Buyers PROVIDED however that the Buyers shall also be responsible for and shall pay stumpage at the rates set out in the Schedule hereto to the Sellers for all timber cut which may become damaged lost or destroyed before sealing.

(j) To obtain from the Forest Branch of the Department of Lands a registered timber mark under the Forest Act and to mark each log and shingle bolt and other timber as may be necessary or advisable.

(k) To have all timber cut from the said lands sealed by an official sealer appointed under the provisions of the Forest Act and to furnish a copy of every official scale bill to the Sellers.

(l) To keep proper books of account relating to sealing sales and generally as to their logging operations which shall be open to the Sellers or their authorized agent at all reasonable times and to furnish the Sellers monthly with statements of all logs and timber cut and removed and at the request of the Sellers or their agent certified copies of any papers or records relating to the sealing and cutting of logs and timber.

Redwood trees are unique among conifers in a number of ways. Besides being among the largest, tallest, and oldest trees in the world they are the most tenacious of life of all conifers. Unlike others, a large matured tree will sucker and grow new trees around its stump after it has been felled. A piece of a burl off a redwood tree will sprout many new shoots from its surface when kept in a dish of water, making a unique window plant. Although immune from being killed by forest fires, the trees it would seem, are not always immune from some damage thereby. While redwood forest fires have been unknown since the advent of the white man in the redwood belt, there is a tradition of one occurring about eighty or ninety years ago. The Forest Service has also discovered three or four evident cycles of dry years from the annular rings of trees in their growth of the past two thousand years. The fire damage is limited to burned out hollows in the butts of the trees. Redwood's immunity from being killed by ancient forest fires is laid to the thick bark which is often six inches in thickness. What few standing trees have been killed due to <sup>grading</sup> clearing land seem to be good for an indefinite period. There are a number of proofs of wind-fall redwood trees remaining good for use after having lain on the ground for a thousand or even two thousand years. The proof is obtained by finding live trees of that age whose stumps straddle prostrate redwoods, the wood of which is still good for use. This has gained for it the sobriquet of the imperishable wood.

One singular feature of redwoods is the dearth of windfall trees. The cruise of the Ward tract shows but .0052% of windfalls which represents what has fallen for a thousand or two thousand years, as the down trees seem to be largely immune from decay.

Redwood is also immune from insect attacks, possibly owing to dislike of an acid in the wood. The lumber seems to be termite resistant, probably from the same cause.

A singular thing about redwood forests is the abruptness of the timber line. Ofttimes it is as marked between its largest trees and prairie openings as it is between a farmer's wood lot and his plowed field. It is truly awe inspiring to look up the trunks of tall redwood trees and see their tops at such unbelievable heights. If it were possible to place a number of these redwoods around Washington's home at Mount Vernon,



(m) The Buyers shall prepare and keep up to date or cause to be prepared and kept up to date and available at all reasonable hours for inspection by the Sellers or its agents accurate maps showing the various operations on the said lands which have been logged and cut over and the Sellers for the purpose of determining from time to time the amount of timber cut from the said lands shall have the right at all reasonable times by its agents to examine the logging records and camp scales of the Buyers and to enter upon the said lands for the purpose of inspecting and surveying the said timber.

(n) To furnish to the Sellers on or before the 5th day of each and every month true copies verified under oath of all invoices or other documents relating to the sale of any timber cut upon the said lands during the previous month for the purpose of enabling the Sellers to fix the rate of stumpage payable under the terms of this license.

(o) To pay all rates taxes assessments ordinary or extraordinary timber license fees timber dues royalties scale charges stumpage dues and other charges of every nature whatsoever which may or shall at any time after the date of this agreement be assessed taxed levied charged or imposed against the said lands premises rights and privileges or any part thereof or upon or against the Sellers as owner thereof or upon or against any timber on the same or upon or against or on account of any logs lumber or other products of timber which may be cut or taken therefrom or which may become alien on the said lands or any timber removed therefrom and that all

they would form a grove whose tree tops would reach six or seven times higher than the roof.

Probably on the further development of Oregon and northern California, the gap between the northern terminus of the railroad at Trinidad, California, and the southern terminus at Powers, Oregon, will be bridged by constructing a railroad between these two towns. This would complete a new through Southern Pacific line between San Francisco, California, and Portland, Oregon, approximately five-sevenths of the distance being already built. It would furnish a practically snowless line between the two cities. Sixty miles on the California end would traverse the redwood belt. The freight derived from the timber alone would warrant the building of this end of the road as it would be largely long haul freight to the Middle West. It is one of the rare instances in the west where it would pay to build a railroad to obtain the lumber freight only. The redwood belt in Humboldt and Del Norte Counties is also traversed by the famous redwood highway, an improved, through state highway, from San Francisco north to Grant's Pass, Oregon, rendering this part of the belt easily accessible for automobiles. The Southern Pacific runs an auto-bus line for tourists from Eureka to Grant's Pass over this highway.

The climate in the redwood belt is very even in temperature. Embraced by the fog belt, it is cool in summer, and the Japan Current keeps it warm in winter. Pampas grass flourishes as far north as the mouth of the Klamath River.

Perhaps the best way to illustrate the uniqueness of redwood trees and lumber is by showing extremes in qualities and properties in the different varieties of timber. Below is an attempt to do so; viz.,

Redwood hardest to kill	Fire-killed timber	Eastern hemlock easiest to kill
Redwood indefinitely	Period fire-killed timber remains good for use:	Western yellow pine one or two years
Redwood 1000 years and upward	Period windfall trees remain good for use:	Western yellow pine one or two years



payments thereof shall be made within the time fixed by law for the payment thereof and before any such rates taxes assessments scale charges or other charges have become delinquent or subject to any penalty for non-payment and the Buyers shall regularly produce to the Sellers for its inspection at a place designated by them, receipts for such payments.

(p) If any of the timber upon the said lands shall at any time during the terms of this agreement be damaged or destroyed by fire originating from or out of the operations of the Buyers, the Buyers shall pay forthwith to the Sellers the value of such timber destroyed at the stumpage rates applicable on similar timber at the time by reason of the provisions hereof. AND IT IS FURTHER AGREED that the cruises made on behalf of the Buyers by Eustace Smith timber cruiser of Vancouver, British Columbia, shall be taken as the basis for ascertaining at any time the quality and quantity of timber so destroyed.

(q) In the event of the Buyers logging timber on lands other than the lands subject to this license in conjunction therewith the Buyers shall take reasonable precaution to keep all timber cut under this license separate and distinct from that cut from other lands.

(r) To indemnify the Sellers and keep them harmless from all loss costs damages and expenses which they may be put to suffer or be called upon to pay to the Government of British Columbia or to any adjoining property owners by reason of anything arising out of or happening from the Buyers' operations including also damage by fire.

Redwood, none—either alive or dead	Insect damage liability Western yellow pine, great, both alive and dead
Redwood immune	Lumber staining Pine easiest to stain; has to be treated as a preventative
Redwood least	Inflammability Heart lumber of southern yellow pine most
Redwood, cypress and cedar most resistant	Decay resistant on exposure to elements Western yellow pine and balsam least
Redwood, least	Lumber checking Fir, most
Redwood, least	Warping Gum, most
Redwood, least	Absorbing water after being seasoned Lynn, most
Redwood largest	Percentage clear lumber Hemlock least
Redwood least	Shrinking and swelling after being seasoned
Redwood } Sugar pine }	Sap Western yellow pine thickest

According to U. S. Forest Service Miscellaneous Publication No. 46 on The Strength of North American Woods, redwood seems to be considerably stronger than northern white pine in bending strength and compression strength perpendicular to the grain. It is stronger than oak in compression strength parallel to the grain, which is surprising. It is, however, slightly weaker than northern white pine in stiffness, standing 78 to 82 compared to oak at 100. It is said to be very strong for so light a wood.

From its many merits and lack of demerits, redwood might be rated as being fitter for most purposes and fit for more purposes than any other major softwood.

It is pertinent to say here, however, that the value of redwood does not rest alone on its particular advantages over other softwoods. The past has shown that the first growth of the most faulty of the varieties east



(s) To indemnify the Sellers from all claims and demands for labor wages and material and any liens that may be filed in respect to any timber or logs cut or removed from the said lands and to comply with the provisions of the "Woodmen's Lien for Wages Act" the "Workmen's Compensation Act" the "Mechanic's Lien Act" the "Semi-Monthly Payment of Wages Act" and to protect the Sellers from all liability under any of the said Acts.

(t) At all times to obtain the best possible price according to the state of the market for all logs of all descriptions.

5. IT IS UNDERSTOOD AND AGREED between the parties hereto that the word "price" where it occurs in this license or in the Schedule hereto shall mean (except in regard to hemlock and balsam sold to the \_\_\_\_\_) a delivered price at the Harbors of Vancouver and New Westminster.

4. The Buyers COVENANT with the Sellers to be bound by the decision of William C. Schmithals of Seattle, Washington, upon the following matters:

- (a) The price which the Buyers should have obtained for any logs.
- (b) The delivered price of logs of any description.
- (c) The price of camp run cedar logs in the \_\_\_\_\_.

In the event for any reason said William C. Schmithals should be incapacitated, unwilling or for any other reason fails entirely to undertake the work of making the decision in the

COUNTY	*ACREAGE LOGGED FROM MARCH 1st, 1919 TO MARCH 1st, 1924	ACREAGE LOGGED FROM MARCH 1st, 1924 TO MARCH 1st, 1925	ACREAGE LOGGED FROM MARCH 1st, 1925 TO MARCH 1st, 1926	ACREAGE LOGGED FROM MARCH 1st, 1926 TO MARCH 1st, 1927	ACREAGE LOGGED FROM MARCH 1st, 1927 TO MARCH 1st, 1928	ACREAGE LOGGED FROM MARCH 1st, 1928 TO MARCH 1st, 1929	ACREAGE LOGGED FROM MARCH 1st, 1929 TO MARCH 1st, 1930	ACREAGE LOGGED FROM MARCH 1st, 1930 TO MARCH 1st, 1931	ACREAGE LOGGED FROM MARCH 1st, 1931 TO MARCH 1st, 1932	REMAINING PRIVATELY OWNED TIMBERLANDS ON MARCH 1st, 1932
*WHATCOM.....	18,200 Acres	2,240 Acres	2,400 Acres	4,080 Acres	1,280 Acres	1,060 Acres	1,520 Acres	520 Acres	600 Acres	69,680 Acres
*SKAGIT.....	39,720 "	10,370 "	7,350 "	9,360 "	10,400 "	7,756 "	6,440 "	5,918 "	1,200 "	130,480 "
*SNOHOMISH.....	45,690 "	8,390 "	8,880 "	8,560 "	6,320 "	5,460 "	3,607 "	2,766 "	1,630 "	59,250 "
KING.....	52,320 "	10,800 "	10,040 "	14,040 "	17,840 "	13,660 "	10,800 "	6,400 "	3,040 "	142,670 "
PIERCE.....	49,320 "	7,720 "	10,320 "	11,560 "	8,760 "	7,940 "	6,640 "	6,664 "	4,430 "	169,100 "
THURSTON.....	31,400 "	7,560 "	11,800 "	10,880 "	11,520 "	12,860 "	12,240 "	5,711 "	5,180 "	47,850 "
LEWIS.....	55,120 "	19,880 "	13,920 "	16,360 "	12,200 "	14,560 "	16,080 "	12,080 "	8,060 "	378,100 "
COWLITZ.....	19,320 "	7,290 "	5,080 "	10,320 "	8,050 "	10,034 "	8,600 "	6,480 "	4,920 "	228,240 "
CLARKE.....	13,180 "	2,480 "	1,940 "	1,660 "	2,480 "	1,570 "	1,420 "	600 "	400 "	9,270 "
WAHKIAKUM.....	21,400 "	1,640 "	1,880 "	2,475 "	2,240 "	3,360 "	3,560 "	1,440 "	2,420 "	26,100 "
PACIFIC.....	45,120 "	8,360 "	7,880 "	8,320 "	10,720 "	10,440 "	9,240 "	5,040 "	3,680 "	246,160 "
GRAYSH'RB'R.....	111,960 "	29,760 "	25,400 "	27,690 "	25,250 "	24,880 "	22,800 "	13,810 "	6,590 "	126,850 "
MASON.....	40,700 "	15,920 "	9,040 "	14,080 "	10,080 "	9,820 "	9,300 "	7,530 "	6,280 "	40,040 "
KITSAP.....	5,200 "	3,480 "	3,120 "	4,590 "	8,920 "	4,940 "	5,200 "	4,030 "	3,930 "	13,120 "
†JEFFERSON.....	13,360 "	1,640 "	3,760 "	3,170 "	3,800 "	4,900 "	3,920 "	2,980 "	1,280 "	121,780 "
†CLALLAM.....	21,500 "	4,400 "	5,770 "	5,640 "	12,320 "	13,760 "	11,400 "	9,545 "	7,580 "	277,960 "
WESTERN WASHINGTON	583,510 Acres	141,930 Acres	128,580 Acres	152,785 Acres	152,180 Acres	147,000 Acres	132,767 Acres	91,514 Acres	61,220 Acres	2,086,650 Acres

NOTE—These figures are an impartial story of the true timber situation in Western Washington. The amount of lands timbered, outside of the National Forests, was arrived at by taking lands assessed as timberlands and then checking these areas in the field. The Forest Service claims sixty billion feet for the National Forests. However, 60% of the timber in the National Forests is pulpwood.

The cut over areas have been compiled from actual logging operations and recapitulations made each year. This is the only authentic compilation in existence and represents a vast amount of detail work each year.

\* Large percentage of remaining timber is Hemlock on rough, mountainous country.

† Large percentage of remaining timber is Hemlock.

+ Five years logging.

PORTEOUS & COMPANY, Forest Engineers

By *Norman Porteous*

Seattle, Washington  
June 1st, 1932



event any question shall arise then the Buyers covenant with Sellers to be bound by the decision of the President for the time being of the Timber Industries Council of British Columbia on the matters in this paragraph mentioned.

5. The quality of timber cut or removed from the said lands shall be ascertained or determined from and based upon the scale sheet of the official scaler who scales the timber cut from the said lands. In the event of any timber boom or quantity of logs being lost or destroyed in towing before being scaled such timber boom or quantity of logs shall be deemed to have been scaled and to have contained the same kind and quantity of timber that the average of all the preceding booms of the same class of timber cut or removed from the said lands contained which then have been scaled by the official scaler. And the Buyers shall pay to the Sellers stumpage thereon at the rates provided in this license.

6. IT IS EXPRESSLY ACKNOWLEDGED by the Buyers that the Sellers have not made any representations to the Buyers as to the correctness and accuracy of the surveys of the said lands or the area thereof or the quantity or quality of the said timber or as to any other matter or thing to which these presents relate all of which matters and things have been duly investigated by the Buyers prior to the execution hereof and the execution of this agreement by the Buyers shall be and be deemed to be an absolute release by the Buyers of the Sellers from all and any claims in respect thereof.



7. It is hereby agreed by and between the parties hereto that if during the continuance of this license, the selling price of camp run cedar logs delivered to mills situate in the Burrard Inlet, False Creek or the Fraser River falls below Ten Dollars (\$10.00) per thousand feet board measure and/or the price on hemlock falls below Seven Dollars (\$7.00) per thousand feet board measure and so often as the same shall occur then the Buyers shall have the right to suspend their logging operations until the selling price on camp run cedar logs so delivered reaches Ten Dollars (\$10.00) per thousand feet board measure and hemlock reaches Seven Dollars (\$7.00) per thousand feet board measure.

8. This license or any part thereof shall not be assignable without the written consent of the Sellers first had and obtained.

9. Time shall be considered the essence of this license and in the event of the Buyers failing to pay for any timber in accordance with the provisions of this license or in the event of their failing to commence logging operations and the cutting of timber before the 1st day of March 1937, or to cut the minimum of one million five hundred thousand (1,500,000) feet per month subject to the relief granted to the Buyers by the provisions of clause 7 hereof or if default shall be made on the part of the Buyers in any of the covenants provisions terms conditions and stipulations of this license then the Sellers may at their option give to the Buyers notice of their



intention to cancel this license and at the expiration of thirty (30) days from the sending of such notice this license shall be void and of no effect and all the Buyers' right hereunder shall cease and determine and the Sellers shall be at liberty to take possession of the said lands and shall retain all sums of money already paid by the Buyers to the Sellers under the terms of this license as consideration for the rights and privileges by this license conferred upon the Buyers and for timber taken thereunder and the Buyers shall forthwith give up possession of the said lands to the Sellers and the Buyers shall have no claim against the Sellers whatsoever for or by reason of such cancellation or retention of said moneys. In case of such default and the cancellation of the rights of the Buyers under this license by notice as hereinbefore provided the Sellers shall be deemed to be the owner and entitled to possession of all timber and logs which have been cut upon and not removed from the said lands. The Sellers shall also be entitled to retain absolutely any flumes or logging roads camp buildings or other buildings or other works constructed by the Buyers or their agents for removal of timber from the said lands, but the Buyers shall be entitled to remove their portable logging equipment engines tools and machinery from the said lands provided such removal is completed before the expiration of sixty (60) days after the expiration of this license either by the end of the term herein provided for or its sooner termination in accordance with the provisions hereof and after such period of sixty (60) days has elapsed all such portable logging



equipment engines tools and machinery which have not been removed shall become the absolute property of the Sellers. The procedure provided in this clause for the cancellation of the rights of the Buyers under this license shall be concurrent with and in addition and without prejudice to and not in lieu of or substitution of any other right or remedy at law or in equity which the Sellers may have for the enforcement of their rights under this license or its remedy for any default of the Buyers in the conditions hereof. The said notice or any notice which the Sellers may require to give to the Buyers under the terms of this license shall be well and sufficiently given if delivered to the Buyers or mailed at the Post Office, \_\_\_\_\_ British Columbia under registered cover addressed as follows:

10. AND THIS AGREEMENT FURTHER WITNESSETH that in consideration of the payment by the Buyers before the same become delinquent or subject to the addition of interest or penalty of all taxes and assessments levied against the same during the continuance of this license the Sellers grant to the Buyers full right and license to use and occupy in connection with their logging operations during the continuance of this license that parcel of land covered by their timber licenses and the Buyers hereby agree to pay and to produce to the Sellers receipts for all taxes and assessments levied against the said timber licenses.



11. The Sellers further grant to the Buyers the right to cut and remove any timber now standing upon the said timber licenses upon payment to the Sellers of stumpage therefor at the rates set out in the Schedule hereto.

12. All covenants and everything herein contained shall enure to the benefit of and be binding upon the assigns of the Buyers and shall be binding upon the permitted assigns of the Sellers.

IN WITNESS WHEREOF the parties hereto have caused their hands and seals to be hereunto affixed the day and year first above written.

(SEAL)

(SEAL)



THE SCHEDULE

STUMPAGE RATES

1. For hemlock spruce and balsam logs sixty cents (\$.60) per thousand feet board measure. Provided that on all hemlock spruce and balsam logs sold by the Buyers at prices in excess of nine dollars (\$9.00) per thousand feet board measure an additional stumpage equal to fifty per cent (50%) of the difference between the price of nine dollars (\$9.00) and the selling price shall be payable by the Buyers to the Sellers until the total stumpage amounts to one dollar (\$1.00) per thousand feet board measure. Provided that in no event shall the stumpage payable by the Buyers on hemlock, spruce and balsam exceed one dollar (\$1.00) per thousand feet board measure.
2. For red cedar logs of all grades one dollar (\$1.00) per thousand feet board measure. Provided that when the average sale price obtained by the Buyers on camp run cedar logs for any month exceeds ten dollars (\$10.00) per thousand feet board measure then the stumpage price in this paragraph above provided for that month shall be increased by twenty-five per cent (25%) of the amount by which such average sale price exceeds ten dollars (\$10.00) per thousand feet board measure.
3. For yellow cedar logs of all grades one dollar (\$1.00) per thousand feet board measure. Provided that when the average sale price obtained by the Buyers on camp run cedar logs for any month exceeds ten dollars (\$10.00) per thousand feet board measure then the stumpage price in this paragraph above provided



for that month shall be increased by twenty-five per cent (25%) of the amount by which such average sale price exceeds ten dollars (\$10.00) per thousand feet board measure.

4. For fir logs of all grades one dollar (\$1.00) per thousand feet board measure. Provided that when the average sale price obtained by the Buyers on camp run fir logs for any month exceeds ten dollars (\$10.00) per thousand feet board measure then the stumpage price in this paragraph above provided for that month shall be increased by twenty-five per cent (25%) of the amount by which such average sale price exceeds ten dollars (\$10.00) per thousand feet board measure.

5. For pine logs of all grades one dollar (\$1.00) per thousand feet board measure. Provided that when the average sale price obtained by the Buyers on camp run pine logs for any month exceeds ten dollars (\$10.00) per thousand feet board measure, then the stumpage price in this paragraph above provided for that month shall be increased by twenty-five per cent (25%) of the amount by which such average sale price exceeds ten dollars (\$10.00) per thousand feet board measure.

The provisions in clauses 3 to 5 inclusive are subject to the condition that under no circumstances is the stumpage payable by the Buyers on any logs to exceed three dollars and fifty cents (\$3.50) per thousand feet board measure.



The following is an illustration of how paragraphs 2, 3, 4 and 5 of the Schedule of Stumpage Rates would operate for a price of \$17, \$18, \$19, \$20, and of course the same method of figuring would be applied on prices of \$10 to \$17; for example -

\$17.00 logs equals \$7.00 over base \$10.00 price.  
25% of \$7.00 equals \$1.75, plus base stumpage of \$1.00, equals \$2.75 stumpage payable on \$17.00 logs.

\$18.00 logs equals \$8.00 over base \$10.00 price.  
25% of \$8.00 equals \$2.00 plus \$1.00 base stumpage, equals \$3.00 stumpage payable on \$18.00 logs.

\$19.00 logs equals \$9.00 over base \$10.00 price.  
25% of \$9.00 equals \$2.25 plus base stumpage of \$1.00, equals \$3.25 stumpage payable on \$19.00 logs.

\$20.00 logs equals \$10.00 over base \$10.00 price.  
25% of \$10.00 equals \$2.50 plus base stumpage of \$1.00, equals \$3.50 stumpage payable on \$20.00 logs.

In all cases in applying the price of logs for the above purpose, the average price in the principal log markets of British Columbia is to be taken on the species of fir, cedar, hemlock, balsam, spruce and pine.

(SEAL)



## ANNEX TO CONTRACT

As an addition of our own to this contract, we should want a provision for the Buyers to pay the license fees a full year before they were due to guard against loss of title to the timber licenses through negligence or mishap, the sellers to allow the buyers a credit for the interest at 6% on said payment of license fees for said year.







April 10, 1934

A strategic point for location of a sawmill in the future would be on San Francisco Bay, from where the lower grades could be distributed from throughout California by rail and water, and the high-grade either in lumber or the log, to world ports by vessel.

Very truly yours,



C O P Y

Orchard Lake, Michigan,  
June 11, 1934.

Mr. J. F. Wigginton, Secretary,  
Florida, Louisiana Cypress Association,  
Barnette National Bank Building,  
Jacksonville, Florida.

Dear Mr. Wigginton:

I have yours of May 11th enclosing copy of Mr. George Geffing Warner's letter to you of May 8th.

I see that Mr. Warner's view contemplates a union of both operating and non-operating properties which in my judgment is on a wrong basis for an investment, as is amply explained in the "Story of The Timber". Read pages 49, 52, 53, 54 and 55 on copy I am mailing you.

A few years ago when an attempt was being made to combine the whole redwood belt, the Hammond Lumber Company wanted 60 million dollars for their plants and timber, calling for an impossible overhead. I believe that several times the timber they owned can now be bought for one tenth of this sum on terms to suit the purchasers. It can be bought on a basis that the price is simply an option on timber of tremendous potential value that will materialize in a few years. No one is in better shape to realize this feature than you are, for you know what prices cypress lumber has sold at for many years. The David Ward Estate realized net proceeds of six million dollars in cutting 400 million feet of cork pine in Michigan from 1900 to 1912, or \$15.00 a thousand feet to the owners. This was the wind-up of Michigan pine and has been and will be the wind-up of every species of timber of quality in normal times and abnormal times as at present will not always continue. With two-thirds of normal consumption of softwood lumber, the wind-up of first growth high grade species will be upon us in a few years and how soon second growth can compete with it can be answered in your mind by how soon you expect second growth cypress to compete with the first growth cypress you are cutting off.

The situation is that bonding houses greatly over-stimulated the building of sawmills, as well as skyscrapers, which over-stimulated the production of lumber on a fast vanishing supply of first growth softwood timber. The result is that lumber has been temporarily reduced to prices much below normal values which affected standing timber values greatly.



Mr. J. F. Wigginton - 2.

June 11, 1934.

The opportunity is offered as a result to accumulate standing timber at nominal values, and which can be carried at nominal costs compared to its normal value, while the operating plants are whittling away at their holdings. The Weyerhaeusers and three or four interlinking firms I understand own four-fifths of the remaining high grade Douglas fir, aggregating 50 million feet of high grade yellow fir, and many mills are cutting on the other one-fifth. As soon as this one-fifth is cut the present competition in fir lumber will end and the Weyerhaeuser combination will have a monopoly in production of fir lumber and it stands to reason that they will not overload the market with it. All this favors redwood and the opportunity now presents itself for occupying the same monopoly with redwood that the Weyerhaeusers now occupy with fir, for the remaining redwood is less than the remaining high class fir. While any capital can acquire redwood and obtain a future monopoly in it, the natural field for doing it is among the operators of the South or a combination of the lumber retailers of most any one of the northeastern states, thus securing a supply of lumber for a very long period. Who will profit by this situation in securing such a monopoly no one can tell, but my own idea is that the Government will buy the non-operative tracts in the redwood belt before the lumbermen realize the opportunity that they failed to see existed.

Very truly yours,

WCV-GFB

ORCHARD LAKE, MICHIGAN.

November 30th, 1934.

Col. M Fletcher,  
1020 - Ninth Street  
San Diego, California:

Dear Colonel Fletcher:

We understand that John J. Quinn, of New York, is again soliciting options from the Ward heirs on behalf of a syndicate which proposes to offer the Ward redwood holdings in the Klamath district of California to the United States Government.

In view of the negotiations you have carried on with the United States Forest Service whereby you have offered the interests of the western heirs including approximately 15,000 acres out of the total 28,000 acres at 40¢ per M for standing redwood and 20¢ per M for other standing timber according to the Fentriss Hill cruise, we wish to advise you that we will not grant Mr. Quinn any such option pending action of the Forest Service and the National Forest Reservation Commission on the offer you have made.

Very truly yours,

William C Ward  
Harold L. Ward  
Warrior W. D. D. D.  
Frederic S. D. D.



*Duplicate sent by regular mail*

Orchard Lake, Michigan,  
September 28, 1935.

Colonel Ed Fletcher,  
Box 1412,  
San Diego, California.

Dear Colonel Fletcher:

I am inclosing some statements that I am sending out which are at entire variance with your statement that you thought that stumpage prices would never come back again. As an operator with a background of nearly sixty years and a student of the situation, I am an optimist instead of a pessimist regarding it. The intrinsic value is in first growth timber more than ever and must soon assert itself again. I hunted with my father David Ward for high grade Yellow Poplar timber in the south central states fifty years ago and afterwards for high grade timber in the West. Our holdings are the result. Selected long ago, they now stand as the cream of the non-operative tracts that are left. They are as handy to the water now as the operated timber was fifty years ago. The American people are excited over the automobile and flying craft businesses but their taking leave of their senses will not cancel the need for lumber to shelter one hundred million of them, along with that of sheltering their live stock, crops and farm implements and repairing sadly neglected buildings that must do the sheltering. I never saw so many dilapidated buildings in Michigan.

For those who will manage as my father did, wonderful profits are just ahead. The general idea of the public about investments is wrong. It is the exceptions to the contrary followed by a few that win in making large fortunes. My father hunted for quality. It won as it always will in timber for one factor is that it costs as much to log, saw, handle and ship a cull board as an upper. The cruiser when Fentress Hill had to cruise the Estate of David Ward tract told me that it averaged as well or better than any tract of equal acreage in the redwood belt, with a lower altitude and better surface.

If anyone took the trouble to study the "Story of The Timber" he would see the picture clearly. Observe the inclosed sheets of same.

The President of the Coos Bay Lumber Company was formerly with the General Motors Company in Michigan and introduced advanced ideas in shipping lumber. By loading and unloading with cranes in units of several thousand feet he

Colonel Ed Fletcher - 2.

Sept. 28, 1935.

shipped it past Eureka to Southern California ports at \$1.50 per M feet while it was costing \$4.50 per M feet to ship lumber there from Eureka. When rightly handled, water transportation wins in furnishing cheap cost from stump to consumer. Add quality and you have the same in insuring success.

Our plan, of which I am as able to judge of the merits as well as anyone, was to build a log basin with concrete walls for sides at the mouth of the Klamath, build rafts outside the walls by lifting logs over the same with a crane, and towing these rafts to San Francisco Bay for manufacture there for re-shipment to world ports. There is difficulty in towing rafts out of rivers owing to bars at their mouths as the propellers of the tugs, owing to the swells, are out of the water part of the time. This can be obviated by anchoring some old vessel obtained from Uncle Sam's obsolete fleet outside the bar (one lumber firm has an old battleship in B.C.), and towing the rafts out to the vessel by a windlass stationed thereon. By this means a steady and uninterrupted pull is maintained on the raft. Small seaworthy tug boats can be used for carrying the end of the cable back into the river to attach to the rafts as each one is finished. After several rafts are collected at the anchored vessel they can be towed in a string to San Francisco by an ocean going tug. These rafts would be of simple construction and the operation would be pursued at favorable times of the year. This method obviates the necessity of large tugs entering rivers, the bars of which, however, are not so shoal as to prevent log rafts from floating over them. The heavy butt logs would be worked up on the ground into grape stakes, etc. The lower grades of lumber would find a good market at San Francisco while the upper grades would be available for shipment to ports all over the world, even to Great Lakes and upper Mississippi ports due to transfers of lumber in large units by cranes from larger to smaller vessels.

This plan was entertained by a logging expert when a combination of the whole Redwood Belt was entertained to reduce producing costs effectively. However, the Ward tract can pursue it alone without the combination and is perhaps the only one that can pursue it. I regard it as the most valuable non-operative tract on this account. The use of trucks in transporting logs will help this tract more than any other on account of the very short log haul from the tree to the log pond.

There is nothing appalling about the cost of concrete walls inclosing a log pond or a crane mounted on the wall, nor



Colonel Ed Fletcher - 2.

September 28, 1935.

a winlass and cable mounted on an old hulk anchored outside the bar. Compare it with the overhead of 60 miles of rail-road and rolling stock and operating expense of same.

The more you study the situation, the more convincing it will become that it is no time for pessimism.

Very truly yours,

WCV-GFB

HAROLD LEE WARD  
ORCHARD LAKE, MICHIGAN

December 28, 1935.

Senator Ed Fletcher,  
1020 Ninth Avenue,  
San Diego, California.

Dear Colonel Fletcher,

Thank you so much for your good letter and Christmas greeting! We are looking forward eagerly to the grapefruit.

It has been a wintry Christmas here with lots of snow and the lakes frozen. Today the temperature is 6 above zero with the sun shining brightly.

The timber estimates on the outlying lands made by Fentriss Hill but not included in his summary or large map (i. e. on those descriptions enumerated in your letter of December 6th) are as follows:

Tract No. 1	
W. C. Ward Lands	1200 Acres

These lands are in T. 14 N. R. 2 E.

I have not been able to find the cruise sheets for the descriptions on Sections 8, 9 and 15, which take in 800 acres as follows:

Section 8	S. $\frac{1}{2}$ of the N. $\frac{1}{2}$
Section 9	E. $\frac{1}{2}$ and E. $\frac{1}{2}$ of W. $\frac{1}{2}$
Section 15	W. $\frac{1}{2}$ of W. $\frac{1}{2}$

My memory is that these lands have only brush and perhaps some tanbark on them, but no timber. I have asked Father to write you his recollection about them.

The rest of the lands are in Sections 22 and 27. The timber is all concentrated on about 75 acres and the estimates total as follows:

Standing redwood  
932 M feet

Other standing timber  
805 M feet

The balance of these lands are brushy in Section 22 and rocky in Section 27.



HAROLD LEE WARD  
ORCHARD LAKE, MICHIGAN

Senator Ed Fletcher - 2.

December 28, 1935.

Tract No. 2  
W. C., F. B., F. L. Ward Lands 320 Acres

These lands are in Sections 27 and 34, T. 14 N. R. 2 E. The cruise shows no timber on these lands. The descriptions on Section 27 are open, steep and rocky around a 2,000 ft. level. On Section 34 the descriptions run from 2,000 to 3,000 feet and are covered with brush.

Tract No. 3  
David Ward Estate Lands 760 Acres

These lands are in T. 12 N. R. 2 E. on Sections 11, 12 and 14. They are on Blue Creek and are pretty well timbered, but are quite likely more valuable for recreational purposes than for the timber on them. It is for that reason Father had them left off the final Fentriss Hill report, and has not been anxious to offer them commercially or to the Government. Fentriss Hill's estimates show the following amounts of timber:

Standing redwood  
14,745 M feet

Other standing timber  
8,445 M feet

I think these lands should be offered at the same price per thousand feet as the other David Ward Estate timber.

We would like to buy the W.  $\frac{1}{2}$  of the N.E.  $\frac{1}{4}$  and the N.E.  $\frac{1}{4}$  of the S.W.  $\frac{1}{4}$  of Section 14, or at least that part of those descriptions lying west of Blue Creek, at the same price that the Government would pay for these lands; but on account of the powwow in the family I think it would simplify matters not to except any of the David Ward Estate lands from the offers to the Government. If the Forest Service will sell us back these descriptions at the same price, well and good; if not, let it go.

I am enclosing the Fentriss Hill cruise sheets for Sections 11, 12 and 14 in T. 12 N. R. 2 E, and also for Sections 22, 27 and 34 in T. 14 N. R. 2 E. The descriptions marked on the section maps with a red "S" were included in the Fentriss Hill summary and large map and so have already been submitted by you in your original offer to the Forest Service.

*It is a deligit location.*

HAROLD LEE WARD  
ORCHARD LAKE, MICHIGAN

Senator Ed Fletcher - 3.

December 28, 1935.

Please be very careful of these cruise sheets and send them back to me when you are through with them, as we have no duplicates.

I have noted your correspondence with <sup>Harold Fay & Beverly Dunn</sup> ~~the Fays~~ and hope that any differences are mainly a matter of form which you and they can iron out together when it comes time to go to Washington.

With my very best wishes to you and yours for the New Year, I am

Sincerely yours,

*Harold Ward*

HLW-GFB

*Fritz phoned that the grapefruit have arrived.*

*Your description of Helix is inviting, but I don't see how we can get away.*

*H*



**Ed Fletcher Papers**

**1870-1955**

**MSS.81**

**Box: 32 Folder: 21**

**General Correspondence - Ward,  
Willis and Harold Lee Ward**



**Copyright:** UC Regents

**Use:** This work is available from the UC San Diego Libraries. This digital copy of the work is intended to support research, teaching, and private study.

**Constraints:** This work is protected by the U.S. Copyright Law (Title 17, U.S.C.). Use of this work beyond that allowed by "fair use" requires written permission of the UC Regents. Permission may be obtained from the UC San Diego Libraries department having custody of the work (<http://libraries.ucsd.edu/collections/mscl/>). Responsibility for obtaining permissions and any use and distribution of this work rests exclusively with the user and not the UC San Diego Libraries.