

OCCUPATIONAL INFORMATION CONCERNING THE LUMBER  
INDUSTRY IN OREGON

by

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# OCCUPATIONAL INFORMATION CONCERNING THE LUMBER INDUSTRY IN OREGON

## CHAPTER 1

### INTRODUCTION

Statement of the Problem. One of the most important decisions that one must make is the choice or selection of an occupation. Much of our success in life, our happiness, in fact our whole outlook on life depends to a large measure upon the work in which we are engaged. Our occupation then should be in an area of work wherein we have interest, aptitude, and ability, and where our temperament and personality traits will adjust most readily.

We have no reason to assume that youth can select their areas of work wisely without knowledge and information. To assume this in our modern world with its 20,000 or more different occupations is to neglect a very important phase of our secondary school education (6, p.1).

To help in making a wise and satisfying selection of a life's work, youth should be assisted in discovering what types of jobs are available, what training and experience is necessary to obtain these jobs, what wages, hours, and working conditions that can be expected, and what the prospects of advancement are in each job. The job seeker should know where to go and who to see when

seeking employment. Without these facts he is wasting both his own time and that of many employers. It should be emphasized here that this study is primarily designed to be of help in guiding more comprehensive and complete works in the occupational information field. This paper was prepared to give the reader a general overview of the occupational outlook in the Oregon lumber industry. It should be kept in mind that each lumber or logging operation has its own method of procedure, its own ladder of advancement, its own pay schedule (within union limits), and its own particular hazards of operation. Thus, many of the facts included in the job descriptions of this study are merely general in nature and may differ for any particular mill or camp.

Purpose of the Study. It is said that many people change their occupations several times throughout their lifetimes. A systematic study of occupations should provide for a better selection and improvement of circumstances each time a change is made. Changing of occupations takes place more often in the more simple jobs where the type of work is perhaps less demanding upon one's interest, aptitude, and ability. A study such as this will not eliminate the matter of chance in the selection of one's occupation. It should, however, be a better way than by mere "chance" or "accident".

Planning our future, our work, our training is



tremendously important, because we need ample information upon which to base our occupational selection. Schools must provide the time, place, and method for learning about the "world of work" and making plans for the preparation necessary and desirable to succeed in the area selected.

Employment counselors say that the majority of youth who appear at their offices, upon completing high school courses or upon quitting school, have very little idea of what type of work they are seeking or are able to do. This indicates the need for greater emphasis upon this phase of our education and guidance services (6, p.7).

Williamson sets forth some causes of poor occupational choices:

Parental Domination - "Pressure is brought to bear upon students by the parents to choose a particular occupation which appears to be desirable by the parents" (6, p.4). Little attention is given as to whether their children have the interests, aptitudes, or abilities to do well in this field of work.

Teacher Pressures - "Similar pressure sometimes comes from teachers who misuse their prestige with students to advise on occupations with little regard for the student's aptitude or ability."

Influence of Classmates - This illustrates another cause of irrational choice. Some students consider it expedient, in order to achieve the same social status as friends, to choose the same occupational goal.

Lack of Vocational Information - Mistaken decisions of students arise from erroneous ideas about earnings and required qualifications of occupations.

Desire for Prestige - Students are apt to regard a profession as the only respectable route to success. Occupational halo is too often the basis of selection.

Inadequate Sampling - Too often students' sampling of an occupation through summer or part-time work experience, some school activity or conference, is the basis of an occupational choice. Such experiences have value, but should become a part of the total sum of occupational information to be considered in making choices.

It is not to be expected that through the dissemination of occupational information in the junior and senior high schools that every youth will be enabled to choose the occupation in which he will devote his life and talents for which he shall train and prepare.

Likewise it is not to be considered as positive proof of the failure of the study in occupations and planning if youth change their minds about their choices. Changing one's mind for a good reason and while there is yet time is evidence that thought and study are in motion and that better and wiser choices are being made. Changing one's mind after he has entered upon an occupation is the costly change, especially when considerable training and preparatory work has been completed.

One of the better outcomes of a study such as this is not only the information gained on the part of students but also the arousing of an awareness of the great variety of occupations existing in the "world of work" and the thinking and planning done in regard to future occupations in which one might engage. Through this study, students are led to think about their futures and to consider or make choices as early as possible.

Studies of this type should be included in an Occupational Information library. They serve as a source of information to students, especially in schools where a good unit on occupations and planning is offered in grades 10, 11 and 12. A workable plan for the use of occupational information must be used for maximum benefits. Subject teachers might well be acquainted with the occupational library and make occupational reference to suitable reading on occupations relating to their subjects (6, p.8).



Location of the Study and Sources of Data and Facts.

Although this study is primarily concerned with the Oregon lumber industry, the strong tie between Oregon and Washington cannot be adequately broken, because the Douglas fir sector includes areas in both states. Consequently, the area referred to most commonly includes both Oregon and Washington. The great bulk of the logging and lumbering, something like 90 percent, is concentrated on only one variety of tree, the Douglas fir. This evergreen tree is found only from the western slopes of the Cascade Range to the Pacific Ocean. The Douglas fir belt extends in a North-South direction from Northern California north into British Columbia. The majority of virgin timber still available for cutting is found in Western Oregon. The principal shipping port for lumber is Portland, although Coos Bay is becoming prominent.

Much of the research for this study was done in Portland. It consisted primarily of personal interviews with prominent men in the field. A mimeographed interview blank was used. Each occupation in both the lumber and logging industries was considered separately.

Many of the facts that must be included in a study of this type are not known by the average business man in the field. Such information as average wages, number of workers employed in each occupation, and long range

economic outlooks for the industry can only be obtained from organizations that specialize in compiling such data. In this area the lumber industry relies on the West Coast Lumberman's Association for this type of information. The central office of this group is in Portland and operates as an information center and publishing house for its members. Much information included in this study was obtained through this organization.

Limitations of the Study. Much of the material included in this study stands the risk of being out of date before it is printed. Such data as average hourly wages and number of workers employed in a given occupation are certain to fluctuate from time to time. However, the existence of labor unions tends to ease these fluctuations. The wages in the lumber industry, as a matter of fact, have shown a steady increase in the last fifteen years and prospects for continued increase are bright. Also, with the growing trend toward reforestation and sustained yield cutting the chances are that the industry will flourish in Oregon for many years to come. This all points to the fact that the current rate of employment can be maintained and that wage scales can also be kept quite stable.

The job descriptions included in this paper should be applicable for a much longer period of time. Many of the operations herein described have been used since the

beginning of modern wood processing. Much of the equipment described may be improved upon, but the process involved will remain the same and worker qualifications and skills will be unaltered. Also, the types of jobs will change very little. Although different sawmills and logging operations use varying methods, the basic principles of operation differ only slightly. In other words, a log must undergo a definite process from the time it is standing in the forest to the time it becomes a finished product.

In summary then, it may be said that the information included in this study will, in general, be of value for an indefinite period of time. Even if the figures do change, a relative picture of the wages in the different occupations can be seen. This also applies to the number of workers employed in each occupation and, as far as the basic processes of the logging and lumbering operations are concerned, they will change very little, barring a revolutionary discovery in the industry.



## CHAPTER 2

## HISTORICAL DEVELOPMENT

Since the first sawmills were reported built at Jamestown, Virginia, in 1625 and at Berwick, Maine, in 1631, the lumber industry has been intimately associated with the social and economic development of the nation. The industry has been an essential and important one and has contributed in manifold ways to the upbuilding of the American nation.

Beginning with the water-wheel as a source of power and continuing thus for about 200 years, the industry shifted to steam in the early nineteenth century. The resultant impetus to the mechanical processes required in meeting the increasing demands for lumber geared in with the western expansion and development of the nation. Land hunger and increasing population caused people to rush westward over the Allegheny and Appalachian Mountains into the fertile regions of the Central West, and finally across the Rocky Mountains to the Far West. As they migrated, enormous quantities of lumber were required, for dwellings and farm buildings, for bridges and railroads, and also for industrial structures and many associated activities.

For more than 200 years, the lumber industry was

centered largely in Maine. About 1850, it shifted to New York. From Bangor, Maine, the cradle of the American lumber industry, 20 or more sawmills along the Penobscot River shipped lumber to many parts of the world. Albany became a great distributing center of lumber produced in the upper Hudson River valley. In 1850 about 8 billion board feet were cut in New York, and in 1869 that state produced 20 percent of the entire output of lumber in this country. In 1860 the industry was centered in Pennsylvania, and Williamsport, with its 30 huge sawmills along the Susquehanna River became the center of the nation's lumber production. In 1870, and continuing to 1892, the industry was centered in the Lake States, where some 50 sawmills operated in the Saginaw region of Michigan. Magnificent white pine forests were purchased for \$1.00 an acre and some acres contained from 10,000 to 20,000 board feet or more. From Michigan, the industry expanded westward to Wisconsin and then to Minnesota. Since 1895, southern pine has supplied approximately 20 to 40 percent of the total lumber cut in the United States. Southern pine production, as well as the lumber production of the nation, reached its peak in 1909. In 1900, lumber production began to assume great importance in Washington and Oregon. Great Douglas fir, hemlock, redwood, cedar, spruce, and pine forests in the West were quickly put into

lumber production, until that region reached its peak output in 1926. At present the lumber capital of the world is Longview, Washington, where several huge lumber and other forest product industries are located.

Lumber production throughout the country rose rapidly after 1860 and reached maximum production of about 45 billion board feet in 1909. There were subsequent minor peaks in 1916 and 1926, representing periods of great industrial activity and prosperity. The low point in lumber production, since 1860, was reached in 1932 with about 11 billion board feet. The lumber industry, until recently, has been in a continuous state of transition, both in location and in species production. The only large remaining virgin-timber stands are in the Far West. Most of the lumber produced in the North, Northeast, and South is from second-, third-, fourth-, or even fifth-growth timber. Some areas in New England, New York, and Pennsylvania have been cut over for 200 years or more and are still producing lumber. Less than 15 percent of the remaining Southern forests are virgin. North Carolina, in spite of continuous logging for more than 300 years, has been producing lumber at an annual rate of about 1 billion to  $1\frac{1}{2}$  billion board feet for the past 40 years. This state has more sawmills than any other state in the nation.



The American people, because of the superabundance of virgin timber existing in the early days of the nation, have become accustomed to demanding clear boards for many uses for which knotty boards would serve equally well.

Prepossessed with the idea that clear wood signifies quality, many Americans appear to have lost their appreciation of the interest and beauty in the character markings of woods that are too often referred to as "defects."

Europe harvested its virgin forests many centuries ago. Accordingly, large quantities of knotty lumber are used in Europe for purposes for which Americans insist on clear wood.

Within recent years, significant changes have taken place in the lumber industry. Among these are the following:

1. An increasing recognition that forest owners have an obligation for continuous forest production. To this is added a realization of the vital relationship between forest conservation and permanent industry and steady employment, which gives vitality and an economic basis to the growing interest in forestry.

2. Closer and better relations with the government and the public. Federal and state governments, as well as the public at large, have been taken into the

confidence of the industry. The results are closer co-operation in matters of forest protection and production and more satisfactory public esteem of the lumber business.

3. Standardization and refinements in sizes, grades and nomenclature of lumber products to fit better the needs of the ultimate consumer and the structural requirements of industry.

4. Higher standards of business ethics in handling, marketing, and distributing lumber. These are evidenced in the arbitration of disputes, the acceptance of responsible inspection, grade marking, and the observance of stated or implied fair-trade practices.

5. A desire for more technical knowledge concerning the physical, mechanical, and chemical properties of wood as applied to the conversion, seasoning, grading, merchandizing, and use of the product (2, p.1).

#### The West Coast Lumber Industry.

Logging and sawmilling constitute a major factor in the economic life of Washington and Oregon. The West Coast logging and sawmill operations give direct employment to approximately 75,000 employees, with an average annual income in 1948 of \$3,298.00. During the year 1948 the lumber production in the Douglas fir region of Western Oregon and Washington amounted to 9,405,104 board feet.

This meant a sum total of \$259,205,000 in direct payrolls and approximately \$162,990,000 in rail and water transportation revenues (12, p.6). The total number of active sawmills in the Douglas fir region was reported to be 1,675 in 1948 (12, p.7).

The log output of the West Coast region goes chiefly to sawmills, pulp mills, veneer mills, and shingle mills. The lumber is used principally for building and other types of construction; although substantial quantities are used in railroad ties, boxes, crates, doors, shipbuilding, and aircraft production. In 1948, 22 percent of the total West Coast lumber output was consumed locally, 14 percent was shipped by water or rail to California, 15 percent was shipped by water to Atlantic and Gulf ports, 4 percent was exported, and 40 percent was shipped by rail East of the Rocky Mountains, principally to the North Central and Northeastern states (12, p.24).

The West Coast region became a leading lumber producing area after ease of water transportation was facilitated by completion of the Panama Canal in 1915. The West Coast output reached a peak of 9 to 10 billion board feet annually in the late 1920's, dropped off sharply to a new low during the depression years of less than 5 billion board feet, and now, due to the rapid increase in production of the Oregon mills, the 1948 production figures



are again approaching the 10 billion board foot level (12, p.8).

The decline in the production of all kinds of lumber in the United States during the depression years was a consequence of a declining consumption of lumber. According to the National Lumber Manufacturers Association, consumption of all kinds of lumber declined from 35.8 billion board feet in 1929 to a low of 13.1 billion board feet in 1932, and increasing thereafter to 30.5 billion board feet in 1940 and a maximum of 42.5 billion board feet in the war year of 1942 (7, p.27).

Washington was formerly a much larger producer of logs and lumber than Oregon, but in recent years the industry has tended to shift more and more to Oregon. In 1925, Washington accounted for 67.5 percent and in 1939 for 54.6 percent of the total West Coast log production; thus, Oregon's share increased from 32.5 percent to 45.4 percent in these years. The same is also true with respect to lumber. Washington accounted for 67.2 percent of the total West Coast lumber output in 1925, this share declining to 45.9 percent in 1939, and remaining at approximately 45 percent through 1948 (12, p.26).

The shift in log and lumber production from Washington to Oregon is attributed in large measure to the fact that a larger proportion of the economically accessible timber stands has been cut in Washington than

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in Oregon. In Washington the area of cutover forest lands (cut from 1920 to 1933) represented, in 1933, 47 percent of the total area of private and county saw timber land, whereas the proportion was only 30 percent in Oregon. Total forest drain (that is, by cutting, fire, etc.) was about four times as great as growth in the whole West Coast region in 1933, but in the Puget Sound area the relationship was six to one, and in the Grays Harbor area it was nine to one. The drain in Oregon, particularly in the Willamette Valley and Oregon coast area, was much less in relation to growth than in Washington.

Estimates made in 1940 indicate that about seven billion board feet are taken from the Douglas Fir Belt annually, including losses from fire and disease. This means that it would require, at the present rate of logging, between seventy and eighty years to log off all the standing timber. Those figures, however, do not include estimates for new growth. By including the normal new growth, the potential yield increases each year by over two billion board feet. With sustained yield and forest management, those two billions will become over eight billion board feet, or actually more than is now logged during an average one year period.

#### Industry Prospects Bright

Since 1939, Oregon has led the three West Coast

states in the output of lumber, accounting for nearly one-half of the aggregate production of the three states in 1947 (5, p.10). It is significant that the 1947 lumber production exceeded the pre-war 1939 level by nearly 50 percent in California and by 37 percent in Oregon. Washington, however, was 18 percent below the 1939 level. It would seem that the exploitation of Oregon forests is increasing and as experience in the state of Washington indicates, future forest yield and the production of wood products will be dependent to a considerable degree upon programs for selective cutting, sustained yield, and reforestation. Modern methods of logging, increasing emphasis upon reforestation, the building of access roads to more inaccessible stands of lumber, improved methods and techniques in utilization of forest products, and improved methods of lumber, plywood, and other wood products production assures the future of the industry. In the Northwest where the need is most apparent, selective logging is already practiced by the larger companies, and in the Douglas Fir region of Washington and Oregon there are more than 75 tree farms covering approximately 2,500,000 acres.

In addition to the foregoing programs for expanding the timber supply, annual growth will supply a substantial amount of timber each year. There is no general agreement among estimates from various sources concerning the rate of annual saw timber growth. However,



the United States Forest Service has estimated it to be 2,432 million board feet in Oregon and 1,720 million board feet in Washington.

#### Employment at All-Time High

The fall of 1947 saw employment in the logging and lumbering industry on the Pacific Coast reach an all-time high. In September, 1947, total employment in Washington, Oregon and California stood at 190,000, a gain of approximately 25 percent over the same period of 1940 and 19 percent over September, 1946. Between comparable peak periods of 1940 and 1947 the industry's employment in both California and Oregon increased approximately 50 percent. Employment in the state of Washington, however, declined six percent in this period. The gain between the peak periods of 1946 and 1947 amounted to 32, 20, and 9 percent in the respective states.

Approximately 90 percent of the industry employed in Washington and 70 percent in Oregon is concentrated in the Douglas fir region. The relative importance of the industry as a utilizer of manpower varies in each state. In Oregon nearly 54 percent of all manufacturing employment is found in the logging and lumbering industry, and in Washington 30 percent.

Non-whites are but a small proportion of employment

in the industry. Women comprise from five to ten percent of the industry employment. Their employment in operations is largely concentrated in plywood plants, box factories, and remanufacturing plants. Women are also used in a clerical capacity throughout most of the industry.

### Seasonality is a Major Employment Factor

The industry follows a definite seasonal pattern with the low point of employment usually in January and the peak period in August or September of each year. Weather conditions are the major factor in determining the magnitude and period of curtailment of operations and the consequent reflection in employment changes. Inclement weather adversely affects employment in logging operations to a greater degree than it does in wood processing plants, and in many of the high altitude logging operations nothing can be done to relieve the situation. Seasonal fluctuations in the industry as a whole, however, have diminished since pre-war years. The gain in employment between January and September 1940 amounted to nearly 32 percent as compared to less than 30 percent in 1947, despite the tremendous increase in demand for wood products which enhanced the seasonal upswing.

While weather is still a dominant factor, its

affect on employment during the winter months has been lessened considerably because of the increased practice of storing logs for winter processing, improved roads, and more modern logging and log hauling equipment (5, p.11).

It may also be added that, although many sawmills and logging operations shut down during the winter months, not all the workers in these plants are laid off. Many operations use this time to repair their plant and equipment and much of the maintenance crew, including millwrights, machinists, and mechanics, remains employed. This is also true of certain other workers, such as saw filers, foremen, and yard laborers.

#### Worker Organization and Wages and Hours

The industry is highly unionized. In Washington and Oregon about 95 percent of the workers are members of AFL or CIO unions. The basic work week is 40 hours in most of the industry although during peak operations many mills operate on a 44 or 48 hour week and woods operations go as high as 54 hours per week.

Starting wages in the industry vary by area and by firm. A "gypo logger" may offer wages above normal to secure workers for a short time and similar offers may be made to secure workers for more isolated operations (5, p.13). In Washington and Oregon a minimum starting



wage of \$1.45 per hour is currently in effect in a large portion of the industry. Time and one-half is generally paid for all time over 40 hours of work in one week.

For information concerning the average hourly wage in a particular occupation, consult the job as listed in Chapter 3.

## CHAPTER 3

## PART 1

## THE LOGGING OCCUPATIONS

The work in the forest preparatory to that in the sawmill, logging, has been one of the most interesting features of the American lumber industry. In the early days and until recent years in many localities, the lumberman depended almost wholly upon natural forces in the logging operations. In the Northeastern and Northern states the fall and winter seasons were devoted to the felling of trees. The logs were hauled out on snow sleds, either to sawmills close by or to concentration points on the banks of streams, where, in the latter case, the logs were rolled into the water as soon as the ice was gone, and floated down stream to mills or market centers. In the South the lumbermen had to resort to other means of transporting the logs from forests to the mills, due to a lack of swift flowing streams and snow for sledding, oxen and highwheel carts were the principal means of log transportation for years and in some districts of the Southeast they are still used. In the mountainous country, both East and West, chutes and flumes were used. Later came the use of wire cables stretched across valleys and canyons. The logs were hung from a pulley: then, by gravity,

travelled to the lower end of the cable. Although these relatively primitive methods of transportation are still used in hauling logs from where they are cut to the "log landing", in some areas they have been supplanted by tractors. At the "landing" they are loaded on trucks or railroad cars for transportation to the mill. Many of the larger companies have built their own railroads or truck roads long distances from the woods to the sawmill. There are approximately 30,000 miles of logging railroads in the United States and probably even greater mileage of truck roads. The development of truck hauling of logs has made accessible large areas of timber which had not previously been practicable to reach and has extended the life of many mills for years after the expiration of the expected cutting period. The early logging camps were very crudely built. They consisted of as few buildings as possible. The logging men or "lumberjacks" lived in rough shacks or bunk houses. Conditions were unsanitary and even as late as the 20th century many logging camps were more primitive than the first communities in Massachusetts and Virginia. Recreation consisted of "swapping" stories, fighting, and drinking. Only at the end of the season did the lumberjack have an opportunity to mingle with civilization in some town a hundred or more miles away. But conditions have changed. There are fewer lumber camps and more



lumber towns. The average lumberjack can raise a family in the forest as he can in the city because he has, right at hand, schools, churches, stores, modern sanitary conditions, and amusements (4, p.481).

Felling the Tree. The present day methods of felling trees and converting them into logs follow a general procedure for most of the operations on the Pacific Coast. The felling-crew unit may consist of a set made up of two FALLERS and two BUCKERS. It may require from several hours to a day or more to fell and buck one tree, owing to the huge size of the trees and the density of the timber. A frequent procedure in the Douglas fir region is as follows: The cutting crew may consist of 16 men, namely, a SCALER who supervises and checks on the work, 5 sets of FALLERS (10 men), and 5 BUCKERS. One TIMBER FOREMAN and one ASSISTANT supervise the cutting and laying out of work for from 8 to 16 cutting crews (1, p.127).

In the felling operation, one man notches the tree by making an undercut while the other prepares the ground for felling. Then the two men fell the tree with a cross-cut or chain saw. In rough terrain, the FALLERS may stand on springboards while felling the tree (1, p.126).

The BUCKER cuts the felled tree into sections or logs preparatory to skidding or minor transportation. He does this largely by chain saws used in felling operations (1, p.118).

Yarding and Rigging. In the Northwest, cable-hauling systems are the most commonly used to move logs from the forest to the point of loading. Although cable-hauling systems are rigged in many ways to meet the requirements of varying logging conditions, certain elements are common to all systems. A "main line" or skidding line hauls in the logs. A "haulback" line pulls the main line out to where the logs to be hauled can be hooked on. The log is grasped by a wire-rope "choker" placed around the log near one end. The choker is attached to a "butt hook" which, through various forms of "butt rigging", is pulled by the main line. The haulback line is strung out through haulback blocks hung on stumps to lead the lines in the desired direction. The lines run out from the donkey drums through "lead" blocks hung on a spar tree (1, p.204).

The yarding crew consists essentially of the following workers: HOOK TENDER, working foreman in charge of the side; RIGGING SLINGER, in charge of the choker setters, log selection, and signals to whistle punk; CHOKER SETTER, places choker around the log and hooks choker to butt hook; WHISTLE PUNK, sounds whistle or horn to give signals; GOPHER or POWDER MONKEY, digs or shoots choker holes under logs; CHASER, unhooks the choker from the log at the landing; YARDING ENGINEER, operates yarding donkey (1, p.209).

Loading. Engine-powered log loading is employed

principally in the Douglas Fir regions. Some form of power loader is practically always required for railroad logging. Truck loading is often done by means of a cable run through a block secured to a guy rope extending from a tree. This is the method where logs are yarded by means of some system of power skidding. The power is usually furnished by a drum on the gasoline or steam yarder (1, p.247).

The following job descriptions are designed to give greater insight into each occupation of this logging process. The descriptions include a job summary, work performed, working conditions, relationships to other jobs, specialized qualifications, and special information. In seeking such jobs, the job seeker is advised to apply directly to the logging company office. The location of these offices can be found by referring to the "yellow" section of the local telephone book under the heading of "Logging Companies".

The beginning worker can generally expect to be placed on some laboring job, such as WHISTLE PUNK, or as a helper for one of the more experienced workers. Such mechanical jobs as CHOKER SETTER, CHASER, and LOADER can be learned after a short apprenticeship, while jobs which require more experience, such as BUCKER, FALLER, and HIGH RIGGER, are mastered only after long training.



## BOOM MAN

Job Summary:

Assembles logs into rafts after they have been dumped into the water; or stores logs until such time as they are loaded onto trucks or railroad cars.

Work Performed:

1. Where logs are dumped into some permanent body of water, such as a lake or river, the worker may group them into rafts so that they may be towed by tug to the sawmill.

2. Where the water is merely an artificial log pond, the worker assembles the logs so that they may be conveniently picked up and placed on trucks or railroad cars for transportation to the mill.

3. Worker propels logs by the use of a pike pole, a long, straight pole with a sharp metal point and hook on one end.

Working Conditions:

There is constant danger of the worker falling into the water when walking on the floating logs. However, the use of sharp calked shoes minimizes this danger. Also, any person employed to work on log ponds should wear a buoyant life vest or jacket while working over the water. Even with these precautions there is the chance of getting

caught under the logs.

Relation to Other Jobs:

Promotion from: LABORER.

Promotion to: FOREMAN.

Specialized Qualifications:

Worker must be strong and agile to safely maneuver on the logs and to wrestle them into position.

Proficiency at swimming desirable.

Special Information:

Average hourly wage: \$1.86.

Number of BOOM MEN employed in the Northwest: 65.

Determine: Whether pond is artificial or natural.

If artificial and subject to unhealthy stagnation, determine at what intervals the pond is drained and refilled and who does the job.

Whether logs are to be assembled into rafts for transportation by water or merely kept for loading into trucks or railroad cars.

## BUCKER

Job Summary:

Trims branches and snags from the fallen trees and cuts, or "bucks", tree trunks into desired log lengths.

Work Performed:

1. Crew of two follows behind FALLERS and trims trees and saws up the tree trunks into specified log lengths either by use of hand or power equipment.

2. When power saws are used, the bucking is usually done by the same pair that does the falling.

Working Conditions:

This job ranks along with FALLER as one of the most dangerous jobs in the woods. There is constant danger of not only falling trees but also logs, fallen trees, snags, and other trees that may be struck by the falling tree. However, the job can be kept comparatively safe by the wearing of hard hats and by keeping sets of FALLERS and BUCKERS at a safe distance from each other.

Relation to Other Jobs:

Promotion from: LABORER; BUCKER HELPER.

Promotion to: BULL BUCK.

Transfer from and to: FALLER.



Other relationships: The job of FALLER is often added to this job, most often, in fact, when power operation is used.

This job is done with either power or hand tools.

Specialized Qualifications:

Experience is essential for safety in FALLING and BUCKING.

Carefulness, strength, and endurance are required for this job.

Special Information:

Average hourly wage and number of BUCKERS employed in the Northwest:

	<u>Wage</u>	<u>Number</u>
FALLERS and BUCKERS, power:	\$3.76	455
BUCKERS, hand:	2.64	1,001

Determine: Whether hand or power operation is used.

Amount of equipment that must be furnished by the worker.

Whether worker will sharpen and repair tools.

## CHASER

Job Summary:

Works on the opposite end of the yarding system from the CHOKER SETTER. Releases the choker from the log when it has reached its destination.

Work Performed:

This worker is a part of the rigging crew that moves the logs from the woods to the spot where they are loaded onto trucks or railroad cars. His job is to detach the choker from the log at the end of its ride on the yarding system. The logs are stacked at this point in such a way that they can be hooked onto by the loading system and placed in the conveyances.

Working Conditions:

Works in an atmosphere of running lines and swinging chokers. There is constant danger from side-winders, rolling logs, up-ended logs, snags, and other hazards caused by the movement of logs and lines.

Relation to Other Jobs:

Promotion from: WHISTLE PUNK; YARD MAN.

Promotion to: HEAD RIGGER; LOADER.

Transfer from and to: CHOKER SETTER; RIG-UP MAN; SIGNAL MAN.

Specialized Qualifications:

General logging experience necessary.

Strong and agile worker desirable to handle heavy cables and for climbing around on logs.

Special Information:

Average hourly wage: \$1.66.

Number of Chasers employed in the Northwest:  
1,105.

Determine: Type of yarding system used in the operation.

Amount of manual work required on the job.



## CHOKER SETTER

Job Summary:

Slips the noose of a cable around the end of a log so that the log can be carried by the yarding system. This noose, when the cable is drawn taut to cinch closely around the log, literally chokes the end of the log and is appropriately called a "choker".

Work Performed:

This worker is a part of the rigging crew that moves the logs from the woods to the spot where they are loaded on trucks or railroad cars. His job is to attach the rigging to the log to be transported. He does this by slipping the noose, or choker, over the head of the "propped up" log and pushing it down the log at least two feet. As a safety precaution, the logs should be approached from the uphill side so that, in case of rolling or sliding of the logs, the worker will not be in the path of the moving log.

Working Conditions:

Works in an atmosphere of running lines and swinging chokers. There is constant danger from sidewinders, rolling logs, up-ending logs, snags, and other hazards caused by the movement of logs and lines.

Relation to Other Jobs:

Promotion from: WHISTLE PUNK; YARD MAN.

Promotion to: HEAD RIGGER; LOADER.

Transfer from and to: CHASER; RIG-UP MAN;  
SIGNAL MAN.

Specialized Qualifications:

General logging experience required.

Strong and agile worker desirable to handle  
heavy cables and for climbing around on logs.

Special Information:

Average hourly wage: \$1.66

Number of CHOKER SETTERS employed in the  
Northwest: 1,136.

Determine: Type of yarding system used in  
the operation.

Amount of manual work required on  
the job.

## FALLER

### Job Summary:

Falls selected trees by the use of saws, either hand or power, and axes. These workers operate in teams of two, the HEAD FALLER and the SECOND FALLER. The HEAD FALLER is an experienced man and is kept informed on the location of BUCKERS and other workmen placed or passing in the vicinity of trees being felled.

### Work Performed:

1. Set of two men operate a saw with handles on each end, working the saw back and forth between them to cut the tree.
2. Clears away adjacent brush from the tree to be felled so that there is sufficient room to use saws and axes and to permit a quick get-away.
3. Undercuts each tree with an axe on the opposite side from which the tree is cut to insure the safe guiding of the tree and to eliminate the possibility of splitting.
4. Gives timely warning to BUCKERS and other workers in the vicinity of a tree about to be felled, indicating the direction of fall, and taking notice that such persons are out of reach of the tree.



### Working Conditions:

This job is one of the most dangerous in the woods. There is constant danger of not only falling trees but also logs, fallen trees, snags, or other trees which may be struck by the falling tree. However, the job can be kept comparatively safe by the wearing of hard hats and keeping sets of FALLERS and BUCKERS at a safe distance from each other.

### Equipment:

**Electric Chain Saw:** A portable power saw consisting of an electric motor, a transmission, and a cutter bar around which an endless chain revolves. Each alternate link contains a saw tooth.

**Gasoline-powered Chain Saw:** A portable power saw consisting of a gasoline engine, transmission, cutter bar and cutter chain similar to the electric chain saw. A pair of handle bars similar to those on a bicycle are bolted to the engine and are equipped with lever controls, one on each grip, for regulating engine speed and for engaging and releasing the clutch mechanism.

**Plates:** Metal plates, about five inches square, which are inserted into saw cuts. Wedges are driven into saw cuts between two plates.

**Springboard:** A wooden board slightly rounded on the end, which is set into a notch chopped in tree trunk

to provide a platform upon which the FALLER stands when felling trees which cannot be felled from the ground.

Under-cut: A V-shaped notch cut into the side of the tree so that the tree will fall toward that side when felled (11, p.4).

Relation to Other Jobs:

Promotion from: SECOND FALLER to HEAD FALLER.

Promotion to: BULL BUCK.

Transfer from and to: BUCKER.

Other relationships: The job of BUCKER is often added to this job, especially when power equipment is used.

This job is done by the use of either hand or power tools.

Specialized Qualifications:

Experience is essential for safety in falling and bucking.

Carefulness, strength, endurance, and ability to use sound judgment in placing crews and supervising their work is essential for a HEAD FALLER.

Special Information:

Average hourly wages and number of FALLERS employed in the Northwest:

	<u>Wage</u>	<u>Number</u>
FALLERS and BUCKERS, power:	\$3.76	455
FALLERS, power:	3.45	471
FALLERS, hand:	2.44	309

Determine: Whether hand or power equipment is used.

Amount of equipment that must be  
supplied by the worker.



## HIGH RIGGER (CLIMBER)

Job Summary:

Climbs trees selected as "spar" trees for rigging operations, tops the tree at the desired height, clears tree of branches and snags, and connects a "pass line" to the top of the spar.

Work Performed:

1. Equipped with a safety belt, steel spurs, and a steel-cored climbing rope, the worker climbs the selected tree, clearing off branches and snags as he ascends, and tops it at the desired height. Tools used by the climber are securely fastened to his belt or person.

2. An experienced man, stationed out of danger of falling objects, transmits the climber's signals. This man, known as the GROUND RIGGER, is responsible for the carrying out of the orders of the HIGH CLIMBER as transmitted through his signals. After the HIGH RIGGER has descended from the spar, the GROUND RIGGER ascends the tree and connects the rigging in the desired positions.

Working Conditions:

There is the constant danger of falling while the worker is performing his duties in the tree. Also, there is the danger of being struck by the falling tree top when this operation is done.

Relation to Other Jobs:

Promotion from: RIGGING SLINGER; RIG-UP MAN.

Promotion to: HEAD RIGGER; FOREMAN.

Other relationships: The duties of GROUND RIGGER may be added to this job.

Specialized Qualifications:

Strength, agility, and good common sense are all necessary for this job.

Must be an experienced logger with proper knowledge of logging methods and the safety of rigging and spar trees.

Special Information:

Average hourly wages and number of RIGGERS employed in the Northwest:

	<u>Wage</u>	<u>Number</u>
GROUNDMEN, rigging:	\$1.79	191
HIGH RIGGERS (climbers):	2.23	66

Determine: Type of yarding system used in the operation.

Whether worker is required to supply his own equipment.

## LOADER

Job Summary:

The GROUND LOADER fits the loading hooks into the logs, taking care that the load is properly balanced, and the HEAD LOADER has charge of placing each log on the truck or railroad car and loosening the hooks.

Work Performed:

1. The GROUND LOADER has the responsibility of connecting the grab hooks of the loading system onto the log to be loaded in such a way as to have the log correctly balanced when lifted into the air. This can be done by placing one hook in each end of the log (guy line system).

2. The HEAD or TOP LOADER has the responsibility of unhooking the logs from the loading system after they come to rest on the truck or railroad car. He must be an experienced loader.

3. The entire loading operation is supervised by the HEAD LOADER. The LOADING ENGINEER operates the loading machine, lifting the logs at the direction of the HEAD LOADER.

Working Conditions:

There is constant danger from moving logs and rigging.



Relation to Other Jobs:

Promotion from: SECOND LOADER to HEAD LOADER.

Transfer to and from: Rigging crew.

Specialized Qualifications:

HEAD LOADERS should be experienced and physically active men. Workers with physical handicaps should not be subjected to the hazards of this position.

SECOND LOADERS should be strong and agile to handle heavy cables and climb around on logs.

Special Information:

Average hourly wages and number of LOADERS employed in the Northwest:

	<u>Wage</u>	<u>Number</u>
GROUND LOADERS (second loaders):	\$1.76	318
HEAD LOADERS (top loaders):	1.97	264
LOADING ENGINEERS:	2.15	284

Determine: Type of loading system used.

Size of logs handled.

Whether logs are loaded on trucks or railroad cars.

## LOG SCALER

Job Summary:

Estimates the amount of lumber that can be sawed from each log and keeps cost and production efficiency records based on these determinations.

Work Performed:

1. Calculates volume of log by noting into which standard length it has been sawed, by measuring its diameter with a special scale, and by reading volume corresponding to a given diameter directly from the scale.

2. Estimates probable sawing waste and losses occasioned by defects in logs and reduces appraisal of lumber content accordingly; measures hollows and surface defects and computes their total volume; judges losses occasioned by crookedness and taper of logs.

Working Conditions:

Constant danger of worker falling from log while performing his duties.

Relation to Other Jobs:

The job of LOG SCALER is a separate line of work with little relationship to other logging jobs. This worker is often employed by a Scaling Bureau rather than by the logging company.

Specialized Qualifications:

Proficiency in mental arithmetic required to compute volumes of logs rapidly.

Special Information:

Average hourly wage: \$1.91.

Number of SCALERS employed in the Northwest: 229.

Determine: Extent of supervision of other workers.

Whether majority of worker's duties will be performed in a pond or on a truck.



## TRACTOR OPERATOR

Job Summary:

Drives a tractor around and within the logging area to drag logs which have been cut from trees, as in the case of the CAT DRIVERS, or to clean the area by pushing the waste materials into piles, as in the case of BULLDOZER OPERATORS. Deposits loads at various locations according to instructions; may service tractor by fueling, oiling, washing, and greasing it.

Working Conditions:

The jolts and jars encountered in driving over rough ground are injurious to the health of some workers.

Relation to Other Jobs:

Promotion from: TRUCKING HELPER.

Promotion to: FOREMAN.

Other relationships: This job may be added to the usual duties of truck DRIVER.

The duties of TRUCK MECHANIC pertaining to tractor repairs may be added to this job.

This job may be specifically designated BULLDOZER OPERATOR or CATERPILLAR-TRACTOR DRIVER (CAT OPERATOR), according to the type of operation performed.

Specialized Qualifications:

Driving experience, preferably on a heavy truck, is required.

Experience in hauling a trailer desirable.

Worker must have sufficient strength and stamina to withstand the jolting of the tractor.

Mechanic's experience desirable, since worker may be required to make minor repairs on the tractor.

Special Information:

Average hourly wage:

BULLDOZER OPERATORS: \$2.03

CAT DRIVERS, skidding: \$2.01.

Number of TRACTOR OPERATORS employed in the Northwest:

BULLDOZER OPERATORS: 170.

CAT DRIVERS, skidding: 275.

Determine: Size, type and make of tractor.

License required, such as driver's.

Whether worker will be required to service or repair tractor.

## TRAINMEN

Job Summary:

This crew consists of the ENGINEER, who controls the movement of the train; the FIREMAN, who tends the boiler and acts as mechanic; and one or more BRAKEMEN, who handle the braking of the cars and tend to the switching duties.

Work Performed:

1. The ENGINEER controls the movement of the train, making certain to follow the rules of the road concerning whistle signals, brakemen's signals, and the like.

2. The FIREMAN has the responsibility of seeing that the locomotive is in operating condition when the ENGINEER needs it. This includes the firing of boilers, if steam locomotive is used, or fueling, tuning, and warming up of the engine if diesel locomotive is used.

3. The BRAKEMAN tends to the cars of the train. He gives the signals or instructions before the train is moved by the ENGINEER. The number of BRAKEMEN required on a logging train depends upon the number of cars in the train and the type of brake used on each car, whether hand or air.

Working Conditions:

These jobs entail the general hazards of railroad



work, such as the chance of being run over by, or falling from, moving cars, plus the danger of falling logs, both during loading and unloading and from shifting cargoes while moving.

Relationship to Other Jobs:

Promotion from and to: From FIREMAN to BRAKEMAN to ENGINEER.

Specialized Qualifications:

Locomotive ENGINEERS shall be thoroughly experienced in logging train operations and familiar with the road over which they are to operate. The safe operation of a train depends entirely on the ENGINEER and shall be a well-chosen and competent man (8, p.66).

The FIREMAN and BRAKEMAN must be strong and agile to perform their duties.

The FIREMAN must have a knowledge of mechanics and steam (or diesel).

Special Information:

Average hourly wages and the number of TRAINMEN employed in the logging industry in the Northwest:

	<u>Wage</u>	<u>Number</u>
ENGINEERS, locomotive:	\$1.79	46
FIREMEN, locomotive:	1.60	49
BRAKEMEN, railroad:	1.65	80

Determine: Type of locomotive (steam or diesel)  
which is to be operated.

Types of brakes (hand or air) on the  
railroad cars.

## TRUCK DRIVER

Job Summary:

Delivers freshly cut logs from the logging area to the wood processing mills. Either loads the truck with materials specified on invoice supplied by SHIPPING CLERK, or supervises TRUCKING HELPER in his task. Collects money for C.O.D. orders. May be required to fuel, oil, grease, and wash the truck.

Equipment:

Motor trucks of various sizes from two and one-half ton capacity to those capable of carrying over 30,000 pounds.

Relation to Other Jobs:

Promotion from: GROUND LOADER; TRUCKING HELPER.

Promotion to: FOREMAN.

Other relationships: The duties of TALLYMAN or TRUCK MECHANIC may be added to this job.

Specialized Qualifications:

Minor clerical ability required for handling receipts and payments.

Familiarity with streets and roads within delivery area required.

Truck driver's or chauffeur's license usually required.



Husky worker desirable for outside work and for loading truck.

Auto mechanic's ability desirable.

Special Information:

Average hourly wage and number of TRUCK DRIVERS in the logging industry in the Northwest:

	<u>Wage</u>	<u>Number</u>
Gravel truck drivers:	\$1.64	176.
Truck drivers, logging-heavy, over 30,000 lbs.:	1.71	360.
Truck drivers, logging-medium, 16,000 to 30,000 lbs.:	1.73	35.
Truck drivers, logging-light, under 16,000 lbs.:	1.70	15.

Determine: Educational and clerical requirements.

Specific area for deliveries.

Driver's license requirements.

Requirement for references and posting of bond.

Size, type, and make of truck operated.

Ownership of mechanic's tools.

## WHISTLE PUNK

### Job Summary:

Blows whistle at required times to signal the rigging crew during operation of the donkey yarding and swinging crews.

### Work Performed:

1. Sits at a vantage point out of danger from the movement of lines, logs, and other hazardous objects. He must also be placed so that he can hear and be heard by the rigging crew at all times.

2. Regular signals to the WHISTLE PUNK are given by only one designated person, such as the HOOKTENDER or HEAD RIGGER, with the exception that, in the case of danger, anyone may give a "stop" signal.

3. Follows a predetermined system of short, medium, and long whistles that designate specific signals to yard and donkey crews.

### Working Conditions:

This job is one of the safest in the woods and for that reason is often given to some inexperienced person, many times to a young high school boy. However, there is always the danger from the movement of lines, logs, and other objects that create a hazard.

Relation to Other Jobs:

Promotion from: LABORER, YARD MAN.

Promotion to: CHASER, CHOKER SETTER, RIG-UP MAN, RIGGER.

Other relationships: This job, along with the general CLEAN-UP and common labor jobs, is among the lowest paid in the woods. Most beginners in the industry start in one of these jobs.

Specialized Qualifications:

Constant mental alertness is absolutely necessary on this job. The safety of each man in the rigging crew is dependent upon this worker.

A younger man is usually desired.

Special Information:

Determine: Types of yarding systems used by the rigging crew.

Average hourly wage: This information is not available but it is reasonable to assume that, as the basic wage in the logging industry is 1.45 dollars per hour, a beginning worker would receive at least this amount and maybe slightly more.



## PART II

## THE SAWMILL OCCUPATIONS

The modern methods of lumber manufacture are so intricate and so efficient as a rule, that the term "sawmill" has given way to that of "lumber manufacturing plant". The following method of lumber processing is prevalent, with variations to fit certain local requirements. The logs enter the head mill from the pond over an inclined chute or "log slip". They are transported by an endless spiked conveyor known as a jack ladder or jack chain. As they ascend the slip they are sprayed with water to remove grit and dirt that might otherwise dull the saws. From the slip the jack ladder carries the log under a large circular saw known as the deck saw and which is used if the log is to be shortened; otherwise the log is "kicked" off onto the log deck by steam driven steel arms. From the log deck the log rolls onto the log carriage. A steam or air "nigger" (mechanically operated steel arms) help to place the log in the proper position. The carriage is a long, flat platform which is made to travel back and forth rapidly on a track, keeping the log against a band or "head" saw which squares it and reduces it into flitches or cants. The log is turned from time to time on the carriage by means of the steam or air operated "nigger". If the log is to be used as a timber, it

is squared and edged and then passed immediately to the rear of the mill where the timber dock usually is located. If it is to be converted into lumber, the filitches or cants enter the remanufacturing plant directly behind the head mill, where they pass to the gang-saws and edgers and then to the trimmers.

From the remanufacturing plant the lumber passes through three sorters. The first is a two inch yard sorter where nothing is handled but two inch common lumber, all lengths and widths, which will be segregated into various packages as to grades, widths, and lengths. These packages are then delivered by a monorail hoist to cars which are drawn by storage battery locomotives to the green yard. The second is a one inch sorter on which nothing is handled but one inch common lumber to the yard. The third is a drop sorter, which automatically drops different lengths of lumber into separate and individual pockets which deliver onto a chain that conveys each length to what is known as a Whaley sorter. By the latter each length of lumber is segregated to five different stacking units. Thus, all widths, lengths, and thicknesses are separately put on kiln cars for kiln drying. From the drop sorter the rough lumber is delivered to automatically controlled dry kilns where superheated steam is the usual drying agent. From the kilns the lumber is passed to cooling sheds; thence to



dry sorters where the lumber is sorted and graded, picked up by overhead cranes, and delivered to an endless conveyor which runs through unstacker sheds into rough lumber storage sheds and on to the planing mill.

Not all lumber passes from the kilns to the planer mill, a very important and necessary part of a lumber manufacturing plant. Some of it is placed in stock. Other packages pass on to the planing mill where the lumber is surfaced as plain boards and "dimension" or worked into "ceiling", "flooring", "siding", "moulding", "partition", "casing", and the like. From the planing mill the lumber is conveyed to the "dressed lumber" sheds to be stored or to the loading sheds, ready for shipment. Waste resulting from the various steps of manufacture is converted into "short length" lumber wherever possible; some of it goes into the manufacture of paper and pulp board; and some of it is ground for fuel. Wood is the principal source of fuel for power in lumber operations. The larger slabs and edgings may be converted into lath and small wood items.

The following job descriptions are designed to give greater insight into each occupation of the lumber manufacturing process. Here again, the descriptions include a job summary, the work performed, working conditions, relationship to other jobs, specialized qualifications, and



special information for each individual occupation. Application for most of the jobs in the lumber industry can be made directly to the business offices of the saw-mills. The larger companies will have a personnel manager while the smaller operations will depend upon the owner of the mill or the mill superintendent to handle personnel duties. The location of these offices can be found by referring to the "yellow" section of the local telephone book under the heading "Lumber Manufacture".

The inexperienced worker can generally expect to begin with such jobs as CLEAN-UP MAN, ASH-MAN in the boiler room, or a helper for a more experienced worker. Such mechanical jobs as FIREMAN, LOADER, PILER, SORTER, and LUMBER-CARRIER OPERATOR require little apprenticeship, while jobs which require more experience, such as SAW FILER, MILLWRIGHT, MACHINIST, and the SAW OPERATOR jobs, are mastered only after long training.

## BLOCK SETTER

Job Summary:

Controls mechanism that adjusts position of logs on a log carriage so that planks of desired thickness are cut off as the carriage passes a saw. Moves levers in response to signals or orders from the HEAD-SAW OPERATOR to recede carriage blocks, making room for a fresh log on the carriage; to adjust carriage blocks individually, bringing crooked or tapered logs into position approximately parallel to line of carriage travel; and to advance the log into line with the saw a sufficient distance for cutting a plank of desired thickness. Works as a member of the crew that operates the head saw in a saw mill.

In different establishments the tasks of this job vary with the degree of mechanism of the log carriage, the size of the equipment, and the kind and value of the logs sawed.

Equipment:

Log carriage: A strongly constructed car for carrying logs past the head saw which cuts off a plank or slab at each passage. By means of sharp toothed dogs, the log is firmly clamped to movable supports that are advanced to move the log over the edge of the carriage for each cut.



Working Conditions:

Rides on carriage and is subject to loud, monotonous noise from the saw, flying sawdust, and wood chips.

The worker is in danger of injury from falling off the carrier or accidental contact with the saw blade.

Relation to Other Jobs:

Promotion from: DOGGER; HEAD-SAW OFF-BEARER; SAWMILL LABORER.

Promotion to: HEAD-SAW OPERATOR.

Transfer from and to: TRIMMER MAN.

Other relationships: The duties of DOGGER may be added to this job.

Specialized Qualifications:

General sawmill experience required.

Speed and precision in setting the position of logs is required, because this worker helps set the pace of the mill, and his carelessness or incompetence may cause serious injury to himself and members of the crew.

Experience as a DOGGER is desirable.

Husky worker desirable to move levers and to withstand the constant jerking motion of the carriage as it moves back and forth.

Special Information:

Average hourly wage: \$1.66.



Number of BLOCK SETTERS employed in the North-  
west: 371.

Determine: Method for operating blocks and dogs  
(hand, air, steam, or electricity).

Kind of logs cut.

## CUT-OFF-SAW OPERATOR

Job Summary:

Places pieces of lumber, one after another, in correct position on the table of the cut-off saw, and pulls handle or depresses pedal to swing a rotating saw blade across grain of lumber and cut it to length.

Work Performed:

1. Places pieces of lumber on the saw table with one end projecting beyond the circular saw blade, and starts the machine; presses lumber against the table with one or both hands and pulls handle or depresses pedal to swing the saw across and through the wood.

2. Slides lumber along the table until the specified length projects beyond the saw, measuring it with a hand rule or by setting a table stop at correct point, and makes second cut.

3. May replace saw blades as work requires, loosening and removing the blade from the shaft and installing and bolting a new blade in place.

Equipment:

Swinging cut-off saw: A circular saw that is suspended above the cut-off table in an arm-like framework that permits its being drawn across the lumber with a pendulum-like motion. A graduated, raised guide strip at

the rear of the bench permits accurate measurement, and a stop permits adjustment for cutting of specified lengths.

**Treadle-operated cut-off saw:** A circular saw for cutting lumber to length. It differs from the swinging cut-off saw in that the saw blade is supported beneath the cut-off bench in such a manner that pressure on a treadle causes it to swing upward and forward through a slot in the bench, cutting the lumber.

Working Conditions:

The worker is subject to loud, monotonous noise from the machine and to flying sawdust.

The principal hazard is the danger of cutting or amputating hands and fingers by accidental contact with saw blade.

Relation to Other Jobs:

Promotion from: LOG CUTTER; SCRAP SAWER; WOOD-WORKER APPRENTICE; any woodworking machine operator helper.

Transfer from and to: KNOT SAWYER; RIPSAW OPERATOR; VARIETY-SAW OPERATOR.

Other relationships: This job and the job of RIPSAW OPERATOR may be combined into one job called BILL OPERATOR.

The duties of this job may be specialized and entitled SWINGING CUT-OFF-SAW OPERATOR; TREADLE-OPERATED CUT-OFF-SAW OPERATOR, or TRIM AND TAIL SAWYER, according to



the purpose for which the saw is used or the type of machine operated.

This job and the jobs of CIRCULAR-RESAW OPERATOR, CIRCULAR-RIPSAW OPERATOR, and VARIETY SAW OPERATOR may be combined into one job entitled CIRCULAR-SAW OPERATOR.

This job may be added to the regular duties of any other woodworking machine operator when it is necessary to saw stock to desired lengths.

Specialized Qualifications:

Woodworking apprenticeship may be required.

Should have a general knowledge of the grades and kinds of wood.

Special Information:

Average hourly wage: \$1.55.

Number of CUT-OFF-SAW OPERATORS employed the Northwest: 368.

Determine: Whether worker will sharpen and set saws.

ADVANCE BOND  
DRY-KILN OPERATORJob Summary:

Seasons lumber by a controlled drying process in a heated enclosure (kiln): Directs and frequently assists a LUMBER HANDLER or LUMBER PILER in the manual tasks involved, which include loading green lumber on kiln trucks with accurate spacing between each piece according to the requirements for the kind of lumber, pushing the loaded truck into the kiln, and removing it after seasoning. Regulates the process of drying by the proper adjustment of heating and spray valves, according to the appearance of the lumber, its sound when struck, or the appearance and texture of its fractured surface when broken.

For specific kiln seasoning, this worker may first set a sample piece of lumber for moisture content by weighing before and after complete drying in the oven. From the results thus obtained he determines what atmospheric conditions are needed in the kiln and maintains them by frequent checking with thermometers and hygrometers, adjusting the heat and moisture accordingly.

Equipment:

Kiln car: A small flatcar that runs on a track.

Hygrometer: An instrument consisting of two thermometers from the readings of which relative humidity can

be calculated.

Kiln: A large wooden or brick chamber for artificially drying lumber. It is usually equipped with steam heating coils and a water-vapor spray that increase the temperature and humidity inside the chamber.

Working Conditions:

The work requires frequent trips into a hot, humid kiln.

Relation to Other Jobs:

Promotion from: LUMBER PILER.

Promotion to: FOREMAN; LUMBER INSPECTOR.

Other relationships: The duties of this job may be specialized and entitled KILN OPERATOR (who runs the tests, determines type and amount of drying, and generally supervises the manual work) and KILN STACKER or KILN LOADER (who performs the manual tasks required). The lumber may be piled in the kiln by a LUMBER PILER.

The duties of GRADER may be added to this job.

This job may be added to the usual duties of STATIONARY ENGINEER.

Specialized Qualifications:

Thorough knowledge of the seasoning characteristics of lumber is required.

Familiarity with seasoning equipment of the type in



use at a given establishment is required.

Husky worker desirable to move heavy loads of lumber into and out of the kiln.

Special Information:

Average hourly wage: \$1.69.

Number of DRY-KILN OPERATORS employed in the Northwest: 79.

Determine: Kinds of lumber inspected. (Fir, Pine, etc.)

ADVANCE BOND

CHILBROWN Paper

**EDGER MAN****Job Summary:**

Rapidly adjusts the spacing of the several saws of an edging machine in order to obtain the maximum number of standard width, quality boards from each plank; feeds the planks, usually with the help of an EDGER TAILER, into the feed rollers that grasp and carry it through the machine; and raises or lowers by handwheel the feed rollers to accommodate planks of different thicknesses. The continual, accurate adjustment of the saws (required for almost every plank) is the distinguishing element of this job.

May replace dull blades with sharp ones, or assist SAW FILER in sharpening, setting, and replacing saw blades. May act as a relief worker for BLOCK SETTER, DOGGER, or HEAD-SAW OPERATOR during their temporary absences from posts.

**Equipment:**

Edger: A machine for automatically ripsawing boards to standard widths. It consists of a long table, two or more power rotated circular saws so mounted that they can be moved toward each other or apart to saw boards of desired widths, and several feed rollers that automatically feed the boards to the saws. Both saw and rollers can be adjusted without stopping the machine.



Working Conditions:

Works in a sawdust-laden atmosphere that is noisy from operation of the saw.

Subject to injury by flying chips of wood or falling boards.

Relation to Other Jobs:

Promotion from: EDGER TAILER; TRIMMER MAN; TRIPPER.

Promotion to: GRADER.

Transfer from and to: RIPS AW OPERATOR.

Other relationships: The duties of TRIPPER may be added to this job.

Specialized Qualifications:

General sawmill experience required.

Operating experience with any machine, preferably sawing, required.

Ability to grade lumber roughly and to utilize imperfect planks advantageously is desirable.

Special Information:

Average hourly wage: \$1.78.

Number of EDGER MEN employed in the Northwest: 490.

Determine: Whether worker will grade lumber while sawing.

Number of saws edger contains.

ADVANCE BOND



Special Information (continued):

Whether this worker will sharpen and set edger  
saws.

Whether this worker will occasionally operate  
the log carriage or head saw.

## FIREMAN

Job Summary:

Builds fires and stokes boilers with sawdust, wood shavings, wood scrap, or coal to develop and maintain steam pressures for power in the wood working establishment; starts and stops feed-water pumps to maintain safe and efficient water levels in boilers as indicated by water gages; and checks the reliability of safety valves by opening them occasionally. Performs such miscellaneous duties as shaking grates and removing ashes, brushing and scraping soot from combustion chambers, boiler tubes, and breechings as often as necessary, scraping scale from affected boiler parts, and assisting the STATIONARY ENGINEER in retubing boilers.

Working Conditions:

The work is performed in hot and dirty surroundings.

Relation to Other Jobs:

Promotion from: OILER; SLINGMAN.

Promotion to: DERRICK OPERATOR; LOCOMOTIVE-CRANE OPERATOR; STATIONARY ENGINEER.

Other relationships: This job may be added to the usual job of STATIONARY ENGINEER.

The duties of this job may be specialized and entitled FIREMAN (PORTABLE BOILER), FIREMAN (STATIONARY

BOILER), or FIREMAN (POWERHOUSE), according to the type of boiler fired or the location of the work.

Specialized Qualifications:

A specific class of engineers license may be required.

Familiarity with the combustion characteristics of sawdust, wood, and bituminous coal is desired.

Special Information:

Average hourly wage: \$1.54

Number of FIREMEN employed in the Northwest: 661

Determine: Type and size of burners fired.

Amount and type of wood fuel used.

What machines worker might be required to operate.



## HEAD-SAW OFF-BEARER

Job Summary:

Catches each plank with a box hook as it is cut from the log by the head saw and guides its fall onto roller conveyor or cart, occasionally cutting incompletely severed planks from the log with an ax; works as a member of the head saw crew. May roughly sort planks, in small or portable saw mills not equipped with a conveyor.

Working Conditions:

Works in a sawdust-laden atmosphere that is noisy from the operation of the saw. Subject to injury by falling boards.

Relation to Other Jobs:

Promotion from: SAWMILL LABORER.

Promotion to: BLOCK SETTER; DOGGER; TRIPPER.

Transfer from and to: LOG TURNER.

Other relationships: The duties of TRIPPER may be added to this job.

Specialized Qualifications:

General sawmill experience required.

Strong and agile worker desirable to handle the lumber without holding up production or causing accidents that might injure workers or damage equipment.

In sawmills where no TRIPPER is employed this worker must have the knowledge and experience to sort planks roughly as they are cut.

Special Information:

Average hourly wage:

OFF-BEARERS, head rig: \$1.55.

OFF-BEARERS, machine: 1.49.

Number of OFF-BEARERS employed in the Northwest:

OFF-BEARERS, head rig: 372.

OFF-BEARERS, machine: 557.

If worker is employed at a portable sawmill, he will be required to work in rural areas and move from place to place.



## HEAD-SAW OPERATOR

## HEAD SAWYER

## SPLIT-SAW SAWYER

Job Summary:

Supervises and directs the activities of the sawmill crew, and manipulates levers to coordinate head-saw and log carriage which cuts logs into rough lumber; changes or directs the change of broken and dull saw blades; and where such mechanism is installed, operates by lever a steam nigger which turns logs over on carriage.

This worker is responsible for the efficient performance of all sawmill work and for maintaining high rates of production consistent with a minimum waste of lumber and the safety of the sawmill crew.

Equipment:

**Band Head-Saw:** A heavy-toothed steel band that revolves around two large pulley wheels and which, with the log carriage, reduces heavy timber to rough planks.

**Circular Head-Saw:** A large, toothed, sawing disc mounted upon a power-driven shaft and used with a log carriage to reduce heavy timber to rough planks.

**Log Carriage:** A strongly constructed car for carrying logs past the head-saw which cuts off a plank or slab with each passage. The log is clamped by sharp



toothed dogs to movable supports that are advanced to push the log toward the saw an appropriate distance for each new cut.

**Steam-Nigger:** A mechanism built into the log deck and carriage equipment, that turns logs over on the carriage when carriage is opposite deck.

Working Conditions:

Stands or sits on a platform or in a control room near the head saw and is subject to loud, monotonous noise and to flying sawdust. Worker is in danger of injury from flying pieces of a broken saw blade.

Relation to Other Jobs:

Promotion from: BLOCK SETTER.

Promotion to: SUPERINTENDENT.

Other Relationships:

Working experience required on log carriage or around head saw to acquire proficiency and speed, because this job sets the sawmill pace and a careless or incompetent worker may cause serious injury to members of the crew or damage to costly equipment.

The worker must have a broad knowledge of the workability of many varieties of wood and accepted methods of converting logs of each type of lumber of high grade with a minimum amount of waste.

Ability to supervise and coordinate the work of the sawmill crew is required.

Special Information:

Average hourly wage:

BAND HEAD-SAW OPERATORS: \$2.34.

CIRCULAR HEAD-SAW OPERATORS; 2.30.

Number of HEAD-SAW OPERATORS employed in the Northwest:

BAND HEAD-SAW OPERATORS: 174.

CIRCULAR HEAD-SAW OPERATORS: 166.

Determine: Type of head-saw to be operated.

Whether worker will sharpen or set saws or merely replace dull saws with sharpened ones.

Whether logs will be sawed for special uses, such as shop lumber structural timbers, railway items, or special orders.

## THE LABORING JOBS

## JANITOR:

Sweeps and cleans the floors of plant offices, empties wastepaper baskets, dusts furniture, and washes windows. May run errands.

Average hourly wage: \$1.46.

Number of JANITORS employed by the lumber industry in the Northwest: 768.

## WATCHMAN:

Patrols yard and mill after the plant working hours to prevent loss of property by fire, theft, or vandalism. May be required to use pistol and to have permit and bond.

Average hourly wage: \$1.44.

Number of WATCHMEN employed by the lumber industry in the Northwest: 738.

## YARDMAN:

Picks up debris and wood scrap around lumber yard. May help lumber handling crew with large and heavy timbers. Rakes driveways and unpaved portions of the yard.

Average hourly wage: \$1.58.

Number of POND MEN and YARDMEN employed in the Northwest: 870.



## LOADER

Job Summary:

Selects and obtains items of lumber, millwork, or other stock from storage places to make up orders. Loads lumber from bins, piles, or racks onto a hand truck, and pushes the loaded hand truck to the shipping department, crating department, or woodworking department. Checks items to insure agreement in quantity, type, and size of stock with specifications of the order. Usually works under the supervision of the STOCKKEEPER.

Equipment:

Hand truck: A vehicle with a flat bed mounted on two, three, or four wheels. The bed is usually provided with upright stakes at the sides to hold the load in place. One type has a metal frame mounted on three wheels and is equipped with a ratchet or hydraulic jack, operated by a handle, with which the truck bed is raised or lowered to lift and haul piles of wood.

Relation to Other Jobs:

Promotion from: ELEVATOR OPERATOR; LUMBER HANDLER.

Promotion to: FOREMAN; GRADER; STOCKKEEPER.

Transfer from and to: SORTER; TALLYMAN.

Other relationships: This job may be added to the usual duties of the STOCKKEEPER.

The duties of this job are frequently divided into two jobs entitled YARDMAN and WAREHOUSEMAN.

Specialized Qualifications:

Knowledge of lumber and woodworking terms, symbols, and markings is required.

Previous clerical experience is desirable.

Special Information:

Average hourly wage: \$1.96.

Number of LOADERS employed in the Northwest: 1297.

Determine: Clerical duties required.

Whether worker will select materials from an itemized list or from knowledge of items necessary to make a product.



## LOG DECK MAN

Job Summary:

Arranges logs in convenient order on the sawmill log deck for accessibility to the carriage of the head saw, working as a member of the head saw crew.

Work Performed:

1. Either rolls the logs from the conveyor, tram car, or motor truck into position, using a cant hook; or
2. Guides loads of logs being moved by crane or derrick, and releases lashings from logs after they are lowered to the deck, using a cant hook to roll logs into exact position.
3. May either control a switch to start and stop the conveyor that carries the logs to the deck; or
4. May actuate levers and pedals to operate a power winch and cables, to haul tram car and logs to log deck, or to move about on the deck.

Working Conditions:

Is subject to the loud, monotonous noise of the head saw and flying sawdust.

The worker is in danger of being struck or crushed by rolling logs.

Relation to Other Jobs:



Promotion from: SAWMILL LABORER.

Promotion to: DOGGER; LOG SCALER.

Transfer from and to: LOG TURNER.

Other relationships: The duties of SLINGMAN or LOG TURNER may be added to this job.

Specialized Qualifications:

Strong, active worker required in order to move logs quickly without losing control of them and injuring himself and other workers.

General sawmill experience is desirable.

Special Information:

Average hourly wage: \$1.53

Number of LOG DECKMEN employed in the Northwest:

247.

## LUMBER-CARRIER DRIVER

Job Summary:

Drives a special truck-like machine, such as a Ross carrier, to lift, transport, and deposit piles of lumber in and about the buildings and yard of a sawmill.

Work Performed:

1. Drives the carrier into position, straddling the pile of lumber, and moves levers to actuate mechanism that engages bolsters (cross beams supporting the pile of lumber) and lifts the pile from the ground.

2. Drives the carrier to the designated location with lumber slung underneath, and by levers lowers the lumber to the ground.

3. Fuels, oils, greases, and makes minor repairs to the machine. May assist LUMBER HANDLER in stacking lumber in piles for removal by carrier.

Equipment:

Lumber carrier: A vehicle, having the appearance of a motor truck on stilts, which is used to move lumber piles short distances. It consists of a frame, motor, and controls similar to those of a motor truck; four wheels individually mounted at the bases of four columns; and a power hoisting mechanism for grasping and supporting cross bars (bolsters) upon which the lumber is piled,

lifting the pile, and carrying it suspended beneath the frame. The individual mounting of the wheels on the columns makes it possible to drive the vehicle astride a pile of lumber to be picked up.

Relation to Other Jobs:

Promotion from: ELEVATOR OPERATOR; LUMBER HANDLER; TRUCKING HELPER.

Promotion to: FOREMAN.

Transfer from and to: TRACTOR DRIVER; TRUCK DRIVER.

Other relationships: This job and the job of TRACTOR DRIVER may be combined into one job called DRIVER.

The servicing of the lumber carrier may be done by a TRUCK MECHANIC.

The duties of TRUCK MECHANIC pertaining to carrier repairs may be added to this job.

Specialized Qualifications:

Driving experience required, preferably of a truck or tractor nature.

Robust worker required to withstand the continual outside work.

Mechanic's experience desirable.

License required if these duties extend outside the yard.



Special Information:

Average hourly wage: \$1.62

Number of CARRIER DRIVERS employed in the North-  
west: 721.

Determine: Need of operator's or truck driver's  
license.

Size, type, and make of carrier to be  
driven.

Ownership of mechanic's tools.

References or bond requirements.

## LUMBER GRADER

### Job Summary:

Inspects and sorts various types of lumber such as rough lumber, planed lumber, or hardwood flooring; turns over and handles each piece of lumber as it passes along a conveyor and examines it for such defects as knots, faulty edges, stains, and unsatisfactory machine work; removes defective pieces and reroutes them to the KNOT SAWYER, who salvages parts of them, or to workers who dispose of unsalvageable pieces; marks each satisfactory piece with a number that indicates its grade and sends it to the SORTER, who places it in the proper bin.

### Relation to Other Jobs:

Promotion from: EDGER MAN; LUMBER PILER; ORDER PULLER; SORTER; TALLYMAN.

Promotion to: FOREMAN; LUMBER INSPECTOR.

Other relationships: The duties of this job may be specialized and entitled GRADER (MILLED LUMBER), GRADER (MOLDED LUMBER), or GRADER (ROUGH LUMBER), according to the type of lumber graded.

This job may be added to the usual duties of LUMBER INSPECTOR or KILN MAN.

The duties of SORTER, BUNDLER, or TALLYMAN may be added to this job.

Specialized Qualifications:

Knowledge of lumber grades and types is required.

Special Information:

Average hourly wage:

GRADERS, lumber (green chain): \$1.69.

GRADERS, planed lumber: 1.70.

Number of workers employed in the Northwest:

GRADERS, lumber (green chain): 338.

GRADERS, planed lumber: 399.

Determine: Whether specific types of lumber, such as rough, milled, or molded, or any and all types, are to be graded.

Extent of clerical duties required, such as keeping records of the quantities of defective lumber rejected.



## LUMBER PILER

## LUMBER STACKER

Job Summary:

Works in a team of two or more LUMBER PILERS to pile rough-sawed or planed lumber in large stacks for seasoning (drying) and storage, lifting lumber from the ground and laying it on a stack manually or with the aid of mechanical equipment. These stacks prevent or mitigate deterioration from cracking, decaying, warping, or insect attack.

Work Performed:

The tasks of this job vary according to the average height of the stacks (6 to 40 or 50 feet), which height is more or less dependent upon the space available in the yard and the volume of lumber handled by an establishment.

1. When stacking entirely by hand (for all stacks up to waist or shoulder height): Places heavy timbers level on the ground for stack supports. Lifts lumber from loaded vehicle or from pile deposited by a lumber carrier or derrick, and places it across the supports in layers; according to the kind of lumber stacked, places stickers (small pieces of wood) of specific size between each or several layers of boards to increase circulation of air through the pile and to facilitate correct drying.

2. When using a lumber jack or hoisting bar (for stacks up to 10 or 15 feet): Either lays each piece of lumber over the hoisting bar or the point of a lumber jack and bears down on the short end to raise the long end to the top of the stack, when working on the ground; or grasps the end of the board so raised, lifts it to the top of the stack, and places it in position, when working atop the pile.

3. When using a mechanical stacker (for stacks up to 50 feet): Either places pieces of lumber on brackets of stacker when stationed on the ground, or removes boards from the stacker and places them in position, when working atop the pile.

Equipment:

**Hoisting bar:** A horizontal metal bar in the pile or supported beside it that serves as a fulcrum on which a board may be raised at one end by depressing the other.

**Lumber jack (or loader buck):** An upright post mounted on three legs, usually with spiked tips. The tip serves as a fulcrum on which a board may be raised at one end by depressing the other.

**Mechanical stacker:** A vertical chain conveyor about 10 or 15 feet wide. The chain is equipped with a pair of brackets about every foot. Boards are placed on the lower brackets carried to the top of the pile.

Working Conditions:

Worker is subject to injury by falling lumber.

Relation to Other Jobs:

Promotion from: LUMBER HANDLER; YARD LABORER.

Promotion to: FOREMAN; GRADER; KILN MAN.

Other relationships: The duties of this job may be divided into two separate jobs entitled BOOSTER (who works on the ground) and JACKER (who works on top of the pile).

The duties of this job may be specialized and entitled KILN STACKER if duties pertain only to kiln piling.

Special Qualifications:

Worker must be strong and robust in order to perform the heavy manual tasks continually and rapidly.

Special Information:

Average hourly wage:

LUMBER STACKERS, air-drying or storage: \$2.47.

LUMBER STACKERS, kiln drying: 1.66.

Number of workers employed in the Northwest:

LUMBER STACKERS, air-drying or storage: 190.

LUMBER STACKERS, kiln drying: 422.



Determine: Whether determination of the size of spacing pieces (stickers) and pile openings needed season different kinds of wood will be made by this worker or by the YARD FOREMAN.

## LUMBER SORTER

### Job Summary:

Classifies various grades (according to GRADER'S marks) or sizes, according to length, width, and thickness, of lumber and places each grade or size in a separate bin. Inspects each board for color, measures or estimates its dimensions, notes grade mark placed on it, and places it in the appropriate bin.

Boards may be delivered to this worker on a conveyor, through a chute, or by hand truck.

### Equipment:

Measuring table: A table used to measure the length of boards. A board or stop is fastened across one end of the table and a measuring scale is printed along the table top to facilitate the rapid measurement of boards.

### Working Conditions:

Worker is subject to injury from falling boards.

### Relation to Other Jobs:

Promotion from: ELEVATOR OPERATOR; LUMBER HANDLER.

Promotion to: GRADER.

Transfer from and to: ORDER PULLER; TALLYMAN.

Other relationships: The duties of this job may be

specialized and entitled SORTER (MILLED LUMBER); SORTER (MOLDING), SORTER (ROUGH LUMBER), according to the type of lumber handled.

This job may be added to the usual duties of GRADER.

Specialized Qualifications:

General familiarity with lumber desirable in order to recognize different grades and estimate dimensions rapidly.

Husky worker desirable in order to handle boards of various sizes without danger of injury to himself or others.

Special Information:

Average hourly wage:

SORTERS, green chain: \$1.52

SORTERS, rough dry lumber: 1.55.

Number of SORTERS employed in the Northwest:

SORTERS, green chain: 2867.

SORTERS, rough dry lumber: 408.

Gradually this worker sorts according to physical dimensions, while a GRADER sorts according to quality only. Because the border line is not always distinct, it would be well to ascertain the extent of quality grading required of this worker.



## MAINTENANCE MACHINIST

Job Summary:

Plans and executes all regular and emergency repairs or adjustments of machinery and metal equipment in a woodworking establishment. Performs machine work, bench hand work, and floor assembly, including shaping, turning, boring, planing, grinding, riveting, finishing, lay-out work, and fitting together of metal parts as well as the erecting, dismantling, and moving of heavy machinery.

This is a highly skilled job and requires varied experience at the machinist trade; a general knowledge of woodworking machinery; sufficient familiarity with the properties of metals and their alloys to select appropriate material for specific purposes; a fair ability in sketching or drawing to present understandable descriptions of materials, tools, or machine parts which this worker may find necessary to purchase or have made outside; and ability to estimate cost of and time required to complete repair and alteration jobs.

Since the machines and tools of a planing mill or woodworking establishment are usually limited to a few of the most essential, the MACHINIST on such a job may have to perform tasks, usually done with special tools or machines, with whatever equipment is available. To this end he must be sufficiently resourceful to alter the

available machinery and make special temporary tools.

Equipment:

Drill press: A machine for cutting holes in metal with a spiral, fluted, rotary drill and for such operations as reaming, tapping, counterboring, and spot-facing when equipped with suitable tools. The machine consists essentially of a table on which the work is supported and a power-rotated, vertical shaft supported adjustably on an upright column or frame. The drill, or other tool, is fastened into the end of the machine spindle, and as the drill rotates it is moved into the metal by a hand lever or power feed device.

Engine lathe: A machine that supports and rotates metal objects while acting upon them with rigidly supported cutting tools to perform such operations as turning, boring, reaming, facing, and thread cutting. The machine consists essentially of a long horizontal table (bed), a headstock housing a rotary shaft (spindle) mounted rigidly upon one end of the bed, a tailstock supporting a stationary spindle adjustably mounted on tracks (ways) on the bed, and a lathe carriage equipped to support and control cutting tools mounted on the ways between the headstock and tailstock. The work may be mounted and rotated between hardened steel cones (centers) affixed to headstock and tailstock spindles, fastened to



a rotary plate (faceplate) on the headstock center, or clamped in a rotary vice-like fixture (chuck) on the headstock spindle.

**Milling machine:** A machine that cuts metal with rotary, many-toothed cutters. It consists essentially of a massive rigid frame, a movable table on which the work is supported, and a horizontal (or vertical) spindle to which milling cutters can be attached. The table, which is adjustable horizontally and vertically, moves in a straight line under the machine spindle, carrying the metal against the rotary cutters that act upon it to perform the required operations.

**Planer:** A machine that cuts metal by carrying it upon a moving table under rigidly supported, stationary tools. It is especially well adapted for smoothing large, flat surfaces, long straight surfaces, or duplicate surfaces of many similar parts, which may be planed at one time. The machine consists essentially of a long rigid base, a table arranged to move back and forth on tracks (ways) along the base, and a rigidly supported bridge to which the tool holders are attached extending across the table. The work is fastened securely to the table which carries it a straight line under the cutters supported in the stationary tool holders. The cutters may be moved manually or automatically to feed across the work.



**Shaper:** A machine for the performance of work of similar nature to that of a planer but usually on smaller objects. It consists essentially of a rigid frame, a horizontally and vertically adjusted table that supports the work, and a carriage (ram) that moves horizontally (or vertically on the vertical shaper) on tracks in the frame, carrying the tool across the work. The table can be moved in a horizontal plane either manually or automatically to bring all parts of the work under the cutter. The cutting tool can be moved vertically to adjust the depth of its cut by turning a small crank on the tool holder which is attached to the forepart of the ram.

**Working Conditions:**

This work is carried on in any part of the establishment where repairs or adjustments are required. It is usually dirty, dusty, and greasy, and there is considerable danger to the eyes from flying chips of metal and to the hands from moving machine parts.

**Relation to Other Jobs:**

Promotion from: MACHINIST APPRENTICE; MACHINIST HELPER.

Other relationships: The duties of KNIFE GRINDER, MILLWRIGHT, or SAW FILER may be added to this job.

### Specialized Qualifications:

Complete apprenticeship of four or more years or an equal number of years of practical experience are usually required.

Good eyesight required.

High school or technical education is desirable.

Familiarity with ship application of mathematics, including fractions, decimals, square root extraction, and simple algebra, as well as a working knowledge of charts, drawings, and tables are required.

Ability in the planning of work to utilize the available shop equipment to the best advantage and with the least interruption to plant operation is required.

Familiarity with the working properties of such metals as cast iron, brass, bronze, copper, and steel is required.

The worker should be experienced in the care of bearings on machinery and shafting, and especially in babbitting, bronzing, and scraping bearings.

Knowledge of oxyacetylene and electric welding and a fair knowledge of powerhouse equipment, such as pumps, motors, and condensers, may be required.

### Special Information:

Average hourly wage: \$1.80

Number of MACHINISTS employed in the Northwest: 264.

Determine: What metalworking machine tools worker will be required to operate.

With what woodworking machine tools the plant is equipped.

Whether electric or oxyacetylene welding will be required.

Whether worker will forge or heat treat metals and to what extent.

Whether worker will design as well as make tools, jigs, and fixtures.

What personally owned tools the worker will be required to supply.



## MECHANIC (AUTOMOTIVE)

### Job Summary:

Determines the causes of unsatisfactory performance of automotive equipment, locates the defective parts or adjustments that cause faulty performance, and performs the required major and minor repairs and adjustments to restore the machines to satisfactory condition.

### Work Performed:

1. Adjusts and makes periodic checks on motors; smooths distributor points with an abraasive paper or file and corrects distributor timing; grinds valves and cleans carbon from motors; replaces worn spark plugs; repairs electrical and ignition systems. May make minor repairs to bodies, such as straightening fenders.
2. Performs major overhauling of vehicles; takes apart, cleans, repairs, and makes necessary replacement of parts for such units as transmission, differentials, universal joints, and front wheel assemblies; tightens and adjusts cam shafts, connecting rods, and main bearings.
3. Makes road repairs and answers trouble calls from trucks and delivery vehicles which are broken down outside the plant.

### Working Conditions:

Exhaust fumes in poorly ventilated shops endanger

the health or life of the worker. He may be injured while handling heavy mechanical assemblies or while working under machines supported on jacks or blocking.

Relation to Other Jobs:

Promotion from: TRUCK MECHANIC HELPER; TRUCKING HELPER.

Other relationships: This job may be added to the usual duties of LUMBER-CARRIER DRIVER, TRACTOR DRIVER, or TRUCK DRIVER.

Specialized Qualifications:

Experience as a mechanic in a garage required.

Driver's license may be required.

Special Information:

Average hourly wage: \$1.78.

Number of AUTOMOTIVE MECHANICS employed in the Northwest: 112. (lumber industry)

## MILLWRIGHT

Job Summary:

Installs, removes, and repairs such equipment as woodworking machines, power line-shafting, and belting. Makes periodic trips through the plant to inspect the operation of the machinery and to anticipate and plan major repairs, thereby minimizing interruptions in the production schedules of the machines.

Work Performed:

1. Installs machinery and equipment in new locations. Plans and directs the movement of machines from one location to another when plant lay-out is changed.
2. Dismantles, repairs, and reassembles the various woodworking machines; checks alignment of and makes necessary repairs to overhaul line-shafting; lubricates bearings and gears.
3. Repairs or replaces broken belting either by cutting out worn sections and resplicing or by cutting the proper length from a roll of leather and splicing the ends together to form a new belt.
4. May inspect the sprinkler, plumbing, and heating systems of the woodworking plant and make such repairs as are warranted.



Working Conditions:

The work is dirty and greasy and is carried on all about the woodworking establishment. There is danger of injuring hands on moving tools and machine parts.

Relation to Other Jobs:

Promotion from: MACHINIST APPRENTICE; MILLWRIGHT HELPER.

Other relationships: Maintenance of pipe lines may be performed by a PLUMBER.

The duties of OILER and SAW FILER may be added to this job.

A MILLWRIGHT HELPER may perform the unskilled manual duties of this job.

This job may be added to usual duties of MACHINIST.

In small establishments this job and the jobs of CARPENTER and ELECTRICIAN may be combined into one job entitled MAINTENANCE MAN.

This job may be added to the usual duties of STATIONARY ENGINEER where state laws permit.

Specialized Qualifications:

Must be sufficiently familiar with all woodworking machines in the plant to service them

Must be an all around mechanic as well as a fair machinist.

Should have experience in rigging in order to move heavy equipment safely and quickly.

Special Information:

Average hourly wage: \$1.82

Number of MILLWRIGHTS employed in the Northwest:  
667.

Determine: Sizes, types and number of woodworking machines maintained.

Whether worker is required to set up machines.

Number of other workers, if any, supervised.



## PLANER OPERATOR

Job Summary:

Pushes pieces of lumber, one after another, along the top of the table of a planer and into the feed rollers which carry the pieces past rotating cutter blades that smooth and dress one or two surfaces of the lumber and reduce it to the required thickness.

Work Performed:

1. Raises or lowers both sections of the table by a hand wheel, so that cutter blades project above the table top sufficiently to cut the desired thickness of wood from the surface of the lumber; adjusts height of pressure bar above the table so that the bar will press the lumber firmly against the blades during cutting.

2. Starts the machine and lays one end of the stock flat on the feed table; pushes lumber lengthwise through the feed rollers that carry it past the cutter blades. May walk around the machine and remove stock as it emerges. (PLANER OPERATOR HELPER usually removes stock when large quantities are being planed.)

3. Removes blades when they become dull, and installs, aligns, and bolts sharp ones in place on the one or two cutter heads of the machine.



Equipment:

**Single-surface planer or surfacer:** A machine that planes wood to desired thickness and smoothness with horizontal rotary cutters. The machine consists essentially of a flat adjustable table or bed surmounted by one or more rotating horizontal spindles, one or more rollers, and a cutter head to which several knives are attached. A metal bar (chip breaker) is mounted close in front of the cutter head to break off chips lifted by the blades and to prevent splintering of the wood along the grain as it passes through the machine. A gage mounted on the frame indicates the distance between the table and the cutter head.

**Double-surface planer:** Essentially the same as the single-surface planer except that an additional cutter head, mounted below the table, planes the under surface of the wood as the top cutter planes the upper surface.

Relation to Other Jobs:

**Promotion from:** PLANER OPERATOR HELPER; WOODWORKER APPRENTICE.

**Promotion to:** FOREMAN; MILLMAN; WOODWORKING-MACHINERY SET-UP MAN.

**Transfer from and to:** JOINTER OPERATOR; SHAPER OPERATOR; STICKER OPERATOR.

**Other relationships:** The duties of CUT-OFF SAW

OPERATOR, RIP-SAW OPERATOR, TENON MACHINE OPERATOR, or  
TIMBER SIZER OPERATOR may be added to this job.

Specialized Qualifications:

Ability to interpret blueprints is required.

Should have the ability to identify kinds and  
grades of wood, and should know their working character-  
istics.

Special Information:

Average hourly wage:

PLANER OPERATORS, set-up and operate: \$1.79.

PLANER OPERATORS, feed only: 1.56.

Number of PLANER OPERATORS employed in the Northwest:

PLANER OPERATORS, set-up and operate: 111.

PLANER OPERATORS, feed only: 501.

Determine: Whether worker will operate a single-  
surface planer or a double-surface planer.

Other machines operated, such as  
jointer, shaper, or sticker.

Whether worker will sharpen cutter  
blades or merely install sharp ones in the machine.

## SAW FILER

### Job Summary:

Sharpens and sets all band, circular, and hand saws in a woodworking establishment, correcting their tension, filing or grinding and setting their teeth, and repairing broken saws by a brazing process.

### Work Performed:

1. Inspects and tests saws with a straight edge to determine where and to what extent they have lost their tension. For best performance, circular saws should be slightly saucer shaped, and band saws should be slightly higher in the center than at either edge.

2. Corrects tension of saws by flatening or thinning certain portions of the blade, thereby increasing the length or circumference. This is accomplished by hammering circular saws on a flat steel table or by compressing band saws between the metal rollers of a tensioning machine while varying the pressure exerted by the rollers.

3. Sharpens saws by filing the edges of each tooth or by operating a saw filing machine to accomplish the same result.

4. Swage sets saw teeth with a swaging machine or hand swage which compresses the top of each saw tooth and shapes it in such a manner as to widen the cut of the saw.



5. Spring-sets saw teeth by hand or machine to widen the cut of the saw. May tap alternate teeth lightly with a hammer in one direction and the remaining teeth in the opposite direction. May use a spring-set to accomplish this bending, or may run a spring saw setter over the saw.

6. Repairs broken band saws by brazing, which is a welding-like process requiring preparation of the broken ends, fusing together of the pieces, and finishing of the mended surface.

Equipment:

Saw-filing machine: A machine for shaping and sharpening saw teeth automatically with a reciprocating file. The machine, except for the substitution of a file for a grindwheel, is substantially the same as a saw grinding machine.

Saw-grinding machine: An automatic grinding machine for sharpening saw teeth. It consists of a base, saw supports or holders, a grinding wheel, which is adjustable for different tooth angles, an automatic stop for different gullet depths, and an automatic feed mechanism that brings each tooth successively into position.

Spring saw-setter: A device that moves over the saw teeth, spreading the tips of adjacent teeth evenly in opposite directions to provide a saw cut with sufficient

clearance for the saw.

**Spring-set:** A plier-like hand tool used to accomplish the same results as the spring saw-setter.

**Swage:** A specially shaped metal tool used with a hammer to broaden the cutting ends of saw teeth a bit more than the saw thickness, thus providing a saw cut with sufficient clearance for the saw.

**Swaging machine:** A hand-powered mechanism that shapes saw teeth in the same manner as hand swaging.

**Tensioning machine:** A device that compresses saw blades between rollers to increase the length of the part compressed by decreasing its thickness.

#### Working Conditions:

Most plants require the use of goggles which practically eliminates the risk of eye injury from flying bits of metal.

Sharp edges of saw teeth endanger the worker's hands.

#### Relation to Other Jobs:

Promotion from: SAW FILER HELPER.

Other relationships: This job may be added to the usual duties of HEAD-SAW OPERATOR; MACHINIST; MILLWRIGHT; or WOODWORKING-MACHINERY SET-UP MAN.

This job, that of KNIFE GRINDER, and the heat



treating duties of MACHINIST may be combined into one job entitled TOOL MAKER.

The duties of this job may be divided into separate jobs entitled SAW BRAZIER, SAW FILER (HAND), SAW FILER (MACHINE), SAW GRINDER, SAW SETTER, SAW STRETCHER, and SAW SWAGER, depending upon the specific duty performed or upon the type of equipment used.

Specialized Qualifications:

Experience as SAW FILER HELPER required.

Knowledge of arithmetic through fractions required to calculate the spacing and pitch of saw teeth.

Special Information:

Average hourly wage: \$2.33.

Number of SAW FILERS employed in the Northwest: 207.

Determine: Saw-filing equipment used.

Whether worker will prepare saws according to standard specifications or for many uses and many kinds of wood.



## SAW FILER HELPER

Job Summary:

Assists SAW FILER by lifting, carrying, and holding saws, tools, and machine parts. May perform any of the duties of SAW FILER under close supervision.

Relation to Other Jobs:

Promotion from: LABORER.

Promotion to: SAW FILER.

Other relationships: This job may be added to the usual duties of BLOCK SETTER, DOGGER, or MACHINIST HELPER.

The duties of this job may be specialized and entitled SAW FILER HELPER (HAND) and SAW FILER HELPER (MACHINE), according to the type of equipment used by the worker helped.

Specialized Information:

Mechanical experience such as garage or shop work desirable.

Special Information:

Average hourly wage: \$1.75.

Number of SAW FILER HELPERS employed in the Northwest: 154.

Determine: Extent of filing, setting, or swaging performed under supervision of the SAW FILER, and opportunities of learning the trade of SAW FILER.

## SET-UP MAN

### Job Summary:

Changes and adjusts cutting tools on any or all woodworking machinery, such as lathes, boring tools, matchers, molders, mortise machines, planers routers, sanders, saws, shapers, and tenon machines.

This job requires considerable skill, care, and experience, and a thorough familiarity with woodworking machinery to make machine set-ups quickly and accurately.

### Relation to Other Jobs:

Promotion from: MILLMAN; any worker who is familiar with woodworking machines.

Promotion to: ESTIMATOR; FOREMAN.

Other relationships: The duties of KNIFE GRINDER, LAYOUT MAN, or SAW FILER may be added to this job.

The duties of this job may be divided among all the machine operators, each setting up his particular machine.

### Specialized Qualifications:

Must be able to appraise the quality of sharpening performed by the KNIFE GRINDER, returning for regrinding any cutting tools which are not perfectly shaped, thus preventing loss or waste of lumber.

Must be able to read blueprints and from them visualize the sequence of operations most efficient with

available machinery.

Special Information:

Average hourly wage: \$1.85

Number of SET-UP MEN employed in the Northwest: 218.

Determine: What machines, such as planer, shaper, and automatic lathe, are to be set up.

Whether workers will be required to sharpen cutter blades.



## TALLYMAN

Job Summary:

Records the quantity of lumber in shipments or storage lots determined by the LUMBER INSPECTOR. Checks each piece of lumber against a list to be sure all is accounted for; estimates board feet in each piece, using a lumber scale; and computes the total amount in each lot tallied. May supervise loading and unloading while tallying.

Equipment:

Lumber scale: A special measuring stick for measuring board feet.

Relation to Other Jobs:

Promotion from: ELEVATOR OPERATOR; LUMBER HANDLER.

Promotion to: FOREMAN; GRADER; STOCKKEEPER.

Transfer to and from: ORDER PULLER; SORTER.

Other relationships: This job may be added to the usual duties of FOREMAN; LUMBER INSPECTOR; or TRUCK DRIVER.

Specialized Qualifications:

Knowledge of lumber grades and types desirable.

Experience in work with lumber desirable.

Special Information:

Average hourly wage: \$1.64

Number of TALLYMEN employed in the Northwest: 538.

Determine: Extent of supervision over others.

TRIMMER MAN

TRIM-SAW MAN

TRIMMER

TRIMMING-MACHINE OPERATOR

Job Summary:

Saws planks, timbers, and boards to standard length lumber either with a small, double-saw trimmer or with a large multi-saw trimmer.

Work Performed:

1. When operating a double-saw trimmer; Starts machine and, with the help of the EDGER TAILER or TRIMMER HELPER, lifts boards onto feed table; gages general quality and specific defects in each plank and adjusts spacing between saws by handwheel to cut plank to the largest standard length or lenghts. May sharpen and set dull saw blades.

2. When operating a multi-saw trimmer: Quickly gages the location and degree of various defects in the long planks as they are fed continuously toward saws by feed chains; moves the correct levers to drop into or raise from cutting position two or more of the series of saws, thus obtaining the greatest number of quality, standard lengths of lumber from each plank.



Equipment:

**Double-saw trimmer:** A machine for cross-cutting boards to reduce them to standard lengths and to square their ends. The cutting is done by two circular saws which are affixed to a single shaft supported in bearings on a rectangular, waist-high framework. One saw may be moved along the shaft, by turning a crank, to a position for cutting standard board lengths, which are indicated by a scale and pointer on the framework. Boards are fed past the saws on two endless chains equipped with cleats.

**Multi-saw trimmer:** A machine comprising a gallery of three or more circular saws (usually ranging from 4 to 24 in number) used to cut planks into lumber of standard lengths. Each saw is of the swing type and is raised from or lowered into cutting position by a lever. All the levers are located on a central platform above the saws, which provides the operator with an unobstructed view of all saws. On some machines the saws are connected directly to levers by cables; on others they are controlled by a pneumatic or an electric system.

Working Conditions:

Works in a sawdust-laden atmosphere that is noisy from operation of the saw. Subject to injury by flying chips of wood or falling boards.

Relation to Other Jobs:

Promotion from: EDGER TAILER.

Promotion to: BLOCK SETTER.

Other relationships: The duties of EDGER TAILER may be added to this job.

The duties of this job may be specialized and entitled DOUBLE CUT-OFF-SAW OPERATOR; PACKAGER (HEAD), or TIE TRIMMER, according to the purpose for which the machine is used.

Specialized Qualifications:

General sawmill experience required.

Carefulness, strength, endurance, and ability to judge lengths of boards rapidly and accurately required.

Special Information:

Average hourly wage and the number of TRIMMERMEN employed in the Northwest:

	<u>Wage</u>	<u>Number</u>
1 saw operation (one man)	\$1.53	122
2 or 3 saw operation (one man)	1.54	18
4-10 saw operation (one man)	1.57	87
4-10 saw operation (TRIMMER-MAN and one helper	1.61	10
11 or more saw operations (TRIMMERMAN and one helper)	1.72	100
11 or more saw operations (TRIMMERMAN and two helpers)	1.74	56
TRIMMERMEN, all types	1.64	461

Determine: Whether double-saw or multi-saw will be used.

Types of lumber to be cut, such as structural timbers, railway items, or special orders.

Whether worker will sharpen and set trimmer saws or merely replace dull saws with sharp ones.



## CHAPTER 4

### CONCLUSIONS

The occupations listed in this study were found to be the "back bone" jobs of the logging and lumbering industries. These are the jobs that must be done in order to transform the standing tree into a finished wood product. Of course, there are many more occupations listed in the various mills and logging camps throughout this area but most of these are either very special jobs of a particular operation or merely the same jobs as listed here but named differently. Each operation has its own way of doing things. This means that the same job may have various titles in the different mills and camps. Also, this means that jobs with the same title will vary from operation to operation. This study has attempted, in a general way, to describe the typical operations as found in the industry. It is recognized that the job summary will not apply to every situation and that the work performed will be slightly different in each company. Also, working conditions are bound to be different in each company. Also, working conditions are bound to be different from mill to mill, and from camp to camp, and the ladder of promotion is going to vary. In some situations, especially in newer outfits, the opportunities for advancement are going to be greater than in the

older, more established firms. And, regarding wages, of course some companies are going to pay more than others, especially those who are competing for scarce labor, but it has been attempted, in this study, to include only average wages, these particular figures being averages for the entire West Coast area. The figures pertaining to the number of workers employed in each occupation also pertain to this Douglas fir belt.

As the lumber and logging industries constitute a major portion of the industrial activity in Oregon, it appears that a more comprehensive and complete work using this study as a guide could fulfill a great need to the youth of this state by being included on the "occupational shelf" of each high school library in the state. If this were done, much of the guesswork might be removed from the occupational choices of high school leavers. Also, occupational information bulletins, following an outline comparable to this study, should be written for other fields of occupational endeavor in Oregon and distributed among the various high schools. Bulletins might be published for such activities as the flour industry, agriculture, and the fishing industry, all with emphasis on their effect upon Oregon. With such a group of works included in the high school libraries of the state, high school leavers would have some basis for selecting an occupation.

### Future of the Industry

The migration of the lumber-producing centers from the Atlantic to the Pacific Coast has been of great economic importance in the opening up of new territories for agricultural and industrial purposes. In all probability, the future will see lumbering having just as much effect, if not more, upon the economic development of America as it has had in the past. The consumption may not increase with such rapidity, nor are there new virgin forests to be worked, but neither does any other present major industry promise to develop as rapidly in the future as in the past, for the industrial zones of the United States are more or less permanently fixed and established. A steady increase in the demand for lumber will keep pace with the increase in population and development of industry. In the past lumber has been "mined". In the future timber crops will be harvested.

By proper reforestation methods and programs, America should always be able to grow sufficient lumber to meet her needs. Since the beginning of time, new forests have risen on the old, and wherever a forest area consists of old growth, matured timber growth is approximately balanced by decay. Like all other crops, trees must be harvested to permit proper regrowth. In the future lumber will come from forests regrown under scientific management -



sometimes from seedlings and sometimes from hand planting. This means that not only will present-producing forests continue to be productive, but also part, if not all, of the 76,738,000 acres of forest land, non-productive in 1936, will be brought in time back to a state of production.

The future will see a more efficient use of lumber. Much good lumber goes to waste because of the public's expensive habits. Nearly one-third of the lumber used by the building industry is finally consumed in lengths under 8 feet; 10 percent more is under 9 feet; or a total of 43.6 percent of all lumber consumed in building is in lengths under 9 feet. Yet, it has been customary to buy lumber in lengths of 14, 16, 18, and 20 feet (4, p.482).

#### The Labor Outlook

It may be concluded at this point that the long range outlook for the lumber industry in Oregon is very bright. The industry, on a nationwide scale, has reached its greatest heights since the peak year of 1909 and Oregon is the nation's top lumber-producing state. This state still has the largest stands of accessible virgin timber in the United States, and with growing emphasis on reforestation, more modern methods of logging, the building of access roads to more inaccessible stands of timber, and improved methods of wood processing all

point to the fact that the lumbermen of Oregon know they have a good thing and they want to keep it. This also means that the lumber and logging industries will continue to be the principle source of industrial employment in Oregon for an indefinite length of time in the future. Thus, it is more important than ever that the high school students of Oregon be permitted to know and understand this greatest of industrial enterprises, the Oregon Lumber Industry.



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