

# Pacific Spruce Corporation

A N D S U B S I D I A R I E S

C.D. Johnson Lumber Company  
Manary Logging Company  
Pacific Spruce Northern Railway Co.

An Illustrated Story Reprinted  
From The



Bolling Arthur Johnson, Editor  
Chicago, Illinois,  
U. S. A.

General Offices Of The Pacific Spruce Corporation, Northwestern Bank  
Building, Portland, Oregon, With Mills At  
Toledo, Oregon



THIS SPECIAL ILLUSTRATED STORY OF THE RISE AND PROGRESS OF THE PACIFIC SPRUCE CORPORATION (AND ITS SUBSIDIARIES, THE C. D. JOHNSON LUMBER CO., THE MANARY LOGGING CO. AND THE PACIFIC SPRUCE NORTHERN RAILWAY CO.) WHICH FOLLOWS, WAS CREATED DURING THE LATTER HALF OF THE YEAR 1923 AND PRINTED IN THE FEBRUARY 10, 1924, ISSUE OF THE LUMBER WORLD REVIEW—PUBLISHED AT 608 SOUTH DEARBORN STREET, CHICAGO.

THE PLANNING OF THE TEXT AND THE ILLUSTRATIONS OF THIS STORY WERE DONE BY THE EDITOR OF THE LUMBER WORLD REVIEW, ASSISTED BY HIS STAFF IN THE CHICAGO OFFICE OF THE PUBLICATION; AND ASSISTED ALSO BY ARCHIBALD WHISNANT, GENERAL STAFF REPRESENTATIVE, PORTLAND, OREGON, AND THE MAJOR PORTION OF THE PHOTOGRAPHIC WORK IS BY JOHN D. CRESS, OF SEATTLE, WASHINGTON.

THE EDITORIAL STATEMENT CONCERNING "THE SECOND COMING OF YAQUINA BAY," PRINTED ON PAGE 93 OF THIS BOOK, WAS WRITTEN BY THE EDITOR OF THE LUMBER WORLD REVIEW, AFTER A STUDY OF DEEP WATER CONDITIONS IN THE LINCOLN COUNTY SECTION OF THE PACIFIC COAST, COVERING A PERIOD OF NEARLY TWO YEARS AND AFTER THE SPECIFIC INVESTIGATION MADE BY HIM AND HIS ASSOCIATES DURING THE LATTER HALF OF THE YEAR 1923; AND IS SUBMITTED AS AN EDITORIAL CONCLUSION RATHER THAN AS AN UTTERANCE OF THE PACIFIC SPRUCE CORPORATION.

A stylized, handwritten signature in dark ink, consisting of several overlapping loops and a long, sweeping underline that extends to the right.

EDITOR



# Pacific Spruce Corporation

A N D S U B S I D I A R I E S



C.D. Johnson Lumber Company

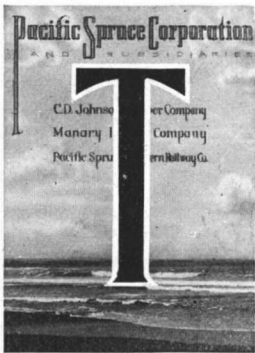
Manary Logging Company

Pacific Spruce Northern Railway Co.





*An institution is the lengthened shadow of one man."*  
—Ralph Waldo Emerson.



THE human truth of the philosophy of the Sage of Concord has not been better demonstrated ever—to the mind of this writer—than by comparing the life and works of C. D. Johnson with the truth and the spirit of Emerson's immortal text: "An institution is the lengthened shadow of one man."

We have been conscious of the above text for a great many years—or we perhaps might better say we have been SUB-conscious of its existence; but it is one thing to remember the spirit or soul of a philosophical utterance and quite another thing—ofttimes—to remember just HOW the philosopher put his words together to crystallize his sentiment, and WHO the philosopher was—and this was ESPECIALLY true in this CASE!

From the moment we were commissioned to write the story which follows, we were determined to use the text which appears at the head of this column as the keynote to the character of the man who had made the Pacific Spruce Corporation possible; and we began a search through books of quotations and extracts—of writers both sacred and profane—and we even organized hunting parties among our literary friends, to assist in the search for the words that had been uttered, from the arrangement of which the sentiment had endured throughout the years.

Finally, one night at a late hour, a friend more fortunate than all the others who had been searching for the text and authorship quoted above, called the writer on the telephone and said: "Go over to the table, where you keep the five books which you read the MOST, and look in the department accredited to 'Uses of Great Men' and there at the top of a page, that you have often scanned, you will find that the elusive utterance—'An institution is the lengthened shadow of one man'—was not fathered by Moses or Isaiah or Napoleon or Carlyle, but by a little old plain New Englander—Ralph Waldo Emerson."

The very heart and soul of the Established Order, the very Essence of that Conservatism which is disputing with Radicalism for the Supremacy of the Earth, is epitomized in the utterance of Mr. Emerson when he says: "An institution is the lengthened shadow of one man."

We may, in a spirit of Democracy, TALK loudly of "the voice of the people" and "the power of public sentiment" and "the national conscience" and "the wisdom of the jury system"—where twelve men oftentimes hang the innocent and oftentimes let the guilty as-cave—but however old-fashioned may be the thought, and however opposite to modern sentiment it may be, we STILL believe in the government that has a Premier with a sane mind and an iron hand; in a court of justice where the judge is color-blind to sentiment and keenly alive to justice before equity; and in any business, whatever may be its line, which is influenced by Mr. Emerson's "lengthened shadow of one man," rather than by the wavering false dawn of a composite mind.

We don't know how much blood will have to be shed, or how many nations be wiped

away, or how many otherwise stable businesses and lines of trade shall fall into error and decay, before the social and commercial aspect of the world will brighten; but whatever may happen in the near-by or FAR-DISTANT history of social and political economies, those affairs of the earth which shall be responsible for its regeneration will be DOMINATED BY INDIVIDUALISTS.

In making this statement and applying the principle of it to the life-work of C. D. Johnson, we are aware of the fact that if the reader will glance to the right, and contemplate the physiognomies that so impressively come up out of the gray background of the engraving which adorns that page, he will realize—if he but know those who are represented there—that this galaxy represents, in each character thereon depicted, an INDIVIDUALISTIC SPIRIT!

If you know men with a knowledge that is worth while, and properly grounded, you may know that there is nothing incongruous in

opportunity and then embracing that opportunity.

For a period of over thirty-two years we have been collaterally associated with C. D. Johnson, as we have been with hundreds of other men who have held the reins of the lumber industry as they have guided it to success; and we believe that we have been in all these years a quite impartial observer of the actions of the men who have been responsible for the rise and progress of this business, and that we do hold a brief of privilege for setting our judgment to meet this opportunity.

C. D. Johnson came into our vision as an active character in the lumber trade on an April afternoon at Texarkana, Ark., in 1892. There was to occur there in Knights of Pythias Hall near the old Hotel Benefield, a Concatenation of Hoo-Hoo, which to be exact was the ninth meeting of that character to be held.

There was some kind of a lumber meeting held in the afternoon of the day, in which C. D. Johnson took a prominent part; and after it was over we asked him if he would join the Concatenated Order that night. He made the flat statement that he would not; that he had never joined anything the first day he met it; that his first business was being a planing-mill foreman at New Lewisville, up the road a ways, and that at some time he might become a member of the Concatenated Order of Hoo-Hoo, if he concluded it was worth while; that not by any manner of means was he the owner of the Sunny South Lumber Co., but just a hired man. But even then he left his individualism keenly impressed upon us, by failing to deny our own statement that while he was probably not the OWNER he was certainly the man who ran the business.

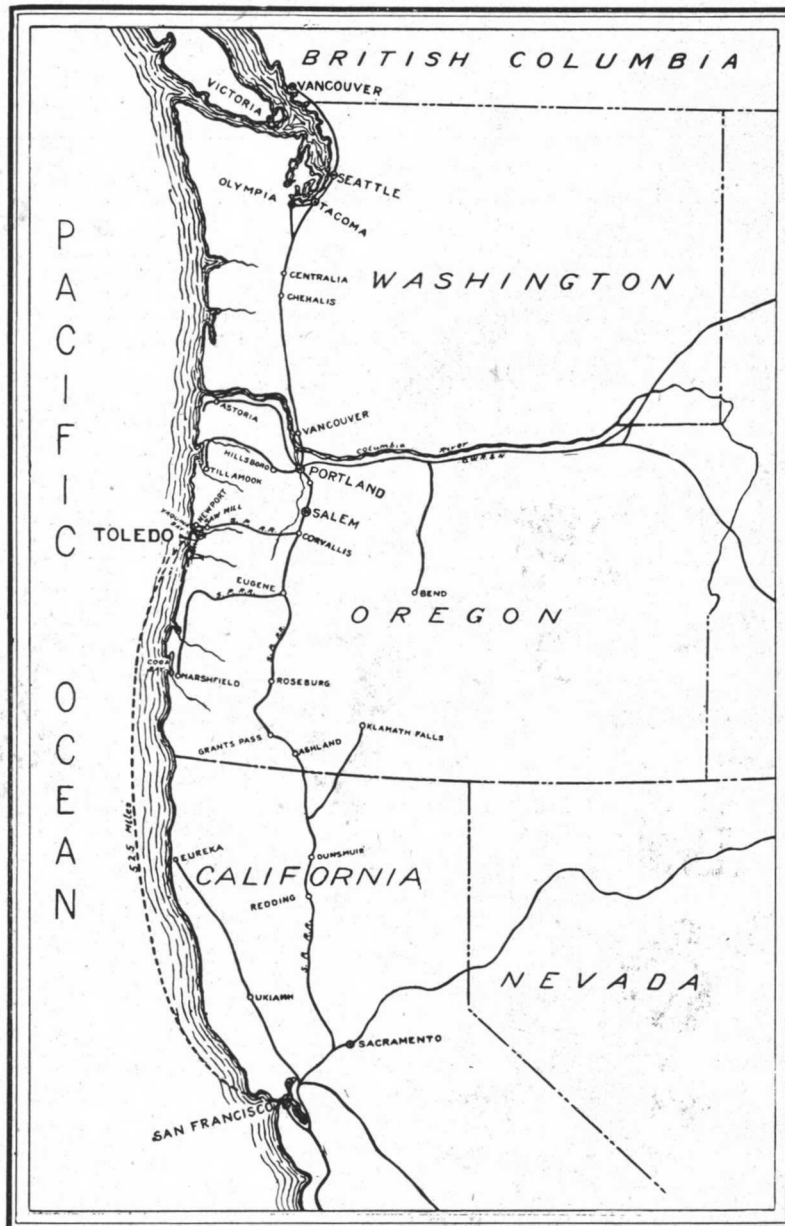
On August 10 of the same year Mr. Johnson had come to a conclusion about the great Order of the Black Cat and became a member of it at a meeting in Kansas City, Mo., along with twenty-five others of the then prominent members of the lumber industry, at the first meeting of that Order where the formal ritual was used; and of those twenty-six initiates—as we now recall the facts—there yet remain alive, besides Mr. Johnson, John Lewis ("Jim") Lane of Chicago, J. M. Bernardin, B. B. Foster and John H. Tschudy of Kansas City; but this is not the proper way in which to begin a serious biography of this man of the lumber world who has opened up a great business in a great new field of lumber manufacturing endeavor—so let us step a little farther back and across other years.

Before we do that, however, let us call the attention of the reader to the marvelous little map which accompanies this introduction and occupies the center of the page where this text begins. This map shows the location of a few real cities on the Pacific coast—Vancouver, B. C.; Seattle and Tacoma, Wash.; Portland, Oreg.; San Francisco, Cal., and the ONE town, Toledo, Oreg.—on the now famous Yaquina Bay, around which this story of the Pacific Spruce Corporation most does center.

In connection with this first mention in this article of Toledo, Oreg., let us say that we desire—besides having every person who BEGINS this article to FINISH it—to have the reader keep remembering as long as he may be interested in the lumber business just where Toledo, Oreg., is LOCATED!

The most difficult thing to get an individualist to do is to talk about HIMSELF.

Running through thirty-two years of time we have never YET found it otherwise than



this statement that individualists may dwell together in unity and in harmony—individualists, dominated by an individualist—and right there lies the keynote of the success of the Pacific Spruce Corporation undertaking, and right there it will remain.

There is not a man associated with the executive and governing body of the institution who is not willing to take and execute an order from any one of the OTHERS of that body who may have a BETTER thought, and not one among these executives and chief lieutenants of executives who does not acknowledge the leadership of the man who gave it birth and made all of it possible, by the right of first seeing the





GORDON J. MANARY

(10)



JAMES MANARY

(8)



FRANK W. STEVENS

(9)



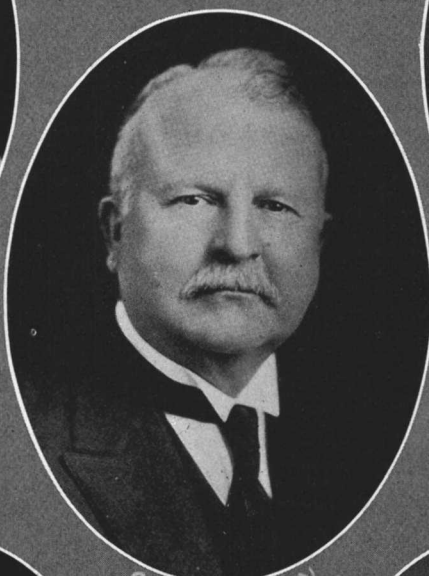
ROLAND M. MANARY

(11)



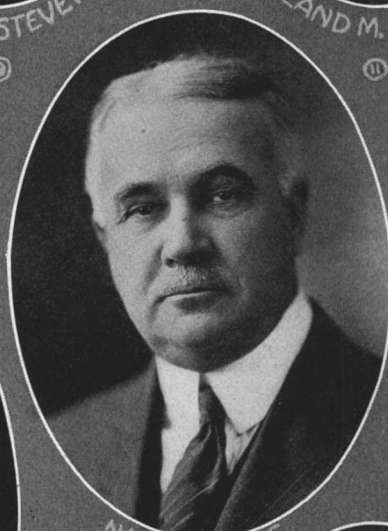
R. H. DOWNMAN

(4)



C. D. JOHNSON

(1)



NATHAN PAINE

(5)



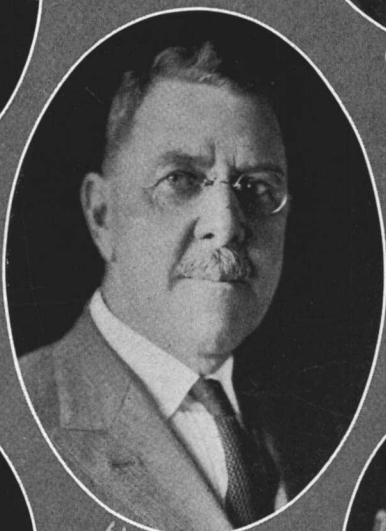
DEAN JOHNSON

(2)



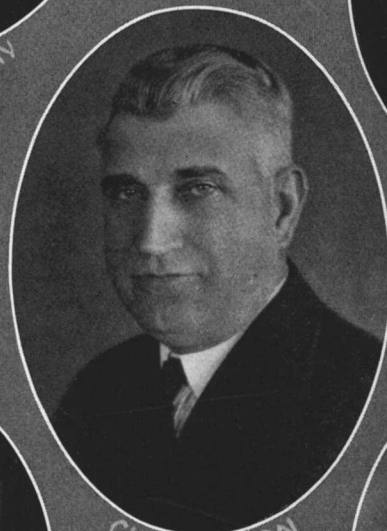
E. E. JOHNSON

(3)



H. B. HEWES

(6)



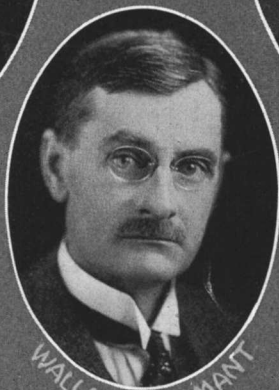
CLYDE R. LYON

(7)



R. S. TRUMBULL

(12)



WALLACE McCAMANT

(13)



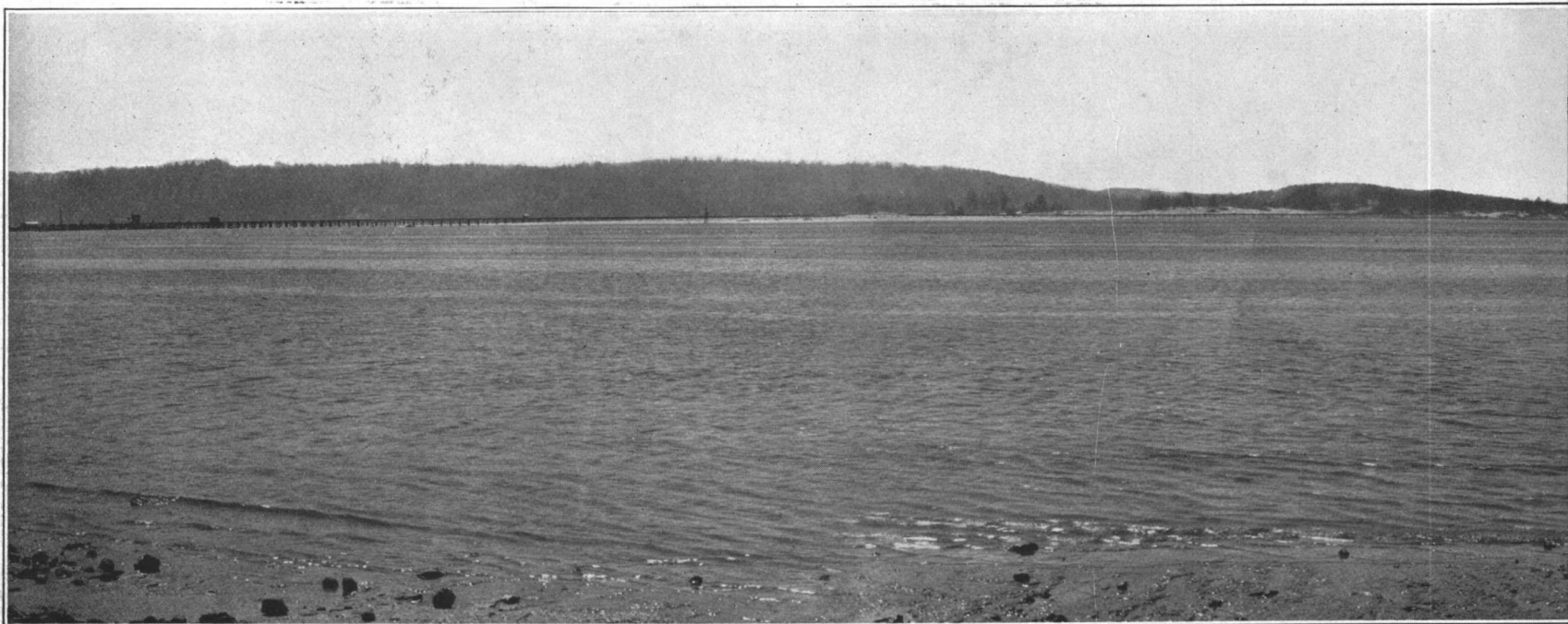
W. J. THOMAS

(14)

EXECUTIVES AND LARGER STOCKHOLDERS OF THE PACIFIC SPRUCE CORPORATION AND SUBSIDIARIES

(1) C. D. Johnson, Portland, Oreg. (2) Dean Johnson, Toledo, Oreg. (3) E. E. Johnson, Portland, Oreg. (4) R. H. Downman, New Orleans, La. (5) Nathan Paine, Oshkosh, Wis. (6) H. B. Hewes, Jeanerette, La. (7) Clyde R. Lyon, Decatur, Ill. (8) James Manary, Portland, Oreg. (9) Frank W. Stevens, Toledo, Oreg. (10) Gordon J. Manary, Southbeach, Oreg. (11) Roland M. Manary, Toledo, Oreg. (12) R. S. Trumbull, Portland, Oreg. (13) Wallace McCamant, Portland, Oreg. (14) W. J. Thomas, Portland, Oreg.—For Specific Positions and Titles See Text.





PANORAMIC VIEW OF NEWPORT HARBOR, YAQUINA BAY, OREGON. TAKEN FROM McLAIN POINT, AUGUST 14, 1923, AND SHOWING FROM THE RIGHT-HAND SIDE. THIS IS UNDOUBTEDLY THE FIRST PANORAMIC VIEW EVER MADE OF THIS SCENE

consistently true of C. D. Johnson, that when we found it necessary to discuss with him some business with which he was connected he did INVARIABLY preface any answer to the query about some happening in his life, by saying: 'Cut ME out of it. Ask me something more about the timber and something more about the finest sawmill on the earth, and something more about how we make our lumber and what we propose to do with it; and something more about our fortunate ownership of the most remarkable trees out of which lumber can be made—but cut ME OUT!'

It has been ever thus since that first time that we wrote a commercial story concerning affairs in which C. D. Johnson was interested, even back to the time when we told in another publication, under the general head "A Light in a Dark Corner" the story of the rise and progress of the Union Saw Mill Co. and the Little Rock & Monroe Railway Co., on January 28, 1905; and the "Story of the Frost-Trigg Lumber Co." on March 30, 1907. Nevertheless after all this individualistic interference we have—now and then—secured a few facts, which we will tell in a very terse way when we finally come down to the actual biographical sketch.

The reader might ask why we have always

insisted upon the writing of biographical sketches of the principals of those who are associated, in an executive way, with articles of this character; to which we will reply that nothing is more IMPORTANT than THAT!

It is only by the discussion of the lives of men like Mr. Johnson that we may arrive at any just comprehension of the result of their ideas or their work, as expressed in either business or art.

We do not do these things just to please the individual; for articles of this character are not written to please any one person, but to chronicle those salient facts about any great business concerning which those who patronize that business should know, in order that they may more intelligently patronize that business.

C. D. Johnson is by descent an Englishman on the paternal side of his house and a Scotchman on the maternal side.

His great-grandfather on his mother's side of the house was William Herrick of Connecticut, whose son—Pierce Herrick—rode horseback into the woods of New York with his bride behind him, where in Steuben County he built a house of logs and with his wife settled there, cleared the land and established a farm—and upon that farm C. D. Johnson's mother, Electa Herrick Johnson, was born and

married Edward Johnson his father, and from that farm his maternal grandfather and great-grandfather were buried.

His father, Edward Johnson, was born in England, near London, and as a boy emigrated with the family to a point in Canada near Toronto. The family did not like that part of America and went back to England; but Edward, then 17 years of age, decided he would not return to England, but would go to the United States, which he reached through Buffalo. There he accumulated enough money to buy himself boats which he operated on the Erie Canal and later took up his residence in Steuben County, N. Y., where he became acquainted with the Herrick family, then well established in Steuben County; and it was in Steuben County, N. Y., that Edward Johnson met and married Electa Herrick. There they lived for over 47 years and then went to Buffalo for a while, later returning to Steuben County.

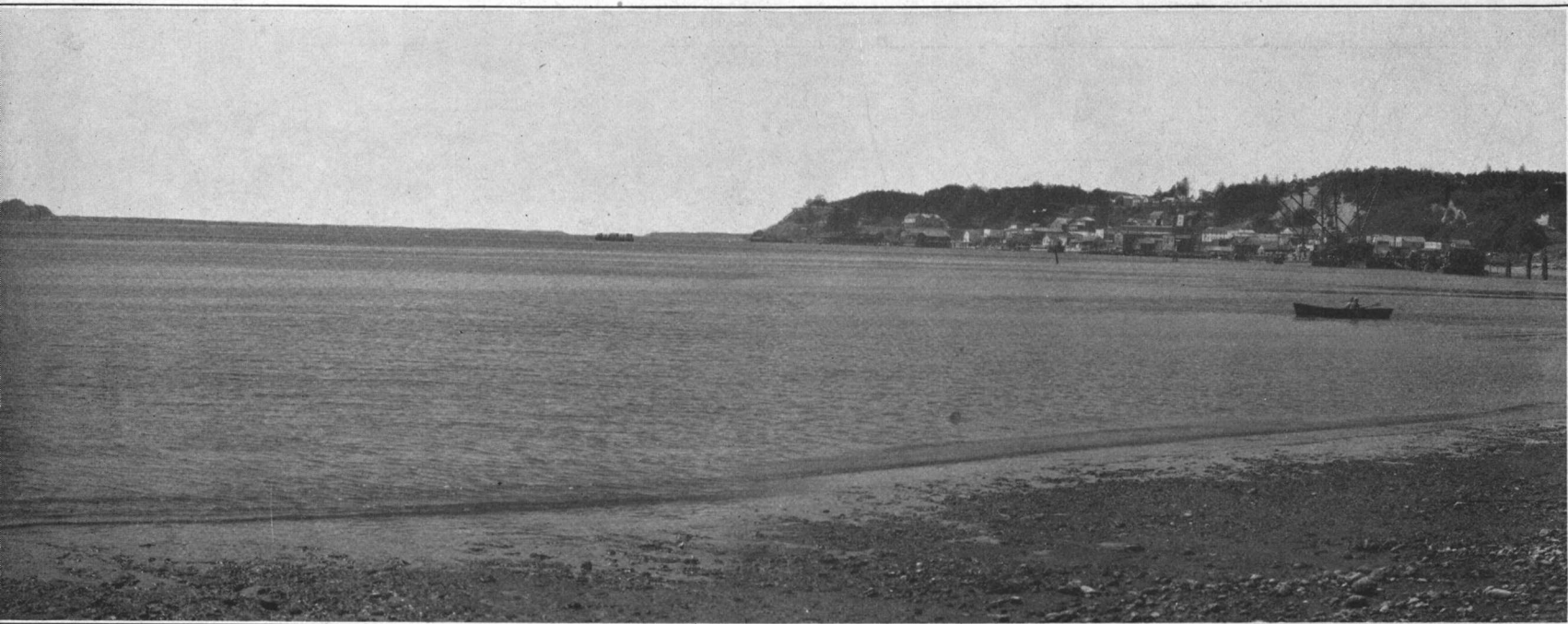
There, at Cato, six miles from Corning, N. Y., C. D. Johnson, and a sister—now a Mrs. Kirkpatrick—and living in San Francisco—were born. C. D. Johnson was born in 1866.

In connection with these biographical statements it is interesting to record that C. D. Johnson's grandfather, Pierce Herrick, enlisted in the Civil War in the "Pennsylvania



PANORAMIC VIEW OF NEWPORT HARBOR, YAQUINA BAY, OREGON, TAKEN FROM A LITTLE BEHIND LOOKOUT POINT AND INCLUDING THE VIEW SHOWN IN THE PHOTOGRAPH PRINTED AT THE TOP OF THIS PAGE AND IS AN ADDITIONAL STEP IN OUR CAMPAIGN FOR FURTHER GOVERNMENT





OUTH BEACH TO JETTIES AND FROM THE NORTH SHORE TO PORT COMMISSION DOCK, WITH THE TOWN OF NEWPORT SHOWN ON D IS THE BEGINNING OF OUR CAMPAIGN FOR PROPER GOVERNMENTAL ATTENTION TO THESE WATERS

Bucktails" as a sharpshooter, and that he lived to be eighty years old. His father, Edward Johnson, died only three years ago at the age of 89.

C. D. Johnson at the age of twelve years accompanied his family when it emigrated in 1877 from Steuben County, N. Y., to Larned, Kans., at which latter place the family settled on a farm ten miles from Larned.

Young Johnson's schooling which had begun in New York was continued in Kansas. Between the ages of twelve and nineteen his life was no different from any other similarly situated youngster of that day and time. He trudged his way to school through the snows, over the wind-swept prairies in winter, and in the summer cooled his feet in the furrows, behind a plow.

\* \* \*

The Johnson family moved to Kansas City, Kans., in 1885. The subject of this sketch was at that time nineteen years old and it was in 1885 that he went to New Orleans to seek his fortune, and arrived there with \$1 in his pocket—but he ate his first New Orleans dinner at the St. Charles Hotel.

His first work in New Orleans was that of collector for a local firm, in which position he met a mill man from Chopin, La., to which point he went from his collecting job

to work for John Newton at that place and was put to work on the trimmer in the sawmill. He worked on the trimmer for Mr. Newton for five months; worked a while on the edger; in fact did a little of everything there was to do in the sawmill and the planing mill until the latter part of 1886 or the first part of 1887.

He then associated himself with one Sam Wilson, of Orange, Tex., and the two young men, strong in their determination to succeed, journeyed from Chopin, La., to Shreveport, La., and from Shreveport over the Houston, East & West Texas and the Houston & Shreveport railways to Carmona, Tex. They went there for the definite purpose of sawing logs in the woods, where they worked for Sam Allen cutting logs at 50 cents a thousand.

Mr. Johnson reached his majority while along the line of that section of the M. K. & T. R. R. in Texas known as the "Trinity Tap."

From cutting logs in the woods he went with A. W. Morris, at Barnum, Tex., and was foreman of Mr. Morris' yard and shipping clerk as well. He was with Mr. Morris for about a year and a half.

A. W. Morris was one of the founders of the sawmilling business of Texas; an oracle; one of Texas' first citizens by birth and promi-

nence, and a very considerable sawmill man, although primitive in his methods, of course; but it is a notable fact that from the time C. D. Johnson whetted minds with A. W. Morris, he—when he changed locations and employments—seemed by natural selection to become the associate of the leading sawmill men, who were a power in their day and time; and all through the years C. D. Johnson absorbed knowledge of the business, which was all grist to the mill of his strong and adaptable personality—all of which helped him to work out his destiny. And now in these days of his vigorous prime, as he is arranging his forces for the crowning commercial event of his life in the building up of the Pacific Spruce Corporation, he has as his PRINCIPAL undertaking surrounded himself with men of individuality and loyalty, as he, in a very DETAILED way helped himself to prominence by acting in his young manhood as lieutenant for the successful sawmillers of THAT day and time.

C. D. Johnson returned to Kansas City from the Trinity Tap country in 1889. He went to Chicago and worked for the South Branch Lumber Co. in the days when Francis Beidler and B. F. Ferguson were the spirit of that institution and most splendid men, with which Mr. Johnson continued his educa-



LOOKOUT POINT AND THE WHOLE SWEEP OF THE SOUTH AND NORTH JETTIES. THIS IS A COMPANION PICTURE TO THE VIEW NTAL ATTENTION TO YAQUINA BAY, COMMENSURATE WITH ITS GREATLY ADDED COMMERCIAL IMPORTANCE







# MAP OF YAQUINA BAR, BAY, AND RIVER

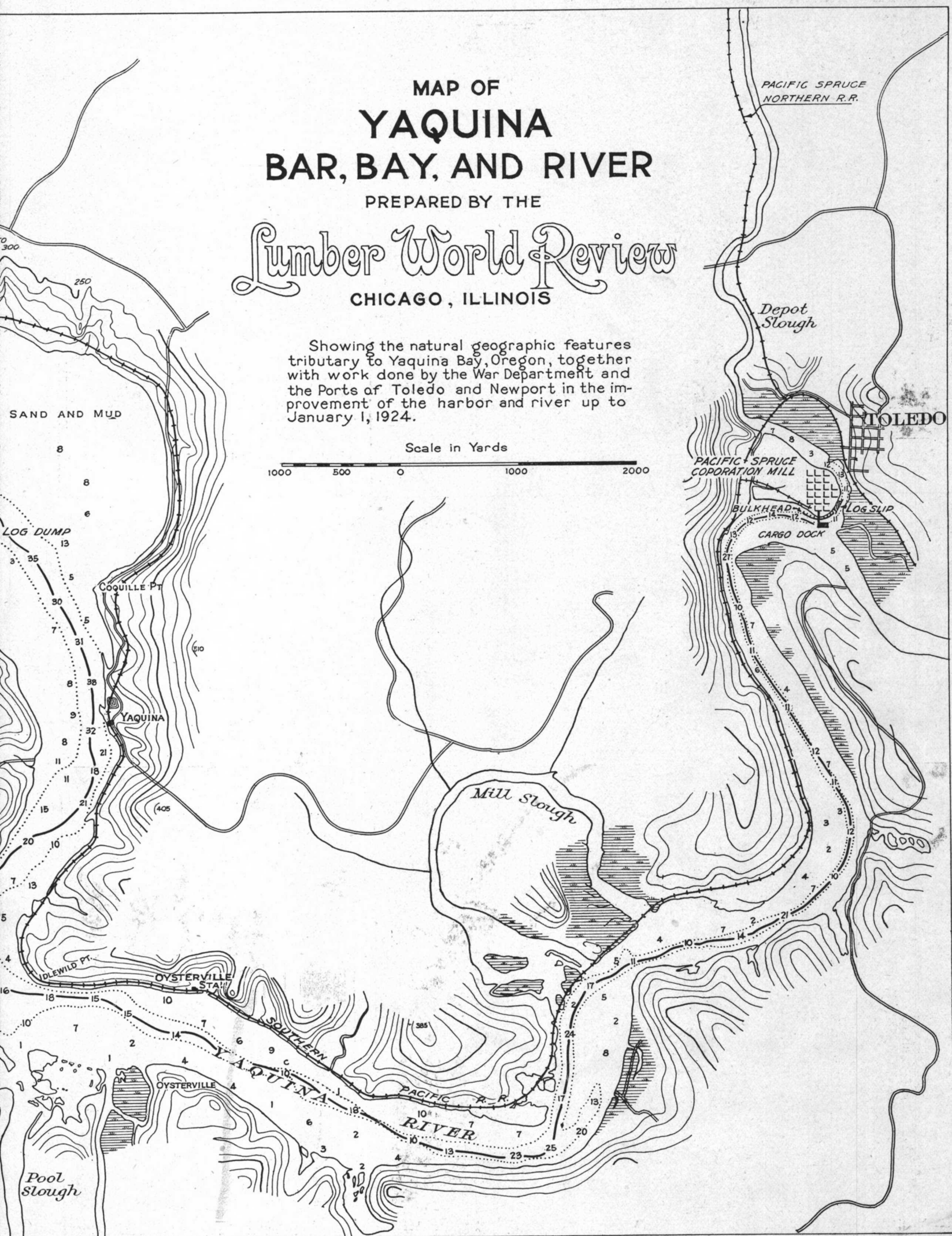
PREPARED BY THE

*Lumber World Review*  
CHICAGO, ILLINOIS

Showing the natural geographic features tributary to Yaquina Bay, Oregon, together with work done by the War Department and the Ports of Toledo and Newport in the improvement of the harbor and river up to January 1, 1924.

Scale in Yards

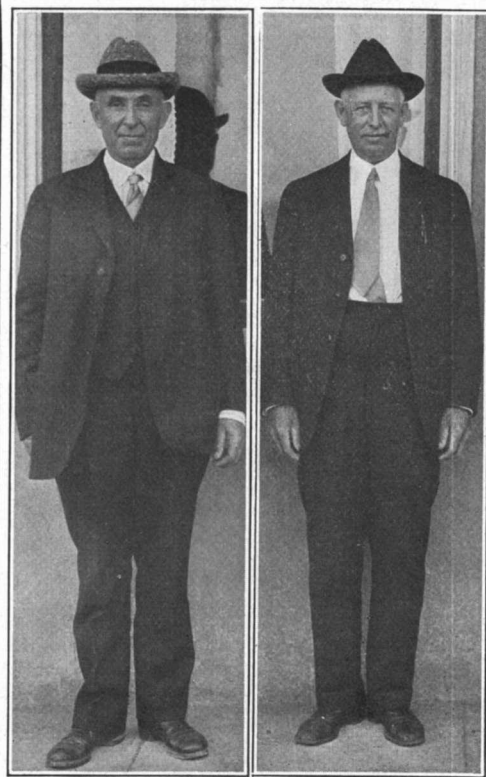
1000 500 0 1000 2000







BEACH VIEW FROM THE NORTH JETTY TO THE LIGHTHOUSE ON YAQUINA HEAD AT NEWPORT, OREGON—THE PORT ON YAQUINA BAY, FROM WHICH THE S. S. "ROBERT JOHNSON" SAILS



CAPT. O. F. JACOBSON, PRES., AND FRANK PRIEST, VICE-PRES., NEWPORT PORT COMMISSION

tion. He was foreman for the South Branch Lumber Co.

After that experience he went to Clinton, Iowa, and trucked lumber for W. J. Young & Co.

Then something better showed up. The "something better" was a position with the Sunny South Lumber Co., at New Lewisville, Ark., where he became foreman of that company's yard and was afterward made superintendent of the entire plant.

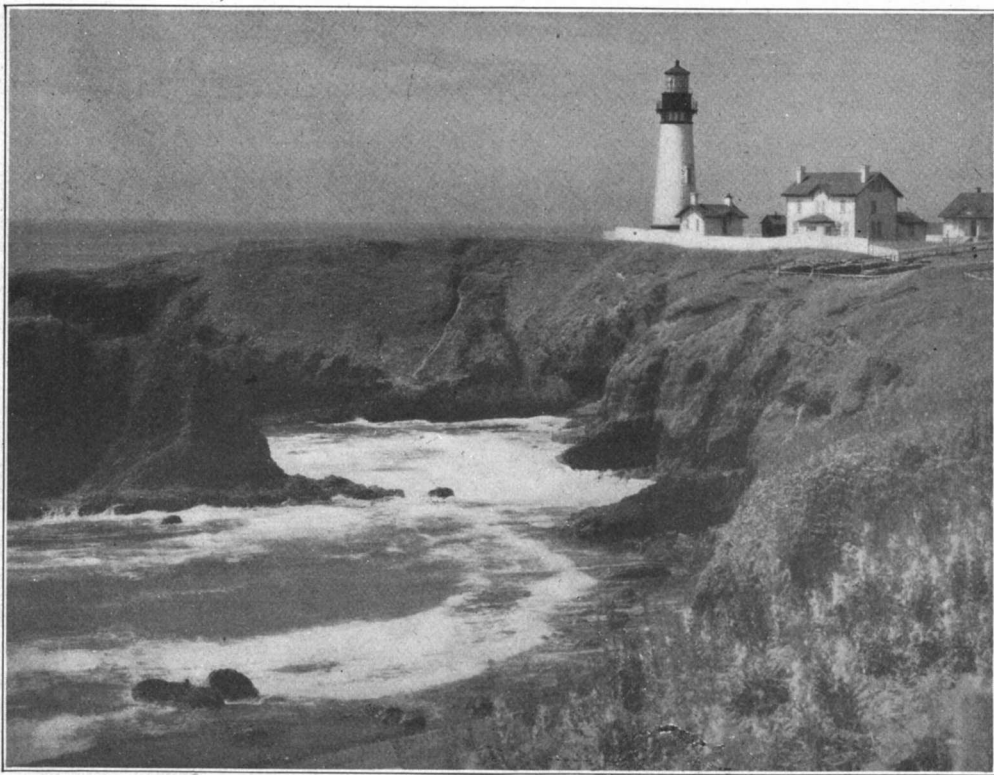
Mr. Johnson remained at New Lewisville until the business came into the hands of R. L. Trigg. While in New Lewisville he married Miss Dorothy Farrar, in April, 1893, to whom have been born three sons: Dean, Ernest E.,

who are actively connected with the business, and a very active younger son, Robert, who at the age of twelve is already looking forward to the time he will have finished school, and become a lumberman. At this juncture it is our desire to say that not many men in this day have been as fortunate in the rearing of sons willing to walk in their father's footsteps as has C. D. Johnson.

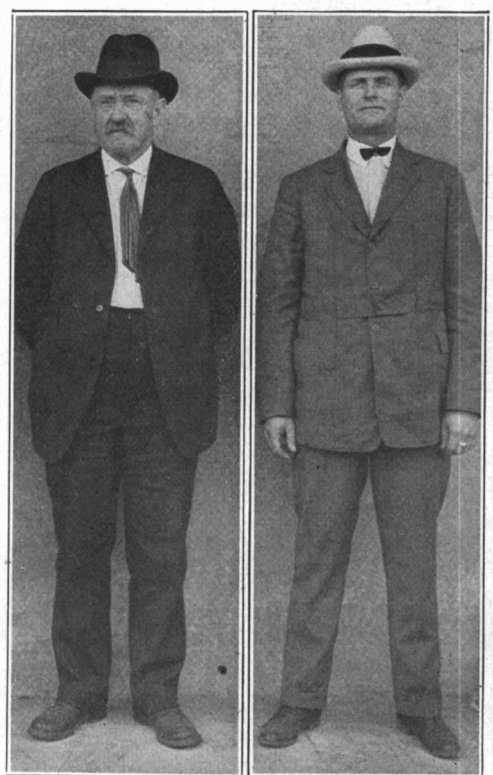
C. D. Johnson moved to St. Louis early in 1894, where he incorporated the R. L. Trigg Lumber Co., the successor of that company being the Frost-Trigg Lumber Co., of which concern Mr. Johnson was vice-president and general manager. That company was incorporated February 10, 1897.

Mr. Johnson in his career secured much of the hard and earnest preparation for all the success that came to him, in the manipulation of the affairs of the Frost-Trigg Lumber Co. and it was while he was still personally active in its management that he found time to take active charge and control of the movement which resulted in the creation of the Union Saw Mill Co. and the Little Rock & Monroe Railway Co.

In 1899, Mr. Johnson became interested in the Lufkin (Tex.) Land & Lumber Co. At this time Mr. Johnson was president of the Union Saw Mill Co.; president of the Little Rock & Monroe Railway Co.; vice-president

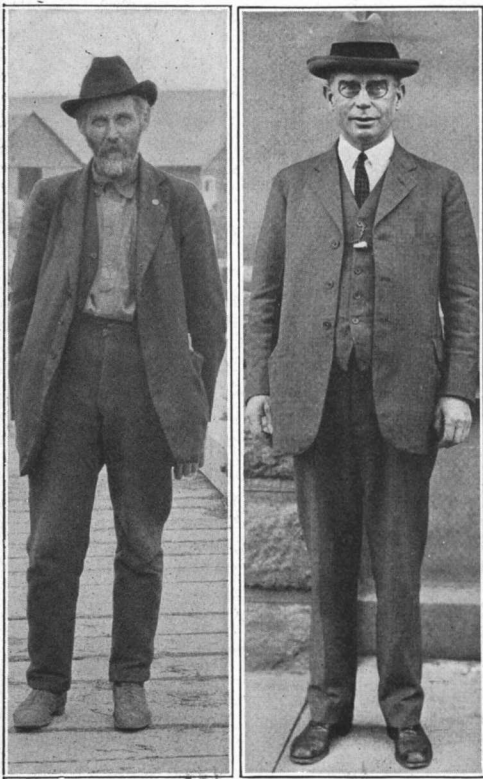


THE YAQUINA HEAD LIGHTHOUSE AT NEWPORT, OREGON, SHOWING THE RESIDENCE OF THE KEEPER ACROSS THE SURF BETWEEN THE ROCKS NORTH OF IT



C. E. SHEFFIELD, TREAS., AND GEORGE ASHCRAFT, OF NEWPORT PORT COMMISSION





**J. W. PARRISH, PRES., TOLEDO PORT COMMISSION, AND FRED, DAWSON, NEWPORT PORT COMMISSION**

and general manager of the Frost-Trigg Lumber Co.; a stockholder of the Lufkin Land & Lumber Co., and a director of the Noble Lumber Co., of Noble, La.

Following the Frost-Trigg Lumber Co. organization in which C. D. Johnson participated, and which included the Red River Lumber Co., Noble Lumber Co., Inc., Union Saw Mill Co., De Soto Land & Lumber Co., Black Lake Lumber Co. and Star & Crescent Lumber Co., the Frost and the Johnson interests in these institutions effected a reorganization as the Frost-Johnson Lumber Co.

C. D. Johnson severed his connection with the Frost-Johnson Lumber Co. in February, 1918, and after that for two years divided his

time between New York and San Francisco, spending most of his time in the latter city—all the while seeking an opportunity for an investment in western timber commensurate with his ideas.

Mr. Johnson's first investment on the coast was in a sugar and white pine proposition, known as the Davies-Johnson Lumber Co. at Calpine, Cal.; which after the organization of the Pacific Spruce Corporation he sold to his partners.

Mr. Johnson is president of the Pacific Spruce Corporation, the C. D. Johnson Lumber Co., the Pacific Spruce Northern Railway Co., and a director in the Pacific Spruce Corporation and C. D. Johnson Lumber Co.

#### **A BRIEF HISTORY OF THE PACIFIC SPRUCE CORPORATION AND ITS SUBSIDIARY COMPANIES**

If there is one thing ABOVE another which concerns us in regard to the Pacific Spruce Corporation and its subsidiaries, that one thing is its brilliant present, which guarantees its no less brilliant future; and if there is any one thing LESS than another which interests us at the present moment, it is the past history of the Pacific Spruce Corporation and its subsidiaries—except that in all such matters as this it is necessary carefully to place the foundation-stones of historical fact, in order that the superstructure that follows



**THIS VIEW SHOWS THE STEAMSHIP "ROBERT JOHNSON" OF THE PACIFIC SPRUCE CORPORATION ENTERING NEWPORT HARBOR, YAQUINA BAY, ON SEPTEMBER 4, 1923**



**GUY ROBERTS, SECY., AND DR. R. D. BURGESS, TREAS., OF THE TOLEDO PORT COMMISSION**



**THE ABOVE VIEW SHOWS THE DETAIL OF THE SOUTH JETTY FROM NEAR SOUTHBEACH, OREGON, AS IT APPEARED TO THE EYE OF THE CAMERA ON AUGUST 14, 1923**





THE ABOVE VIEW SHOWS THE TOWER OF THE YAQUINA HEAD LIGHTHOUSE AT NEWPORT, OREGON, WHICH FROM TOP, 168 FEET HIGH, SHOWS LIGHT NINETEEN MILES AT SEA

may rest firmly and stand plumb and upright in the mind of the reader.

When we come to contemplate the genesis of the Pacific Spruce Corporation it is worth while noting that however fond the average American business man may be of calling attention to the fact that the Government of the United States has no real business prerogatives, here is ONE instance indeed where the Government of the United States began something which would have prospered to the end of the undertaking, even under GOVERNMENT management.

We were quite familiar during the Great War with all the movements of the Spruce Production Division, Bureau of Aircraft Production, which at that time was of interest

to the whole world and of particular interest to the tree owners of the Pacific coast.

During the progress of the life of that bureau with its "selective cutting" of timber and the criminations and recriminations which followed, it is developed now that there was at least ONE episode of the history of the Spruce Production Division, Bureau of Aircraft Production, which must have had knowing and experienced lumbermen behind it in its conception and in its carrying out; namely, the adventure in Sitka spruce production in Lincoln County, Oregon, the purchase of the great Blodgett tract of Sitka spruce, the building of the substantial railroad down the coast from Newport to this tract, and the erection at Toledo, Oreg., of



THE ABOVE VIEW SHOWS THE NORTH JETTY IN PERSPECTIVE AT THE HARBOR ENTRANCE OF NEWPORT, OREGON, FROM THE SHORE END, SHOWING ALL OF THE ROCK FILL

that mill which afterward, with many additions and improvements, finally became the present mill of the Pacific Spruce Corporation.

It takes no flight of imagination to see in all this, the workings of the minds of experienced lumbermen such as Maj. Everett G. Griggs of the St. Paul & Tacoma Lumber Co. at Tacoma, Wash., and Maj. George E. Breece, then as now with large interests in hardwood lumbering in Virginia and West Virginia and now at the head of the McKinley Land & Lumber Co. at Albuquerque, N. Mex. These gentlemen had but a short time before patriotically assumed responsible positions in connection with the Spruce Production Division, Bureau of Aircraft Production, and it is by no means a violent supposition to believe that they had much to do with starting the government off on the right foot in regard to the Lincoln County investment.

If the Great War had lasted but a few months more there would have been witnessed the fairly successful operation of a great mill at Toledo. Those were the days when the editor of the LUMBER WORLD REVIEW was writing and printing his serial story "Adventures in Spruce—and Other Woods" and Lieut.-Col. Disque (or maybe it was Brig.



WILLIAM ANDREWS AND PETER FREDERICK, MEMBERS OF TOLEDO (OREGON) PORT COMMISSION

Gen. Disque by that time) and Maj. Breece and Maj. Griggs talked considerably of the new great plant that had been erected at Toledo. Maj. Disque invited the writer to visit Toledo and to note the progress of the work; but the military always had odd ways of proceeding and the chance of visiting Toledo came at 3 o'clock one morning when an orderly, one hand in his belt and the other at attention, awakened the writer out of a sound sleep and announced that the commandant presented his compliments and that the automobile for Toledo would start in twenty minutes.

For obvious reasons we had to miss that opportunity and did not get to see Toledo, Oreg., and the beginnings of the great business there, of the Pacific Spruce Corporation, until the 22nd day of October, 1922.

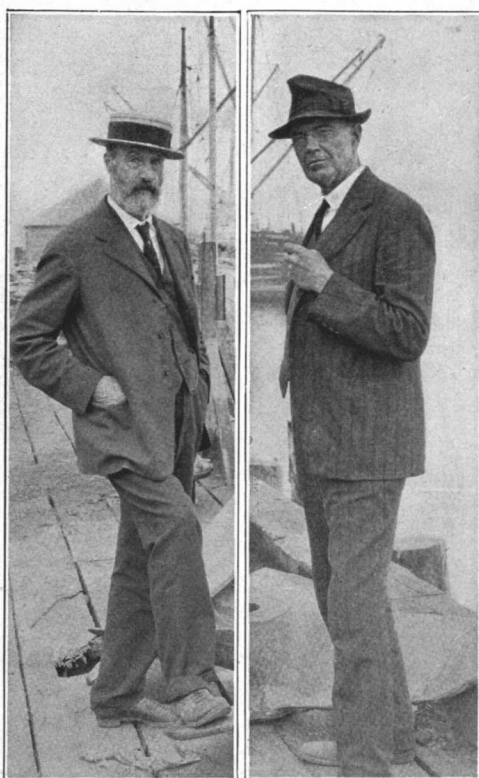
Although its editor failed to keep his 1918 engagement with the Spruce Production Division, that did not prevent this newspaper from printing—in August, 1918—the first story of the Toledo (Oreg.) mill that was put in type; the first paragraph of which we will quote herewith: "The mill which is being erected at Toledo, Oreg., about which the peoples of the northwest express considerable



curiosity, is worth a few paragraphs of technical description. The sawmill machinery is Allis-Chalmers Co. throughout—and as to the ordinary lumber sawing devices consists of a 10-foot and a 11-foot band mill”—and there-with followed a little story of what Peter Swan, the great sawmill builder of the west coast, was doing in the way of the erection of a real mill, for the government of the United States.

\* \* \*

All the above is by way of beginning. The armistice came and the United States Spruce Production Corporation took over all the milling business in Lincoln County, Oreg.; and it by and by transpired that C. D. Johnson, looking about him in every direction for the best possible opportunity obtainable with which to occupy permanently the remainder of his active days in the business of lumber production, came across the opportunity in his investigations, and on December 17, 1920, the United States Spruce Production Corporation which had been formed, pursuant to an Act of Congress, and in which had been vested the titles of the vast tract of Sitka spruce in the south end of Lincoln County, Oreg., the railway that skirted the coast of the Pacific ocean, and the partially built sawmill at To-



**CAPT. J. S. POLHEMUS AND WILLIAM G. CARROLL, ASSISTANT U. S. ENGINEERS, NEWPORT, OREG.**

ledo, entered into a contract with the Pacific Spruce Corporation, a Delaware corporation which had been organized for the purpose, whereby the former agreed to sell and the latter agreed to purchase these properties—the timber, the railroad, the mill and the quantity of miscellaneous equipment—for \$2,000,000, to be paid during a period of years and which terms were easy as commercial terms go these days; stipulating also that the Pacific Spruce Corporation should spend many hundreds of thousands of dollars in equipping and improving the lumber-producing end of the business in order that the proposition might become profit producing and in time the government be fully repaid and the indebtedness accruing be completely cancelled.

This contract provided that the titles to the proposition should remain with the United States Spruce Production Corporation so long as any part of the purchase price should remain unpaid; meanwhile the Pacific Spruce Corporation should be given full use and enjoyment of the properties together with the right to cut and remove the timber by paying a stipulated amount per thousand feet log scale for it.



**THIS VIEW SHOWS "STONE WHARF" AT NEWPORT, OREGON, WHERE STONE FROM THE QUARRIES, UP-RIVER, IS LOADED BY DERRICK FROM BARGE TO TRAIN FOR JETTY WORK**

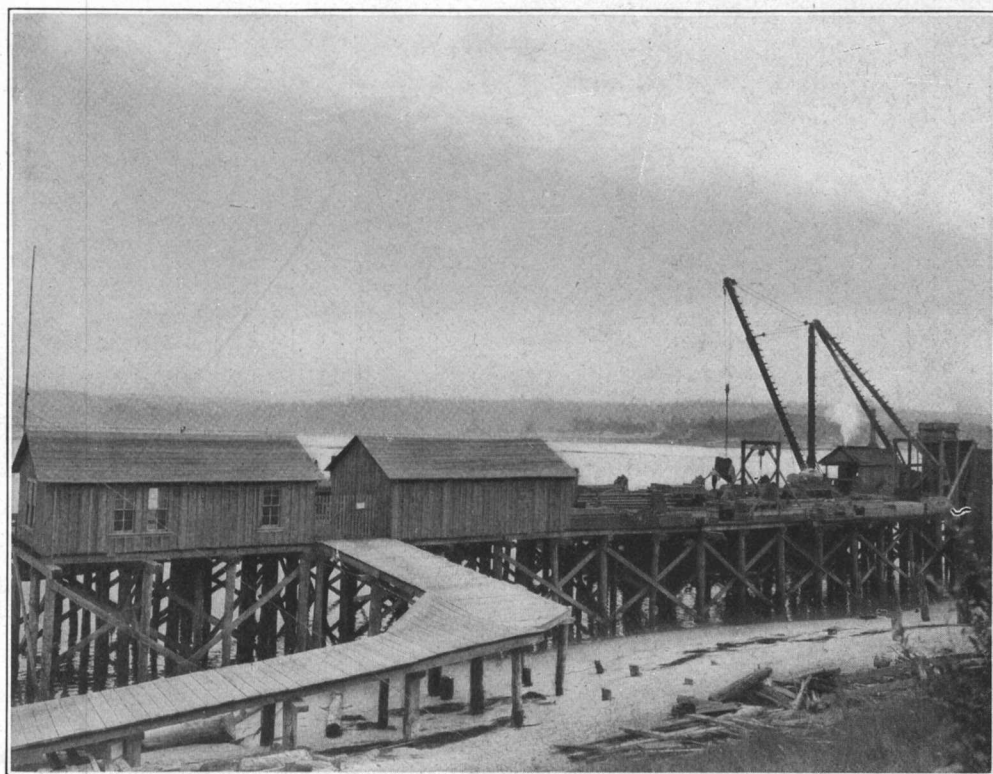
Most briefly put, right there was the genesis of this great undertaking, and that is quite enough to say regarding the beginning of the Pacific Spruce Corporation, every feature of the operations of which are discussed herewith in eleven other chapters which recount every possible known detail of the operation of the companies and their subsidiaries: The C. D. Johnson Lumber Co., the Manary Logging Co. and the Pacific Spruce Northern Railway Co. with 800 employees.

Of course it goes practically without saying that a coterie of timber and lumbering experts such as C. D. Johnson gathered about him, would not be satisfied merely with the opportunity to cut 800,000,000 feet of Sitka spruce and old growth yellow Douglas fir and

western hemlock from the Blodgett tract in south Lincoln County, Oreg., but at once would also discover the vast possibilities in the "Siletz" country; which they immediately proceeded to do. So it transpires that upon this February 10, 1924, the Pacific Spruce Corporation is in possession of around two billion feet of marvelous timber and has ahead of it not less than forty years of lumbering life, with great prospects that it may be projected even much FARTHER into the future if not actually made—by careful cutting—a PERPETUAL OPERATION.

#### **AMPLE CAPITAL HAS BEEN PROVIDED**

An issue of a million dollars of preferred



**ABOVE VIEW SHOWS THE "STONE TRAIN" ON THE NORTH JETTY AT NEWPORT, OREGON, WITH STONE WHICH—WHEN DUMPED—IS TO FORM THE NORTH BREAKWATER**



R.10 W.

R.9 W.

# SECTIONAL MAP OF LINCOLN COUNTY

OREGON  
WITH PORTIONS OF  
POLK AND BENTON COUNTIES

JANUARY 1, 1924

PREPARED BY THE

## Lumber World Review

CHICAGO, ILLINOIS

Showing Toledo, Newport and other towns in the territory together with Yaquina, Siletz and Alsea Bays, the rivers, railroads, logging roads and other geographic features

Conservative estimates of the timber in Lincoln County made by F.A. Elliott, State Forester of Oregon are as follows

	Area In Acres	Feet Board Measure
Private Ownership	194,500	8,000,000,000
National Forests	120,852	1,876,200,000
O & C R Grant	1,080	15,640,000
		9,891,840,000

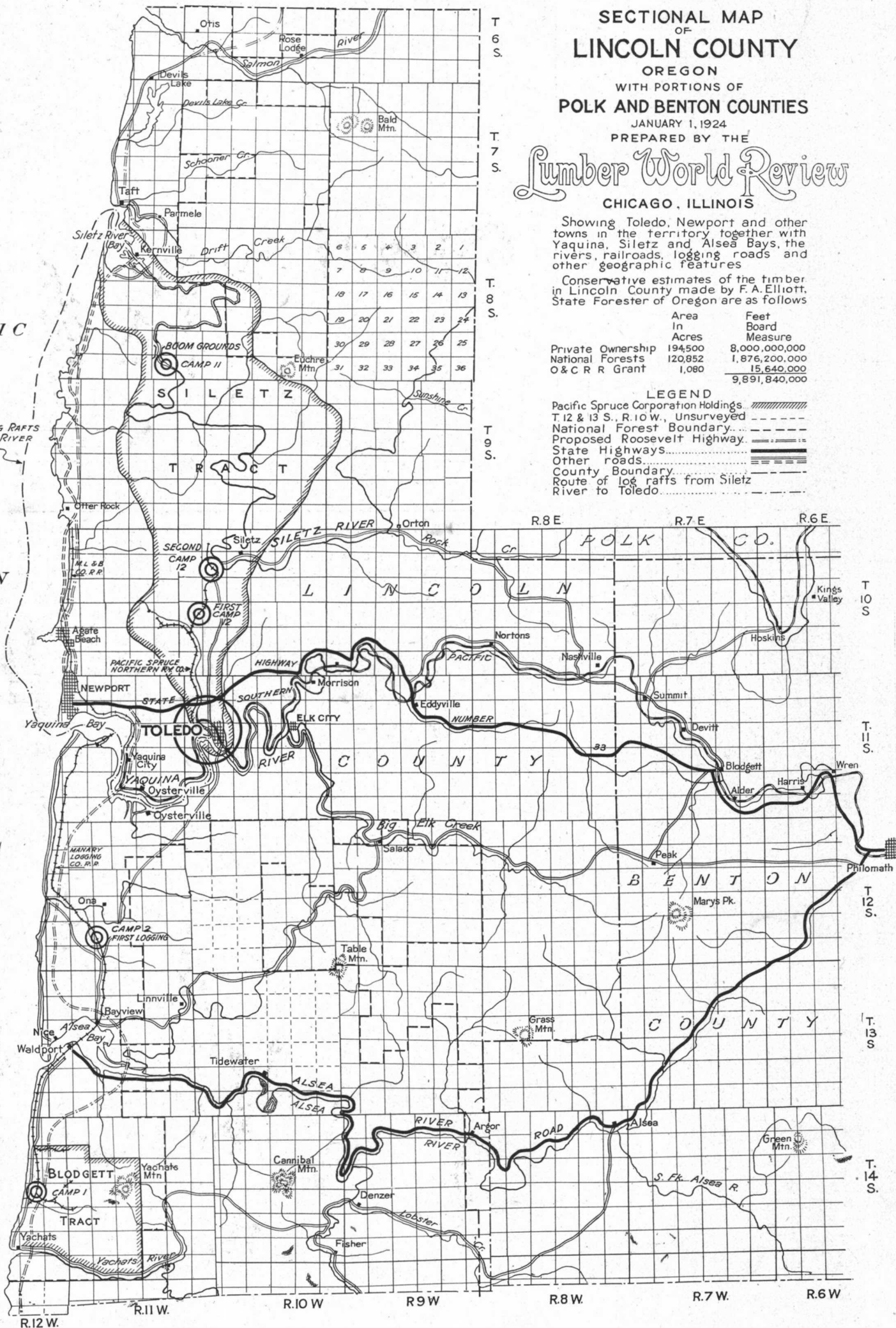
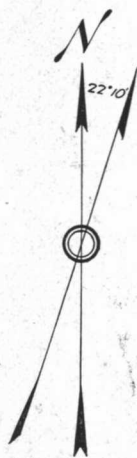
### LEGEND

Pacific Spruce Corporation Holdings  
T. 12 & 13 S., R. 10 W., Unsurveyed  
National Forest Boundary  
Proposed Roosevelt Highway  
State Highways  
Other roads  
County Boundary  
Route of log rafts from Siletz River to Toledo

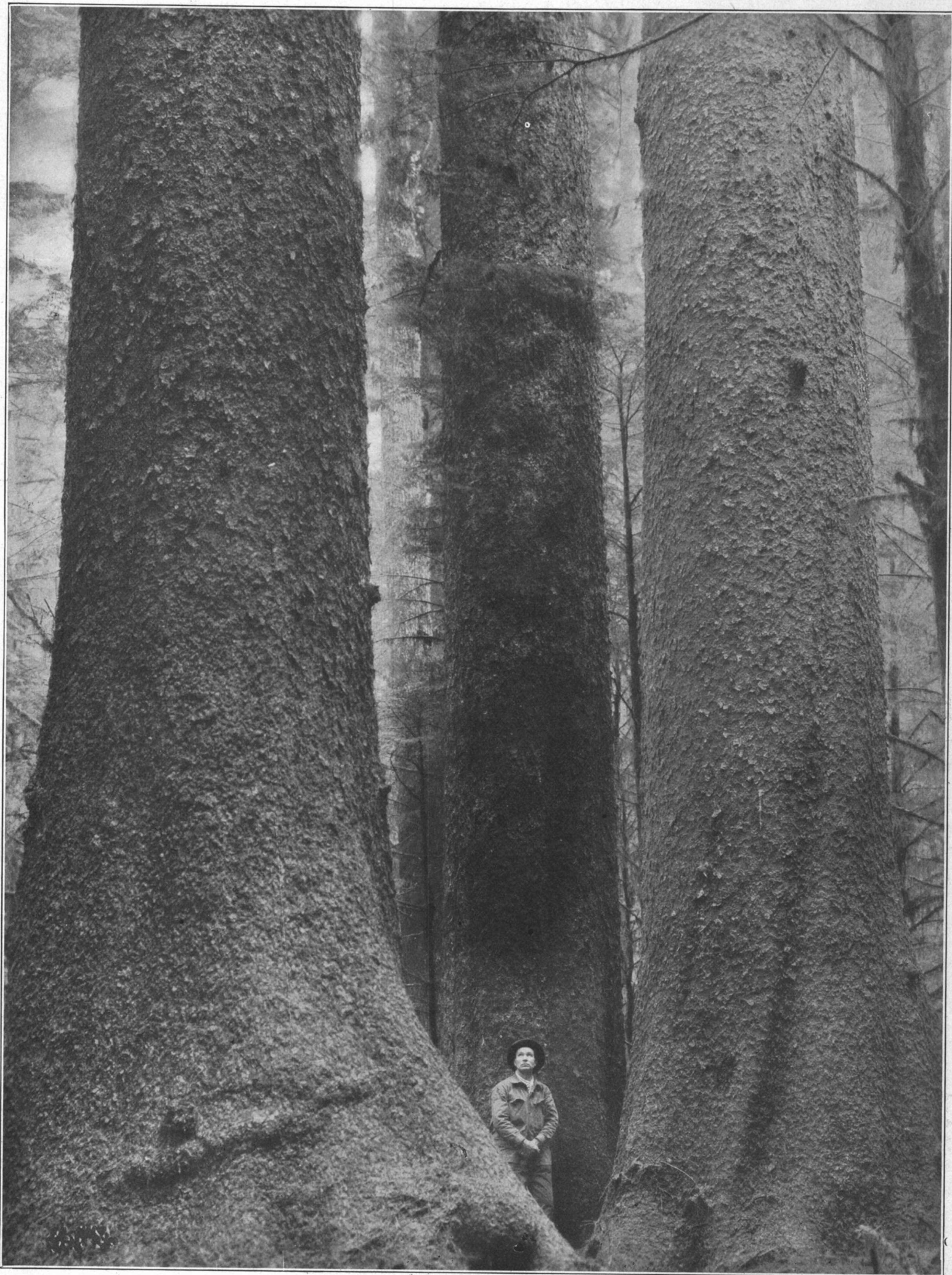
PACIFIC

OCEAN

ROUTE OF LOG RAFTS  
FROM SILETZ RIVER  
TO TOLEDO







**THE ABOVE SPLENDID VIEW SHOWS THREE FINE SITKA SPRUCE TREES, EACH OF THEM SIX FEET IN DIAMETER**  
 This view was taken in the latter part of August, 1923, on the S. W.  $\frac{1}{4}$  of the S. E.  $\frac{1}{4}$ , Section 18, Township 14 S., Range 11 W., on the so-called Blodgett Tract in Lincoln County, Oregon, Spur 4, Camp 1 Operation of the Manary Logging Co., Subsidiary of the Pacific Spruce Corporation. These Trees Have Each Three Log Lengths. Sitka Spruce Often Grows as Close Together as Shown in the Above Picture.



stock of this company, authorized by charter, was issued by the Pacific Spruce Corporation early in 1923 and was at once absorbed by the then stockholders of the Pacific Spruce Corporation, without the adventitious aid of any so-called financing or bonding concern, the common stock of \$2,500,000 at \$10 per share (no par value) having been fully purchased, and paid for, by the stockholders long before that date.

In November, 1923, the properties of the company fully justified the increase of the common stock to \$5,000,000 at \$10 per share (no par value); and that briefly is all that it is necessary should be mentioned in regard to the financial end of the affair.

#### THE PRINCIPAL EXECUTIVES AND LARGE STOCKHOLDERS

On page 37 of this number, which is the third page of this story of the rise and prog-

County, in the state of Oregon.

The officers of the Pacific Spruce Corporation are C. D. Johnson, president; Dean Johnson, vice-president; E. E. Johnson, secretary-treasurer; R. S. Trumbull, assistant secretary, and F. W. Stevens, general manager. The directors of this organization are H. B. Hewes, of Jeanerette, La.; Nathan Paine, of Oshkosh, Wis.; C. D. Johnson and E. E. Johnson of Portland, Oreg., and Dean Johnson and F. W. Stevens of Toledo, Oreg.

The C. D. Johnson Lumber Co. was organized contemporaneously with the Pacific Spruce Corporation and has to do immediately, particularly, and ONLY with the selling of the products of the Pacific Spruce Corporation. The officers of this company are C. D. Johnson, president; Dean Johnson, vice-president; E. E. Johnson, secretary-treasurer, and the same gentlemen are directors. E. E. Johnson is also the manager of the C. D. Johnson

The railroad company was organized March 9, 1923, and its officers are C. D. Johnson, president; Dean Johnson, vice-president; and E. E. Johnson, secretary-treasurer. The directors of this company are E. E. Johnson, Ralph H. King, H. Borden Wood, W. Lair Thompson and W. A. Illidge—all of Portland, Oreg.

Referring again to page 37, the third page of this illustrated descriptive article of the Pacific Spruce Corporation, there are three portraits on that page of very important personages who are not officials of any of the companies: R. H. Downman, of New Orleans, La., one of the largest stockholders; Judge Wallace McCamant, a stockholder, and also legal counsel for the Pacific Spruce Corporation; and W. J. Thomas, in charge of all the Pacific Spruce Corporation and C. D. Johnson Lumber Co. transportation affairs.

#### DEVELOPMENT OF YAQUINA BAY, YAQUINA RIVER AND PORTS OF NEWPORT AND TOLEDO

This story is expressed in only one-third as many words as MIGHT have been used to tell the tale. To any lover of liberty; of commercial action; to anyone appreciating how the science of man backed by government money may supplement the work of the Creator in building up ports of entry, whereby the products of a nation may float out and over the Seven Seas to satisfy OTHER nations of the earth, we recommend this story of the rise of Yaquina Bay and the Yaquina River to their first zenith; their retarding, slipping, fall through two generations; and now, AGAIN, their SECOND rise to a commercial place in the commerce of the western sea, which will never again drop below par.

It will take forty minutes out of the life of any man to read this chapter understandingly and it has taken the LUMBER WORLD REVIEW hundreds of hours of research throughout absolutely ALL of the documents ever printed, upon this subject of the development of Yaquina Bay, Yaquina River and the ports of Newport and Toledo, to be able to crystallize here, for the first time on any printed page, this thrilling record, this history covering a period of sixty years.

#### ADVENT OF THE PACIFIC SPRUCE CORPORATION MARKS NEW ERA

The advent of the Pacific Spruce Corporation into Lincoln county, Oregon, three years ago, with its large sawmill and off-shore shipments of lumber, marked a NEW ERA for Yaquina Bay.

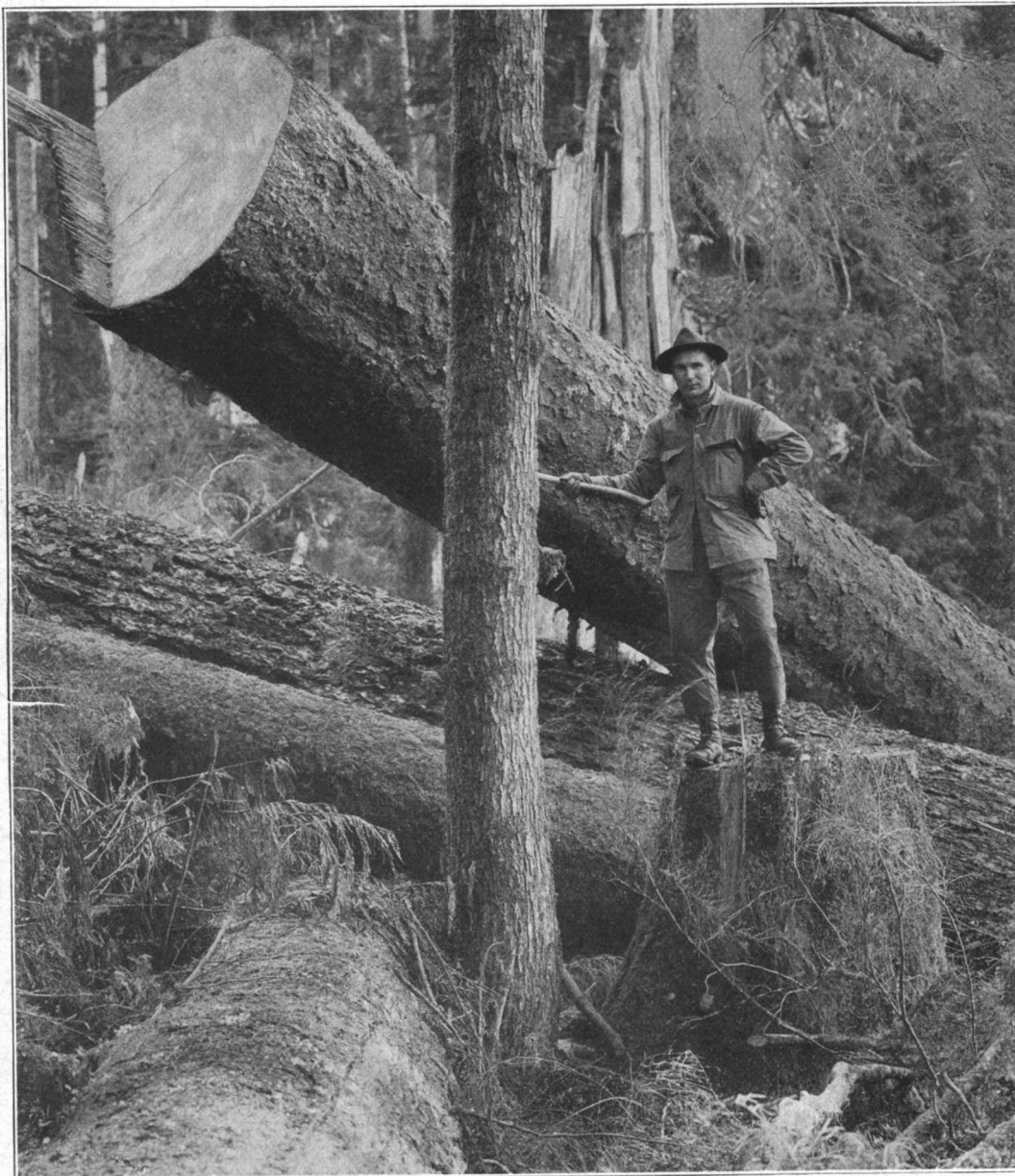
Yaquina Bay, with its available tonnage, is today in greater need of further development than any other harbor on the Pacific coast of the United States.

Tributary to Yaquina Bay is approximately 10,000,000,000 feet of standing timber, half of which, it is estimated, will find its market on ships bound for domestic ports and the nations 'round about the Seven Seas. In one year from the time the Pacific Spruce Corporation began shipping lumber to California through this bay, its outbound cargoes have exceeded, in volume, that of any previous year in its history.

#### GOVERNMENT HAS INVESTED TWO AND A HALF MILLION DOLLARS

The United States government, up to the year 1892, had spent \$715,000 on the improvement of the bar. Since that time the Port Commission of Newport and the Port Commission of Toledo, co-operating on bar improvement, expended \$795,215 and the federal government a similar amount, making a total of \$2,305,430 expended on all projects for bar improvement at Yaquina Bay since 1881, when this work was begun—all this being EXCLUSIVE of the amounts spent for channel improvement within the harbor and the river. Will the government now abandon Yaquina Bay and Yaquina River after sixty years of work and the expenditure of nearly two and one-half million dollars?

Changed economic conditions now demand the expenditure of enough money through appropriations sufficiently large to insure a depth of water on the bar which will enable vessels—in the export lumber trade—to go



**A FINE VIEW OF MIXED CEDAR, SITKA SPRUCE AND DOUGLAS FIR LOGS**  
This view contains a down cedar log 48 inches in diameter; a 30-inch spruce log on top and across; a 60-inch fir beside it, and a 40-inch Sitka spruce log, at an angle over all—Standing hemlock in foreground—all situated on N. E. ¼ of N. E. ¼, Sec. 1, T. 14 S., R. 12 W.

ress of the Pacific Spruce Corporation, are the portraits of fourteen of the leading executives, lieutenants, and stockholders of this organization; and while the persons mentioned are appropriately referred to in short biographical sketches in the division set aside for those sketches, we refer here more specifically to the official personnel of the Pacific Spruce Corporation and its three subsidiary companies and the dates of the organization of these various corporations.

The Pacific Spruce Corporation can be said to date from November 17, 1920, which was the particular day on which it as a corporation made a contract with the United States Spruce Production Corporation for taking over the property of that company in Lincoln

Lumber Co. and has active charge of the selling of the lumber.

The Manary Logging Co. was organized March 23, 1922, and its officers today are James Manary, president; Gordon J. Manary, vice-president; Dean Johnson, secretary, and Roland M. Manary, treasurer. The directors of the Manary Logging Co. are James Manary of Portland; Gordon J. Manary of South Beach, and Roland M. Manary, F. W. Stevens and Dean Johnson of Toledo, Oreg.

The Pacific Spruce Northern Railway Co. was organized for the purpose of purchasing a piece of railroad running north from Depot Slough near the mill of the Pacific Spruce Corporation at Toledo, Oreg., which railroad was purchased from its original projectors.



there in safety for the waiting cargoes.

In contrast with the Atlantic coast, where a bay-indented shore line HAS provided natural harbors, the Pacific coast of the United States presents an almost unbroken shore line which had but two harbors of any size—Puget Sound and San Francisco Bay—that have not been MAN-made!

#### **COLUMBIA CONSIDERED IMPOSSIBLE IN 1838**

The Columbia River, now ranking as one of the leading harbors of the west coast, has been made so by the expenditure of millions of dollars.

In 1834, John K. Townsend, a member of the Academy of Natural Sciences of Philadelphia, came to Oregon with one of the early trading companies and made some scientific observations in an interesting volume published in 1838. Speaking of the CONDITION

A decade prior to this, following the Indian wars in Oregon, the government made prisoners of a number of tribes and steps were taken to place them on the remote lands of Yaquina. A road was built from the Willamette valley to Newport for the purpose of transferring these Indians to their reservation—afterwards utilized by the public.

#### **FIRST SAWMILLS IN THE YAQUINA DISTRICT**

In 1858 the Indian agent in charge at Siletz brought a small saw mill from San Francisco and erected it on Mill Creek, fifteen miles north of the bay. At that time supplies were brought in from San Francisco in small boats and taken up this arm of the bay to the head of tidewater, where a depot was established and the water became known as "Depot Slough."

In 1865 the Siletz-Yachats strip of the res-

river, in 1868, the first soundings of the bar were taken in 1870. In 1879 an examination between the four-fathom curves was made.

In 1880 the government, responding to the insistent plea of the people for financial aid with which to improve the harbor, made an appropriation of \$40,000 on June 14 of that year, without a PREVIOUS survey or RECOMMENDATION by the War Department. This appropriation was such an obvious necessity that the government needed to be appealed to only by the "voice of the people"—and now we prophesy, after the lapse of forty-three years, that the "voice of the people" will AGAIN move the government of the United States to action in the matter of the completion of the improvement of the Yaquina River and Yaquina Bay, Oregon.

#### **FIRST RECORDED PLAN TO MAKE YAQUINA BAY A GREAT PORT**

The agricultural lands of the Willamette



#### **THIS REMARKABLE VIEW SHOWS THE BUTT END OF A SITKA SPRUCE LOG EIGHTY-FOUR INCHES IN DIAMETER**

The above photograph was made on Spur 1, Camp 1, Manary Logging Company Operations, a subsidiary of the Pacific Spruce Corporation, and shows only the butt end of a Sitka Spruce Log in a downhill position where the whole log could not possibly be included. A careful measurement of this log shows that it contains 20,000 feet of lumber. Located on the N. E.  $\frac{1}{4}$  of the S. E.  $\frac{1}{4}$ , Sec. 1, T. 14 S., R. 12 W., Lincoln County, Oregon.

of the Columbia River BAR, as he viewed it from Astoria before crossing out, he wrote: "This circumstance must ever form a barrier to a permanent settlement here"—a scientific "progress report," if you please!

The early daring sea captains piloted their shallow draft vessels into the estuaries of Pacific coast streams, whose bars shoaled and deepened with the seasons.

Among these smaller harbors there was Yaquina Bay, in Oregon, 115 miles south of the Columbia River and 550 miles north of San Francisco Bay, where, prior to the Civil War, small vessels had come.

In 1868, the U. S. Coast and Geodetic Survey made a chart of the harbor and the lower reaches of the Yaquina River.

ervation, south of the bay, was thrown open for settlement and an influx of white settlers resulted. R. A. Bensall, who had assisted with the Indians, brought a small sawmill from San Francisco in 1866 and erected it on Depot Slough, about three miles from the present site of the mill of the Pacific Spruce Corporation and where, with his wife, he resided many years. This mill, called "The Pioneer," was the first sawmill located on Yaquina Bay, established eight years after the Indian agent had built the one on Mill Creek. Mrs. Bensall is still living in Newport.

#### **YAQUINA BAR FIRST "SOUNDED" IN THE YEAR 1870**

Following the survey of the harbor and the

valley demanded a direct outlet to the sea and attention focused on Yaquina Bay. Late in the '60s, the Willamette Valley & Coast Railroad Co., backed by local capital, was organized to build a railroad from Corvallis westward to Yaquina Bay. The line was constructed as far as Philomath, where it quit for lack of funds.

The possibilities of Yaquina Bay as a harbor, the need of the Willamette valley farmers and the magic lure of the Great West provided an ideal setting for the spectacular advent of Col. T. Edgerton Hogg and an adequate stage on which he might display his shining talents—vision, organization and power to sway men to his ends.



Col. Hogg first came to Yaquina Bay in 1872 and visualized a great plan, which culminated in the incorporation of the Oregon Pacific Railroad Co. in 1879, the completion of the defunct railroad from Corvallis to Yaquina City, the deepening of the bar and the establishment of a line of steamers out of the bay to all parts of the world—a brilliant and a daring enterprise!

Associated with him was his brother, William T. Hoag, a man of action and an organizer of men. Col. T. Edgerton Hogg was a Democrat of the deepest dye and his brother, William T. Hoag, who spelled his name with an "a"—for in orthography as well as in politics he took issue with his illustrious brother—wrote his name in what he considered a more dignified form and adhered to the Republican standard with a loyalty which pleased the war horses of that party. These two men purchased the old road grant, on which security bonds were issued. Col. Hogg invaded the eastern money markets, estab-

lished sumptuous offices in New York and secured the attention and the financial backing of some of the richest men in the east.

#### INDUSTRIAL BATTLE WAGED IN THE EARLY EIGHTIES

did the vision fade? Did sinister influences from competitive interests wreck the great plan in which the sum of \$13,000,000 was eventually invested, at a time, too, when \$13,000,000 meant much more than it means today? These are questions on which history is silent; questions which hover in the distance as one explores old records and ferrets out old traditions.

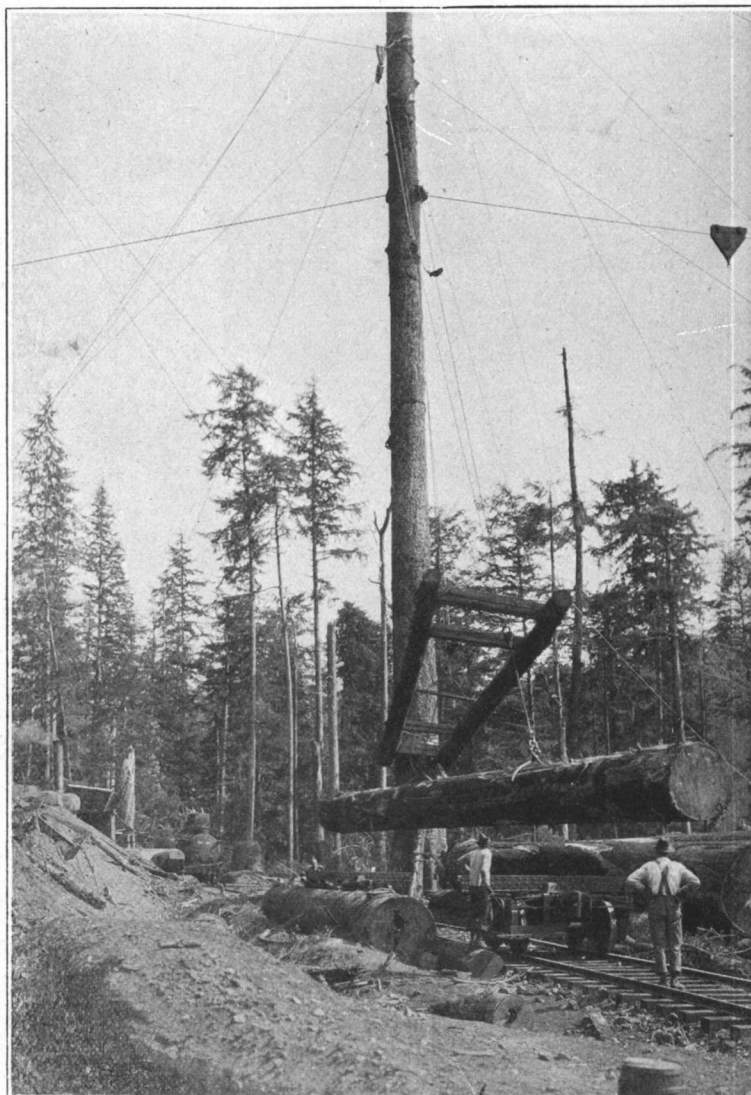
An industrial battle was waged on the Pacific coast in the '80s, in which the names of Ben Holliday, Henry Villard, James J. Hill, and Col. T. Edgerton Hogg appear as leaders. Ben Holliday had begun the railroad south from Portland to California, backed by German capital. His optimism threw it into bankruptcy and Henry Villard, representing the stockholders, came to the coast and in 1876 took charge of the property.

In 1879 he organized the Oregon Railroad & Navigation Co. to build a railroad east

Yaquina Bay, AWAY from its powerful competitor, which used every advantage at its command to retain its admitted supremacy in Oregon.

Men who had backed the project, the farmers of the Willamette valley who had initiated it, the merchants of San Francisco, who saw reduced freight charges on the produce and the people on Yaquina Bay united their forces behind Col. Hogg and the government at Washington endorsed it by an appropriation for the deepening of the bar at Yaquina Bay.

The Oregon Railroad & Navigation Co., with its road building eastward up the Columbia and its steamship route between Portland and San Francisco, was accused of being jealous of its potential competitor to the south, for the \$40,000 which Congress had allotted in 1880 was nearly one-tenth of all the money which had been appropriated for the improvement of the Columbia River bar up to that time; and, despite a strong ap-



THESE VIEWS SHOW LOGGING WITH "WILLAMETTE" MACHINERY. LEFT SHOWS A HIGH-LEAD SPAR AND SKY LINE 1,000 FEET TO SECOND YARDER. SITKA SPRUCE LOG ON HIGH LEAD LINE BEING DROPPED INTO PILE. AT RIGHT, LOADING SITKA SPRUCE LOG WITH BOOM LOADER. VIEWS ON SPUR 1, CAMP 1, MANARY LOGGING CO.

lished sumptuous offices in New York and secured the attention and the financial backing of some of the richest men in the east.

Percy Pryne, son-in-law of Moses Taylor, who had founded the National City Bank of New York; Garretson, who had fought Vanderbilt in Panama; John I. Blair, president of the Delaware & Lackawanna Railroad Co., one of America's wealthiest men, who made the trip through the mountains to Yaquina Bay at ninety years of age and saw the project through the eyes of Col. Hogg; George Coe, president of one of New York's leading national banks; Brown Brothers, prominent eastern bankers and others, threw literally millions of dollars behind the project and the destiny of Yaquina Bay seemed assured.

Why was the dream not realized? Why

from Portland. The company bought the Oregon Steamship Co. line running between Portland and San Francisco. In the same year Col. Hogg organized the Oregon Pacific Railroad Co. and received a charter from the state to construct a railroad from Yaquina Bay eastward across the state and on to Boise, Idaho.

Then began open warfare between these two companies for the control of Oregon, Villard through the Columbia and Hogg through Yaquina Bay; a fight which engendered bitter animosities, led into the legislature of the state, into Congress and into the money markets of the east.

The Oregon Pacific Railroad threatened the diversion of the tonnage of the Willamette valley from Salem to Eugene, through

peal made to the federal government by these bigger and more POWERFUL interests, the appropriation for 1881 was \$45,000.

With \$40,000 at his command in 1880 with which to proceed to immediate construction work, Maj. G. L. Gillespie selected J. S. Polhemus, then a rising young assistant civil engineer in Texas, to take charge of the work on Yaquina Bay. Mr. Polhemus was notified of his appointment on July 16, 1880, and on August 17 he established a tide gauge on the wharf and began the erection of beacons for the location of soundings at Newport, Oregon.

For ten years Mr. Polhemus was in charge of the work on Yaquina Bay and for over forty years he has been closely identified with much of the work done there and along the Oregon coast.



A summary of the work accomplished by Mr. Polhemus in making the survey is interesting and as follows:

"Established tide gauge and took readings every hour, day and night, for seventy-one days, and every fifteen minutes while work was in progress; used the schooner "Kate and Anna" for hydrographic work for five days, when the small steamer "Quickstep" arrived from Astoria in charge of Capt. Geo. W. Wood and outside soundings began; took 6,000 soundings and made 582 sextant locations; ascertained the character of the bottom with a strong pole shod with an iron point; surveyed one mile within the bay, the bar and out to sea to the outer reef; established 13 triangulation stations; shot Polaris three times to establish a 2535-foot base line, measured with a steel tape; plotted the tide records for September; made a map of the survey; explored the entire bay and ascended the river twenty miles to Elk City."

ALL work at Yaquina Bay has been conducted along the findings and recommendations made by Mr. Polhemus DURING THIS FIRST SURVEY.

#### EFFECT OF WINTER STORMS ON BAR IS STUDIED

Early in January in the year 1881, Mr. Polhemus returned to Yaquina Bay for the purpose of making observations of the surf action in winter gales, to determine the effect of the storm season on the bar and to explore the surrounding country, scouting for available materials for construction work.

On February 14, 1881, Mr. Polhemus received instructions to begin work along the lines he had suggested, to sink at least four cribs on the south beach, from the six-foot curve seaward and to work from the cribs shoreward with brush mattresses and stone to the low water mark.

On receiving authority to begin work, Mr. Polhemus advertised with posters at New-

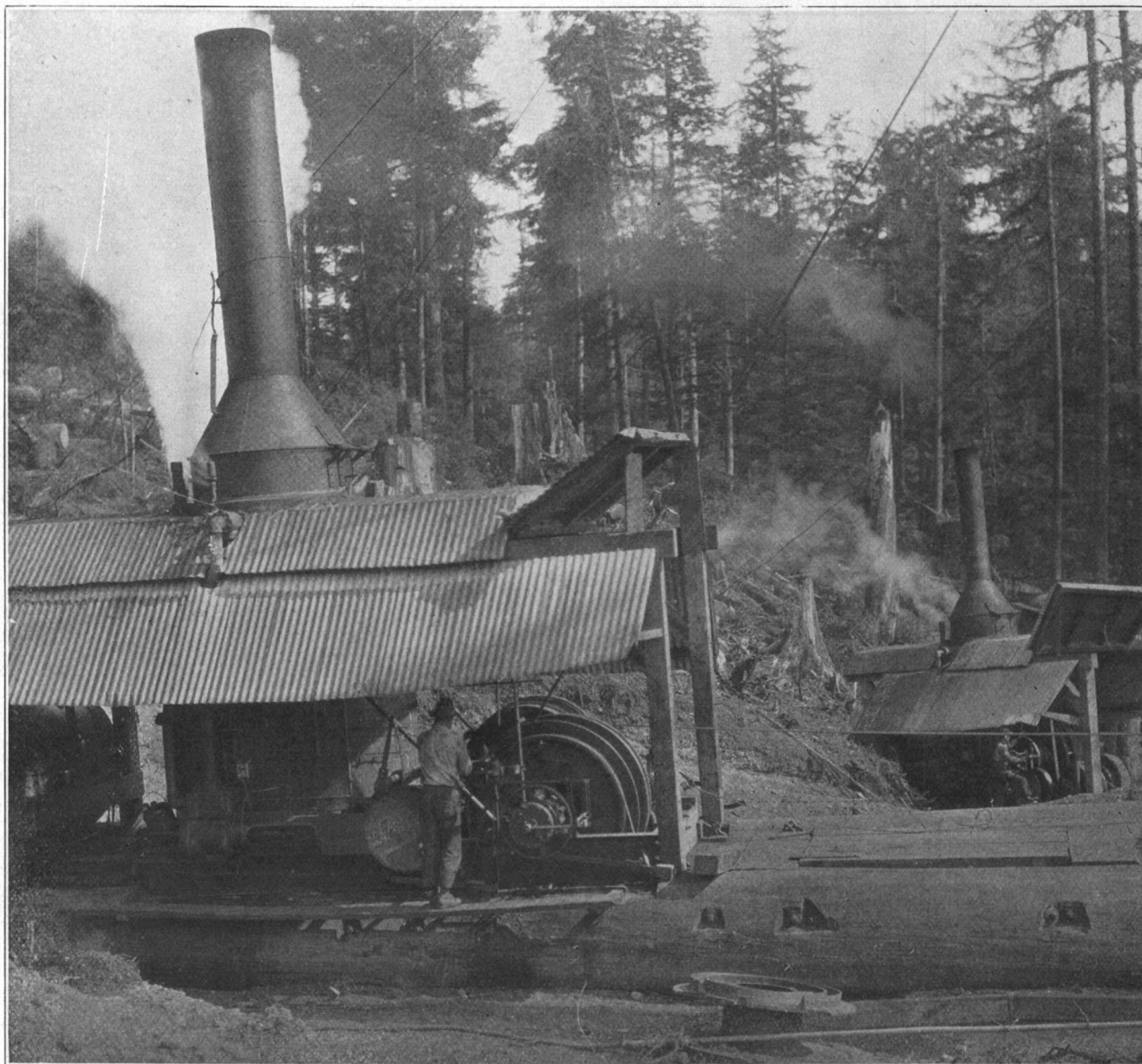
the \$40,000 appropriation.

In his report at the end of the fiscal year, June 30, 1881, Mr. Polhemus recited some of the difficulties which he had encountered. Instead of three channels across the bar, which he had charted the previous year, he now found only one, about ten feet deep, which created shoal water immediately to the south of the proposed south jetty and rendered working in the swells, just outside the breakers, necessary.

In sinking the first crib the scow had been thrown against it and a hole was stove in its side, and at Mr. Polhemus' suggestion, the crib plan was abandoned and construction work on a stone jetty resting on brush mattresses was begun, as originally recommended by Mr. Polhemus.

On July 1, 1881, Mr. Polhemus had at his command the remainder of the \$40,000 appropriation and \$10,000 additional which the government had made available on March 3 of that year.

THE VIEW ON THE RIGHT SHOWS A WILLAMETTE 12x14 COMPOUND YARDER AND 11x13 LOADER AT WORK ON SPUR 1, CAMP 1, OF THE MANARY LOGGING CO., SUBSIDIARY TO THE PACIFIC SPRUCE CORPORATION. CLOSE VIEW OF "DONKEY" ONLY



On December 11, 1880, Maj. Gillespie filed his report on the improvement of Yaquina Bay with the chief of engineers, Brig.-Gen. H. C. Wright, in which was visualized the future, for the construction of both a south and a north jetty was recommended; 2,000 feet of stone jetty on a brush mattress foundation extending from the south beach, and 1,000 feet of rock jetty north of the entrance, the total cost of these two improvements being estimated at \$465,000. The survey showed the water on the bar divided into three channels and, with a view of ascertaining which channel would be most affected by the improvement, the construction of 500 feet of cribs, filled with rock, was suggested. From the day of this first report until the present

port for brush mattresses, stone and timber. He opened the bids and found them all too high. He decided to cut the brush and get out the rock by parties of day laborers.

Early in June, 1881, four scows were towed from Coos Bay, Oregon, by the steamer "Escort," together with a large supply of manila rope and other equipment. A rough wharf was built at a cost of \$150. Six quarrymen were kept steadily at work; and by the end of June, 1881, four scow-loads of rock, of about 200 yards each, had been delivered at the operation and 500 yards more had been broken out on the bank ready to load.

The first crib was built and sunk in the face of great difficulties, just one year and two days after Congress had made available

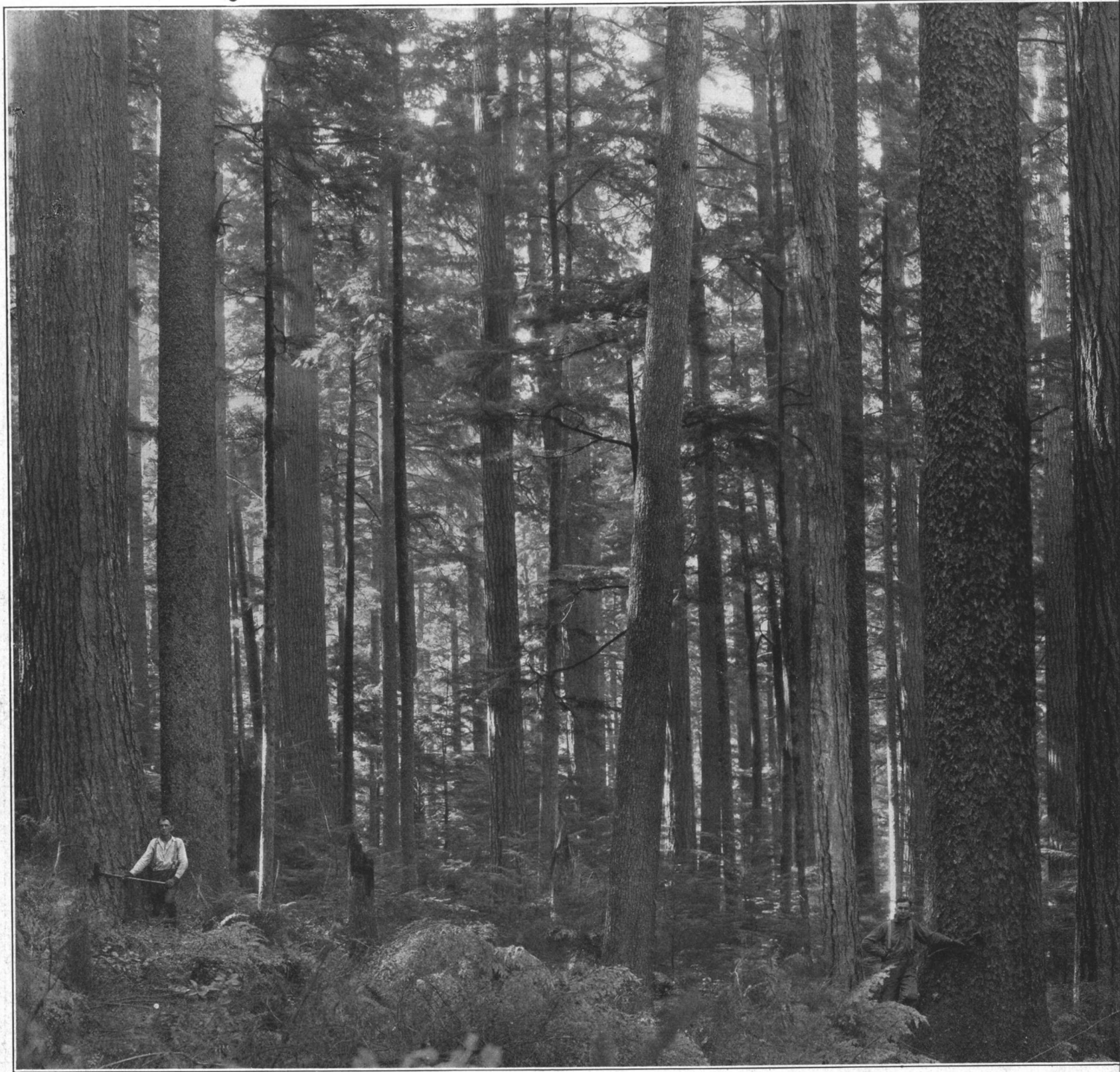
At the end of the fiscal year, June 30, 1882, there remained on hand a balance of only \$7.24, with outstanding obligations not—at that time—considered.

#### WILLAMETTE VALLEY FARMERS CONTRIBUTE MONEY TO PROJECT

The people of the Willamette valley had contributed \$1,439.50 in cash during the fall of 1881, thus showing the faith they had in the project and the need they felt of the development of a harbor into which vessels might come to receive their grain shipments over the Oregon Pacific Railroad, then building eastward toward the Willamette valley from the bay.

The government, on August 2, 1882, ap-





THE ABOVE PANORAMIC VIEW OF SITKA SPRUCE, OLD-GROWTH YELLOW DOUGLAS FIR AND WESTERN HEMLOCK TIMBER IS  
 ARY LOGGING CO., A SUBSIDIARY OF THE PACIFIC SPRUCE CORPORATION, THREE MILES SOUTHEAST OF THE HEADQUA  
 WESTERN HEMLOCK, 12 TO 24 INCHES IN DIAMET

propriated \$60,000 and it was estimated it would cost \$355,000 more to complete the South Jetty, in order to secure 12 feet of water on the bar.

The jetty work at Yaquina Bay attracted wide attention for the reason that it was the only work of that kind being done on the Pacific coast from an exposed point directly into the sea.

From July 1, 1882, to June 30, 1883, the sum of \$40,983.13 was expended, almost half of that amount being for new equipment with which to facilitate future operation. The South Jetty was further extended. On July 5, 1884, the government appropriated \$50,000 for the work, which was then continued. A marked improvement in the channel had been noted, even with the small amount of work done—for the steamer "D. S. Williams" crossed the Yaquina bar that year—1883—drawing 13 feet of water.

The year 1884 was a great year on Yaquina Bay. The railroad was completed into the Willamette valley and 100 tons of wheat and one cargo of wool had found their way to the port for shipment. Of merchandise, 27 cargoes had been brought in; of railroad iron and supplies, 12 cargoes. The Yaquina bay that year exported five cargoes of lumber, 210,350 feet, and 86,500 shingles. Six vessels had arrived in general trade and eight vessels had brought in other material. Five vessels, each drawing more than twelve feet of water, had crossed the bar in safety, including the steamship "D. S. Williams," drawing fifteen feet.

In May, 1884, a great celebration was held at Newport to greet the steamer "Yaquina City," a steel vessel 220 feet long, of 1200 tons, drawing 12 feet of water. She was owned by the Oregon Pacific Railroad Co., and had been brought around the Horn

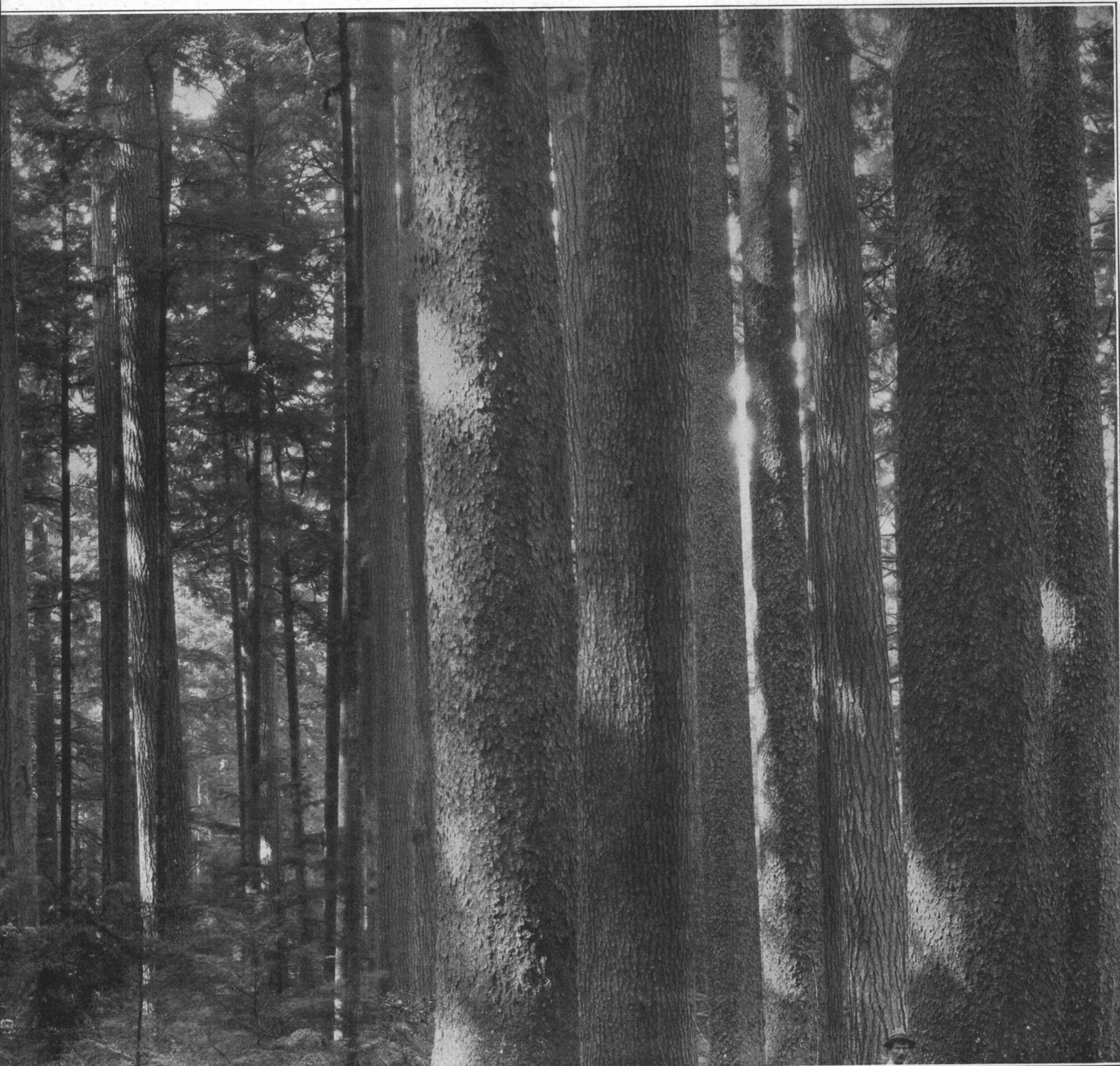
and placed on the San Francisco - Yaquina Bay - Portland run. She had formerly been in the Galveston - New York trade. She was fitted to carry fifty passengers and took her place among the leading liners on the Pacific coast. Of her we will hear more later.

## TRANSCONTINENTAL RAILROAD STILL THE GREAT HOPE

The slogan of Col. Hogg was "On to Boise;" and the railroad was finished to the west side of the Cascades as far as Hogg Pass. People who had pinned their faith to the port believed they saw the dawning light of its day of commercial prestige. A trans-continental line was talked about and new money came to the aid of the enterprise. Col. Hogg established seven saw mills along the railroad.

Yaquina Bay tossed its united hat in the air and shouted for Congress to give it





A PHOTOGRAPH TAKEN ON THE N. E.  $\frac{1}{4}$ , N. W.  $\frac{1}{4}$ , SEC. 19, T. 14 S., R. 11 W., ALONG SPUR 4 OF THE LOGGING RAILROAD OF THE MAN-  
S CAMP 1. VIEW INCLUDES ABOUT SIXTY TREES RANGING: SITKA SPRUCE 3 TO 5 FEET, DOUGLAS FIR 2 TO 5 FEET, AND  
THE STAND AVERAGES 150,000 FEET TO THE ACRE

\$160,000. This was in July, 1885, four years after Mr. Polhemus had begun work on his brush mattresses and stone ballast for upper works.

Congress remained silent to the plea of the bay that year and only \$2,587.49 was expended. On August 5, 1886, however, \$75,000 was appropriated and the work was begun anew. The port and its feeder, the railroad built into the valley, had begun to show results. From July 1, 1885, to December 31, of the same year 5,130 tons of wheat found its way to market over the Yaquina bar.

It was not until August 11, 1888, that Congress made another appropriation—this time for \$150,000. In 1888 it was decided to raise the South Jetty to full high water without extending it to seaward and to construct a mid-tide jetty on the north side of the entrance of Yaquina Bay.

But we may not hurry too rapidly through the years of 1887 and 1888 without chronicling two incidents which had a great influence on the port and its commercial development. These incidents were two wrecks, around which floats a veil of mystery and about which strange stories are still told.

#### TWO VESSELS WRECKED—TURNING POINT OF PLAN REACHED

For several years the steamer "Yaquina City" had entered the port to carry out her capacity cargo of grain. On December 5, 1887, at 3:15 in the afternoon, after she had crossed out, her steering gear broke and she drifted onto the south beach, where the passengers were taken safely ashore. A six-line item in the "Morning Oregonian," of Portland, announced the disaster and said the vessel was resting easily and would likely be pulled off the following day. But a heavy

gale arose and on December 11 the "Yaquina City" broke in two and was a total loss.

The investigation of the loss of the "Yaquina City" was held early in 1888, when it was found that "witnesses had disappeared," and the board determined that the "causes were accidental" and held "the master blameless."

The "Yaquina City" was replaced by the steamer "Yaquina Bay," a vessel of similar size. She made her first trip into Yaquina Bay in December, 1888, arriving there on the eighth. When she was well over the bar, the vessel grounded upon the sands against the South Jetty. The water about her was perfectly calm and the passengers walked ashore on a gang plank from the vessel to the jetty. On December 22 all hope of saving her was abandoned. An investigation of the wreck of the "Yaquina Bay" was held in October, 1889, and the license of William Kelly, Jr., her master, was revoked on





THE ABOVE VIEW REPRESENTS A SPAR TREE AT SIDE 3, CAMP 1, LOOKING DOWN RAILROAD OF MANARY LOGGING CO., THE VIEW SHOWING THE BOOM LOADER SWUNG ACROSS TRACK; LOCOMOTIVE NEAR IT

charges of gross carelessness.

The contention has never been made that the bar of Yaquina Bay was not susceptible to maximum development. The loss of the two steamers, as narrated above, was never

attributed to the inadequacy of the channel.

The first official reference in the records of the War Department to these occurrences is contained in a report of the special board of engineers at Portland, made in 1899, in



SIDE VIEW OF A BIG SITKA SPRUCE LOG CONTAINING 10,000 FEET, AFTER BEING DROPPED BY THE "MALLORY" BOOM ON BUNKS AT MANARY LOGGING CO. CAMP 1 OPERATIONS, BOOM STILL OVER CAR AND CREW READY TO RELEASE THE CHOKER LINES

which the following statements are made:

"The Oregon Pacific Railroad owned, in 1887, a steamer called the "Yaquina City," of about 1200 net tons capacity, drawing between thirteen and fourteen feet net, which, it is reported, had even then no difficulty in crossing the bar with a full load. However, in crossing the bar outward bound in December, 1887, she broke one of her rudder chains and then drifted helplessly to the South Beach, about half mile south of the jetty, where she was a total wreck and may



"FALLERS" AT WORK ON FOUR-FOOT DIAMETER SITKA SPRUCE WITH THE "UNDERCUT" FINISHED

YET be seen, by any one in interest.

"In 1888 the railroad company built or bought a second steamer, the 'Yaquina Bay,' of about 1200 net tons capacity, drawing 15 feet. At the time of her first entrance into the bay she was grounded some distance out into the channel on the shoal near the south end of the jetty, by some mistake of the pilot and after some days went to pieces and was completely wrecked."

Then follows this significant and all important statement: "NEITHER OF THESE WRECKS CAN BE ATTRIBUTED TO ANY FAULT OF THE HARBOR ENTRANCE OR TO INSUFFICIENT DEPTH OVER THE BAR, BUT RATHER TO CARELESSNESS AND OTHER CAUSES."



IN THIS VIEW THE "FALLERS" ARE SHOWN ON SAME TREE AS ABOVE FOLLOWING THE "UNDERCUT"

Whatever the causes which contributed to the loss of the two steamships, these two wrecks were vital blows to the plan which had been carried so far successfully. Men with money grew faint-hearted and cash no longer came at the call of the spectacular Col. Hogg. The stupendous size of the undertaking demanded new capital, without which it languished; and within a short time the creditors grew restive, the company's affairs became involved in litigation and in



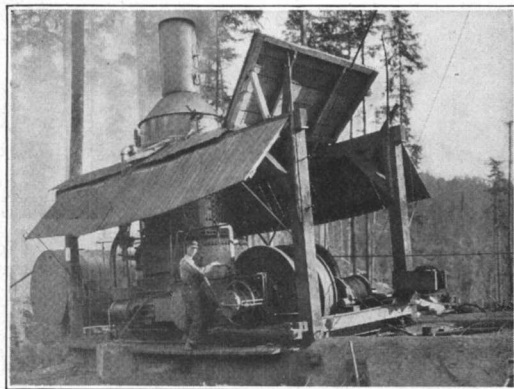


**"WILLAMETTE" 12x14 YARDER AND 12x13 LOADER, SIDE 3, SPUR 4, MANARY LOGGING CO.**

1892 a receiver was appointed for the Oregon Pacific Railroad and all its subsidiary companies.

In 1894, A. B. Hammond, of San Francisco, purchased the properties for \$100,000, which had cost up to that time about \$13,000,000. Labor claims against the company were settled for nine cents on the dollar; other creditors received nothing. Mr. Hammond, in the purchase of the property, had agreed to operate the road, which he did until 1907, when E. H. Harriman purchased it for the Southern Pacific interests.

Economic influences also had entered to turn the port of Yaquina from its ascendancy to the decline which followed the failure.



**"WILLAMETTE" 13x14 HIGH-SPEED YARDER ON SIDE 2, SPUR 4, CAMP 1, MANARY LOGGING CO.**

The Willamette valley had ceased to grow wheat exclusively and had turned its attention to diversified farming. The Southern Pacific had completed its line into California and crops moved by rail. The dream of a great port at Yaquina Bay faded—for the time being—except in the hearts and the minds of those who had loved it and worked for it and had been a part of it in those days when its destiny, as such, seemed assured.

It is interesting at this point to review briefly the work which had been accomplished. In 1880 Mr. Polhemus had found seven or eight feet of water on the bar, admitting only small vessels.

In 1888 vessels drawing thirteen to fifteen



**"WILLAMETTE" 11x13 LOADER ON DIFFICULT TASK AT SPUR 4, CAMP 1, OF THE MANARY LOGGING CO.**

feet were crossing the bar in safety. This condition had been secured in six years, during which time Congress had made appropriations aggregating only \$235,000, as cited above.

Probably no harbor development under the jurisdiction of the War Department had shown as good results for the expenditure of so little money as did Yaquina Bay at the close of the fiscal year, June 30, 1888.

#### THE FIRST "ZENITH" OF THE HARBOR'S IMPORTANCE

In August, 1888, an appropriation of \$150,000 was made and the following year nearly \$100,000 of this was expended in furthering the project. On June 18, 1890, Mr. Polhemus submitted his last report on Yaquina Bay as assistant engineer in charge—a position which he had filled so capably for eleven years—and he was succeeded by Gwynn A. Lyell, who had charge of the expenditure of an additional appropriation of \$165,000, made on September 19, 1890.

In his first report Mr. Lyell presents a

of the bar. From June 4, 1880, to the end of 1894, the following appropriations for the improvement of Yaquina Bay were made:

June 14, 1880 .....	\$ 40,000
March 3, 1881 .....	10,000
August 2, 1882 .....	60,000
July 5, 1884 .....	50,000
August 1, 1886 .....	75,000
August 11, 1888 .....	150,000
September 19, 1890 .....	165,000
July 13, 1892 .....	85,000
August 17, 1894 .....	50,000

Total .....\$685,000

There remained of the above money, in July, 1895, a balance available of \$12,852.27.

#### A NEW PLAN ADOPTED BY THE CONGRESS FOR FUTURE WORK

Under the authority of the Sundry Civil act, approved March 2, 1895, a board of engineers, consisting of Lieut. Col. Amos Stickney, Maj. James C. Post and Maj. C. B. Sears, met at Yaquina Bay on May 11 of that year



**THE ABOVE VIEW SHOWS SHAY ENGINE NO. 3 PULLING OUT TWO CARS OF LOGS—A VERY GOOD VIEW OF THAT POWERFUL EQUIPMENT OPERATED AT CAMP 1 OF THE MANARY LOGGING CO.**

tabulation of incoming and outgoing boats, together with the tonnage carried, which shows that the port reached its first zenith that year, from which time its first and last decline began.

In 1888, 144 ships arrived and departed from Yaquina Bay, where seven years before only eight had crossed the bar. Shipments of grain from the Willamette valley had reached their high peak in 1900. THAT year the gross tonnage crossing the bar was 40,074 tons.

In August, 1891, the north jetty was extended 840 feet. On July 13, 1892, Congress appropriated \$85,000 with which to continue work. A survey made in September and October, 1892, showed a minimum depth of fourteen feet of water on the bar.

For two years Congress made no appropriation for Yaquina Bay; but on August 17, 1894, \$50,000 was made available. During that year the steamer "Homer," drawing 17 feet of water, crossed the bar sixteen times, in and out and the steamer "Farralon," drawing 18½ feet, made fifty-two crossings

under instructions to consider further improvement of the bay. A copy of its report was transmitted to the House of Representatives through the War Department, December 9, 1895; and on June 3, 1896, Congress appropriated \$25,000 for continuing the improvement and provided that contracts might be entered into for the completion of the work recommended by the board, which work was specified as follows:

Main jetty, 4100 feet long.....	\$ 738,000
Seven groins, 100 feet long.....	70,000
Inside spur, 800 feet long.....	60,000
Removal of detached rocks.....	24,000
Contingencies, 15 percent.....	133,000

Total .....\$1,025,000

The Sundry Civil act, above referred to, provided that the total liabilities incurred in the improvement of Yaquina Bay should not exceed \$1,000,000, "exclusive of the amount herein and heretofore appropriated."

On July 1, 1897, an unexpended balance of all the money appropriated, \$24,986.04, re-



mained on hand and it was estimated that \$500,000 could profitably be expended in the succeeding two fiscal years, ending June 30,



**A GREAT GROUP OF SITKA SPRUCE**  
The Above View of Sitka Spruce Trees Shows a not Unusual Group which Rise Straight and Parallel to 100 Feet Without a limb. These trees are situated on the N. E.  $\frac{1}{4}$ , N. W.  $\frac{1}{4}$ , Sec. 19, T. 14 S., R. 11 W., near Spur 4, Camp 1, Lincoln County, Oregon.

1899. Congress took no action in this matter; but on March 3, 1899, \$5,000 was appropriated for an examination of Yaquina Bay by a board of three engineers, which consisted of Col. Samuel M. Mansfield, Capt. Harry Taylor and Capt. William W. Harts. On April 20, 1899, the board visited Yaquina Bay and on April 22 held a public meeting at Newport, Oreg., following which it returned to Portland, where another meeting was held, when it was deemed essential that a new survey of Yaquina Bay should be made in order that the necessary data be obtained to prepare the report called for by the Act of March 3, 1899. This survey was authorized May 17, 1899. It was begun in June of that year and completed and a report filed November 14, 1899.

In this report, the board tabulated the commerce of Yaquina Bay for eighteen years, from 1882 to 1899, inclusive, to which we have added three years, inclusive of 1902:

The Recorded Year	Tons of Commerce	Depth at Mean High Water
1882	1,830 tons	14-17
1883	1,359 "	17
1884	4,995 "	19
1885	9,951 "	18
1886	6,249 "	20
1887	24,694 "	18
1888	23,431 "	21
1889	32,921 "	18-19
1890	40,074 "	18-19
1891	27,540 "	18
1892	27,111 "	17-22
1893	24,767 "	21
1894	23,345 "	19-21
1895	24,589 "	19-21
1896	17,883 "	22
1897	15,364 "	....
1898	10,380 "	22
1899	5,990 "	19
1900	691 "	18
1901	576 "	17-19
1902	1,152 "	18-19

The board also reported on the destruction of the steamers "Yaquina City" in 1887 and the "Yaquina Bay" in 1888, previously referred to, in which neither of the wrecks was attributed to any fault of the harbor entrance. The board further stated that when the project was formulated it was expected that the work would obtain a depth of 17 feet at high water, but the results found were somewhat in excess of that depth.

The board concluded, however, "THAT THE COMMERCE OF YAQUINA BAY DOES NOT RENDER IT ADVISABLE TO PROSECUTE THE WORK AS AUTHORIZED BY THE RIVER AND HARBOR ACT OF 1896 \* \* \* AND THAT THIS HARBOR IS UNWORTHY OF FURTHER IMPROVEMENT AT THE PRESENT TIME \* \* \*"

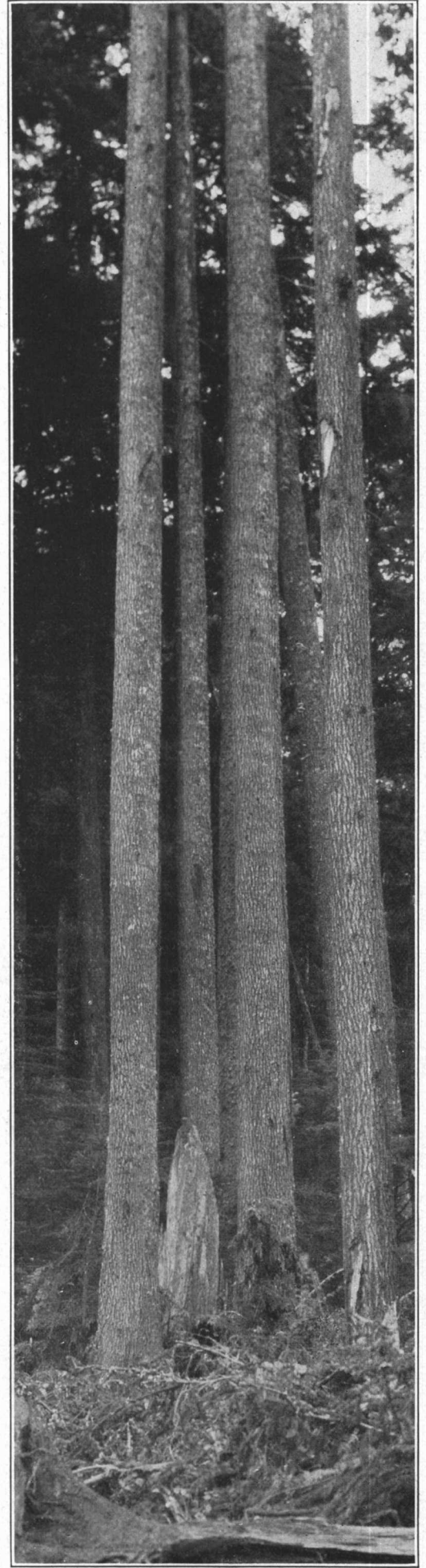
The \$20,000 which was available was to be expended, the report directed, in blasting out the points of several rocks at the entrance of the harbor, which was done in 1902.

Following the blasting out of the rocks, ten years of inactivity followed, which were in striking contrast to the activity of the preceding decade. A larger mill than had theretofore been on the bay was erected at Toledo and some of its output found its way to the California market in coasting schooners but no regular line of steamers made Yaquina Bay a port of call. Because of these irregular shipments, commerce became erratic, reaching as high as 8,000 to 10,000 tons in some years and dwindling to practically nothing in others.

#### TWO PORT DISTRICTS ARE ORGANIZED FOR SELF HELP

On March 4, 1915, Congress authorized a preliminary examination of the entire project and Yaquina Bay AGAIN began to receive attention from the War Department. But in the hearts of the people who lived around Yaquina Bay an ever-present longing and determination urged some action by which they hoped their dream might be realized; and, taking advantage of the Oregon state law, which allowed the formation of port districts in which taxes might be levied and bonds issued against the property within the district to be used for port improvements,

shortly after its passage in 1909, Yaquina Bay organized itself into two port districts, the Port of Toledo and the Port of Newport.



**MEDIUM-SIZED WESTERN HEMLOCK**  
The above Photograph—Unusual in that it Shows Remarkable Heights for a Near-By Picture—Shows a Small Group of Western Hemlock, 60 Feet to the First Limb, with 30-inch Douglas Fir on the Right. Situated on N. W.  $\frac{1}{4}$ , N. W.  $\frac{1}{4}$ , Sec. 19, T. 14 S., R. 11 W., near Spur 4.





**SHOWING TYPICAL SITKA SPRUCE TREES AND A FEW WESTERN HEMLOCKS—LINCOLN COUNTY, OREGON**  
 The above View of Timber taken near Spur 4, Camp 1, of the Manary Logging Co., Subsidiary to the Pacific Spruce Corporation, Shows a fine Group of Typical Sitka Spruce Trees interspersed with a few Western Hemlock Trees—The Sitka Spruce Trees shown in the Group, which are 4 to 5 feet in Diameter, will yield 50,000 feet of lumber as they are clear, sound and 80 feet to Limbs.



The purpose of the former was for the improvement of the river below Toledo and of the latter for the lower bay. They pledged unity of action in work on improving the harbor entrance; but the money expended would have been better placed if it all had been devoted to the Yaquina River—following the Coos Bay policy.

On February 27, 1917, Col. Frederick V. Abbot, of the Corps of Engineers, submitted a report of the preliminary examination made by Arthur Williams, which concluded with the recommendation: "THAT THE LOCALITY WAS WORTHY OF AT LEAST MAKING A HYDROGRAPHIC AND BORING SURVEY TO DETERMINE DEFINITELY THE CONDITION OF THE BAR."

This report was endorsed by Col. Abbot, and on July 27, 1916, the survey was ordered. The result of this survey revealed that an expenditure of \$836,000 would be sufficient to secure a depth on the bar of 20 feet at mean low water. These figures were amended in 1920 to meet increased labor costs.

This project was adopted in 1919 and

June 30, 1920, the port commissions had expended jointly \$594,165, for which credit was given by the United States and they then gave the government \$165,000 additional, in cash, to make up their one-half of the amended cost of the project, \$1,518,430.

#### Work Taken Over By Government

The work was taken over by the government February 1, 1921, to complete the project, when \$145,000 more was made available. The south jetty work was finished September 7, 1921, a total length of 5,948 feet, at a total cost of \$678,042.86, of which amount the government had contributed \$91,077.86 and private interests \$586,995. The 800-foot spur to the south jetty was built at a cost of \$33,504.92, all government funds. During the same year work on the north jetty was continued, on which \$139,824.44 had been expended, \$107,396.37 being government funds and \$32,428.07 contributed.

The condition at the end of the fiscal year, June 30, 1921, shows the following facts relative to the project under consideration:

net amount of \$373,305.27, with Congress still in arrears \$214,225, its share of the balance of the 50-50 agreement.

In April, 1923, a further allotment of \$319,000 was made, leaving \$75,225 still to be appropriated by the government, an amount which has been included in the Rivers and Harbors bill before the present Congress in 1924.

#### A NEW ERA DAWNING FOR YAQUINA BAY

But a new era has dawned for Yaquina Bay. No longer does she lie in the doldrums, but her sails are filled with the trade winds of prosperity and she is AGAIN being borne onward irresistibly toward that goal which the finger of destiny pointed out to her so many years ago.

Great changes have been effected in ocean transportation since Congress, in 1880, appropriated \$40,000 for the initial improvement of the harbor. No longer do the 300- to 500-ton sailing vessels suffice as lumber carriers on the Pacific coast. The industry



SHAY LOCOMOTIVE NO. 3 AND FOUR CARS OF LONG "SITKA SPRUCE" LOGS ON A TRESTLE OF THE MANARY LOGGING CO., JUST BELOW OPERATIONS AT SIDES 2 AND 3, CAMP 1. THIS ILLUSTRATES SOME OF THE ENGINEERING PROBLEMS OF LINCOLN COUNTY LOGGERS AND SHOWS 50,000 FEET OF LOGS

\$100,000 was then appropriated. It called for two high-tide rubblestone jetties at the entrance, 1,000 feet apart; the north jetty to be 3,700 feet long, the south one 5,800 feet, with an 800-foot spur, 2,500 feet from its then sea end and for the removal of the rocks from the outer reef, to secure 20 feet of water at mean low tide.

The project also called for a channel in the bay 200 feet wide and 18 feet deep from the terminus of the railroad at Yaquina City to the bar, a distance of  $4\frac{1}{2}$  miles. The cost of this project, revised in 1920, to meet increased costs, was \$1,518,430.

By a permit of the Secretary of War, under date of August 11, 1917, the two port commissions entered into a contract to the extent of \$405,351.50, to construct the south jetty according to the above project. Bonds were issued from time to time and the work begun. At the end of the fiscal year,

Estimated cost, 1920, for completion of project .....	\$1,518,430
Donated by private interests to government .....	\$759,215
Appropriated by the government .....	245,000
Balance yet to be appropriated by United States .....	514,225
	<hr/> \$1,518,430

At this time, June 30, 1921, there remained a total unexpended balance in both funds of \$344,524.10, and on June 30, 1922, Congress allotted \$300,000 with which to continue the work, making a total of \$644,524.10. Up to June 30, 1922, \$203,072.43 was expended, leaving a balance of \$441,451.67 available, less \$68,146.40 in outstanding liabilities and uncompleted contracts, a

today demands 3,000 to 10,000-ton vessels, huge steam freighters, carrying 1,500,000 to 4,000,000 feet and drawing seventeen to twenty-four feet of water.

The work which was begun by J. S. Polhemus that day back in August, 1880, when he erected that crude tide gauge on the old dock at Newport, had been done well and its results are of permanent quality, for the Pacific Spruce Corporation's steamer "Robert Johnson" loaded to capacity, passes in and out of Yaquina bay drawing seventeen to eighteen feet of water.

Other vessels, of LARGER size, are ready to enter and MUST enter Yaquina Bay, if the products of that timbered section are to be marketed economically—vessels flying the flags of foreign nations and carrying DOUBLE the cargo of the "Robert Johnson." Before these vessels may enter the port, a greater depth of water must be secured at



the harbor entrance; and before such ships can enter the harbor, Yaquina Bay will not enjoy the benefits to be derived from the development of her great timber resources.

The present needs of the harbor should be met and those of its future provided for in the adoption of a project by the government which will insure its MAXIMUM IMPROVEMENT.

Before such project can be adopted, or even determined, a survey will be necessary to ascertain the potential possibilities of the port's tonnage during the years to come, now that this tonnage is assured; what obstacles must be overcome to secure this maximum development and what methods shall be pursued.

Already the port of Toledo and the port of Newport have memorialized Congress asking that such survey be made and already members of Congress, who have familiarized themselves with its possibilities of development, its present and future needs, have pledged their support.

Statistics compiled for 1922 and 1923 show that the tonnage over the bar rose to a greater volume in THOSE two years than the port enjoyed during the zenith of its TRANSIENT glory, thirty-four years ago.

The dawning of this new day of commercial activity finds Yaquina Bay standing expectantly on the western rim of the continent, where she was crudely fashioned by the irresistible forces of nature, waiting for the help that has fashioned OTHER harbors of LESS possibilities, into ports of importance—which help can ALONE aid her in attaining that eminence for which her natural advantages have fitted her and which her potential tonnage demands shall BE here, by right of service to mankind. Let Yaquina Harbor be MAN-made!

#### IMPROVEMENT OF THE YAQUINA RIVER

With the development of the operations of the Pacific Spruce Corporation at Toledo, came a use of the Yaquina River from Toledo to its mouth which has placed that river among those of first importance of the small rivers of the Pacific coast; and, now, as one of these, there should be no hesitancy in adopting a project which will make it adequate to the demands the newly developed industry places upon it.

Since 1897 there have been five preliminary examinations made by the Board of Engineers of the Yaquina River, with a view of securing better navigation conditions; but, with the exception of one of these reports, they have received unfavorable recommendations each time because the engineers could not justify the expenditure of the money necessary, with the available tonnage.

The first examination made of Yaquina River, which also embraced Big Elk River, its main branch, was made by Capt. W. L. Fisk, of the Corps of Engineers, in 1897. The report on this examination was unfavorable.

Five years later, in 1902, Capt. W. C. Langfitt made another examination for the Corps of Engineers, but also submitted an unfavorable report.

This was followed by another examination, made in 1909, by Maj. J. F. McIndoe, but with an unfavorable report. In all these reports the reason given was that the potential or available tonnage did not justify the expenditure of the money.

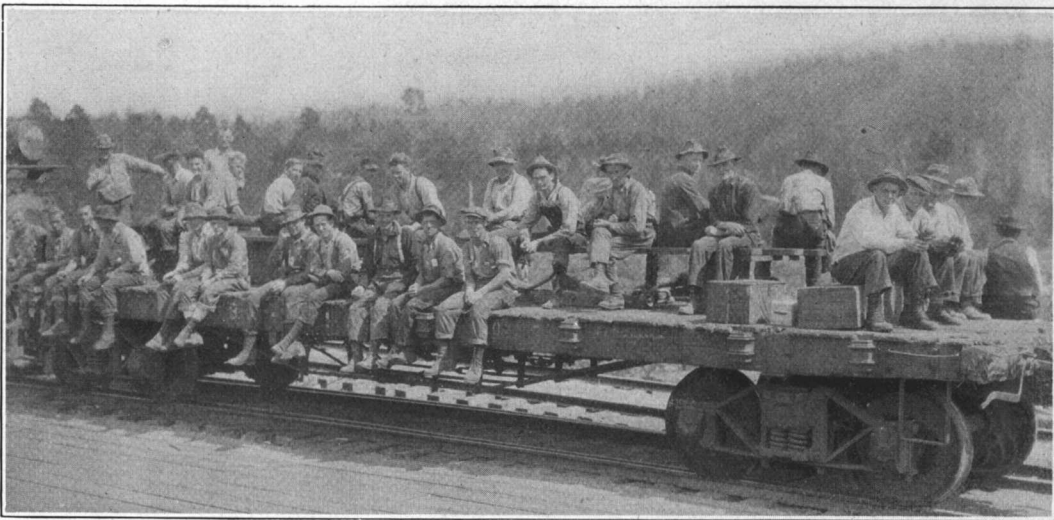
In that same year, however, 1909, the state law was passed which permitted the organization of port districts, which had the power to levy taxes and issue bonds against the district for the improvement of ports within the district.

In May, 1910, the port of Toledo was organized and the first meeting of the commissioners held.

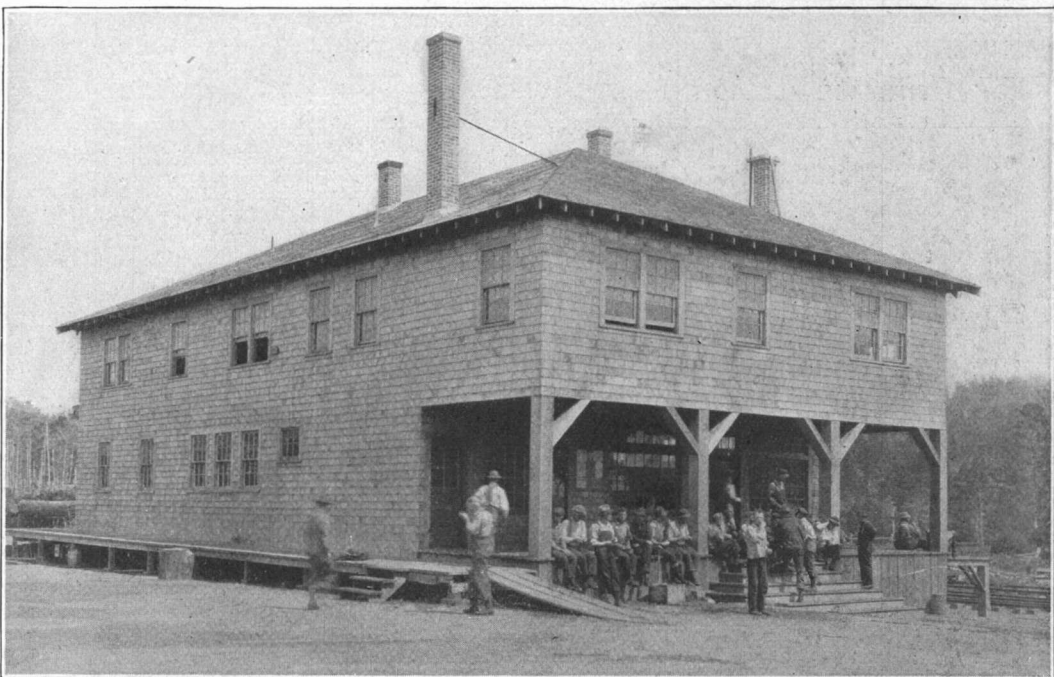
At the very first meeting the question of improving the river from Toledo to Oysterville, the western line of the port district, was discussed, for this had been the impulse which led to the organization of the port district and it now became the goal which the district strived to attain.

#### Port of Toledo Starts Work

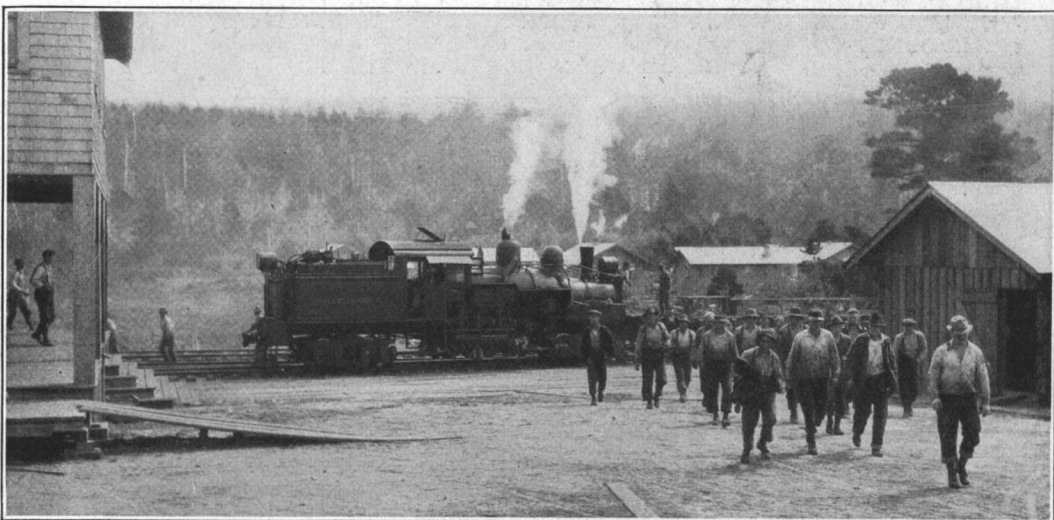
Three examinations had been made by the engineers of the War Department and three



THIS VIEW SHOWS THE CREW OF SIDES 2 AND 3 AT CAMP 1, MANARY LOGGING COMPANY AND THE STYLE IN WHICH THEY RIDE TO AND FROM THE WOODS MORNING AND EVENING



THIS PICTURE SHOWS THE OFFICE HOME OF THE MANARY LOGGING COMPANY AT CAMP 1 CONTAINING OFFICE, POST OFFICE AND STORE; ALSO SLEEPING ROOMS FOR SPECIAL EMPLOYEES AND VISITORS



THE ABOVE PICTURE IS A VIEW AT HEADQUARTERS CAMP 1 OF THE MANARY LOGGING COMPANY, SHOWING THE MEN AS THEY ARRIVE AT THE CAMP BY TRAIN AS PER TOP VIEW

unfavorable reports had been turned in to the department, but the Toledo Port Commission KNEW what it desired and in 1910 issued bonds for \$50,000 and began work on deepening the channel between Toledo and Oysterville.

The condition of the river at this time was the same as nature had fashioned it. Its

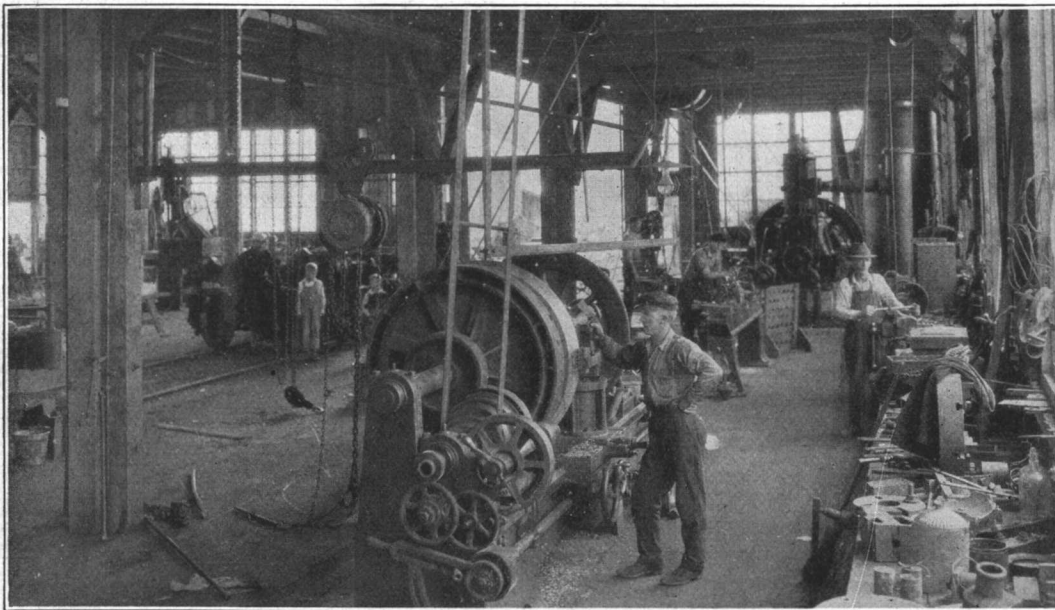
source was in the Coast Range and it flowed in a westerly direction for about fifty miles, emptying into Yaquina Bay, and draining about 270 square miles, with a low-water discharge of about 150 feet per second. The winter freshets raised the water about fifteen feet above low-water mark.

Where it emptied into Yaquina Bay it was

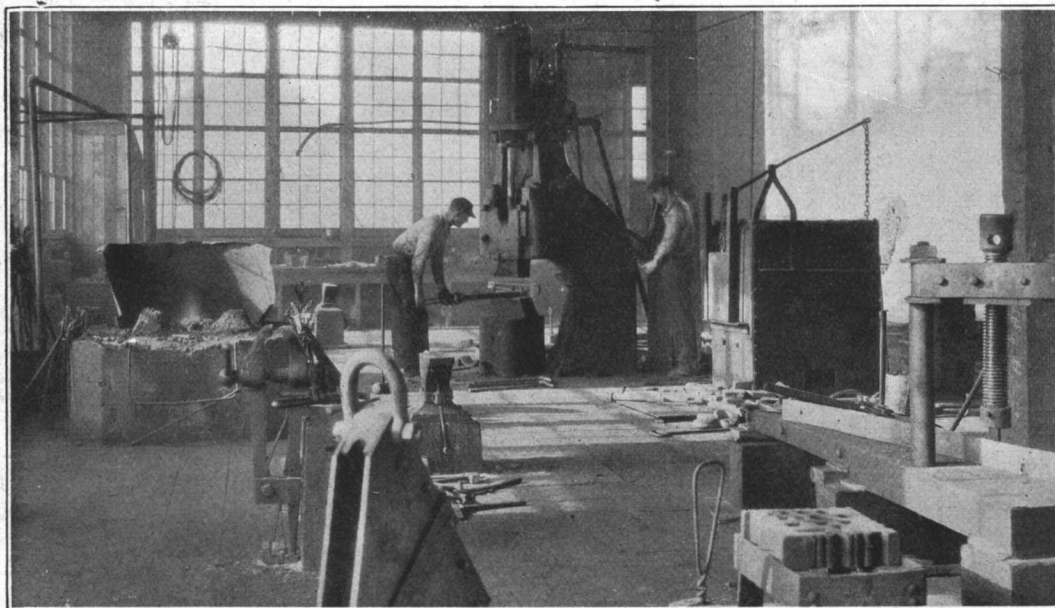




IN THE ABOVE VIEW THE OBSERVER SEES THE LOCOMOTIVE SHED, THE WATER-TANK AND THE MACHINE SHOP OF THE MANARY LOGGING CO.'S HEADQUARTERS CAMP 1, SITUATED IN THE SOUTHERN END OF LINCOLN COUNTY, OREGON. THIS VIEW ALSO INDICATES THE "SPUR TO THE Y" AT CAMP 1



THIS VIEW SHOWS THE INTERIOR OF THE MACHINE SHOP OF THE MANARY LOGGING CO. AT HEADQUARTERS CAMP 1, TAKEN FROM THE NORTHWEST CORNER—THE EQUIPMENT IS UNUSUALLY COMPLETE IN THIS MACHINE SHOP, ENABLING THE LOGGING COMPANY TO MAKE ALL KINDS OF REPAIRS AND ALSO TO RE-BUILD MANY OF ITS MACHINES



THE ABOVE VIEW REPRESENTS THE BLACKSMITH SHOP LOCATED IN A CORNER OF THE MACHINE SHOP OF THE MANARY LOGGING COMPANY AT HEADQUARTERS CAMP 1, SHOWING FORGE AND MANY OTHERS OF THE VERY SUPERIOR FACILITIES WHICH MAKE THIS SHOP QUITE COMPLETE

about 2,000 feet wide and at Elk City, about eighteen miles from its mouth, it was 150 feet wide. The tidal flow extended about four miles above Elk City, but the river was only two or three feet deep at low tide and admitted only the shallowest boats. Below Elk City and above Toledo the shoals were two or three feet deep and the narrowest parts of the river less than 100 feet wide.

Below Toledo to Oysterville, a distance of six and a half miles, the river varied in width from 800 to 1,200 feet, except at the first bend below Depot Slough at Toledo, where it was but 400 feet wide.

Between these two points, Toledo and Oysterville, there were five bars where the water was less than 6 feet deep, the rest of the river showing depths up to 20 feet. The following tabulation shows the location and depths of water of these bars at that time:

The Bars By Number	Distance Below Toledo Miles	Length of Bar Miles	Depth at Low Water Feet
First Bar .....	At 1/2	1/2	3
Second Bar .....	1 1/4	1/8	5
Third Bar .....	2	1/8	4
Fourth Bar .....	3 1/2	1/8	5
Fifth Bar .....	5 1/2	1/4	4

From Oysterville to Yaquina City, the terminus of the railroad and the head of ocean navigation at that time, a distance of 2 1/2 miles, a minimum depth of twelve feet of water prevailed. Yaquina City is situated one-half mile from the head of the bay, which is one mile wide and three miles long.

There was a sawmill at Toledo from which it was desired to load vessels in the coastwise lumber trade. Some shipments had been made in small vessels and need of improved conditions was acutely felt. It was these things that the Toledo Port Commission faced when it came into existence in 1910.

#### War Department Gives Permit

A permit was secured from the War Department and the work undertaken. The first action of the commission was to purchase 600 feet of water front at Toledo for a public dock and to buy a clamshell dredge of one and a half yards capacity.

With the balance of the money the commission then built training dikes along the Yaquina River at various points and operated the clamshell dredge on the shoals. In October, 1911, the money it had secured from the sale of the bonds was exhausted. Another examination was made by the War Department, which had been authorized by Congress in the Rivers and Harbors act of February 27, 1911. The work was done by James E. Kelley, with J. S. Polhemus, assistant engineer, in charge. This survey extended from Toledo to Oysterville.

This survey did not indicate that any difficulty would be encountered in securing a channel fifty feet wide and 200 feet wide on the turns, with a minimum depth at low tide of ten feet, at a cost of \$72,000. Of this amount the port of Toledo had already expended 60 percent, about \$44,000, and the government gave the port credit for this amount and appropriated \$28,000 to complete the project as outlined and begun.

This project was adopted by Congress March 4, 1913, on the condition that the Port of Toledo would allow its dredge to remain available for the government in the continuation of the work. The act also provided for an annual maintenance fund of \$3,000. The port of Toledo gave \$3,000 and the government gave \$13,900.31 for maintenance, making a total of \$88,900.31 expended on the improvement under the project. The following table shows the expenditure of the money:

	Port Funds	U. S. Funds	Total
New Work .....	\$43,200.00	\$28,800.00	\$72,000.00
Maintenance .....	3,000.00	13,931.31	16,931.31
Total .....	\$46,200.00	\$42,731.31	\$88,931.31

This project was completed December 31, 1914; and in April, 1919, the channel was restored to project dimensions. At this time the controlling depth of water from Toledo to the mouth of the river was ten feet in a normal channel 100 feet wide and 200 feet wide on the curves.

On March 2, 1919, Congress authorized an-



other preliminary examination and survey of Yaquina River from Toledo to Yaquina City, which was made in April of that year, 1919, and the report was submitted July 21, 1919, by Col. Geo. A. Zinn, of the Corps of Engineers, who recommended that a survey be made.

Later in the year Lieut.-Col. C. Keller, of the Corps of Engineers, also endorsed the findings of the preliminary examination and recommended a survey. In this endorsement it was requested that information be secured as to why the mills and other industries were being established at Toledo rather than on deep water at or below Yaquina City and asked that separate estimates be made for dredging in the main river and in Depot Slough. The cost of lighterage was also requested and the feasibility of the use of motor trucks to carry the lumber from the mills to deep water was to be given consideration in the survey.

This survey was made in March and April, 1920, and transmitted to the Chief of Engineers of the United States Army by Col. J. B. Cavanaugh, of the Corps of Engineers, on November 5, 1920, with an unfavorable recommendation.

On November 21, 1921, Secretary of War John W. Weeks transmitted the various letters and documents to the House of Representatives, but Congress did not include the project in the Rivers and Harbors bill.

#### What the Local Interests Desired

The local interests desired, at the time the survey was requested, a sixteen-foot channel, at low water, from Toledo to Yaquina City, 200 feet wide and 250 feet wide on the curves. The estimates of the engineers placed the cost of this improvement at \$542,000 and reported adversely on the project on the ground that the commerce of the river did not warrant that expenditure of money by the federal government.

It is interesting to note that by the time the reports of the engineers, together with their adverse recommendations, had passed through the various offices necessary, the reports and recommendations of the engineers, as made in 1919 and 1920, did not tell Congress anything about the changed conditions which existed at the time that body failed to act on this much needed improvement.

During the time these various reports had been wending their way through the different offices, the United States Spruce Production Corporation had disposed of all its holdings at Toledo and of its railroad and timber south of Yaquina Bay to the Pacific Spruce Corporation. The purchasers had completed the mill at Toledo and it was ready to operate. The logging road was ready to deliver logs at the south log dump; additional holdings had been secured to the north and the industrial activity had developed on the waters of Yaquina Bay and Yaquina River, which had only been hinted at as POSSIBLE when the engineers filed their report, two years before.

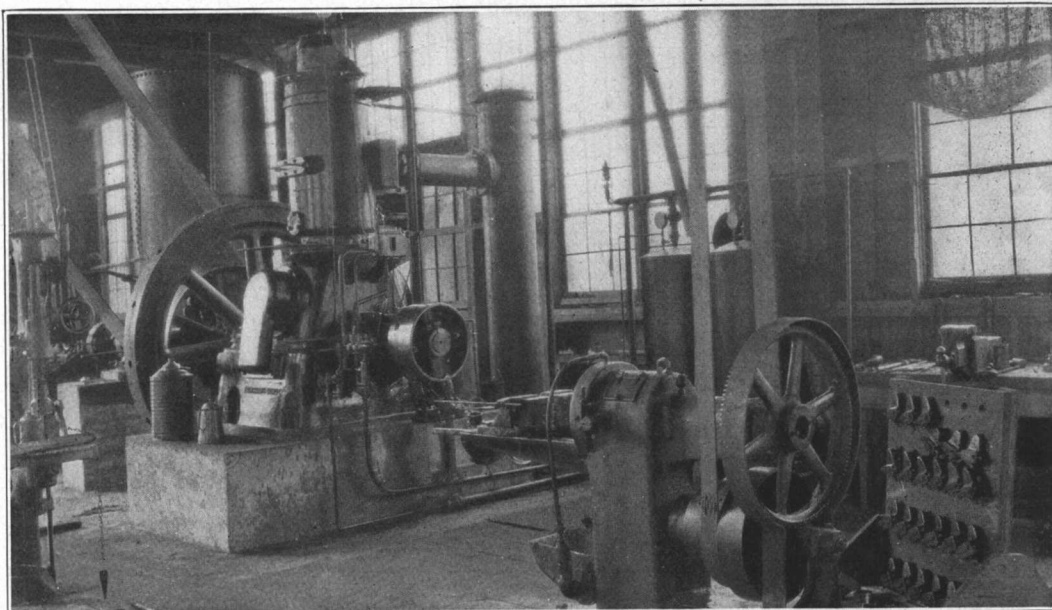
Within a year from the time the project had failed to be included in the Rivers and Harbors bill by Congress, the Pacific Spruce Corporation had purchased the steamship "Robert Johnson" and throughout the last nine months of 1923, she was plying in the Yaquina Bay-California lumber trade, carrying 1,500,000 feet each trip, twice a month and was loading her cargo at Newport, nine miles from the mill, at an added cost.

The engineers, therefore, had ANSWERED the question as to WHY the mills should load at Toledo, instead of at some place near or below Yaquina City on deep water, fully and comprehensively; one of these reasons being the lack of fresh water at any point on deep water, one of the prime essentials in the creation of the steam power of any manufacturing plant.

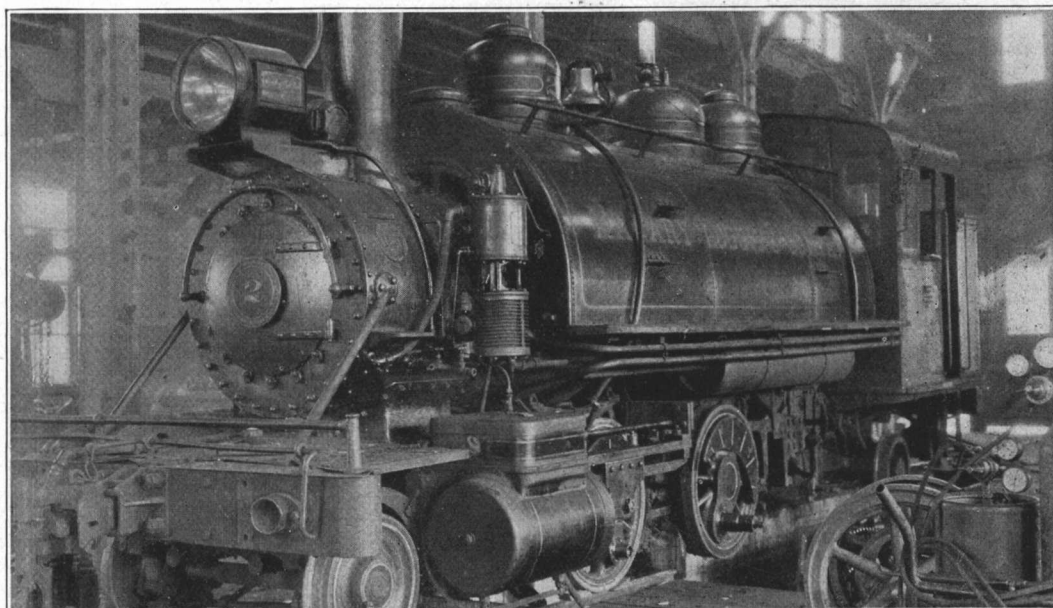
#### THE NEED OF A NEW SURVEY

The need of a new survey of the entire Yaquina bar, bay and river is now apparent to those who are in touch with the development there and it is probable that the PRESENT Congress will provide for such survey.

The tremendous increase in tonnage on the river, across the bay and over the bar is shown in the appended report submitted to the War Department, covering traffic on those



THE ABOVE VIEW SHOWS THE FAIRBANKS-MORSE VERTICAL OIL ENGINE, 50-H.P., 267 REVOLUTIONS PER MINUTE, WHICH OPERATES THE MACHINE SHOP OF THE MANARY LOGGING COMPANY AT HEADQUARTERS CAMP 1 AT SOUTH-BEACH, OREGON, AND OPERATES THE ELECTRIC LIGHT PLANT AT NIGHT



THE ABOVE VIEW REPRESENTS THE BALDWIN LOCOMOTIVE WORKS 65-TON SADDLE TANK LOCOMOTIVE NO. 2 DISMANTLED FOR OVERHAULING AND PLACED OVER THE LOCOMOTIVE PIT IN THE MACHINE SHOP OF THE MANARY LOGGING COMPANY AT HEADQUARTERS CAMP 1

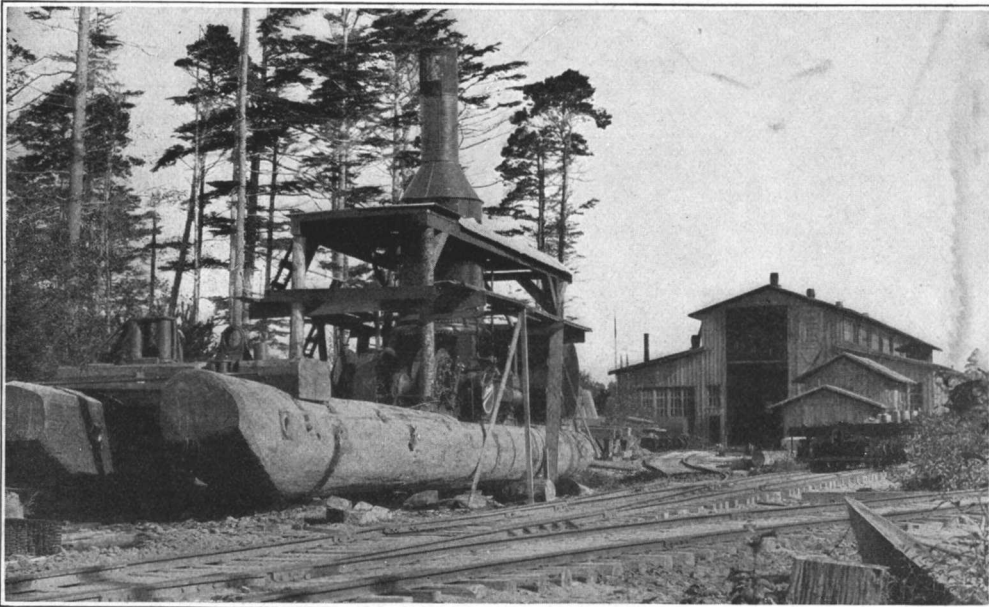


THE ABOVE VIEW SHOWS THE WIRE ROPE ROOM IN THE MACHINE SHOP OF THE MANARY LOGGING CO. AT HEADQUARTERS CAMP 1, SOUTHBEACH, OREGON, EXHIBITING VARIOUS STYLES OF WIRE ROPE PACKAGES AND STOCKS OF 1-INCH, 1½-INCH, 2-INCH AND ¾-INCH ROPE

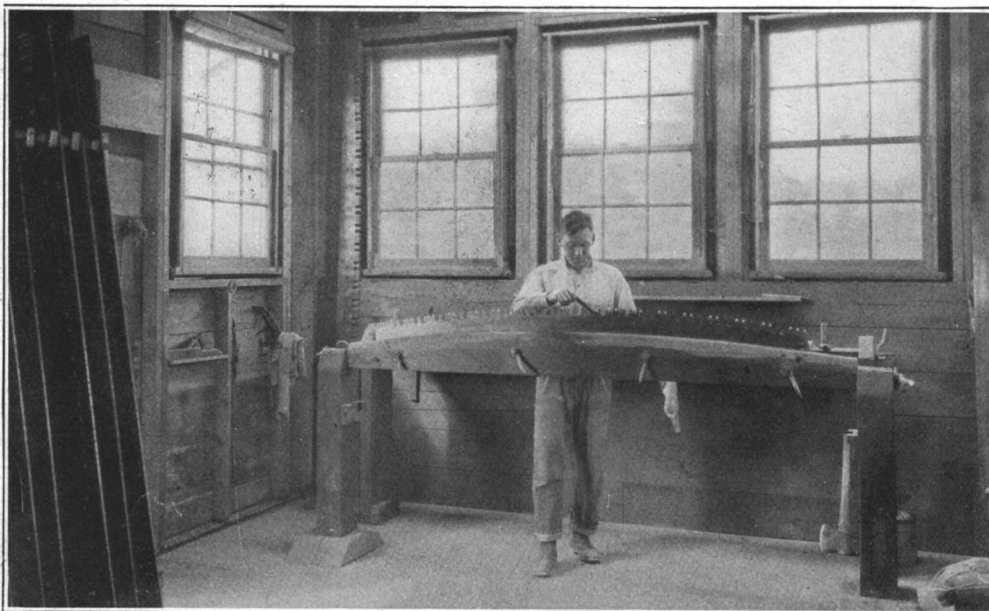




THE SECTION FOREMAN AND CREW ON THEIR SPEEDER WITH OTHER WORKMEN FROM THE WOODS, ON THE RAILWAY OF THE MANARY LOGGING CO., WITH ERIE CATERPILLAR STEAM SHOVEL IN BACKGROUND. THIS SCENE IS ON SPUR 1 HEADQUARTERS CAMP 1



THE ABOVE VIEW REPRESENTS THE MACHINE SHOP OF THE MANARY LOGGING COMPANY IN THE BACKGROUND, AND IN THE FOREGROUND THE WILAMETTE IRON & STEEL WORKS 10x11 CHUNKING DONKEY ENGINE. THIS MACHINE SET UP, READY TO FILL THE EMERGENCY OF A BREAKDOWN



THE ABOVE VIEW SHOWS THE FILING ROOM AT HEADQUARTERS CAMP 1, MANARY LOGGING CO., SOUTHBEACH, OREGON, WHERE THE FILER CARES FOR SIMONDS SAWS WITH DISSTON FILES

waters five months in 1923. Since that time the Pacific Spruce Corporation has been running one and one-half shifts daily—about doubling its output and therefore its outgoing tonnage, and employing 800 men.

The Ports of Toledo and of Newport memorialized Congress November 5, 1923, in the appended resolution, to which the report referred to above is affixed as Exhibit "A":

#### MEMORIAL TO CONGRESS BY PORT COMMISSIONS

Newport, Oregon, Nov. 5, 1923.  
To Our Honorable Members In Congress:

"Whereas—The jetty work at the entrance to Yaquina Harbor, now under construction, will be completed early in the spring of 1924 and when completed will be 400 feet shorter than the south jetty; and because of this, the current (which is almost continual) from the harbor, forms a sand bar which is dangerous to navigation; and

"Whereas—The continuation of the north jetty, now under construction, to a point in equal distance to the south jetty, 400 feet, would, in the ports' opinion, do away with said sand bar; and

"Whereas—The equipment now on the



AN INDUSTRIAL WORKS GENERAL PURPOSE LOCOMOTIVE CRANE MOUNTED ON STEEL FLAT CAR—A VERY USEFUL TOOL

ground, costing approximately \$40,000, is adequate to do said work, thus saving the government this expense; and

"Whereas—The situation imperatively demands further improvement of the harbor to assure the safety of water craft moving in and out of same; and

"Whereas—The above work is warranted by the tonnage coming and going from the port as given in 'Exhibit A'; and

"Whereas—We are informed that quite a sum of money will be left to the ports' credit when the present project is completed, which sum the ports will gladly donate to the government for the purpose of constructing the aforementioned 400 feet, or further, as the engineers deem advisable; therefore, be it

"Resolved—That we, the members of the Port Commissions, sitting in regular session, do hereby request our worthy members in Congress to present to that body our prayer that the United States engineers be authorized and ordered to make a new survey at once of the entrance to Yaquina harbor and that the necessary funds be appropriated for such survey and the continued construction of the north jetty to at least 400 feet west and as



much further as the engineers deem it advisable; and

Be It Further Resolved—That a copy of this resolution be sent by the secretary of the commission to the Hon. Charles L. McNary and the Hon. Robert W. Stanfield, our United States senators—and to the Hon. W. C. Hawley, the member of Congress from this district."

—PORT OF TOLEDO  
—PORT OF NEWPORT

#### EXHIBIT "A"—OCTOBER 31, 1923

"Logs handled in rafts by two boats from Manary's log dump in Yaquina bay harbor to the mill at Toledo, Oreg., a distance of nine miles, from September 1, 1922, to October 31, 1923 (fourteen months), 55,945,099 feet or 223,780 tons.

Equipment, consisting of locomotives, cars, rails, logging trucks, logging engines, camp and commissary supplies, handled on barges from Toledo, Oreg., to the Manary log dump from February 1, 1922, to October 31, 1923 (21 months), 4,955 tons.

"Logs handled in rafts by two boats from Logging Camp No. 11, located on the Siletz River about sixteen miles inland to mill at Toledo—a distance of 43 miles—via Siletz river and bay, Pacific Ocean and Yaquina Harbor, from August 1, 1923, to October 31, 1923 (three months), 6,883,424 feet or 27,734 tons.

"Finished lumber handled on lighters from the mill at Toledo, Oreg., to Newport, Oreg., Yaquina harbor, to alongside the the steamer

year from that concern will amount to the following:

	Tons
Logs .....	400,000
Lumber .....	60,000
Fuel oil .....	3,750
Logging equipment and supplies....	1,200
Total .....	464,950

#### PORT OF NEWPORT AND JOINT WORK

The first meeting of the Newport Port Commission was held in Newport on May 26, 1910, following the appointment of the commissioners by the governor.

An attempt had been made to organize one port district for Yaquina Bay, but a difference of opinion arose and the Newport district was first organized, embracing the territory adjacent to the lower bay, three miles north and three miles southeast to Yaquina City.

R. A. Bensall, J. A. Olssen, Edward Stocker, George King and Thomas Leese, the appointed commissioners, were present at the first meeting and Mr. Bensall was elected president, Mr. Leese secretary.

The personnel of the commission at the beginning of this year, 1924, is Capt. O. F. Jacobson, president; Frank Priest, vice-president; C. E. Sheffield, treasurer; Frank Dawson, secretary, and George Ashcraft.

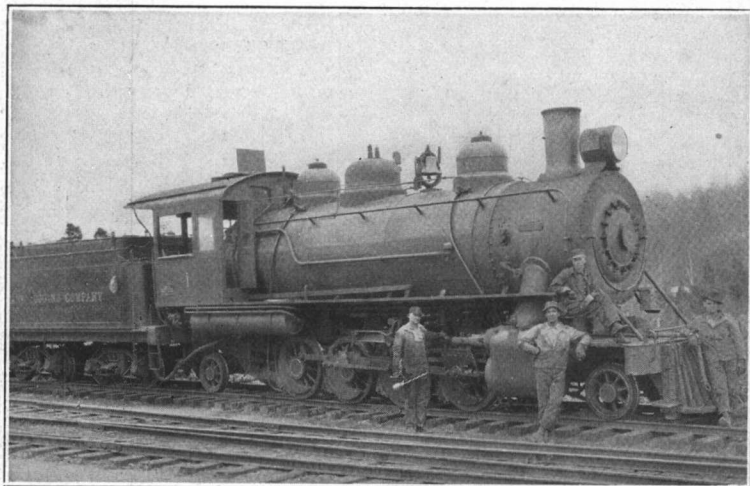
Capt. Jacobson is a seafaring man and has been president of the commission practically ever since his election ten years ago. For

as possible into two districts, leaving out that portion in the south part which had been embraced in the port of Alsea. Steps were then taken toward issuing bonds with which to continue the work of improving the harbor entrance. The first bond issue was for \$75,000 on December 1, 1917, after the Secretary of War had issued a permit, on August 11, 1917, authorizing the two port commissions to enter into contracts for the work contemplated.

The work of the two commissions was done through a joint committee which has functioned harmoniously and of which Capt. Jacobson has been president since its organization.

Under this arrangement work on the south jetty was renewed in 1917 and continued without government aid until 1919, when the government adopted the project of the survey made in 1916 and appropriated \$100,000 for it.

For the purpose of continuing the work, the port of Newport issued bonds as did the port of Toledo, as follows: December 1, 1917 \$75,000; January 1, 1918, \$90,000; September 1, 1918, \$90,000. On February 1, 1921, the government took over the project and the two ports were given credit for the amounts of money they had expended, a total of \$549,165 and were asked to give the government \$165,000 in cash, to meet the increased costs of the project which had been caused by the war. The port of Newport paid its share of this money out of a bond issue of October 1,



THE ABOVE COMPANION VIEWS SHOW THREE LOCOMOTIVES. LEFT-HAND VIEW—BALDWIN ROD ENGINE NO. 1, A 75-TON LOCOMOTIVE AND FOUR TRAINMEN. AT RIGHT—BALDWIN SADDLE TANK LOCOMOTIVE NO. 5, IN THE LEFT BACKGROUND, AND SHAY LOCOMOTIVE NO. 3 WITH TRAIN OF LOGS IN RIGHT FOREGROUND

'Robert Johnson' for movement to San Francisco and Los Angeles, Cal., from June 1, 1923, to October 31, 1923 (five months), 10,575,274 feet or 21,151 tons.

"Fuel oil purchased in San Francisco and Los Angeles, handled on return trips of the 'Robert Johnson' in her tanks and delivered to the Manary Logging Co. for use as fuel on its locomotives and logging engines, from June 1, 1923, to October 31, 1923 (five months), 11,743 barrels or 1,843 tons.

#### RECAPITULATION

	Barrels	Feet	Tons
Logs .....		55,945,099	223,780
Logging Equipment .....			4,955
Logs .....		6,883,424	27,734
Finished Lumber .....		10,575,274	21,151
Fuel Oil .....	11,743		1,843

Total .....11,743 73,403,797 279,463

#### GROSS TONNAGE

	Tons
Pacific Spruce Corp'n.....	279,463
Multnomah Box .....	74,000
Misc. Freights .....	15,000
Lumber from Siletz .....	5,750
Fish .....	768

Total .....374,931

"Reports received from the Pacific Spruce Corporation indicate that the tonnage next

over twenty years he has piloted the boat running between Newport and Yaquina City daily and now owned by the Newport Navigation Co., of which he is president.

C. E. Sheffield is in the real estate business in Newport; Fred Dawson is a druggist; George Ashcraft is in the retail lumber business and Frank Priest is a retired business man. The commission employs D. T. Harding as deputy treasurer and secretary.

Late in 1923 the Port Commission purchased a building and considerable dock frontage in Newport and now has quarters of its own. The rentals from the rest of the building, not occupied by the commission, make a profit for the body. The berth of the steamship "Robert Johnson," as she takes on her cargo, is at the dock of the Newport Port Commission.

For seven years after the organization of the port district its activities were of purely a local character, the money for which was raised by a small annual tax. Following the edict of the government in 1915 that it was willing to co-operate with the port commission on a 50-50 basis in the improvement of the harbor, the need of an enlarged district became apparent, as did also the need of closer co-operation between the two ports; and in the fall of 1916 steps were taken to form an enlarged district and perfect a joint working arrangement.

At a meeting held in Newport November 11, 1916, the county was divided as nearly

1920, for \$132,000. On July 1, 1921, a bond issue of \$25,000 was made and on January 1, 1923, one for \$35,000 was issued, with which the bond issue of July 1, 1921 was retired. The total bond issues of the port district, then were \$422,000, deducting the \$25,000 issued and retired. These sold at 96 to 98 and the money was spent on the improvement of the harbor. They are being paid as they come due and the interest is provided for annually by taxation.

Part of the work performed by the ports of Toledo and Newport consisted in securing an eighteen-foot channel approximately 200 feet wide and 250 feet wide on the curves, from Yaquina City to the bar at the entrance.

#### THE PORT OF TOLEDO, OREGON AND ITS COMMISSIONERS

The first meeting of the Toledo Port Commission was held in Toledo, Oreg., on May 26, 1910, following the appointment of the commission by the governor. William Smith was president of this first commission, T. F. Stewart vice-president, A. T. Peterson treasurer, Lee Wade secretary, with W. C. Copeland as the fifth member of the commission.

One of the first actions of the Port of Toledo was to bond itself for \$50,000 for the improvement of Yaquina River from Toledo to Yaquina City, as related in that part of this story entitled "The Improvement of the Yaquina River."



The Toledo Port Commission joined with the Port of Newport in 1916 in an effort to secure the deepening of the Yaquina bar. Coincident with the action of the sister port, the Port of Toledo issued bonds for bar improvement as follows:

Date of Issue	Amount
December 1, 1917.....	\$ 75,000
January 1, 1918.....	90,000
September 1, 1918.....	90,000
October 1, 1920.....	130,000
January 1, 1923.....	35,000

#### Present Personnel

The personnel of the Toledo Port Commission at present is J. W. Parish, president; Guy Roberts, secretary; William Andrews, treasurer; Peter Frederick and Dr. R. D. Burgess being the other two members of the commission. The deputy secretary-treasurer is George Trommiltz. Mr. Parish, the president, has been a resident of Lincoln County for over thirty years. He lives on a ranch on Depot Slough, two miles north of Toledo, at a point directly across the water from where R. A. Bensall built the first mill on

stand exactly what is meant when it is said that, although active logging operations have been going on in that territory since early in 1922, there is no reason for changing the totals of the estimated stands in the various woods.

The table which follows indicates the quantities of the four principal woods that may be found today on the so-called Blodgett tract of 12,705.94 acres of land, situated in the three southern townships of Lincoln County Oregon:

Species	Feet
Sitka spruce .....	330,000,000
Douglas fir .....	265,000,000
Western hemlock .....	190,000,000
Western red cedar .....	15,000,000
Total .....	800,000,000

#### TIMBER STAND IN THE "SILETZ" COUNTRY

Concerning the stand of timber in the Siletz, it appears to the general timber owner to possess an apochryphal and doubtful meaning, but having investigated all these various

south Lincoln County, it is safe and proper to say that the Pacific Spruce Corporation has in its possession today—inclusive of various tracts under option—not less than 2,000,000,000 feet of timber of all sorts.

#### "Siletz" Fir Stand Heaviest Known

The Siletz country runs heavier to fir than any other timber, as evidenced by all of the expert cruises that have been made in that territory; and in the specific statement concerning this timber, made below, under the sub-headings of "The Timber In the Territory of Camp 12" and "The Timber in the Territory of Camp 11" it is seen that the fir timber is much taller than in average tracts throughout the country; that the trees range in content from 3,000 to 25,000 feet and that the average in FIR is not less than 8,000 feet to the tree.

Our own observer, who is a timberman of no mean knowledge, makes many statements that the reader will find under the subdivisions named above; but Leo Martin, expert timberland man of the Pacific Spruce Corporation, refers especially to one particular 160 acres—the E. 1/2 of the E. 1/2 of Section



THE ABOVE VIEW SHOWS BALDWIN 65-TON SADDLETANK LOCOMOTIVE NO. 5 WITH A TYPICAL TRAIN OF EIGHT CARS LOADED WITH SITKA SPRUCE AND OLD GROWTH YELLOW DOUGLAS FIR LOGS, STANDING NEAR HEADQUARTERS CAMP 1 OF MANARY LOGGING CO., LINCOLN COUNTY, OREGON

Yaquina Bay in 1866. He has been a member of the commission for six years.

Mr. Fredericks is a merchant in Toledo; Guy Roberts owns and operates a sawmill at Toledo; Dr. Burgess is one of the physicians of Toledo and William Andrews is a retired business man.

#### AMOUNT, QUALITY AND CHARACTER OF TIMBER OF THE PACIFIC SPRUCE CORPORATION

There be many holdings of Douglas fir on the Pacific Coast tributary to saw mills, but there is no other combination of Douglas fir and Sitka spruce which has the Sitka spruce in as large quantity as on the possessions of the Pacific Spruce Corporation.

Considering the timber of the Pacific Spruce Corporation as a whole, there is no reason today for going back of the general estimate of the timber on the Lincoln County tract made during the formation of the Pacific Spruce Corporation. The figures given out then were in "round numbers" and those round-number figures will be maintained at this day and time and the timberman and timber owner, wherever dispersed, will under-

rumors it is found that the statement is true.

On the "Location Map" printed elsewhere which indicates the railways, main roads and camps of the Manary Logging Co., etc., there is no endeavor to mark each township where the possessions of the Pacific Spruce Corporation lie; but there is thrown a general hatched line about the territory of ownership, so that the reader may understand the approximate location.

The total acreage owned by the company in the Siletz is 14,626; the total amount of timber on these acres is 835,000,000 feet and the strictly worked out percentages are as follows:

Fir .....	70.65
Spruce .....	21.17
Hemlock .....	5.65
Cedar .....	2.53
	100.00

The various tracts purchased to date in the Siletz country have been the W. P. Porter tract, the Chautauqua Lumber Co. tract and the Sunset timber tract—this last having been purchased from A. B. Hammond of San Francisco. To sum up the various purchases of the Pacific Spruce Corporation inclusive of the government timber under contract in

30, Township 9 W., Range 10 W., which contains 20,000,000 feet of timber—125,000 feet per acre.

#### Enormous Length of Sitka Spruce Logs

As an evidence of the great growth Leo M. Martin, timber engineer of the Pacific Spruce Corporation, referred us to the fact that during last autumn they had many times carried Sitka spruce logs of high merchantable quality 160 feet long and often 40 inches in diameter at the top, for seventeen miles down the Siletz River in rafts and out into the Pacific Ocean in the same manner and landed them successfully at the booming ground at South Beach, finally putting them into the storage waters at Toledo. There is a record of many of these trees showing a content of 30,000 feet.

#### Timber "Fire Hazard" Very Low

The fire hazard on all the timber possessions of the Pacific Spruce Corporation, in both south Lincoln County and the Siletz country, is very small and can hardly be considered. This statement is predicated on the fact that practically all the timber possessions of the Pacific Spruce Corporation are in the so-called fog belt and there is probably more general dampness to the square



foot in that section than there is in any other timber section of the Pacific slope.

Notwithstanding this condition, the Manary Logging Co. keeps up modern methods of timber housekeeping as strictly as if the possessions of the Pacific Spruce Corporation were on a wind-swept table-land; and the company stands ready at all times to fight whatever fire might eventuate in either the timber or around the camps, as it picks up its waste along the railway line in a very painstaking manner.

#### SITKA SPRUCE "ARRIVED" DURING THE GREAT WAR

One of the surprising developments during the great World War was the recognition of the value of Sitka spruce and the establishment of its superiority, not only for airplane construction, but for nearly all other uses to which a commercial wood is adaptable. In trying various woods for airplanes it was discovered not only that Sitka spruce could be used—and proved the very best for that purpose—but that the available supply was much greater than had been supposed.

Almost without exception the locations

Pacific Ocean runs 20 percent to Sitka spruce; and this distance generally includes what is commonly known as the coast range, extending from British Columbia south to California and with a more or less similar distribution on Vancouver Island and in British Columbia.

In the early days timber investors, loggers and lumbermen eagerly sought out the heavy stands of old growth yellow Douglas fir and western red cedar and endeavored to secure as many adjacent holdings as possible, which might form a sufficient quantity to justify the building of a big mill at some point near by; but—at that time—when the proportion of Sitka spruce and western hemlock was only 10 or 15 percent of the stand, it was not considered as an investment which could be easily sold or utilized. ALL of this is now CHANGED. Those sawmill men NOW assembling timber for big operations are eager for Sitka spruce.

#### HIGH PERCENTAGE OF SPRUCE IN THIS REMARKABLE STAND

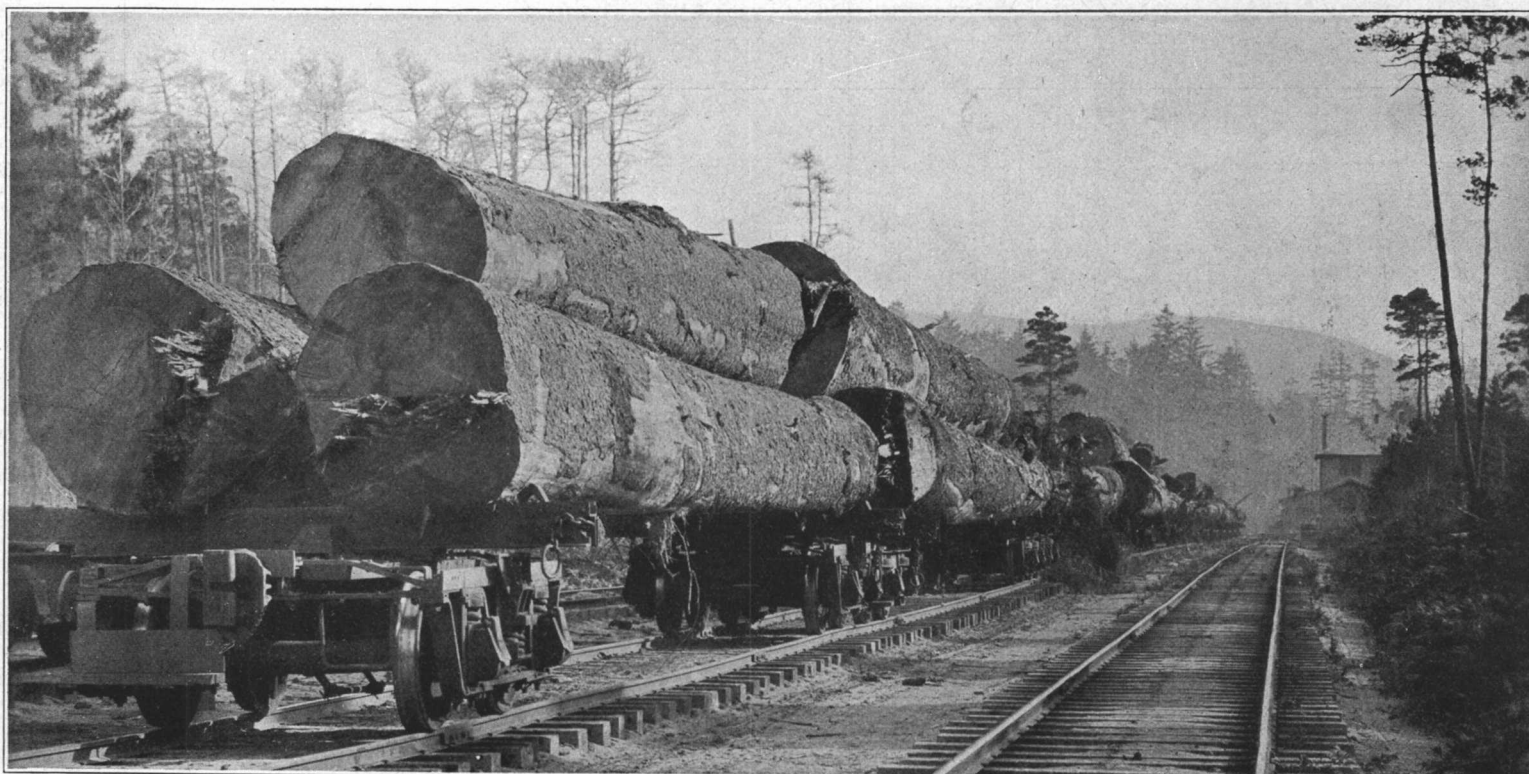
From this it can be understood why—in

one learns the basic fact that it runs 66,666 feet per acre.

Ownership of this timber previous to the war had included such well known timbermen as J. E. DuBois, of Pennsylvania, C. A. Smith, of California and John W. Blodgett, of Grand Rapids, Mich. So it seems a happy circumstance that at a time when C. D. Johnson, with his acute sense of timber values, was in the market for a timber proposition which would enable him to re-establish an outlet for his restless energy in the manufacture and sale of lumber on a scale commensurate with his previous enterprises in southern yellow pine, the newly established value of Sitka spruce, together with the long established value of old growth yellow Douglas fir, western hemlock and western red cedar, should be brought to his attention through the desire of the government to market its war time investment!

#### WEALTH OF SPRUCE REVEALED BY WAR TIME PRODUCTION

The war time development of this tract and its careful cruises naturally familiarized C. D. Johnson with it, in ALL its features; but



VIEW OF A LOADED LOG TRAIN OF ELEVEN CARS STANDING NEAR HEADQUARTERS CAMP 1 OF THE MANARY LOGGING CO. NEAR SOUTHBEACH, OREGON. FRONT CAR 10,790 FEET OF SITKA SPRUCE LOGS; SECOND CAR, ALSO OF SITKA SPRUCE, 15,250 FEET. REST OF TRAIN IS MIXED SPRUCE AND FIR

where the Sitka spruce stand was the heaviest were isolated from existing timber operations; though in the Grays Harbor, Willapa Harbor and Coos Bay sections, it formed a part of the output of the forests. Even there, prior to 1914, it was looked upon as an undesirable class of timber and to be avoided in logging operations whenever possible. The lumber had THEN little market value and the loggers disposed of many of the logs to the box factories, where it was utilized mainly for fish boxes.

Previous to 1914 these factories demanded as much clear Sitka spruce stock as they could prevail upon the loggers to supply; and many such logs, now carefully manufactured into shop lumber, were then left in the woods because of the knots above the two—or possibly three—first logs. It must not be inferred from this that the average Sitka spruce tree does not yield more clear lumber than above indicated. The trees THEN cut were usually found where they were more limby than in the heavy stands.

#### PROBABLE DISTRIBUTION OF SITKA SPRUCE

Probably on a fair estimate the average stand of timber within twenty miles of the

addition to its isolation—the present holdings of the Pacific Spruce Corporation lay dormant for so many years; and while it explains the availability of the holdings in which Sitka spruce figures largely, it gives no inkling of the value of some of the heaviest stands of the best quality of old growth yellow Douglas fir in the country, with a considerable percentage of western hemlock and a small proportion of western red cedar; nor does it convey the surprising information that a portion of these holdings show the heaviest stand per acre, in both AMOUNT and QUALITY, of any variety of merchantable timber in the known world!

On the tract of 12,705.94 acres lying between Alsea Bay and Yachats River in the southern part of Lincoln County, Oregon, the very accurate cruises made for the previous owners and accepted by the government Spruce Production Division, Bureau of Aircraft Production and ultimately transferred to the United States Spruce Production Corporation—from which C. D. Johnson purchased this timber—let it be known that this timber was selected by real timber experts, who eliminated unproductive areas—even 40- and 160-acre lots—so that in averaging the stand of timber on the acreage mentioned

with it, only a very FEW well-informed timbermen connected the possibilities of adding to this tract another, north of the Yaquina River, exceeding in quantity the government-owned tract and its potential additions.

The "Siletz" timber was mainly in the hands of small owners and its natural outlet under existing conditions was to the established mill at Toledo; otherwise involving an almost prohibitive expense to make connections by rail to any OTHER point.

A glance at the "Location Map," elsewhere, shows the timber tracts of the Pacific Spruce Corporation, with the railroad built by the government from the unloading dock and rafting pocket on the south side of Yaquina Bay, at South Beach, following the coast line for some miles to Headquarters Camp 1 of the Manary Logging Co., a subsidiary of the Pacific Spruce Corporation.

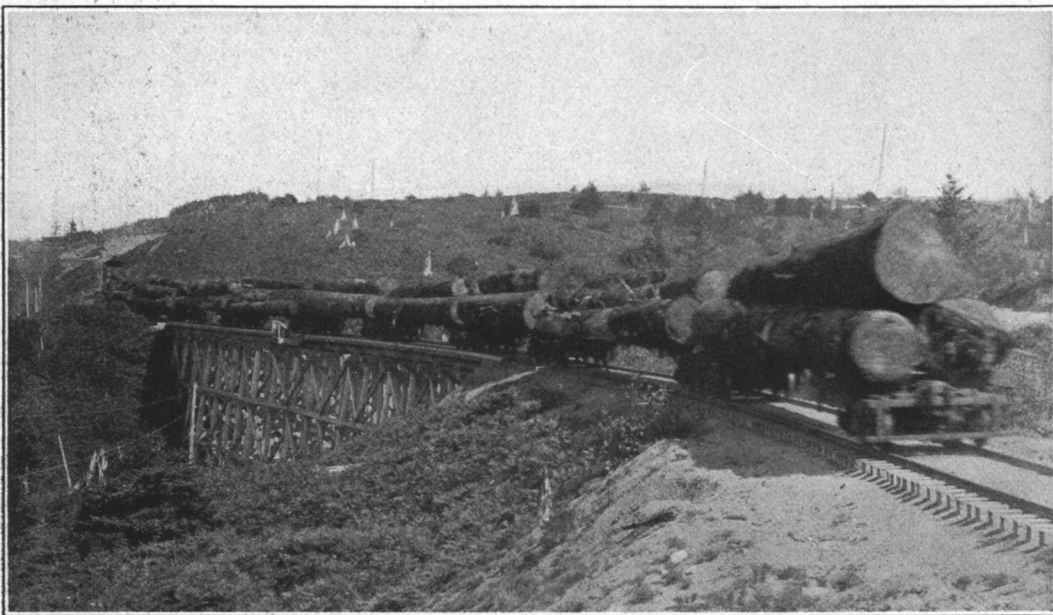
This map also shows the Pacific Spruce Northern Railway, at present extended about six miles from the log dump on Depot Slough, Toledo, Oreg., to the operations of the Pacific Spruce Corporation, and its proposed extension to the Siletz River.

This map likewise shows the location of Camp 11 and Camp 12 on the Siletz River, the latter being eighteen miles from its mouth.





A VIEW ACROSS ALSEA BAY LOOKING FROM THE NORTH. A LOG TRAIN OF THE MANARY LOGGING CO. (SUBSIDIARY TO THE PACIFIC SPRUCE CORPORATION), IS APPROACHING OVER THE 7,000-FOOT TRESTLE. ALSEA BAY IS A VERY CONSIDERABLE AREA OF TIDE FLAT IN THE SOUTH CENTER OF LINCOLN COUNTY, OREG.



A LOG TRAIN OF THE MANARY LOGGING CO. (SUBSIDIARY TO THE PACIFIC SPRUCE CORPORATION), PASSING EASILY UP THE ONLY GRADE OF ANY IMPORTANCE BETWEEN HEADQUARTERS CAMP AND YAQUINA BAY. THIS INSTANTANEOUS VIEW WAS MADE JUST AS THE TRAIN PASSED INTO THE RANGE OF THE CAMERA



TEN CARS OF LONG-LENGTH SITKA SPRUCE AND OLD GROWTH YELLOW DOUGLAS FIR LOGS AT THE DUMPING WATERS AT SOUTHBEACH, OREGON, LOOKING OUTWARD FROM THE SHORE WITH LOCOMOTIVE PUSHING THEM INTO PROPER PLACE FOR DUMPING

#### TIMBER CHARACTERISTICS NEAR HEADQUARTERS CAMP 1

At present, logging operations have been conducted on Spurs No. 1, No. 4 and No. 4B, as specifically described in another department devoted to "Logging Operations and Equipment."

The timber adjacent to Spur No. 1 is a mixed stand of Sitka spruce, old growth yellow Douglas fir, western hemlock and western red cedar, one of the few places where all these species occur.

#### TOPOGRAPHY OF THE COUNTRY ADJACENT TO CAMP 1

The main line of the railroad follows a comparatively level area close to the ocean. In this section of the Pacific Spruce Corporation holdings practically all of the timber is located on a series of ridges and the valleys between, rising to the mountain ranges farther inland, which never attain a height of 3,000 feet above sea level. None of the Pacific Spruce Corporation holdings in the southern portion of Lincoln County attain 2,000 feet; but even these elevations unquestionably presented great problems, all of which the intelligent engineering of the Manary Logging Co. has successfully overcome at reasonable expense.

Headquarters Camp 1 is located a half mile from the Pacific Ocean, only a few feet above sea level, with the first range of hills a half mile inland. Here the timber is not as large as it is farther inland. As the second range of hills is approached, it changes to a very heavy growth, until the second mile inland presents a stand of Sitka spruce, old growth yellow Douglas fir and western hemlock timber which is thick upon the ground, the trees large and of unusual height, with clear poles 75 to 100 feet to the limbs. It is in prime condition, just approaching the age when it would become overripe, but is yet sound to the extreme tops of the trees.

#### Sound Trees Most Impressive

On Sections 18 and 19, Township 14 South, Range 11 West, the array of tall, sound trees of good size is most impressive. In the valleys it is generally Sitka spruce, ranging from 30 inches to 5 feet in diameter while toward the top of the ridges old growth yellow Douglas fir from 40 inches to 6 feet in diameter is found, which is also in solid stands. There is a sprinkling of tall young western hemlock, 12 to 24 inches in diameter, in this section, which might almost be overlooked in the general assembly of big timber. The hemlock will average about 1,000 feet to the tree, whereas the Sitka spruce and fir run 8,000 to 20,000 feet per tree.

#### Timber So Thick It Forms Perfect Canopy

The timber stands so thick that the tops form a perfect canopy and the heavy shade retards the underbrush to a minimum height. The trees stand in solid masses and in clusters and occasionally a single massive trunk seems to monopolize the area around it. While many of the trees rise with the minimum of taper, the occasional spreading roots of the big Sitka spruce trees seem almost to interlock and among them there is not a dead or diseased tree.

Were it not for the Sitka spruce and hemlock saplings, and their foliage, the view would show only massive tree trunks; and this is typical of a large part of the holdings—not an isolated exception. How could it be otherwise where the stand cruised 150,000 to 200,000 feet to the acre?

#### Remarkably Small Number of Windfalls

Another remarkable feature is the very small number of windfalls in this section. These trees are located where it would seem that their exposure to heavy storms from the Pacific Ocean would occasionally take toll from them, and the only explanation why it does not would seem to be that the tenacious red clay soil gives to the roots a firm hold. The fertility of the soil also accounts partly for the sound and rapid growth. Felled trees show in the annual rings a most remarkably uniform growth, the rings of the first twenty-five years varying from one inch to three-eighths of an inch a year, reducing to one-quarter of an inch in the next ten or fifteen



years; then for forty to 150 years is found an almost uniform growth of one-quarter of an inch a year, decreasing gradually to the usual narrow width.

Most of the country is too hilly and the valleys are too narrow to attract ranchers, but the rich soil will undoubtedly produce another crop of timber in a minimum time.

#### Official Thought on Reforestation

It is proper to state at this juncture that the careful findings of N. Leroy Cary, forest examiner for the government, in his Bulletin No. 1060, issued in May, 1922, says substantially that pulpwood may be expected to reproduce on the cutover land in this area in forty years and an excellent grade of merchantable timber in eighty years. So that it is not a violent supposition to say that the Pacific Spruce Corporation—with its present holding of about 2,000,000,000 feet, and other timber which it will undoubtedly purchase in the years to come—may—with ordinary care in logging—become a well-nigh perpetual operation.

#### TIMBER HOLDINGS ADJACENT TO CAMP 12

Camp 12 of the Manary Logging Co. during its first activity was located along the county road leading to Siletz, six miles north of the mill at Toledo, tapping the southern limit of the Siletz timber holdings.

The timber here is mainly old growth yellow Douglas fir and Sitka spruce of moderate size, with a small proportion of hemlock; but its stand upon the ground is of a phenomenally dense character. It will run about 150,000 feet to the acre; the trees run two to four feet in diameter; they are unusually thick on the ground and tall and sound.

One of the most remarkable views of cut timber—which, by the way, is used in this article—was photographed in the late summer of 1923. From a vantage point near the bottom of a valley, an area of about thirty acres is seen, in which the fallen logs almost cover the ground and in many places they are piled three, four and five deep. Literally there was not room enough for them otherwise. (See pages 36 and 37.)

The extremely sound character of this timber enabled the loggers to fell the entire tract at one time, a method which would not have been practicable had the timber been less sound, and subject to breakage. Successive fellings would then have been necessary, owing to the density of the stand.

Along the old mail trail from Siletz to Kernville is found, first, medium sized old growth yellow Douglas fir and a small proportion of western hemlock, exceeding 150,000 feet to the acre; then is seen a marvelous stand of old growth yellow Douglas fir exceeding—on some acres—250,000 feet; on one 40 acres, 5,600,000 feet; and on one quarter section 20,000,000 feet; and in a mixed stand of fir, Sitka spruce and hemlock 69,000,000 feet on one section.

The old growth yellow Douglas fir averages six feet in diameter, and is above 150 feet in height, with 90 feet surface clear and running heavy to No. 1 logs. It is practically free from underbrush. There are no dead trees, few showing indications that they are approaching the full-ripe stage, and there is a minimum of windfalls. It is a sight never to be forgotten by any woodsman familiar with this type of timber.

Adjacent to this wonderful stand of old growth yellow Douglas fir, as the ridges drop to the bottoms along Jaybird Creek, is found Sitka spruce, which has attained the largest size common to that species and which maintains, despite its size, the greatest freedom from rot or other defects. The stand is not dense, but the trees run 10,000 feet to 30,000 feet each and of course are surrounded at the base with a dense mass of underbrush as is invariably found with Sitka spruce timber.

This unusually heavy stand is not an exception in the Siletz country. Many other portions approach it and practically all of the well-located areas are of the same general character. More or less logging has been done in past years along the river, where the logs could be floated down the river and raft-



DETAILED VIEW OF THE BUTT OF AN OLD GROWTH YELLOW DOUGLAS FIR LOG 4 FEET IN DIAMETER. THE RINGS SHOW THE RAPID GROWTH OF THE TREE TYPICAL OF THIS SECTION WHICH, IT IS EASY TO ASCERTAIN, WAS 150 YEARS OLD AS SHOWN BY THE ANNUAL RINGS



A "BUCKER" SAWING AN OLD GROWTH YELLOW DOUGLAS FIR LOG THREE FEET IN DIAMETER AT THE TOP OF AN 80-FOOT CUT, USING AN "UNDER-CUTTER," A SAW-GUIDE ARRANGEMENT "DOGGED" INTO LOG NEAR TOP AND CARRYING BELOW AN ADJUSTABLE CLAMP

ed to the Columbia. Much of this was logged for ranches and with the brush lands cleared, forms what is now known as the Siletz flats.

These flourishing ranches demonstrate the fertility of the soil and the climatic adaptability for hay, oats, wheat and even corn.



The cleared lands are mainly adjacent to the river and its tributaries and do not infringe on the practically continuous stand of timber from the north half of Township 10 to the mouth of the Siletz River—and even beyond that. Thus there will be a continuous supply of fine timber adjacent to any proposed railroad, even extending to the mouth of the Siletz, which could be reached by laying less than twenty-five miles of rail from Toledo.

Right here is a chance to discuss the variation in old growth yellow Douglas fir timber. Until a Douglas fir tree has shed its lower limbs and begun to cover them with what will make clear lumber, it is generally known as red fir; and, where the growth is rapid and continuous, that designation means "young fir"; but in different locations at this

All of the above statements about Douglas fir are prefatory to the most important statement of all, which is that fir of the Pacific Spruce Corporation is away and above 150 years of age and practically all of it can be characterized as old growth yellow Douglas fir, from 250 to 300 years old.

#### THE TIMBER ALONG THE SILETZ RIVER

The timber holdings of the Pacific Spruce Corporation in the Siletz region are located in Township 8, 9 and 10, Ranges 9, 10 and 11; and following the windings of the Siletz River to Township 9, Range 10, west of the river, a body of timber is found which, in many places, exceeds, in the quantity of merchantable timber on the ground, any region in the

feet to the first limb, 129 feet in its total log length and scaled 33,000 feet. Another 4-foot Sitka spruce showed 124 feet to the first limb; and one of the largest measured 11 feet in diameter, with an estimate in the standing tree of 35,000 feet. Long-bodied Sitka spruce trees 4 to 8 feet in diameter characterize the stand on the first levels near the river, with a gradual diversion to fine fir up the slopes. The hemlock, as in all the holdings, is tall and clear, but slender.

With this great resource of magnificent timber, located in a climate which favors continuous operation, its right-up-to-date logging equipment and the highly efficient sawmill at Toledo, the Pacific Spruce Corporation will undoubtedly continue to surprise the consumers of lumber as much with the high quality of its output as it has in the assembly and



A REMARKABLE PANORAMIC VIEW OF TIMBER ON THE N. W.  $\frac{1}{4}$  S. W.  $\frac{1}{4}$  SEC. 17, T. 10 S., R. 11 W., IN THE LOGGING OPERATIONS COVERING THE GROUND THREE OR FOUR LOGS DEEP, ALL SO SOUND AS NOT TO HAVE BEEN IN ANY WAY BROKEN AND AVERAGING AREA OF ABOUT THIRTY ACRES OF TIMBER

point in its growth the change in the character of the wood varies greatly and the wood formed directly after the knots are shed may have all the characteristics of yellow fir.

In some sections of the Pacific coast fir belt—apparently due to soil variations, but possibly where the fogs carry less moisture and the rains are lighter—there is little change from the "red fir" character; but in its continuously rapid growth, close to the Pacific Ocean in Oregon, where the Pacific Spruce Corporation operates, the second characteristic of the Douglas fir timber forms "bastard fir," approximately, until the tree passes the age of 150 years, after which it becomes "Old Growth Yellow Douglas Fir," which is far and away the highest type of Douglas fir.

known world where merchantable timber is available, being probably exceeded in the stand only by the wonderful Sequoias in the national parks in the Sierra Nevada Mountains of California, which will never be cut for lumber.

#### THE TIMBER HOLDINGS ADJACENT TO CAMP 11

The preceding descriptions of the Siletz timber will apply in general to that in the vicinity of Camp 11, with its heavy stand of gigantic spruce close to the stream and the fir and hemlock further back. Without going into detail as to the standing timber in general, the felled logs illustrate its character. One magnificent tree measured nine feet across the butt, was absolutely sound, 85

present development of one of the greatest enterprises of its class in the country; writing into history not only the names of C. D. Johnson and his sons, but the names of other men now and later to be added to its list of capable employees.

#### REVIEW OF THE LOGGING OPERATIONS OF THE MANARY LOGGING COMPANY

The problems confronting a logger anywhere are difficult, but nowhere in the world are they more difficult than in the big timber of the Pacific coast, where large trees and a rough terrain combine in presenting problems which tax the ingenuity and techni-



cal skill of the logging engineer.

When the Pacific Spruce Corporation contracted with the government for a large part of its properties in Lincoln County, Oregon, some of the initial work leading toward logging already had been done. A railroad had been constructed by the government from Toledo to the timber south of Yaquina Bay, a distance of 23½ miles, and the airplane spruce operations abandoned at the signing of the armistice and this railroad were included in the sale.

#### THE MANARY LOGGING CO. HAS ITS REAL BEGINNING

For the purpose of conducting the logging operations a subsidiary company of the Pacific Spruce Corporation, the Manary Logging

en out at this point, and these were the first logs delivered to the mill at Toledo.

During the progress of this work, Camp 1, at the southern terminus of the road, had been opened, buildings were erected and the equipment was installed.

#### LOGGING OPERATIONS BEGIN AT HEADQUARTERS CAMP 1

In September, 1922, Camp 1 was ready to operate. At that time Spur 1 had been extended into the timber about a mile north of Camp 1, where "Side 1" was opened at the end of the spur. This side consisted of a 12x14 compound geared two-speed Willamette swing, operating 1,300 feet; a 12x14 Willamette Humboldt yarder and an 11x13

In January, 1923, "Side 1" had completed its work at the first set on Spur 1 and was moved 2,000 feet farther into the timber on the extension of this spur, where it operated until June, 1923, when it had taken out 5,000,000 feet. By this time the spur had been further extended, 600 feet of trestle had been built and 1,200 feet of railroad constructed, with a maximum grade of 6½ percent and a maximum curvature of 16 degrees. With the completion of this extension of Spur 1, "Side 1" was moved from its second set, to its third set, in June, 1923.

#### Standard Equipment for Swings

By this time a standard equipment had been adopted by the Manary Logging Co., in places where a swing was to be used and



THE MANARY LOGGING CO. (SUBSIDIARY TO THE PACIFIC SPRUCE CORPORATION), SHOWING THE TIMBER AFTER BEING FELLED 0,000 FEET TO THE ACRE OF SITKA SPRUCE, OLD GROWTH YELLOW DOUGLAS FIR AND OTHER TIMBER. THE PICTURE SHOWS AN AND, THE TIMBER BEING MOSTLY FIR

Co. was formed, with James Manary, a skilled Pacific coast logger, as president and his two sons, Gordon and Roland Manary—experienced loggers—as his right-hand men, occupying official positions in the company.

The first actual work begun by the Manary Logging Co. was in March, 1922, when Roland Manary arrived at Toledo with a crew of men who were put to work on the railroad right-of-way south of the bay in order to clean it up. Several weeks were spent in this work and in ballasting the roadbed. Then Camp 2, at the 12-Mile Post, was opened with one side. The equipment consisted of a 12x14 Willamette Humboldt yarder and an 11x13 Willamette loading donkey, made by the Willamette Iron & Steel Works, of Portland, Ore. Several million feet of logs were tak-

Willamette loader, using the crotch-line loading system. From this set 12,000,000 feet of Sitka spruce and western hemlock was logged, a record for a one-side operation which speaks volumes for the quality and density of the timber in which it operated.

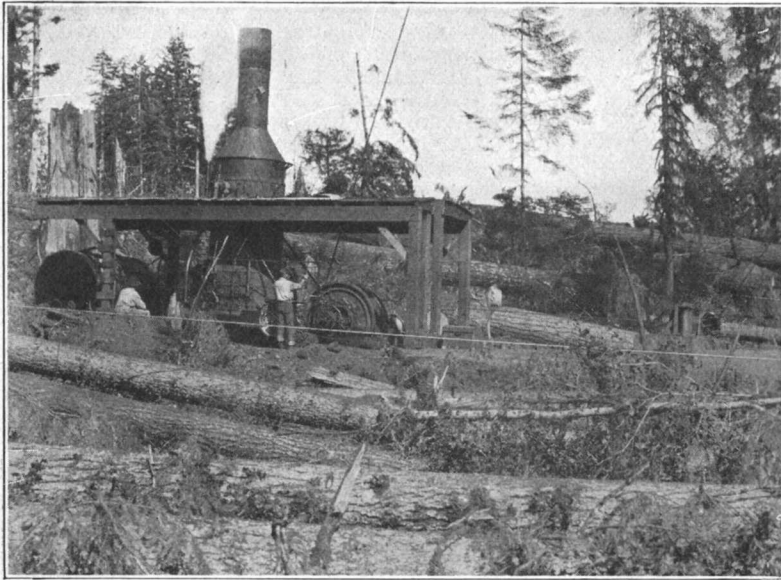
In October, 1922, Gordon Manary, superintendent of Camp 1, opened "Side 2" on Spur 1, similar in operation and equipment to "Side 1," with a 12x14 compound-geared two-speed Willamette swing, operating at 900 feet, in conjunction with a 12x14 Willamette Humboldt yarder and an 11x13 Willamette loader with a crotch-line loading system. By February, 1923, "Side 2" had logged 4,000,000 feet of timber on what was known as the "Johnson tract," when its equipment was moved to Spur 4.

which was first installed when "Side 2" was moved from Spur 1, to Spur 4, in February, 1923, and began operating in March. This standard equipment for swing logging is illustrated elsewhere in this issue. It was made possible by the uniform quality of the timber and the condition of the ground.

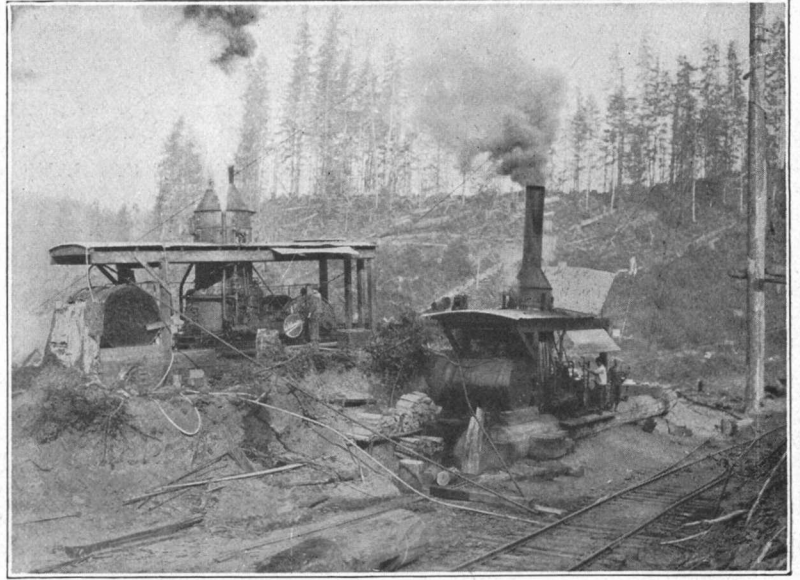
A head spar tree is first chosen, as close to the track as possible and the head rigger equips it with the necessary guy lines and blocks for a 12x14 compound-geared two-speed Willamette for the high-lead system. This spar tree is also rigged for a double-boom loader operated by an 11x13 three-drum Willamette loading donkey assisted by a "monkey chunk."

Two to four tail trees are then selected, ranging from 900 to 1,200 feet distant from





THE ABOVE PICTURE REPRESENTS A WILLAMETTE 12x14 HIGH-SPEED YARDER WORKING AMONG FALLEN LOGS NEAR CAMP 12 OF MANARY LOGGING CO.



A WILLAMETTE 13x14 HIGH-SPEED SKY-LINE YARDER WORKING WITH A 10x11 LOADER FOR THE MANARY LOGGING CO. NEAR CAMP 12

the head spar tree and located at such points as will adapt them to the operation of the swing in that particular location. One of these tail trees is then rigged with the tail blocks of the high lead and a Willamette Humboldt yarder taken to it. With the aid of a straw line, which is taken out from the two-speed engine to the tail tree—a 7/16 inch MacWhyte wire rope—the 13/16-inch haul-back is carried to the tail tree and the 1 3/8-inch haul line follows. The two-inch MacWhyte sky line is then carried out, with the aid of these lines and the two-speed engine with which they have been connected and is stretched with the proper deflection in position from the top of the head spar tree to the tail spar tree. The lines of the Humboldt yarder at the tail tree are put out. Logs brought to the tail tree are taken by the swing and carried to the landing at the railroad. When the timber tributary to this first tail tree has been logged, the Humboldt yarder is moved to a second tail tree and the swing lines changed from the head spar tree to this second set and another section of the area logged. This change is repeated for each tail spar tree until the entire area surrounding the head spar tree for a distance of about 2,000 feet is logged. The yarder operates at distances up to 1,000 feet.

#### "Double Boom" Loading System

The topography of the country, the character of the timber and certain improvements to the double-boom loading system, make this system particularly adapted for use in the swing equipment above described. It

consists of an 11x13 three-drum Willamette loader, a double-spar boom rigged to the head spar tree and a "monkey chunk."

Logs which the swing has brought from the tail tree are dropped on the ground as near the spar tree as possible. The double loading boom is swung over these logs by the loading engine; the tongs are lowered, and made fast to the log, which is then lifted up close under the swing boom. The drum is then released and the "monkey chunk" (a heavy log counterweight), by gravitation, swings the boom, with the suspended log, back over the trucks, where it is lowered to position.

The third drum on the engine is used for spotting cars under the loading boom.

The double-boom loading system, in each one of the sides of the Manary Logging Co., now in operation, is working perfectly and giving excellent service.

#### Interesting Logging Operations

"Side 1," on Spur 1, at its third setting, operated the remainder of 1923, during which time 8,000,000 feet of timber were logged from this location. Here it had logged two yarder settings and was operating on its third at the time of the holiday shutdown, December 22, 1923. "Side 1" will continue in operation on Spur 1, and will be the only side operated on that spur until all of the tributary timber has been removed. It is logging about 80,000 feet each day. When the operation is extended farther into the timber, a small camp will be established. This camp will be on wheels, of the usual bunk car type,

each car accommodating eight men, with a dining room and cook house.

Operations from Spur 4 out of headquarters camp began in March, 1923, following removal of "Side 2", from Spur 1 to this new location. When "Side 2" was removed from Spur 1 to Spur 4, the standard equipment, previously described, was used for the first time, and, having been found to be successful, it was adopted for all swing logging operations. Spur 4 extends in a general easterly direction from headquarters camp, about four miles and has a branch called Spur 4-B. The terrain necessitated the building of five bridges within the first mile, with a total length of 1,200 feet, and of an average height of 40 feet.

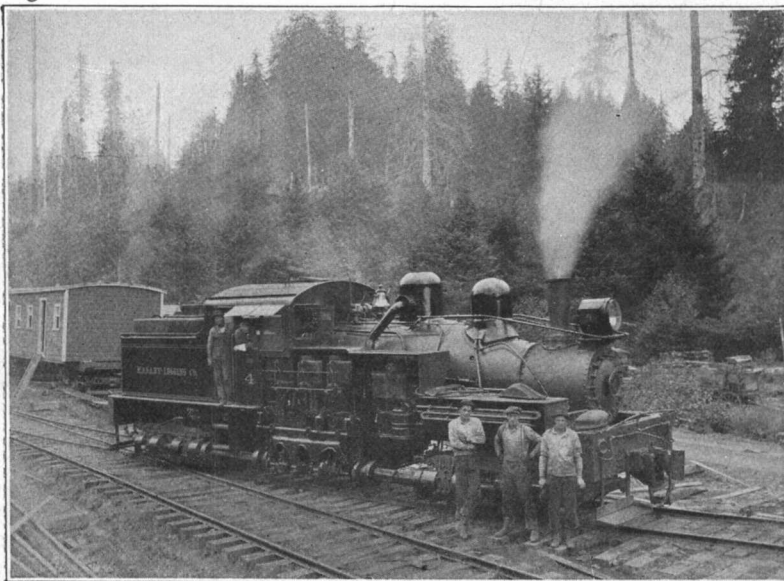
"Side 3," consisting of the standard equipment of a 13x14 Willamette high-speed swing, a 12x14 Willamette Humboldt yarder and an 11x13 three-drum Willamette loader equipped with double boom, was placed in commission on Spur 4 in March, 1923. By July 4, 1923, "Side 1" had logged two settings and "Side 3" two settings and additional logging road had been built, the first mile of which had three bridges, with a maximum height of 65 feet. In these two settings, "Side 2" had logged 7,000,000 feet, and "Side 3" had logged 6,000,000 feet.

During July, 1923, in which month comes the annual summer vacation of the logger, the railroad was farther extended on Spur 4, with considerable heavy construction, cuts being made in rock formation, and with a number of bridges. In August, 1923, "Side 2" and "Side 3" again began operating on

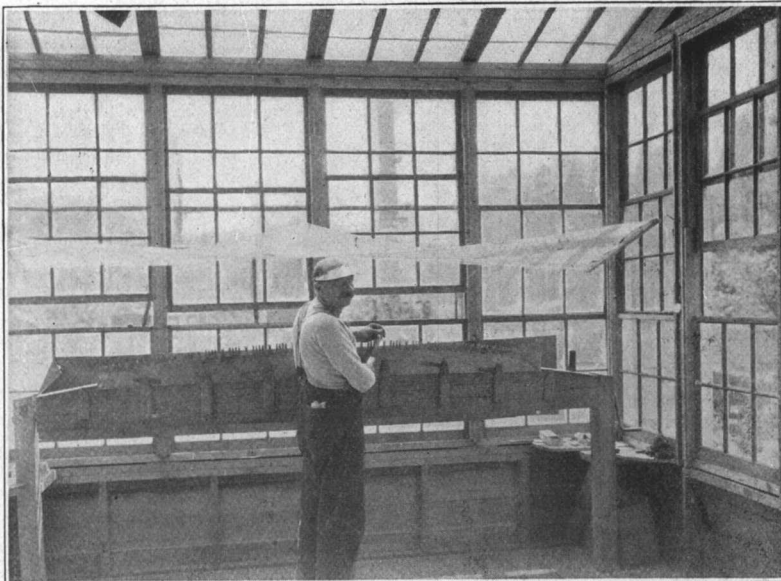


AN INTERESTING PANORAMIC VIEW OF A LOG TRAIN STANDING NEAR THE LOG DUMP OF THE TOLEDO (OREGON) PLANT OF THE TOLEDO LOGGING CO.





THE 55-TON SHAY LOCOMOTIVE NO. 4 OF THE MANARY LOGGING CO. AND THE TRAIN AND LOCOMOTIVE CREW AT CAMP 12 IN THE SILETZ COUNTRY



INTERIOR OF THAT PACIFIC SPRUCE CORPORATION INNOVATION, A "FILING CAR"—AS IT STANDS AT CAMP 12 OF THE MANARY LOGGING CO.

Spur 4 on their third set, which was completed by the end of the year and during which time "Side 2" took out 8,000,000 feet and "Side 3" took out 5,000,000 feet.

During this period Spur 4-B had been built a distance of 2,300 feet into the timber, necessitating the construction of two bridges 400 feet long. "Side 2" was removed to Spur 4-B, and "Side 3" to the end of Spur 4; and on November 18, 1923, the loggers began operating on their new locations. From these new sets, "Side 2" will log 8,000,000 to 10,000,000 feet and "Side 3" will take out 12,000,000 feet, which will carry them well into 1924. The above record of the operations of the Manary Logging Co. at Camp 1 covers the period from March, 1922, when the road was first cleared of its debris, until the close of 1923.

#### TRANSPORTING OF LOGS ON SPURS AND THE MAIN LINE

The logs which have been delivered at the spar tree from the swing are principally in lengths of 48 to 64 feet and are loaded on disconnected trucks. The Manary Logging Co. at Camp 1 uses 72 sets of Northwestern disconnected trucks, made by the Northwestern Equipment Co., of Seattle and 20 sets of Pacific Car & Foundry trucks, made by the Pacific Car & Foundry Co., of Portland and Seattle.

On Spur 1, a 65-ton Baldwin locomotive takes out five loaded sets in each trip, carrying 10,000 to 12,000 feet to the set, to the main line railroad, where they are left on a siding until the full main-line trainload has

been assembled. This 65-ton Baldwin locomotive, which is of the saddletank type, experiences no difficulty in handling these five loads on the  $6\frac{1}{2}$ -percent grade, which is the maximum grade of the spur; neither does it experience any difficulty in bringing back five sets of empty trucks, for the approach to the  $6\frac{1}{2}$ -percent grade is level and affords a run of a short distance to make the grade.

On Spurs 4 and 4-B a Shay 50-ton locomotive, manufactured by the Lima (Ohio) Locomotive Works, brings the loaded trucks in trains of five from the swing where they were loaded, to headquarters camp, where they are assembled in trains for the main road.

An 85-ton Baldwin locomotive is used on the  $23\frac{1}{2}$  miles of main line logging road from Camp 1 to the log dump at Southbeach. This train makes two trips a day, taking out fifteen to eighteen loads at a trip.

#### RAILROAD CONSTRUCTION AND MAINTENANCE

The main line and all spurs of the logging road of the Manary Logging Co. are of 60-pound steel, laid on 16 ties to the rail and are sand ballasted practically throughout. The bridges are of timber and are uniform in construction. There are eight sidings along the main right-of-way, at each one of which a telephone connects with the headquarters camp, and the other sidings and with the main office of the Pacific Spruce Corporation at Toledo. The total trackage of the railroad line is  $23\frac{1}{2}$  miles, with  $3\frac{1}{2}$  miles of spurs. The main line has a maximum grade of  $3\frac{1}{2}$

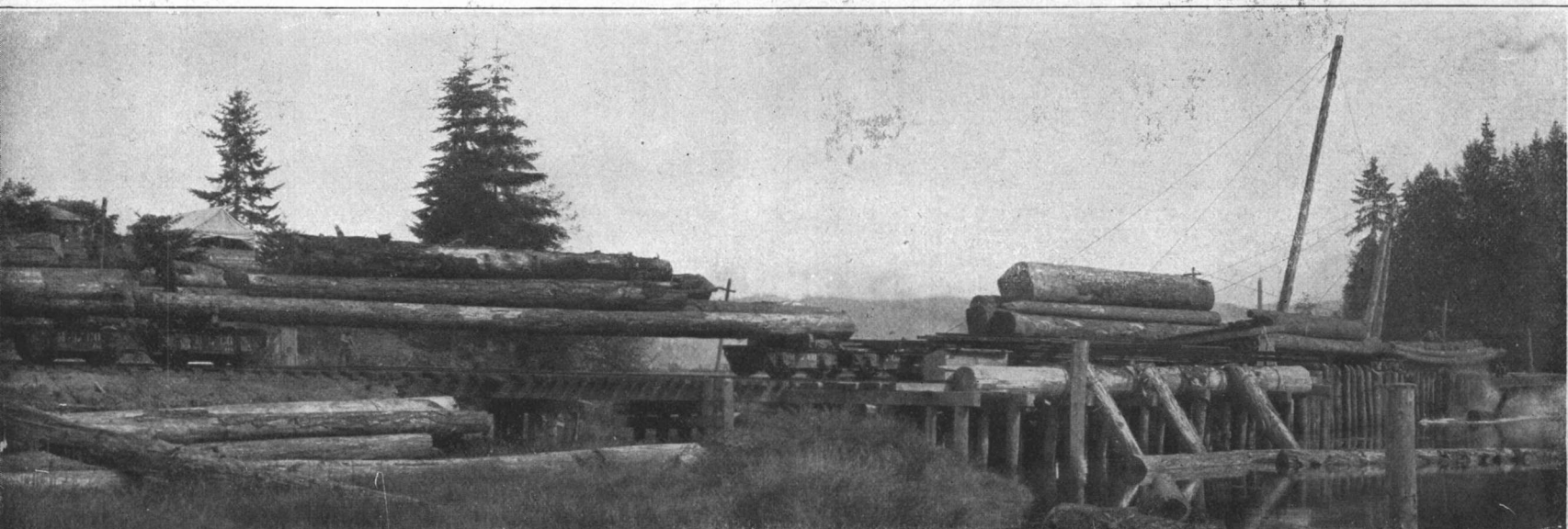
percent with 16 degrees maximum curvature. The maximum grade on the spurs is  $6\frac{1}{2}$  percent. The main line has a total of three miles of trestle.

The Manary Logging Co. is continually constructing additional spur lines. The steel gang, ten men, in charge of a foreman, is employed in laying the track. A 10x11 Willamette donkey and an Erie  $\frac{3}{4}$ -yard steam shovel are used for grading and chunking out ahead.

The bridge crew consists of eight men, with a foreman, and has a pile driver which was made by the company for its special use. These crews are busily employed extending the spurs into the timber, it being the policy of the company to have all track-laying, bridge building, grading and ballasting done well ahead of the logging operations, so there may be no delay when it is necessary to move from one location to another.

#### IMPORTANT BUT MISCELLANEOUS CAMP 1 AFFAIRS

The total number of men employed at Camp 1 is between 140 and 150, depending upon the size of the maintenance crews. Each locomotive has an engineer, a fireman and two brakemen, making a total of twelve railroad men for the three locomotives. The following is a list of men employed at each side: One windfall buckler, twelve fallers and buckers, one head buckler, four choker setters, one hook tender, three chasers, three engineers, one fireman, one whistle-punk, two loaders, one foreman, and one powder



PACIFIC SPRUCE CORPORATION IN AUGUST, 1923, THE TRAIN CONTAINING SIX CARS OF LOGS UP TO 90 FEET IN LENGTH



monkey. This total of 31 men may be increased from time to time, depending upon the requirements.

One foreman has charge of the three sides operating at Camp 1.

Besides the head buckler, who marks the trees, and the windfall buckler, there are four sets of fallers and buckers to each side. These men cut by the thousand feet, with deductions for breakage. This method of falling and bucking has been found satisfactory to all interested. Two scalers are employed

A small but comfortable camp is maintained at the log dump, for the four men who are employed there. In addition, the crew of the main-line Baldwin takes some of its meals there and stays there nights.

An Industrial crane, made at Bay City, Mich., is used to pick up the logs which occasionally fall off the loads on the main line.

Camp 1 has a 100-ton moving car with which to move donkeys from one spur to another, or over the main line.

#### Accommodation and Mail Cars

For carrying the mail and for the accom-

the oil tanks of the steamer "Robert Johnson."

#### A Complete Machine Shop

A modern, fully equipped machine shop is maintained at Camp 1. The building is 90 x 146 feet and of frame construction. Power for the machinery is furnished by a 50-H. P. Fairbanks-Morse semi-Diesel crude oil engine. This same engine, belted to a 15-K. W. General Electric generator, furnishes lights for the entire camp, which is illuminated by 200 electric globes, ranging from 40 to 220 candle power. The machinery con-



THE ABOVE VIEW OF TIMBER IS FIT TO GLADDEN THE EYE OF ANY LUMBERMAN OR ANY TIMBERMAN WHEREVER SITUATED. IT IS KNOWN AS THE "OLD MAIL TRAIL" RUNNING BETWEEN SILETZ AND KERNVILLE, OREGON; AND THE LOCATION OF THIS TIMBER RUNS ABOUT 7,000 FEET TO THE TREE, 150 FEET HIGH, 90 FEET SURFACE CLEAR

to scale the logs as they are brought out to the main line from Spur 1 and Spur 4.

The record for Camp 1 was made October 20, 1923, when 480,000 feet of merchantable timber was delivered to the main line.

#### The South Beach Log Dump

The northern end of the main line road terminates at the Southbeach log dump. Four men are employed at the log dump and a 9x10 Willamette donkey furnishes the power for the single-line unloading device. In the water the logs are assembled into rafts of 300,000 feet each, and towed to the mill.

modation of the people who desire to go to Camp 1, or for others who wish to travel between the different points, two Fords have been converted into railroad cars, each of which pulls a trailer in which is carried mail, quick delivery packages and express.

#### Use Oil for Fuel

With the exception of the chunk-out donkey, all the logging donkeys used by the Manary Logging Co. at Camp 1, and the locomotives, are oil burners. The oil which is used for fuel is brought from California in

sists of a 10 x 12 Ingersoll-Rand air compressor belted to the line shaft of the semi-Diesel engine. This air is delivered to the two forges and to the 800-pound hammer.

In addition to these machines, there is a 48-inch wheel lathe, a 24-inch lathe, a shaper, a large car wheel press, a drill press, a steel saw and a power grindstone. A 6-ton crane operates the full length and width of the machine shop.

Adjacent to the machine shop is a tool room, 20 x 24 feet, and a wire rope room, 32 x 40 feet. The Manary Logging Co. uses



exclusively MacWhyte wire rope, manufactured by the MacWhyte Co., of Kenosha, Wis., in all its logging operations.

#### Fire Protection at Camp 1

Fire protection is provided at Camp 1 by a 42-gallon A. G. Long & Co. (Portland, Oreg.), chemical equipment, with 75 feet of hose. Fire drills are frequent by company organizations, both officials and men taking pride in their frequent drills.

Each locomotive is provided with a pump and carries 100 feet of 1¼-inch hose. Water is supplied to each log donkey by a pipe lead-

Warren Construction Co., of Portland, during the war spruce activities.

#### Pacific Spruce Northern Railway Co.

The Pacific Spruce Northern Railway Co., of which C. D. Johnson is president, is a subsidiary company of the Pacific Spruce Corporation and was organized for the purpose of continuing the road from its present terminus into the timber to the north. A survey has been extended the full distance and the grading is done as far as Mill Creek, 1½ miles. During 1924 an additional mile will be built.

a portable camp was established at the end of the line, where a standard equipment, consisting of a 12x14 Humboldt yarder, a 13x14 Willamette high-speed swing and a 10x11 loader with a double swing boom, was installed. This side was put in operation early in 1923 and a yarding engine was finishing its last setting at the shutdown in December, 1923.

The timber in this section is all old growth yellow Douglas fir, averaging four feet in diameter and the side has been logging approximately 3,000,000 feet a month.



VIEW SHOWING OLD GROWTH YELLOW DOUGLAS FIR TIMBER WITH A FEW WESTERN HEMLOCK TREES, SITUATED ON WHAT IS E. S. E. ¼ S. E. ¼ SEC. 19, T. 9 S., R. 10 W. THE TIMBER THE OBSERVER IS LOOKING AT AS DEPICTED BY THE ABOVE ENGRAVING D SHOWS AS INDICATED IN THE PICTURE 20 PERCENT NO. 1 LOGS

ing from a pump located near some water supply and each donkey has a pump and hose equipment to be used in case of fire.

#### LOGGING OPERATIONS AT CAMP 12

Roland M. Manary is logging superintendent of Camp 12, which has been located six miles north of the mill, but which is now being greatly enlarged and moved two miles further north on the road of the Pacific Spruce Northern Railway Co., which is being built into the timber of the Pacific Spruce Corporation. This road was built by the

The grade of the first five or six miles of the Pacific Spruce Northern Railway is practically water grade, the last mile in the woods having a 3 percent grade, which is the present maximum of the road. In the seven miles which have been built there are 1½ miles of bridges, usually low trestles not exceeding 15 feet in height.

After finishing the work on the railroad south of the bay, Roland Manary, on July 1, 1922, opened one side on the railroad north of the bay and proceeded to build additional track. By November of that year the side had logged the timber adjacent to it and

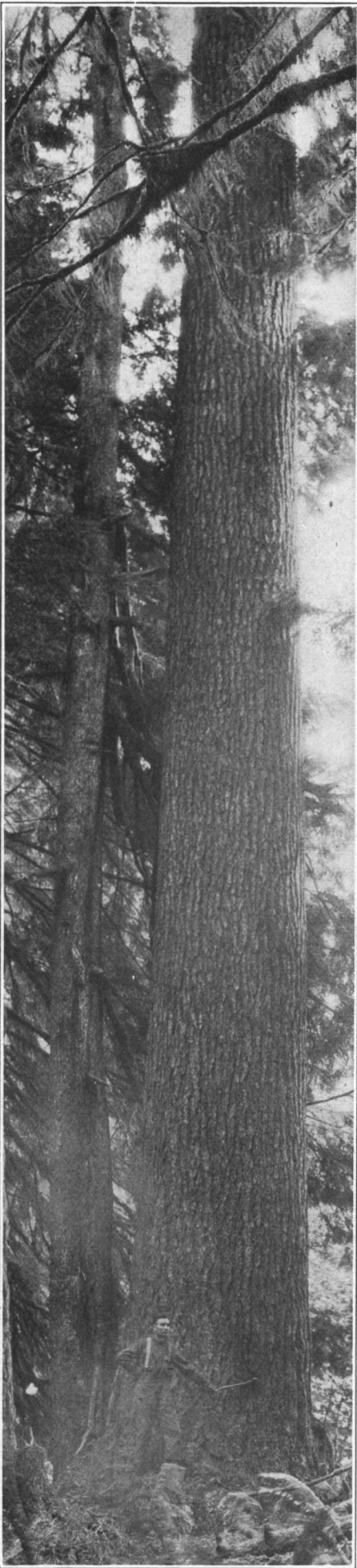
#### Railroad Operations at Camp 12

The railroad equipment at Camp 12 comprises a 50-ton Shay locomotive and thirty sets of Northwestern disconnected trucks. A 100-ton moving car is also provided.

Four men are used on the 50-ton Shay, an engineer, a fireman and two brakemen. A section crew of eight men, with a foreman, equipped with a Sheffield speeder, driven by a 40-H. P. Moore engine, makes up the maintenance crew of the railroad.

The Shay locomotive makes one trip a day from the camp to the log dump at Depot Slough, taking eighteen cars at a trip.





**A GOOD "FIR" TREE EXAMPLE**  
Above Picture Shows first two Log Lengths of the Great Douglas Fir tree Which is Pictured on the Right.

**The Log Dump for Camp 12**—The log dump at Depot Slough is electrically operated. It consists of a 50-horse power General Elec-

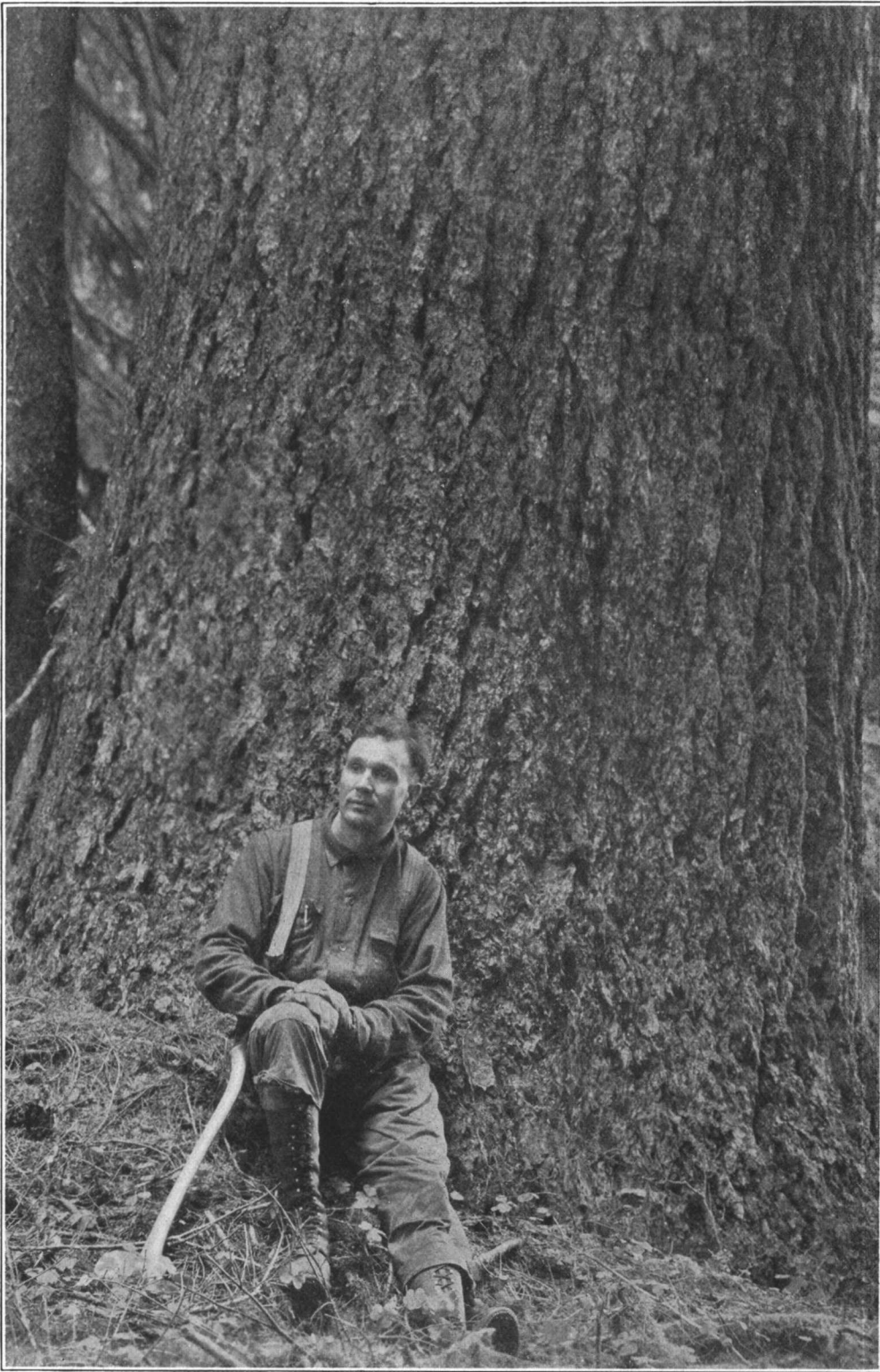
tric motor band, with a 10-inch band to the gear of a 2-drum donkey. Two lines are employed and an "A" frame equipment is provided. One man operates the unloading device and a car a minute can be dumped at this point.

**Rafting Camp 12 Logs to Mill**—After the logs from Camp 12 have been dumped into Depot Slough, they float down the slough about 3,000 feet to a point near the mill, where the boom crew assembles them in small

setters, a powder monkey, three chasers, a high climber, two loaders, three engineers, two firemen, a wood splitter, a wood buckler and a foreman.

**Construction Crew at Camp 12**—The construction crew on the Pacific Spruce Northern Railway consists of two civil engineers, a bridge crew of nine men and a construction crew of twenty-six men.

A 20-ton Industrial combination locomotive crane, steam shovel drag line and pile



**VIEW SHOWING THE BASE OF AN OLD GROWTH YELLOW DOUGLAS FIR**  
Base of Old Growth Yellow Douglas Fir tree, first two Logs of which are Shown in Long Picture on left. This Tree is 9 feet in Diameter at Butt, and Shows Leo M. Martin, Pacific Spruce Corporation Timber Cruiser, "Life Size" in Front. Sec. 19, T 9 S., R. 10 W., on S. W.  $\frac{1}{4}$  of N. E.  $\frac{1}{4}$ , "Jaybird Creek" Section.

rafts and they are taken to the mill by the gasoline tow boat "The Logger."

**Men Employed at Camp 12**—The Humboldt yarder operated at this side uses wood for fuel and takes, in addition to the engineer and fireman, a wood buckler and a wood splitter. The following men have been employed at this side: Twelve buckers and fallers; a head buckler, a hook tender, two whistle punks, a head rigger, three choker

driver will have its headquarters at Camp 12. This machine was furnished by the Industrial Co., of Bay City, Mich., and will be used at the mill when needed and also at Camp 1 to pick up logs which have fallen from the loads along the right-of-way.

**Future Operations at Camp 12**—Early in 1924 Camp 12 will be located at its new site, two miles north of its former location, where a permanent camp will be established. In



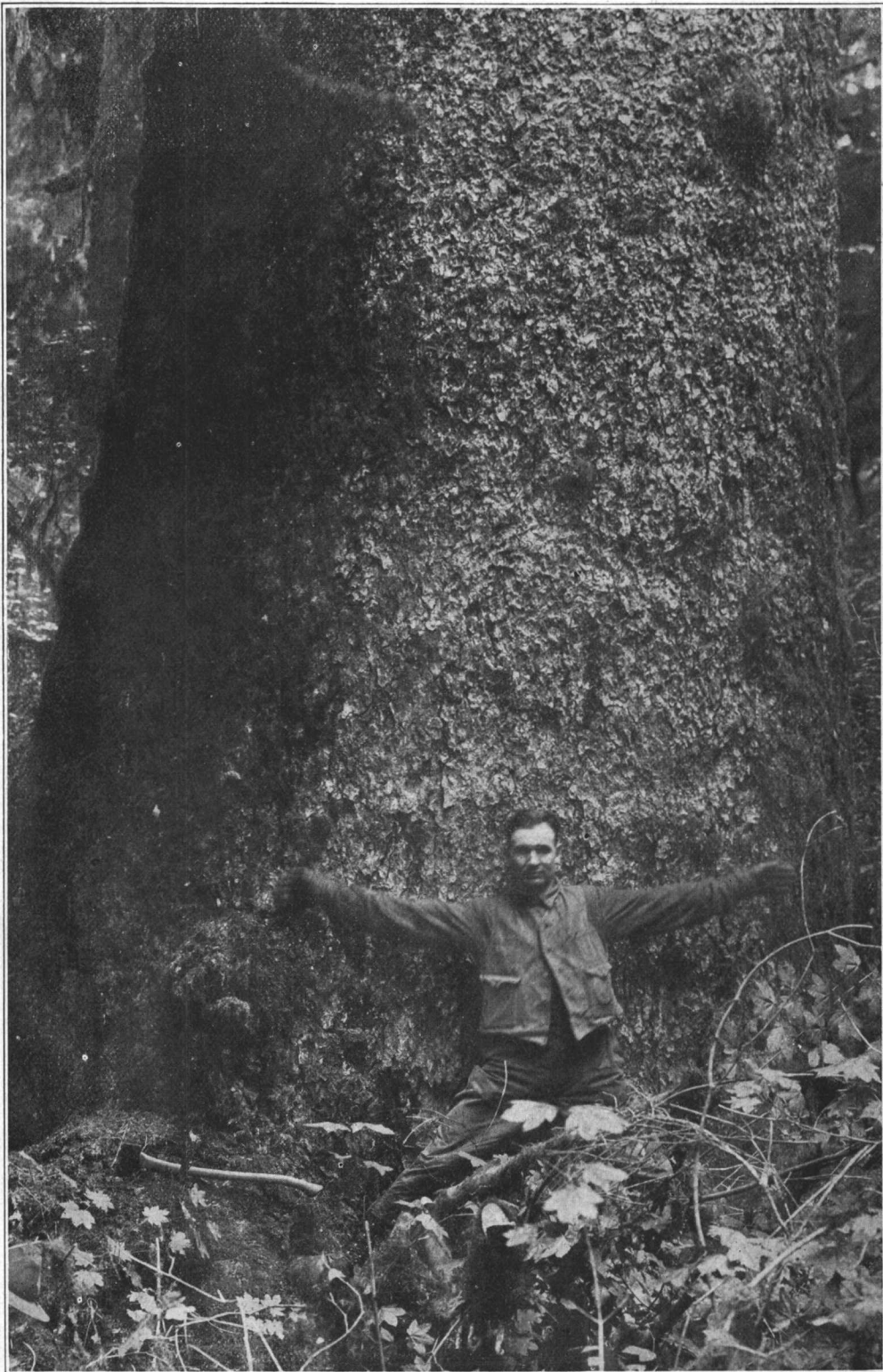
addition to the side which has been operating, three additional sides will be opened, one located on the spur to Mill Creek, another on the northern fork and one on the main line. Three new engines—a 12x14 two-speed swing a 10x11 three-drum loader and an 11x13 Humboldt—have been purchased from the Willamette Iron & Steel Co., of Portland for one of these sides and orders for three more machines will be placed.

**Description of New Camp 12**—A beautiful

**Shop, Camp 12**—The machine shop will contain a large lathe, a shaper, a small lathe, a planer, a drill press, a steam hammer, a wheel press, two forges, an air compressor, a power crane and a full equipment of tools.

Camp 12 has a blacksmith shop, sand and oil house and is electrically lighted. Water is furnished from a near-by creek under gravity pressure.

**Filing House at Camp 12**—One of the attractive buildings at Camp 12 is the filing



**THE BASE OF THE MONSTER "SITKA SPRUCE" DETAILED ON THE RIGHT**  
The Above View shows a "Sitka Spruce" Tree Nine Feet in Diameter Where it Will be cut—Which Contains at least 30,000 Feet of Lumber and While one of the Largest, the Bottom Land about it has Many Other Large Spruce Trees. Location S. E.  $\frac{1}{4}$ , N. E.  $\frac{1}{4}$ , Sec. 30, T. 9 S., R. 10 W., also in "Jaybird Creek" Section

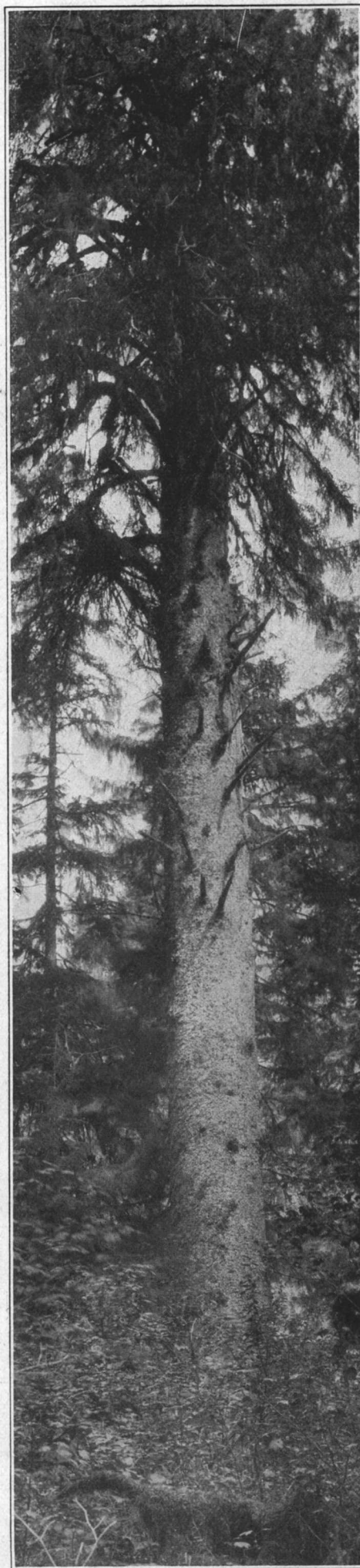
site has been selected for the new location for Camp 12 on the Siletz River overlooking a broad valley of berry land, with the old buildings of the Siletz Agency about a mile distant. In addition to the bungalows and bunk-houses, which will be erected here for the employees, a combination round-house, rip-track, machine shop and blacksmith shop 70x172 feet in size, will be built.

**Round-house, Machine and Blacksmith**

house, three sides and the roof of which are constructed entirely of glass. One end of this car house is occupied as quarters for the filer and the other end, which is all glass, is his work room.

#### **LOGGING OPERATIONS AT CAMP 11**

Few sections of the great west present the solitude of the Siletz basin. It is compelling



**A FINE "SPRUCE" TREE EXAMPLE**  
This view of a great "Sitka Spruce" Tree shows nearly the entire height of the tree, the butt of which is pictured on the left.

in its wildness and remoteness from the habitations of man; for, with the exception of a few settlers, an industry or two and an



occasional shallow-draft fishing boat, this section was practically uninhabited before the Manary Logging Co., began operations at Camp 11.

The river flows through a primeval forest of giant old growth yellow Douglas fir, Sitka spruce and western hemlock, of quality and quantity best described by the pictures of this timber, which appear elsewhere.

Deer, bears and cougars live unmolested on its banks and gamey trout and salmon lie in its clear waters. The river, which is navigable for shallow-draft vessels to the first rapids, eighteen miles above its mouth, may be followed by canoes for practically 125 miles, at which time the voyager would be only fifteen miles, as the crow flies, from the place he started.

No railroad nor any wagon road worthy of

there. The workmen of these two industries form the principal population of Kernville and a ferry across the river forms a link in what will eventually be the Roosevelt Highway and may in time give way to a bridge spanning the river. The setting of the little village of Kernville is beautiful, with a number of large spruce trees leaning over the river, giving a most picturesque view through their foliage of the steep hills on the north side of the river.

At intervals on the bench lands of the Siletz ranchers are located, but the upper reaches of the river follow a canyon and the banks are unadapted for agricultural pursuits.

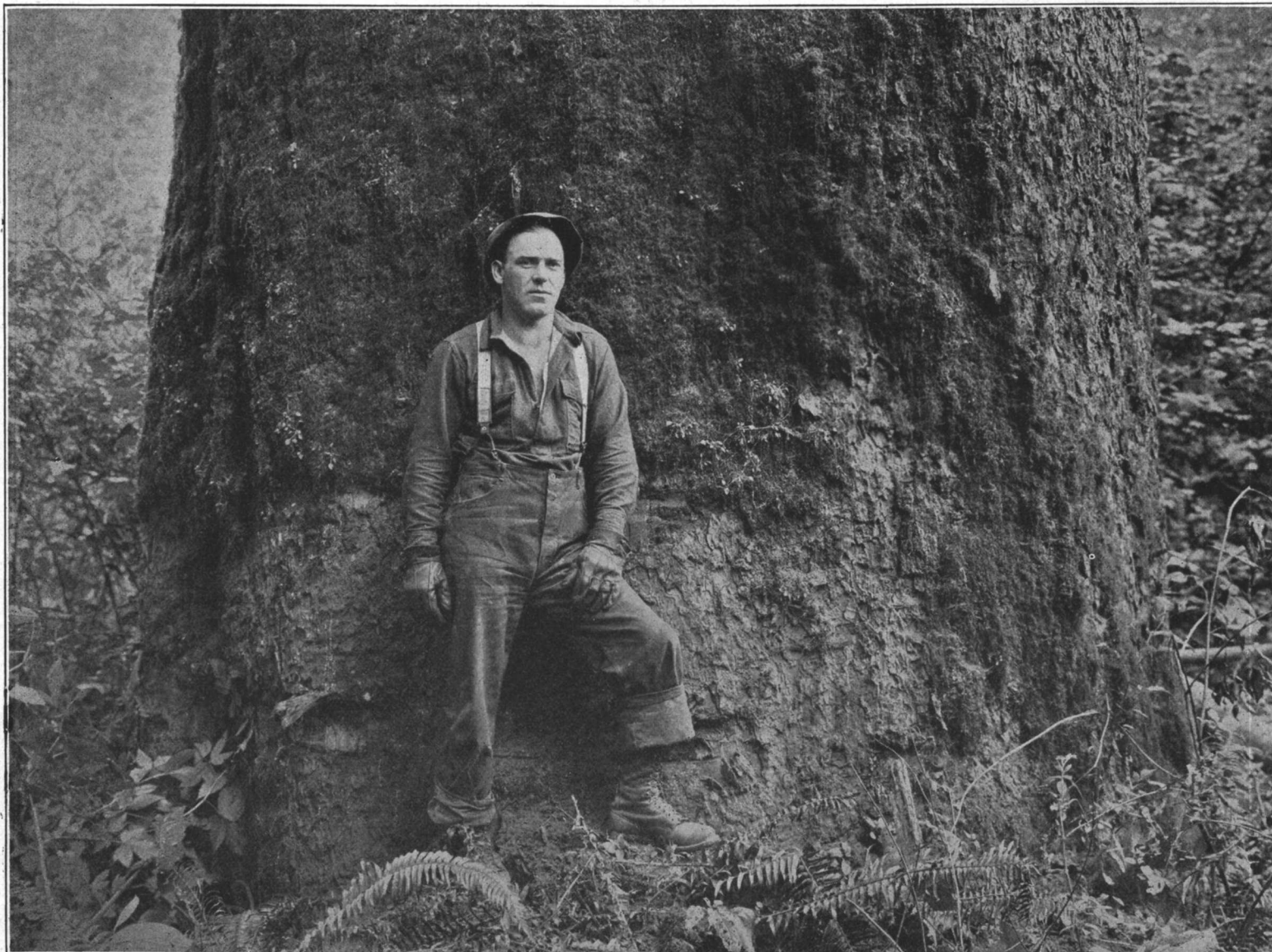
#### Timber Logged to River

The Pacific Spruce Corporation owns a large body of timber adjacent to this river

which was built at Toledo and towed to the camp.

The timber in which Camp 11 is operating—and in which it will be operating for a number of years—is tall and of good size. The trees are felled and cut full length, some of the longest logs reaching 160 feet. These logs are yarded by the 13x14 Willamette high-speed yarder to the tall tree, which is about 1,200 feet from the head spar tree, located on the opposite side of the river, close to the bank. The logs are brought to the river by this 12x14 compound-gear Willamette swing and dropped into the water.

Water for the logging engines is furnished by a 15-H. P. 4-B Fairbanks-Morse semi-Diesel engine and a pump. The water is driven through a 1½-inch pipe a distance of 1,400 feet.



**VIEW OF A GREAT "SITKA SPRUCE" ELEVEN FEET IN DIAMETER—ESTIMATED AT 35,000 FEET OF LUMBER**

When We Print Pictures of Such Enormous Trees as this Above We Want the Reader to Understand it is not for the Purpose of Making the Reader Believe that All the Trees of the Pacific Spruce Corporation are as Large as the One above or Others of Similar Size, but We do Want them to Know that Such Pictures Represent "A Type" and that There are Many Such—This Tree is on S. E. ¼, N. W. ¼, Sec. 36, T. 8 S., R. 11 W.

the name penetrates this forest and access is possible only by trail or by shallow-draft boats out of Yaquina Bay up the ocean twenty-two miles and into Siletz Bay.

The county road north of Siletz leading toward Camp 11 is very rough, with a large part of the planking, which was put down some years ago, now worn out. This road does not come within a mile of Camp 11 and mail and freight are carried from the landing at the end of the road on the river, by small power boats. Supplies and equipment come to Camp 11 by way of the ocean. Another wagon road leads from Newport to Kernville near the mouth of the Siletz River, but it is also rough and both these roads are practically impassable during the rainy season.

At Kernville a sawmill has been in operation for some time and a cannery is located

for many miles along its course, the logging of which has been solved by methods which form an interesting story.

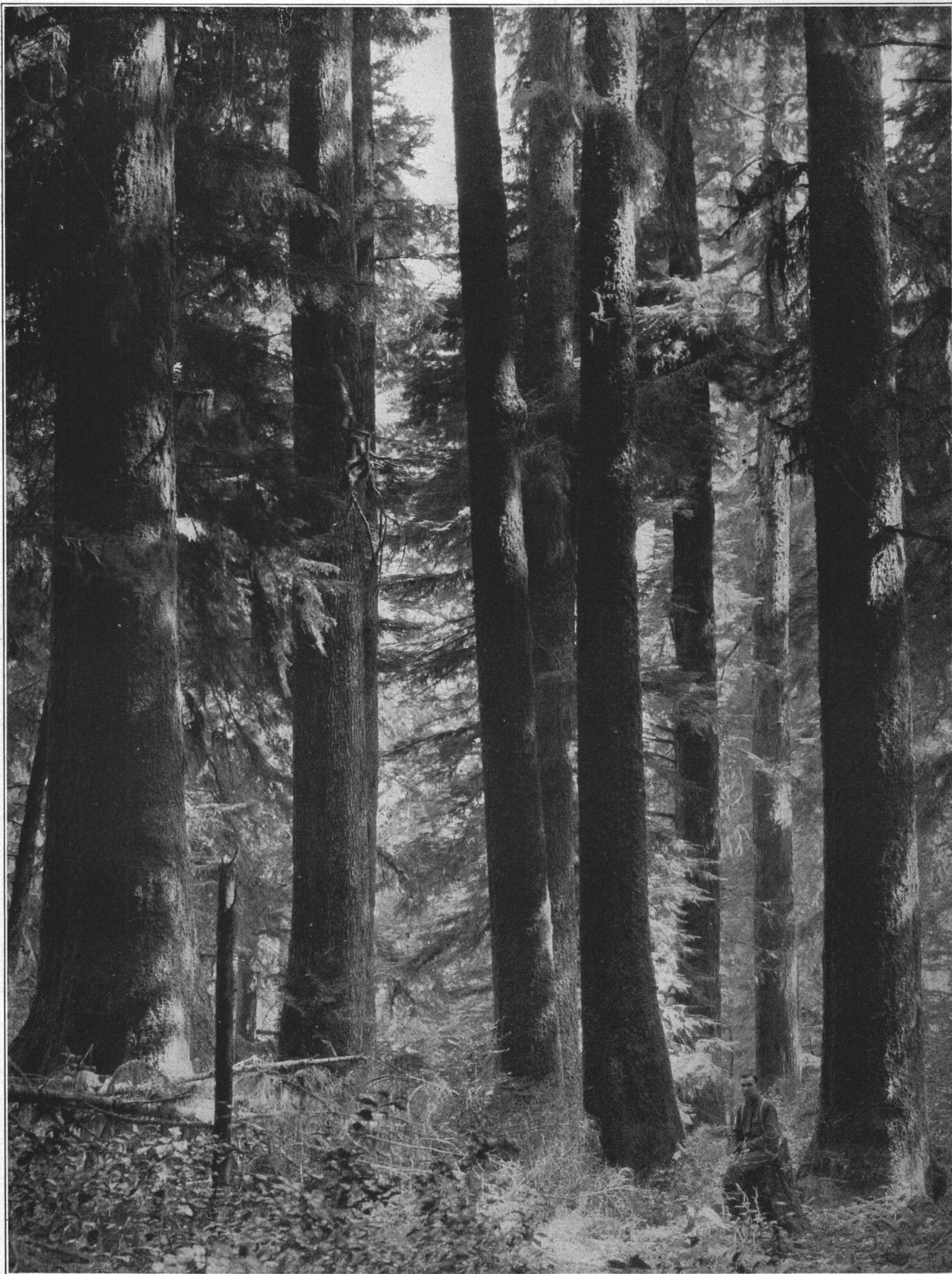
When it was decided to open the camp on the river, the tug "Sea Foam" took a crew of men there in charge of Gordon J. Manary and a temporary tent camp was opened. Three Willamette logging donkeys—a 13x14 Willamette Humboldt yarder, a 12x14 compound-gear, two-speed Willamette swing and a 11x13 Willamette loader used as a boom and rafting machine, were transported on an ocean-going barge from Toledo out of Yaquina Bay to Siletz Bay and taken up the river to Camp 11, which was opened in July, 1923. After this tent camp had been in operation several weeks permanent quarters were established for the men in a boat house,

#### Men Employed at Camp 11

Thirty-two men are employed at Camp 11 and the output of logs during the summer and fall of 1923, when this camp was in operation, was extremely satisfactory. The largest day's logging at this camp was 192,000 feet.

The logs deposited in the river float downstream about half a mile to the booming grounds, where they are held in booms from which the sea-going rafts are made. The Willamette boom donkey, which is on a large float, takes the logs and places them in position in the rafts. The first course of logs is arranged as to size and length, assembled side by side and interlaced at seven points with 1½-inch John A. Roebling & Sons wire rope, which passes above and beneath each log. The bottom layer of the raft thus formed is now piled with logs; and when





**DENSE STAND OF SITKA SPRUCE AND WESTERN HEMLOCK IN THE "SILETZ" TERRITORY—TRIBUTARY TO CAMP 2**  
 This Stand of Spruce and Hemlock Timber is 30 to 54 inches in Diameter, 80 feet to the Limbs and Trees 150 feet High. Trees Left to Right: 54-inch Spruce; 30-inch Hemlock; three Spruce Trees, each 30 inches; two Hemlocks, 40 inches each; one Spruce, 40 inches. Spruce on this Acre Cruised 150,000 feet. Location, N. W.  $\frac{1}{4}$  of S. E.  $\frac{1}{4}$ , Sec. 36, T. 8 S., R. 11 W.



300,000 to 600,000 feet have been placed in the raft, the top logs are interlaced at ten different points with the same size cable as was used on the bottom. A 1½-inch bridle is then clamped to the outside end logs which, with an eye, is secured to the tow-line of the tug "Go Getter."

This tow-line is attached to the Cunningham towing machine on the stern of the tug to prevent the swells of the ocean, especially on the bars, from breaking it.

The logs are towed from the booming grounds down the Siletz out over the Siletz bar and twenty-two miles on the ocean to the Yaquina bar, up the Yaquina bay and river and delivered to the mill at Toledo. About seven hours are required to tow a raft from the Siletz to Yaquina Bay, depending upon weather conditions, the longest time required being 9½ hours, when the "Go Getter," with its tow, encountered a heavy southwesterly

the mill; the handling of logs which come from Camp 12 through Depot Slough to the mill; the towing of log rafts from Camp 11 on the Siletz River through the Pacific Ocean to Southbeach; the towing of all rafts of logs to the storage waters near the mill at Toledo and the loading and towing and general handling of lighters from the mill at Toledo to shipside at the Newport dock.

#### THE STEAMER "ROBERT JOHNSON" AND ITS OPERATION

The crowning feature of the transportation service of the Pacific Spruce Corporation is the operating of the steamer "Robert Johnson," a steel ship, whose activities and features are an important factor.

Dean Johnson and W. J. Thomas, manager of the transportation department, went east in the autumn of 1922 and found and pur-

speed of ten knots an hour.

On the arrival of the "Robert Johnson" at Portland, Oreg., she was taken to the Albina Marine Works, where she was fully equipped for the Pacific lumber-carrying business. Four steel masts, each 90 feet in height, were stepped, with eight 75-foot Douglas fir booms. Four double-drum ball racer steam winches were installed, together with the necessary oil and bilge pumps and other equipment. Four hatches were provided, each 18x28 feet.

#### Loading the "Robert Johnson"

The loading of the "Robert Johnson" begins at the sorting chains of the mill, where the lumber is assembled into units, each of uniform grade, length and size. The units are four feet wide and four feet high, contain about 1,800 feet and weigh 7,500 pounds.

The monorail hoists pick up these units



**THE BUTT END AND THE FIRST LOG LENGTH OF A 9-FOOT "SITKA SPRUCE" LOG—SEE DESCRIPTION BELOW**  
The Above Picture of a 9-foot Sitka Spruce Log with Head "Bucker" C. C. Sherman at the Side of the Log. This View was made on the N. E. ¼, S. W. ¼, S. 36, T. 8 S., R. 11 W. This Tree Scaled 33,000 Feet. This Locality is Tributary to Camp 11, of the Manary Logging Co., Subsidiary to the Pacific Spruce Corporation.

gale. The rafts are 230 feet long and 48 feet wide.

At the booming and rafting grounds below Camp 11 there are five to ten million feet of logs held in storage. Siletz Bay is a natural protected harbor for the log rafts, which can be held there during the storm period.

#### SUPERIOR TRANSPORTATION DEPARTMENT OF THE PACIFIC SPRUCE CORPORATION

It is not given to many lumber manufacturing concerns to own and operate such an elaborately effective transportation system as does the Pacific Spruce Corporation; and in this statement distinct reference is made to its methods and facilities for getting its logs from the assembling point at Southbeach to

chased from the U. S. Shipping Board the steamer "Lake Shebago," a coal-burner. This vessel was rechristened the "Robert Johnson," in honor of C. D. Johnson's youngest son, a lad of eleven, who is already steeped in lumber lore, is thoroughly acquainted with all the activities of the great corporation and stoutly declares that he, too, will become a lumberman.

The "Robert Johnson" is 271 feet over all, with beam of 43 feet 6 inches, a depth of 21 feet, and draws 18 feet 6 inches of water when loaded.

The boat was converted into an oil burner in New York and brought to the Pacific coast via the Panama Canal. The power of the "Robert Johnson" is furnished by two marine boilers of 1,250 indicated horsepower, with a triple expansion engine with 20½-, 33- and 54-inch cylinders. She was designed for a

and convey them to the loading slip, where by means of a traveling bridge, 40 feet wide and 150 feet long, they are piled on barges, with 6x8-inch crosspieces, four feet in length, between the units, and piled four or five high. Two of the lighters will each carry 200,000 feet; two, 300,000 feet, and one, 350,000 feet. These lighters are built of timber and heavy planking. They are respectively 30x120 feet, 36x130 feet and 36x140 feet in size.

When the "Robert Johnson" arrives at Yaquina Bay, she lies at the Newport Port Commission dock at Newport. The loaded barges are taken by the "Go Getter," the "Sea Foam" or the "Aleut"—the competent fleet of tugs and small vessels maintained by the Pacific Spruce Corporation for towing purposes—and on high tide are towed to the vessel. Two barges are lashed fore and aft to



the shipside and the units are hoisted from them by the ship's own gear.

The four port winches, five tons each, are used; the lumber is deposited in the hold, where thirty stevedores pile it rapidly. The "Robert Johnson" has a hold capacity of 900,000 feet of lumber; and when this is filled the fore and aft decks of the vessel are piled twelve feet high, making about 600,000 feet more.

Lashing chains, copied after those on a vessel Mr. Thomas saw in Baltimore, are fastened to the fore and aft well-decks with steel deck pads. These chains are brought up inside the bulwarks, where large steel links hold them in place. The ship's cargo gear is attached to these links when the deck load is ready and the lashing chains are pulled to the center over the load, where they are fastened to chains from the opposite side by pelican hooks. The ship is equipped with eight of these chains forward and aft; and during all her trips, the cargo has never shifted, nor has a board been lost.

#### Oil Tanks Installed

The arrangement of the oil tanks in the "Robert Johnson" is ingenious. Two fore and aft peak tanks extend from the bottom of the hull to the upper deck. In addition to these, the water tanks of the vessel were converted into eight oil compartments, each 36 inches deep, covered with ½-inch steel. Amidships the water tank has a capacity of 190 tons of water, sufficient for twenty-five days' cruising.

All the oil tanks are inter-connected with pipes and valves and are equipped with swash plates which keep the oil from washing from side to side. By pumping oil from one compartment to another, the vessel may be trimmed after cargo is taken on and a perfect keel secured.

The "Robert Johnson" has an oil-carrying capacity of 500 tons, or about 3,300 barrels. Under load the ship uses 103 barrels a day for fuel. This fuel oil is taken from two settling tanks, built amidships where the coal bunkers were. She can run thirty days when loaded to her full oil capacity without replenishing fuel.

Her oil capacity is greatly in excess of the amount required for her own use and this excess capacity makes her of value to the company's logging department, for she can bring crude oil from California as ballast and deliver it in Yaquina Bay for the locomotives and logging donkeys, at a minimum cost for transportation. The Manary Logging Co. requires about 3,500 barrels of fuel oil per month. The "Robert Johnson" makes two trips a month and brings 1,750 barrels of oil each trip. The round trip to San Pedro requires about ten days—three days down and four days back—during which she uses about 1,000 barrels of oil for fuel, leaving about 500 barrels as a margin of safety, continually in the hold.

While she is taking cargo at the dock at Newport, an oil barge tanker is brought alongside and with her own pumps she discharges 1,500 to 1,800 barrels of oil into this tanker, for the Manary Logging Co.

#### The Crew of the Steamer

The crew of the "Robert Johnson" consists of a captain and 27 men. Capt. P. W. Johnson has stood on the bridge since she has been on the coast and he is assisted by three mates, a chief engineer and three assistant engineers. A wireless operator is in charge of the wireless installation supplied by the Radio Corporation of America, and three oilers, three firemen, four winch men, six sailors and three stewards comprise the balance of the crew.

The comfort of the men employed on the vessel has been provided for in every way possible. They have commodious, well-lighted quarters, which are kept spotlessly clean. Bunks furnished with clean linen, and food served from the spotless galley, compare favorably with the service of the camps ashore.

The "Robert Johnson" has proved an economical lumber carrier. The company is looking forward to the time when a sister ship will be on the run with her and to that day when the deepening of the bar will permit larger vessels to enter the harbor and load for foreign ports.

#### THE "GO GETTER" AND THE OTHER BOATS

When the "Robert Johnson" is out at sea she is the master of her own destinies. She is able to ride the storms and buffet the gales; but when she arrives off Yaquina Bay she is met by the "Go Getter," one of the finest tugs on the Pacific coast, which becomes her constant tender during the time she is in port.

The "Go Getter," which is under the command of Capt. D. Brown, was built in Seat-

every detail. She has a Kohler lighting system, built by the Kohler Co., of Milwaukee, Wis. A 6-inch Fairbanks-Morse pump provides for fire fighting or bilge work. Fresh water is provided by two 450-gallon tanks.

Compressed air, used in starting the engines, is furnished by an electrically driven compressor, which is available for other work. The gauge-board in the engine room is a work of art. It is made of mahogany and the telegraph instruments connecting with the bridge above are resplendent in all the glory of shining metal.



#### "HIGH CLIMBER" MCGEE OILING SPAR TREE BLOCKS NEAR CAMP 11

A Spar Tree near Camp 11 and two Photographs of High Climber W. J. McGee—One about as big as a bug, about an inch and a quarter from the top of the spar tree, oiling the blocks—And a portrait in the oval, showing the "climber" immediately after his descent.

tle, Wash., by the Lake Union Dry Dock & Machine Works. She is 76 feet over all, with beam of 18 feet 6 inches, drawing 8 feet of water. She is an oil burner, with 4,200 gallons capacity in the two main tanks and a reserve supply of 2,000 gallons in auxiliary tanks, giving her a cruising radius of 2,000 miles at a speed of 9½ knots.

Her two Fairbanks-Morse semi-Diesel engines, each of 100 horsepower, swing twin propellers 50x34 inches. With the exception of the knees, Douglas fir has been used in her construction throughout. The workmanship of the "Go Getter" places her in a class by herself and her equipment is complete in

The crew quarters are comfortable, eight bunks being provided, each lighted by electricity and furnished with blankets and linen. Battleship linoleums cover all floors.

A specially designed Cunningham towing machine, with a one-inch steel cable, performs its duties aft, while a power capstan forward stands always ready for service.

Besides being the bar boat, the "Go Getter" is used to bring the log rafts from the Siletz basin to the mill.

#### THE VARIOUS OTHER BOATS OF THE PACIFIC SPRUCE CORPORATION

The "Sea Foam," used in Siletz only—A





THE ABOVE PICTURE SHOWS HOOK TENDER AND CREW AT HIGH LEAD POLE MANARY LOGGING COMPANY NEAR CAMP 11 GROUPED AROUND 12x14 "WIL-LAMETTE" HIGH-SPEED YARDING DONKEY

tug of importance, which does a great deal of work is the "Sea Foam," which tows the log rafts from the South Beach log dump to the storage near the saw mill at Toledo. It is used on occasion as a bar tug and also

makes trips to the Siletz Basin for log towing purposes. The "Sea Foam" is 65 feet over all; 11 feet in the beam and of 6½ feet draft. This boat is equipped with a 90-H. P. Imperial semi-Diesel engine.



THIS VIEW SHOWS A "WILLAMETTE" 12x14 TWO-SPEED YARDER WHICH HANDLES LOGS ON THE SKYLINE FROM THE HIGH LEAD TREE ABOUT 1500 FEET FROM THE YARD AND FROM ACROSS THE RIVER

The "Aleut"—This boat, formerly running out of Seattle, Wash., is used by the Pacific Spruce Corporation for work within Yaquina Bay, for hauling booms from the log dump to the mill, and also assists in handling the barges and other work within the harbor.

The "Logger"—This boat uses gasoline as motive power, handles logs around the mill and brings in the big sticks from the booming ground to the log haul-up.

The "Go Gettem"—This boat might be called—and should be called—the dispatch boat. Its motive power is gasoline; it runs at a high rate of speed and is capable of carrying six or seven passengers within its glass-enclosed cabin; and, as this description and other statements would indicate, is decidedly useful to the Pacific Spruce Corporation, in conveying dispatches that can be sent no other way from the general offices at Toledo to the various logging centers and for conveying the executives and various officers and superintendents from place to place.

#### Towing Logs to the Mill

The logs, dumped into the water at the South Beach log dump, are placed in boom rafts, each containing 300,000 to 500,000 feet. They are towed by either the "Aleut" or the "Sea Foam" to the storage at the mill.

The logs which are delivered from the Pacific Spruce Northern Railway at the logging dump on Depot Slough float down this slough about 3,000 feet. Here they are cut and formed into smaller rafts which are conveyed by the gasoline tow boat, the "Logger," to storage at the mill. The log rafts from the Siletz each contain 250,000 to 300,000 feet, and are delivered by the "Go Getter" from the Siletz rafting grounds, by way of the ocean and Yaquina Bay, direct to the log storage.

#### Car Transfer Barge

The Pacific Spruce Corporation owns a transfer barge which operates on the waters of Yaquina Bay between Toledo and the two logging dumps. This barge is 36x136 feet in size and has tracks which accommodate three box cars. It is used in handling locomotives, logging trucks, cars and oil tankers between the different points.

#### LUMBER PRODUCTION OF THE PACIFIC SPRUCE CORPORATION OF TOLEDO, OREGON

The sawmill is so designed and equipped with such machinery as to enable it to produce the highest grades of lumber from the timber in maximum quantity at minimum expense; and it is today producing such lumber at the rate of 9,200,000 feet from January 1 to February 8, operating one and one-half shifts. With the completion of certain improvements and additions which were building in September, 1923; and which will be in operation early in 1924, the output of this mill will be further increased, and with this additional machinery and the operation of the mill on two shifts of eight hours each, the production of the mill will be not less than 600,000 feet daily, using 800 men in all operations.

Throughout the entire plant the watchword is "Quality First," and to that end no expense has been spared in creating a plant which will function in every detail to its highest maximum, and which will co-ordinate with the other departments of the institution in attaining the results desired.

#### FROM THE LOG POND TO THE LOG DECK

It shall be the purpose in this division of the article to follow the lumber in its various stages of manufacture, from the time it arrives at the mill in the form of logs, until it is loaded on the cars or barges in a finished state, ready for transportation to its market. In this story of the manufacture of lumber at this plant, it is the intention to deal with each process, in each building of the plant, as the product arrives at these buildings, and to tell the story of the building, the machinery it contains, and what is done to lumber while there or while it is passing through.



The logs are delivered to the mill 48, 64 and up to 150 feet in length, and held in storage in log booms capable of holding thirty million feet, and are brought to the log slip as desired, where they are first cut into such lengths as the manufacture of them into lumber demands.

#### A Comprehensive Plan

The sawing of the logs is accomplished by two marine drag saws, one gasoline-driven and one electrically driven, both manufactured by the Portland Iron Works of Portland, Oreg. The electrically operated saw is housed in a 20x30-foot building, located on a log float near the end of the log slip. The gasoline-driven drag saw is housed in another building located on a float and may be moved to different parts of the log pond as desired.

After the logs are sawed into convenient lengths they are pulled to the log haul, a heavily timbered slip, 162 feet in length, up which they are carried on a 2x10-inch chain, 362 feet in length, on dogs of 18 inches spread, spaced 8 feet apart. The power is furnished by a 75-H. P. Allis-Chalmers motor, located in the mill at the head of the slip, and belted to the log haul. As the logs pass up the slip a log spray washes foreign substances off the bark. The slip terminates in the center of a two-way log deck, from which an excellent view of the entire saw-mill and its machinery has been secured and is shown on another page of this article.

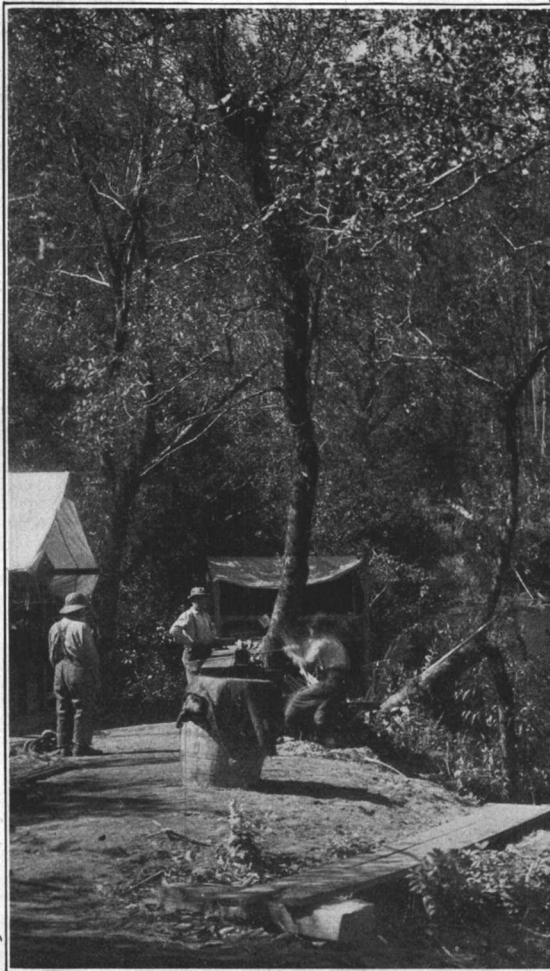
The first impression one receives, as he stands upon this log deck and sees for the first time the smoothly running mill in full operation, is a consciousness of some tremendous power that has been unleashed and which is driving the maze of machinery in its various functions of manufacturing lumber. One feels it necessary, in order to understand the saw mill operations perfectly, first to visit the power plant, where the force which drives all this machinery is generated.

#### STORY OF THE CENTRAL POWER HOUSE OF THE COMPANY

Steam is generated in modern sawmills,

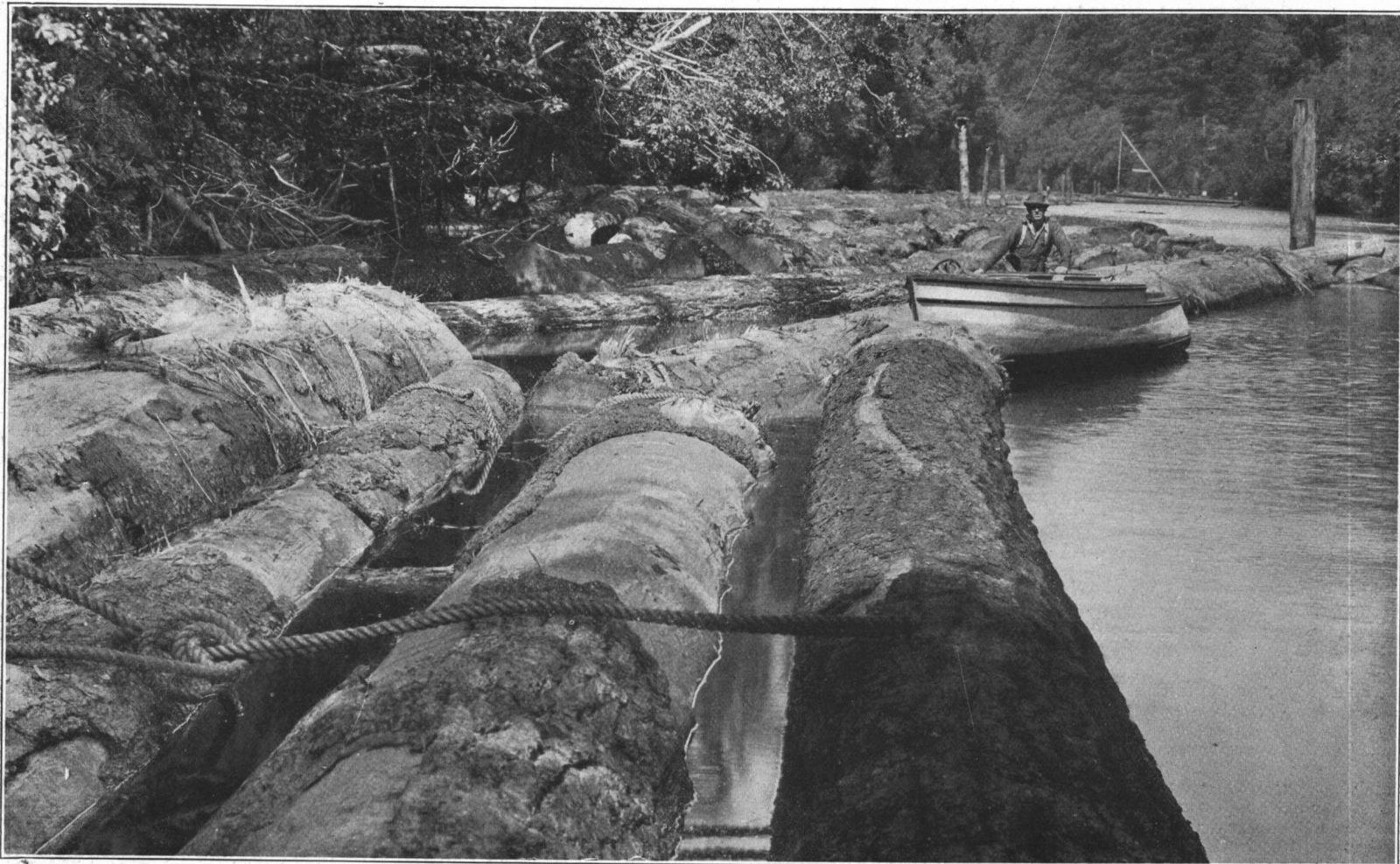
such as that of the Pacific Spruce Corporation, in a battery of boilers sufficiently large to provide power for the plant. The steam is conducted to a steam turbine generator which creates the electricity, which is then

conveyed by insulated wires in conduits to motors in all parts of the plant, each of which in turn drives that particular piece of machinery for which it is intended. A portion of the electric power generated by the



THE BEAUTIFUL SILETZ RIVER FROM CAMP 11, WITH TUG "SEA FOAM", POWER BOAT AND SMALL BOATS AT LANDING AND THE SPLASH OF A BIG LOG AS IT HITS THE RIVER FROM THE SKYLINE CABLE. LOGS ARE "DOGGED" ON NORTH SIDE OF RIVER UNTIL TIDE RUNS OUT, THEN FLOATED TO RAFTING BOOMS ONE-QUARTER MILE BELOW THE "HIGH LEAD" SPAR TREE, WHICH ALSO CARRIES THE LINE





BOOM OF LOGS AT RAFTING GROUND A HALF MILE BELOW CAMP 11, WHERE OCEAN-GOING RAFTS ARE MADE UP—WOODS FOREMAN ROWLAND IN SPEED BOAT—1,000,000 FEET SITKA SPRUCE AND DOUGLAS FIR LOGS IN BOOM—A VIEW USUAL AND CUSTOMARY DURING THE LOGGING SEASON

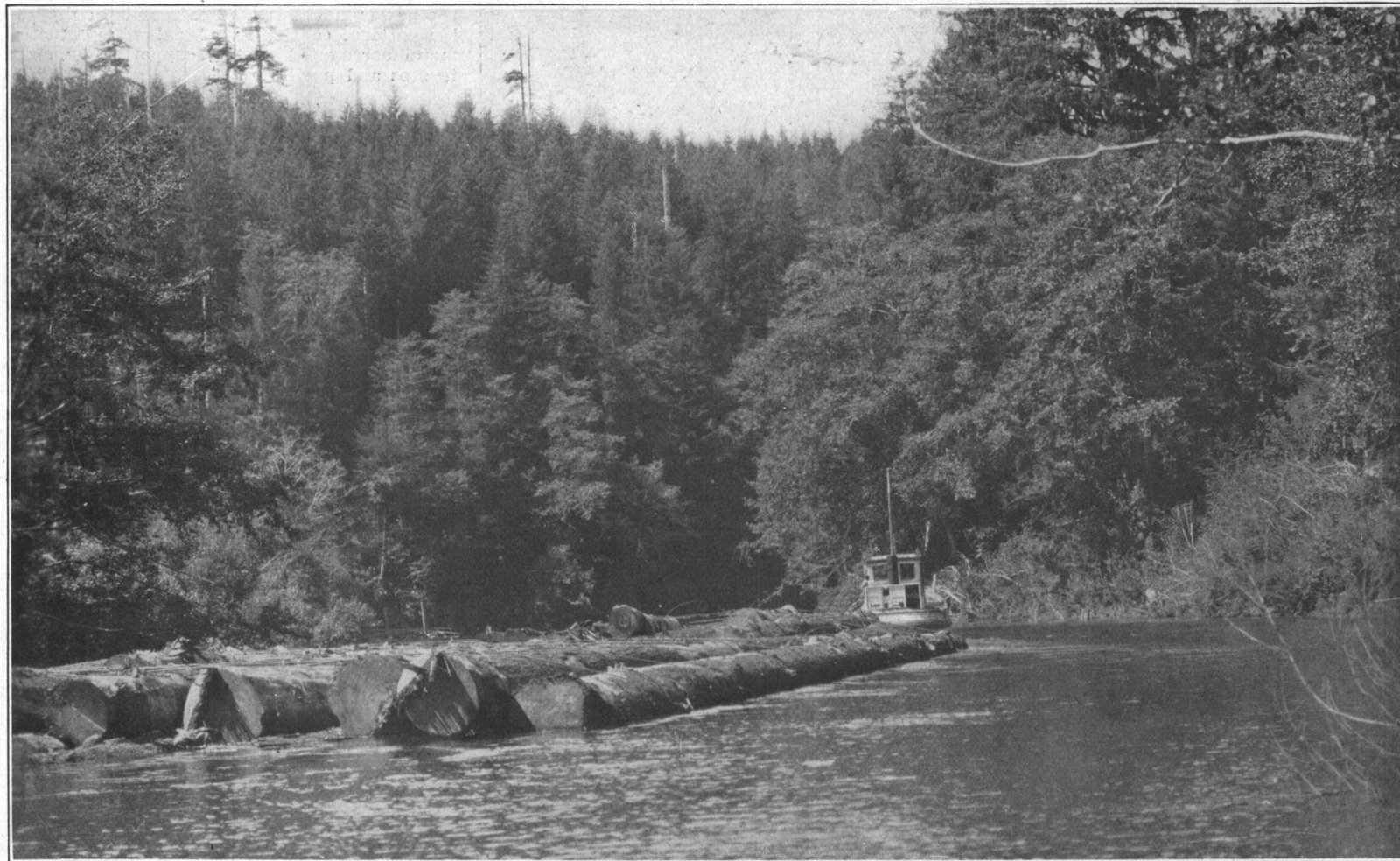


A GENERAL RAFTING SCENE LOOKING UP THE SILETZ RIVER FROM THE FLOAT AT THE RAFTING PLACE NEAR CAMP 11, AND IT CONTAINED BY ACTUAL MEASUREMENT TAKEN AT THE TIME THE PICTURE WAS MADE (THE LATTER PART OF AUGUST, 1923), NOT LESS THAN TEN MILLION FEET OF LOGS IN SIGHT





FROM A PHOTOGRAPH TAKEN ON SEPTEMBER 9, 1923, SHOWING A COMPLETED RAFT IN THE SILETZ RIVER BELOW CAMP 11. THE RAFTS CONTAIN ABOUT 250,000 FEET EACH, BUT SHOW ONLY ONE OR TWO COURSES OF LOGS ABOVE THE WATER. THEY ARE MUCH SIMPLER THAN THE CIGAR-SHAPED "DEEP SEA" RAFTS



THIS PICTURESQUE SCENE ON THE SILETZ RIVER WAS MADE TO SHOW A RAFT EN ROUTE TO THE SEA WITH THE ABLY NAVIGATED TUG "SEA FOAM" AHEAD. MANY TURNS IN THE "SILETZ" RIVER ARE SHORT, BUT THE NAVIGATOR TAKES ADVANTAGE OF THE TIDE AND PROGRESS IS ALWAYS SAFE AND EASY





THIS IS A VIEW OF THE FINE SEA GOING TUG "GO-GETTER" AS IT LIES IN THE PLACID WATERS, NEWPORT HARBOR, YAQUINA BAY, OREGON. THIS IS AN ALL-PURPOSE TUGBOAT SPECIALLY FITTED FOR ROUGH WATER TOWING AND GENERAL WORKBOAT USE



THE ABOVE VIEW SHOWS THE TUGBOAT "SEA FOAM" OF THE PACIFIC SPRUCE CORPORATION FLEET IN THE HARBOR AT KERNVILLE, OREGON, STARTING UP-STREAM WITH CAMP SUPPLIES—USEFUL FOR "FETCHING" AND "CARRYING" AS WELL AS TOWING

steam turbine, or of the steam power, may be utilized in running air compressors, and this compressed air, conveyed by pipes to certain of the machines, performs its functions

there, as in the air-lift trimmers or suction-cleaning installations. Or the live steam may be taken direct from the boilers and carried to certain machinery or installations to per-

form its functions direct, as in the case of twin engine feeds for carriages, steam log-rollers and kickers, and dry-kiln batteries.

The electrical current generated by the turbine is also used for lighting purposes throughout the plant, and in the case of the Pacific Spruce Corporation supplies both Toledo and Newport with electricity for illumination and power.

#### The Power Buildings

The power plant of the Pacific Spruce Corporation has been designed and is constructed so as to carry an immense load. From it emanates the power which drives the machinery in the sawmill, all the remanufacturing divisions, the monorail, and furnishes lights throughout the plant and for the cities of Toledo and Newport, and which may in time be extended to Camp 12 of the Manary Logging Co.

The dynamos which furnish this power are housed in a building in which is also included the battery of boilers. In addition to this building is a fuel house in which the surplus fuel, consisting of shavings from the planing mill and hogged fuel from the Diamond hog, is stored until needed for the boilers; and the refuse burner, which consumes all the refuse from the mill which is not needed for fuel and which is not valuable for commercial uses.

This power house was built in March and April, 1922. It is of reinforced concrete construction, the walls consisting of pilasters 14x14 inches with curtain walls between, 8 inches thick. Adequate illumination is provided by windows of ribbed glass set in steel sash in the curtain walls.

A foundation was provided by driving piling about 40 feet into the ground, and covering the caps of it with a concrete mat 3 feet thick, upon which the superstructure is built and from which arise the piers supporting the machinery.

The building is 85 feet wide by 100 feet long and 32 feet high. A center wall of concrete and tile construction divides the power house into two compartments, one containing the boilers and the fire room, and the other the power machinery. The roof is of the gable pattern, consisting of asbestos-protected metal corrugated roofing supported by steel trusses and purlins.

#### The Boiler Room

Steam is generated in eight Stirling water tube boilers with the Dutch oven type of furnace. These boilers carry 155 pounds of steam. Fuel is supplied by an overhead chain carrier which carries the sawdust or hogged fuel into chutes which lead direct to the furnaces and which are controlled by cut-offs operated by hand levers and which supply the quantity of fuel needed to sustain the steam pressure. The concrete floor in front of these boilers is kept scrupulously clean and washed out from time to time with water to reduce the fire hazard.

#### The Refuse Burner

That portion of the mill refuse which is not converted into fuel and which has no commercial use, is deposited on a carrier by a chain emerging from the sawmill on the northwest side and is carried to the burner. This burner was manufactured by the Colby Machine & Engineering Co. of Seattle, Wash., and is of the air-cooled type. Its foundation is secured by piling driven 35 to 40 feet in the ground and topped by a concrete cap.

#### The Fuel Building

The fuel building, which is built adjacent to the power house, is 36 feet wide, 96 feet long and 36 feet high. Its walls are laminated construction, of 2x8 plank outside and its partitions 2x6 inches, the latter providing four fuel pockets, each 24 feet wide, 36 feet long and 24 feet deep. The roof is of frame truss construction with asbestos roofing. The building rests on timber caps on piling driven about 40 feet into the ground. Any surplus of shavings from the planing mill, the fuel from the Diamond hog, and sawdust, is driven by blowers or transferred by conveyors to this building, and deposited on a conveyor chain running the entire length of the build-



ing above the bins, and is automatically deposited into the different fuel compartments. Conveyor chains take this reserve fuel, as needed, to the conveyor which feeds the furnaces beneath the boilers.

#### The Turbine Generator Room

This room is two stories. The large turbine generators, two motor generators, the switchboard and the water heater are located on the second floor; the pumps, exciter, condensers, and other machinery on the ground floor. The steam turbine generators rest upon concrete piers 18 feet high.

A 1500-kilowatt Allis-Chalmers Co. steam turbine has been carrying the load for the entire plant, but another steam turbine of 3,200 kilowatts, made by the same company, is being installed. The combined capacity of these two generators is 4,700 kilowatts, over 6,250 horsepower. They are capable of sustaining a considerable overload, and their tremendous power will be sufficient for the present uses of electricity and such additional ones as will be demanded when the capacity of the plant is further increased. The present generator has been handling 80 to 100 percent overloads for some time.

This article will deal with the power plant as it is now operating, and as it will be operated when the 3,200-kilowatt generator is installed, as it will be by the time this review of the operation is printed. This work is being done by Lewis & Watts, engineers, of Portland, Seattle and Vancouver, who are also furnishing and installing, under the personal supervision of L. R. Watts, manager of the Portland office, the No. 1 Schutte & Koerting condenser for the large turbine. This condenser will handle 60,000 pounds of steam an hour when furnished with 7,000 gallons of cooling water at 60 degrees. This firm is also doing the electrical work in the new pony band mill and gang resaw equipment (farther mentioned a little later in this chapter on production), J. L. McLaughlin being in personal charge of this work for Lewis & Watts.

The present steam turbine generator is three-phase, 60 cycles, 480 volts, 1800 revolutions per minute. At present its night load, as shown by the curves on the switchboard records, is 1,600 kilowatts and its day load 2,400 kilowatts. The installation of the 3,200-kilowatt turbine generator, which is three-phase, 60 cycles, 480 kilowatts 3,600 revolutions per minute, will also carry the power for the gang mill, the pony band mill now being built, and that required for additional installations in various parts of the plant.

For lighting purposes, 500 kilowatts are used, 150 kilowatts of which are stepped up from 480 volts to 2,300 volts, in a transformer vault next to the power house, and then transmitted to the lines of the Lincoln County Light & Power Co., which supplies the cities of Toledo and Newport with electrical service. The balance of the light load, 350 kilowatts, is stepped down to 120 volts and used in lighting the plant.

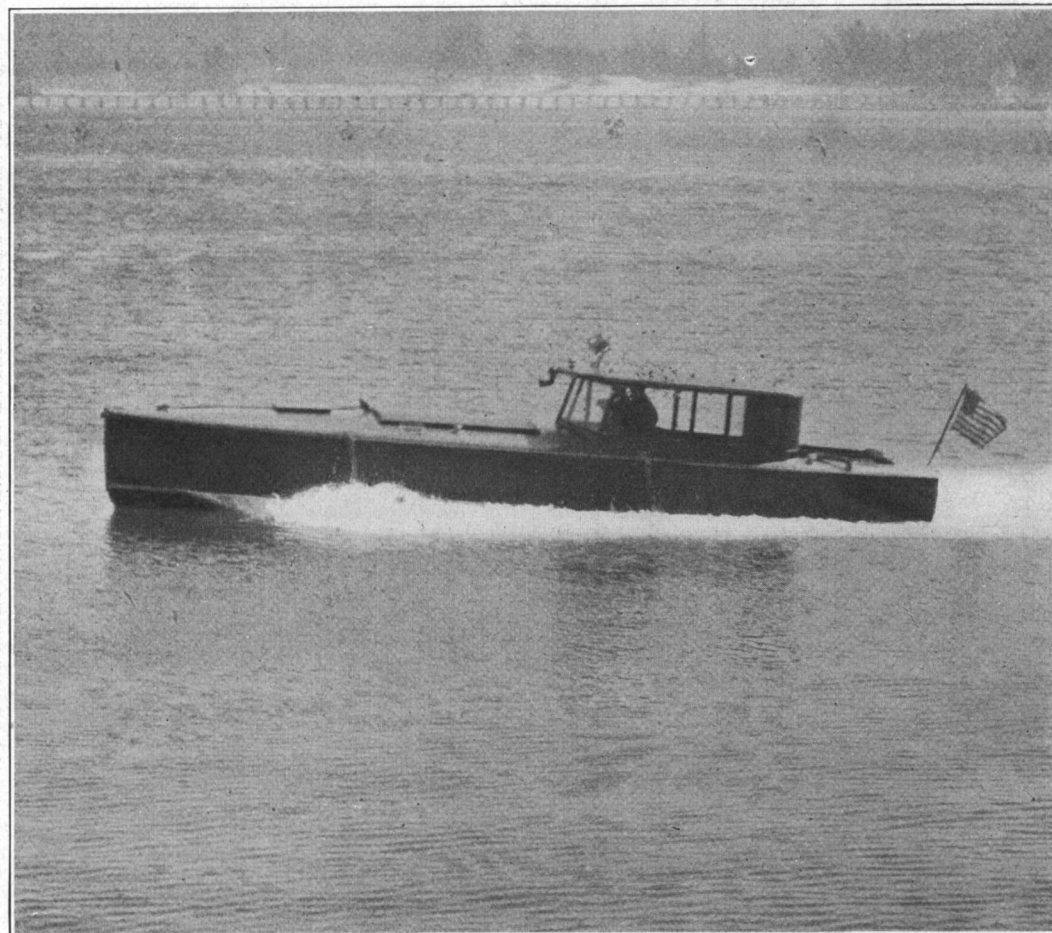
Both steam turbine generators take non-superheated steam direct from the boiler at 150 pounds pressure as indicated by a gauge at the throttle. The condensers maintain a 28-inch vacuum (in terms of a 30-inch barometer). The condenser for the 1,500-K.W. machine is of the Allis-Chalmers Co. type "C" and the condenser for the 3,200-K.W. turbine was furnished by the Schutte-Koerting Co.

The water for these two condensers is furnished by two centrifugal pumps, direct connected with motors, situated in a small building adjacent to the machine shop, one with a capacity of 6,500 gallons per minute, the other with a capacity of 4,500 gallons per minute; also another which furnishes the water for the log spray on the log slips, previously referred to.

The largest switch ever installed in the Pacific northwest is located directly beneath the 3,200-K.W. turbine generator. This is a 6,000-ampere, automatic operated, main generator switch, and carries the main current to the switchboard. The size of this switch is necessitated by the low voltage, 480, and consequent large amperage of the generators.



THE TUG "GO-GETTER" HANDLING A RAFT OF LOGS AS IT PASSES TO THE HARBOR AT KERNVILLE DOWN THE SILETZ RIVER. ANOTHER EXAMPLE OF "EASY GOING" IN THE SILETZ WATERS

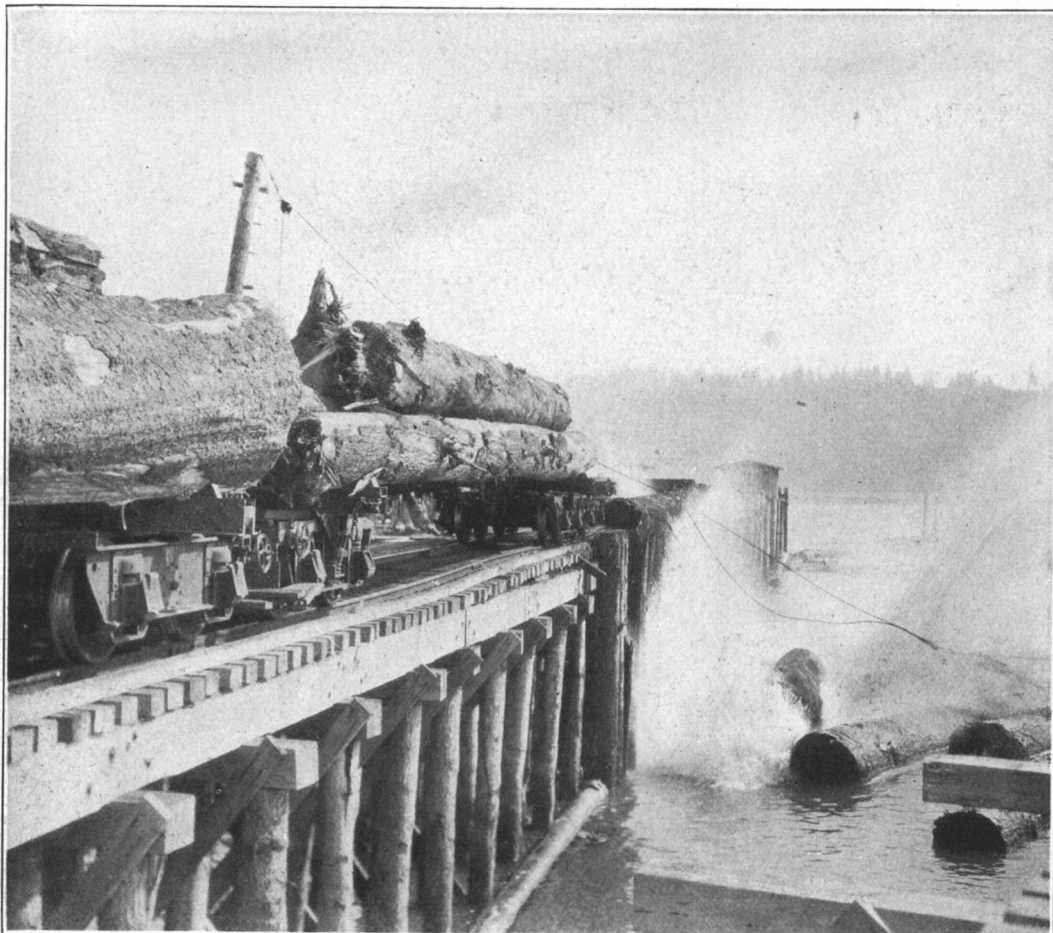


THE ABOVE SPIRITED ACTIVITY SHOWS THE SPEED BOAT "GO-GETTEM" OF THE PACIFIC SPRUCE CORPORATION, THE COMPANY DISPATCH BOAT, RUNNING FULL SPEED IN THE HARBOR AT NEWPORT, OREGON

The present switchboard, made of black slate and carrying the various indicators of the system, has a generator panel, an exciter panel, and twelve feeder panels, which num-

ber will be increased to take care of the gang mill, pony band mill and other local installations. The oil switches are back of the panel board and under remote control.





THE ABOVE VIEW SHOWS THE FINAL DUMPING SPOT AT OR NEAR THE END OF THE GREAT DOCK WHERE THE LOGS ARE UNLOADED THAT COME FROM HEAD-QUARTERS CAMP 1



THIS VIEW SHOWS THE LOGS AT THE DUMP FROM THE OUTER END WHERE THEY ARE THROWN INTO YAQUINA BAY AND ALSO THE UNLOADING SHED AND ELEVATED "PILE" WHICH CARRIES THE LINE ABOVE THE LOGS

Located on the ground floor of the power room is a Skinner steam starting set, a 50-H. P. steam engine, operating a 125-volt direct current generator, which is used to excite the

fields of the 1,500-K.W. turbine generator for starting purposes. When the latter has been started with this steam-driven exciter, the exciting current is cut over and

drawn from a 15-K.W. direct current motor generator which then excites the field of the larger machine. The steam-driven exciter is then cut out and stopped.

A 200-ampere Allis-Chalmers motor generator steps down the 480-volt current from the large generators, to 120 volts direct current, which is used on the monorail. This installation will not be changed in the improvements now being made to the power plant.

#### Additional Machinery and Power House

In addition to the above electrical equipment and condensers, the power house contains a Cochran boiler feed-water heater, with a capacity of 4,000 gallons a minute; a 12x14-inch steam-driven air compressor with a capacity of 227 cubic feet per minute; and two Worthington boiler feed pumps, 14x8½x12 inches in size.

Two fire pumps are also located here, a Worthington No. 1, and a Fairbanks-Morse No. 2, each 10x12x18 inches, with a capacity of 1,000 gallons per minute, discharging into an 8-inch main pipe line.

#### FROM THE SAWMILL LOG DECK TO THE SORTING CHAINS

Returning now to the log deck, which was left to visit the power plant: Here begins a trip, through this modern sawmill, to visit EACH DEPARTMENT of manufacture in SEQUENCE.

The sawmill building is 74 feet wide and 298 feet long and has two ells—the remanufacturing plant and the lath mill—extending from its northeast side, being additional to the above dimensions, and to be described in their order, but which are included under the same roof as the sawmill, and treated in this article as a part of the sawmill building.

The foundation of the sawmill is of piling driven thirty to forty feet in the ground upon which the foundation timbers rest. The superstructure is three stories high and of general mill construction. The timbers used in the head end of the mill are 14x14 inches, heavily braced and strongly bolted throughout. The lower story, which is floored with concrete, contains the necessary transmission machinery, motors, and a few pulleys and belts, which transmit the power to a portion of the machinery located on the second floor, which contains the sawmill machinery, some of which is driven by motors direct-connected with it and located on that floor. The third floor contains the filing room, and the long runways, over which the saws are conveyed to and from the respective sharpening and fitting machines.

#### Log Deck and Carriages

The log deck is divided into two parts, sloping toward the right-hand and left-hand sides of the mill. When the logs arrive in the mill on the log chain, the LONGER ones are kicked off to the sloping deck, at the left by an Allis-Chalmers Co. steam kicker, and the SHORTER logs are kicked off to the right by a similar device. They roll down either inclined deck until they reach, and are held, in the arms of a large Allis-Chalmers Co. steam log roller, which is under the control of the head sawyer on either side, and from which they are thrown onto the carriage by pressure on a pedal by the sawyer's foot.

Both carriages are Allis-Chalmers make, and are similar in construction and in operation. They are driven by a double rope Allis-Chalmers twin-engine feed, and are equipped with electrically operated Trout networks. The right-hand carriage has 84-inch head-block openings, and the left-hand carriage, where the longer logs are sawed, has 72-inch openings. The logs are dogged to these head-blocks in the usual manner.

#### The Two Head Band Saws

The right-hand band saw is an 11-foot Allis-Chalmers heavy-duty western-type; and the left-hand band saw a 10-foot manufactured by the same company. The saws are 16 inches wide and 61 feet long. They are furnished by E. C. Atkins & Co., Inc., the Simonds Saw & Manufacturing Co., and Henry Disston & Sons, as are all the other saws used in the mill.

With the removal of the first slabs and the



clear lumber on the outside of the log, a Simonson log turner, located on the log deck, turns the log down and it is shoved back on the carriage against the headblocks where it is again dogged and the slab and the clear lumber removed from another side of the log. This operation is repeated for the other two sides, and the entire log cut into lumber or cants in conformity with the quality of the timber and the purposes for which it is intended. The largest cant removed from the log by the band saws is 12 inches thick, this being the capacity of the edgers, toward which the lumber is now being carried on a system of live rolls. The power for each band saw is derived from a 300-H. P. Allis-Chalmers Co. motor, belt driven, and located on the lower floor beneath the head-rig.

#### The Two Edgers

The lumber from the band saws, carried on two sets of live rolls under the control of the tail sawyer, arrives at two Allis-Chalmers edgers, each with eight 36-inch saws, capable of cutting up the 12-inch cants or of trimming any thickness of lumber which has come from the band saws. The left-hand edger is a 12x72-inch machine and the right-hand 12x84-inch, each driven by 300-H. P. Allis-Chalmers Co. motors, direct connected to the arbor with a flexible coupling.

When the lumber, now on the live rolls, arrives from either one of the band saws to its respective edger, it may follow either one of two routes. It may continue on the live rolls past the edger, to the timber dock at the rear of the mill, or it may be stopped at the edger by a large stop, automatically removed from the live rolls, and conveyed to the table of the edger through which it passes to be edged or to be cut into smaller cants.

When the lumber has passed through the edger, it is still on live rolls, and it may continue on these rolls or may be picked up by lifting chain skids, which return it to live rolls on their respective sides. If it continues on the live rolls from the rear of the edgers, it is conveyed to a transfer chain which carries it to the trimmer.

#### The Horizontal Band Resaw

The live rolls, carrying chains, and lifting chain skids, immediately back of the edger, are under the control of one man who stands on an elevated platform in front of the horizontal band resaw—which will next be considered, in the process of manufacturing.

That portion of the lumber which has come from the edger and has been delivered back to the respective live rolls on either side by the lifting chain skids, and which must be subjected to further manufacture, is REMOVED from the live rolls at either side of the 7-foot horizontal band resaw, furnished by the Prescott Co., of Menominee, Mich., and transferred to this machine by chains. This resaw is of the double-table type, driven by a 150-H. P. General Electric motor. The lumber from this resaw is deposited on a chain, from which it may be removed for additional resawing by this machine, or upon which it may continue toward the remanufacturing division of the sawmill.

#### Log Now In Four Parts

The log, which but a few moments ago came up the log slip, has now been divided into four parts: (1) That portion which passed the edger and the resaw, and has been trimmed by a swing cut-off saw en route to proper length and has been delivered at the rear of the mill in the form of timbers; (2) that portion which has passed through the edger, and has been removed from the live rolls on which it emerged, is on its way to the trimmer; (3) that portion which has passed through the horizontal resaw and has been delivered on the chain is on its way to the remanufacturing division; (4) the edgings and slabs which have been removed from the live rolls are on their way to the slasher.

#### Utilization of Refuse

We will first follow the slabs and edgings. These unavoidable by-products in the manufacture of lumber contain a considerable quantity of desirable material, and it has



A TYPICAL SCENE IN THE SO-CALLED "RAFTING POCKET" AFTER THE TWO SECTIONS OF THE TRAIN OF THE MANARY LOGGING COMPANY HAD DUMPED THIRTEEN LOADS INTO THE WATER

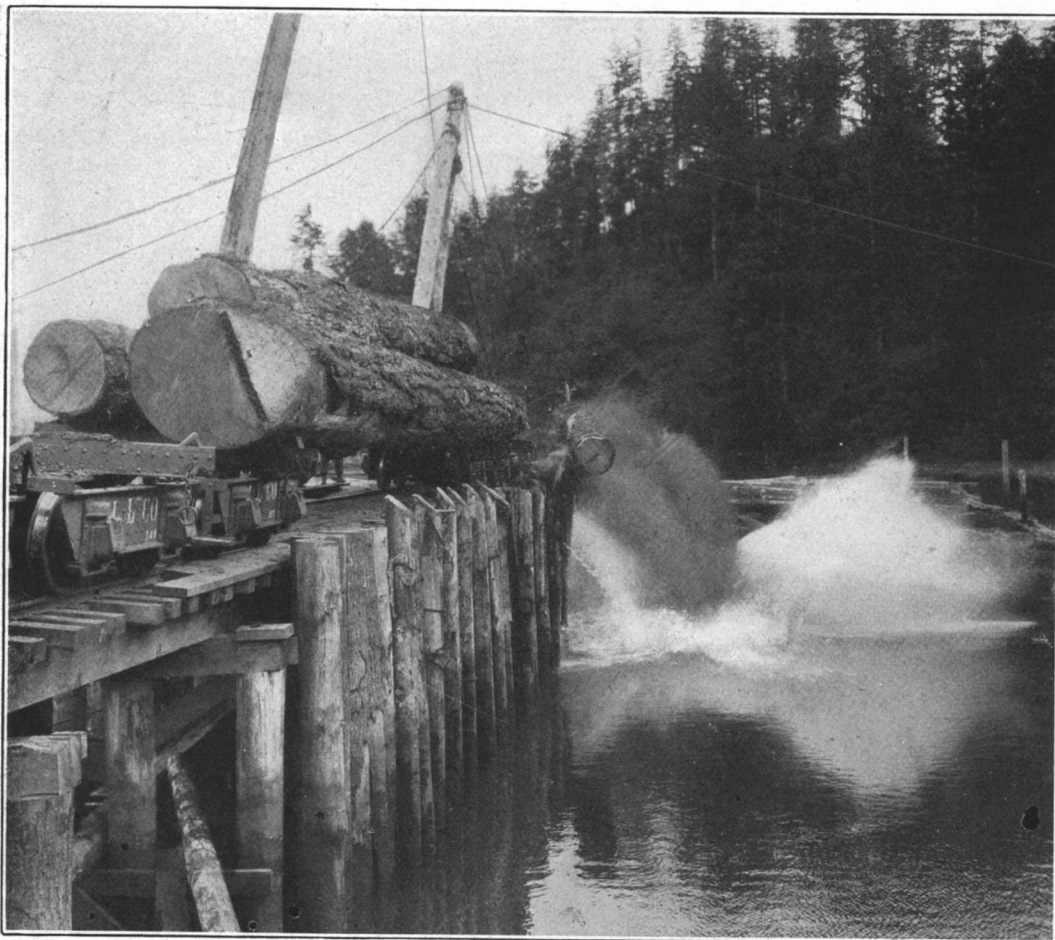


THIS BEAUTIFUL SCENE SHOWS A COMPLETED LOG RAFT IN THE DUMPING WATERS AT THE END OF THE RAILWAY WHICH CONVEYS THE LOGS FROM THE SOUTH END OF LINCOLN COUNTY

been the purpose of the Pacific Spruce Corporation to utilize to the last degree all of them that are commercially valuable. After the slabs and edgings are removed from the

transporting devices on which they are carried, they are deposited on chains which carry them to a 40-foot top-saw Allis-Chalmers slasher, having eight saws spaced 4 feet





THE "SPLASH" OF THE BIG OLD GROWTH YELLOW DOUGLAS FIR AND SITKA SPRUCE LOGS AS THEY ARE DUMPED INTO DEPOT SLOUGH AT THE LOG DUMP, ONE-HALF MILE ABOVE THE MILL AT TOLEDO



A COLLECTION OF LOGS AS THEY ARE GATHERED FROM CAMP 12, AND DROPPED INTO DEPOT SLOUGH AT TOLEDO, OREGON, AS THEY APPEAR FROM THE WAGON BRIDGE LOOKING UPSTREAM

apart, and driven by a 150-H. P. General Electric motor. As the slabs and edgings pass beneath the saws they are cut into 4-foot lengths and these fall on to a conveyor

chain which carries them by the lath mill where the best material is taken from the chain and converted into lath.

A short distance from the lath mill a Dia-

mond Iron Works hog converts other edgings and mill refuse into fuel for the boilers located in the power house plant.

#### The Lath Mill

The lath mill, which is an ell of the sawmill building, 40x40 feet in size, is constructed similarly to it, and is located adjacent to the conveyor above mentioned, with its floor six feet below that of the sawmill floor. As the slabs and edgings in the conveyor pass this room, that portion of them suitable for making lath—either fir or spruce—is removed from the conveyor and placed upon chains which carry it to the bolter in the lath mill, which cuts it into appropriate-sized bolts. These are carried on chains to the lath saws, which make lath at the rate of about 4,000 an hour. The lath are then tied in bundles of 100 each and taken to the trimmer, from which they are delivered to the loading deck beneath. Here they are piled in frames, which are picked up by the mono-rail and carried to the loading dock at the water, or to the car loading dock, or to the green storage.

Among the many new installations now under way at the Pacific Spruce Corporation sawmill is a gravity system which will carry the lath from the trimmer to the green storage, where they will be handled by the mono-rail. Practically all of the lath are shipped green in the "Robert Johnson" to California, where—through its excellent qualities—a ready market for the product has been developed.

All the lath-mill machinery was furnished by the Western Foundry Co. of Portland, Oreg., and is of the Peterman type.

#### The Trimmer

The lumber which was removed from the live rolls behind the edger by the lifting chain skids proceeds to the trimmer, a 40-foot 20-saw air lift machine, of Allis-Chalmers Co. top-saw type. Here the lumber is trimmed and cut into the desired lengths, according to the quality of the board, the saws being raised or lowered to perform their duty by compressed air under the control of an operator who is in a cage above the chains, from which vantage point he secures an unobstructed view of the trimmer table, on which the lumber has been placed, and as it is approaching the saws.

The lumber which passes over the trimmer is deposited on live rolls which carry it to the chain on which the lumber which has come from the horizontal resaw is already being carried, and together with it is conveyed to the remanufacturing department. The trimmings and the undesirable portions of the product drop to a conveyor chain which empties into another conveyor chain leading from the slasher, which takes them past the lath mill and the hog to the burner.

#### Filing Room In the Sawmill

The filing room in the sawmill is located directly above the two band-saws. It is 70x74 feet in size. The lowering winches for the band-saws are located on the southeast side and the rest of the room is occupied by the following machinery: Two No. 150 Covell grinders; one No. 140 Covell grinder; one No. 120 Covell grinder; one No. 768 Hanchett automatic round saw grinder; one 16-inch lap grinder; one Covell hand gummer; two 20-inch Covell saw stretcher rolls; one 10-inch Covell saw stretcher roll; one 20-inch brazing clamp; one saw stretcher with 48-inch wheels; two 16x60-inch leveling slabs, with chilled face, 5 inches thick; two cast-iron slabs of similar dimensions; two 4x10x14 anvils; and one 4x10x36 anvil. The above equipment was all furnished by the Machinery Co. of America, Big Rapids, Mich.

The Armstrong Manufacturing Co. of Portland, Oreg., furnished the following swages: Two No. 7, one No. 5, one No. 2, and three No. 3 Gribnow shapers. A blower system driven by a General Electric motor collects the dust from the various grinding machines. The power for the filing room machinery is furnished by five General Electric motors—one belted to each machine.



## THE REMANUFACTURING MILL DEPARTMENT

All the lumber which has come from the log, with the exception of the timbers which have passed out of the rear end of the mill on the live rolls—as before mentioned—is now found upon the chain which carries it all into the remanufacturing department of the mill.

This room, which is built as an ell to the sawmill, and which is of similar construction, is 63x73½ feet. It contains two, 7-foot Prescott vertical resaws, each driven by a 125-H. P. General Electric motor; a 40-inch Portland Iron Works edger with four 22-inch saws, driven by a 50-H. P. General Electric motor, direct connected with flexible couplings; and a 24-foot top-saw air-lift Portland

sets of live rolls, which carry it to the sorting chain, where it begins its outward journey. Before it emerges from the remanufacturing plant, however, it is first graded roughly and that portion which is in need of further refining by these two resaws is taken from the sorting chains and placed on live rolls which carry it back to either of the resaws just mentioned, where it is further remanufactured, and again delivered upon the transfer chain and graded.

### "Pony" Edger and "Pony" Trimmer

After the lumber has passed the resaws, at a point a short distance from where some of it was last removed from the sorting chains and sent back to the resaws, that part of the lumber which is still in need of edging is removed and sent by a system of live rolls to

perfection; but the management has not—even THEN—ceased its vigilance in an effort to secure the highest degree of quality; for provision has been made for the removal of all lumber which might yet be FURTHER improved, and for its return over the mono-rail system, in units averaging about 2,000 feet, to the horizontal resaw located in the rear end of the sawmill, where it is AGAIN sent on a journey through the remanufacturing department, and this is continued until FINAL refinement of the lumber is SECURED.

The purpose of the remanufacturing plant is to assure, with the least amount of handling, and before the lumber has passed away from the sawmill, the highest degree of perfection possible, in grades and sizes, which can be obtained by these various operations.



A MOST REMARKABLE ENGRAVING SHOWING ONE OF THE FINEST AGGREGATIONS OF "SITKA" SPRUCE, OLD GROWTH YELLOW DOUGLAS FIR AND WESTERN HEMLOCK LOGS IN A GREAT MASS IN STORAGE BOOMS, IN SEPTEMBER, 1923; WITH VIEW OF PACIFIC SPRUCE CORPORATION PLANT IN BACKGROUND

Iron Works trimmer, driven by a 25-H. P. General Electric motor, direct connected.

The chain on which the lumber enters this department traverses the entire length of the room, and delivers that part of the lumber which is not in need of further refining to a set of live rolls which carries it out of the remanufacturing department to the sorting chains.

### Two Vertical Resaws

At a point near the entrance into the remanufacturing room, the portion of lumber which is in need of refining is taken off and carried by a set of live rolls to chains which carry it to one of the vertical resaws. Lumber of the same quality, which yet remains upon the chain, is removed to another set of live rolls which likewise carry it to the second vertical resaw. The lumber is automatically dropped from these resaws on to two

the pony edger, where it is edged, and from which it comes back to the sorting chain again upon other live rolls. A short distance from the place where it is deposited on the sorting chain from the pony edger, that portion of it still in need of trimming is removed, and runs over the 24-foot pony trimmer already described, from which it returns to the sorting chain on live rolls. All the lumber which has passed the remanufacturing department, and which has been subjected to some one of the processes above mentioned, is now on the sorting chain, and being carried toward that point where the live rolls are bringing to the sorting chain, that portion of the lumber which was brought into the remanufacturing department, but passed through without remanufacture, being ALREADY PERFECT in quality and in grade.

All the lumber now passes out of the sawmill, on the sorting chain, in a high state of

### The Gang Mill

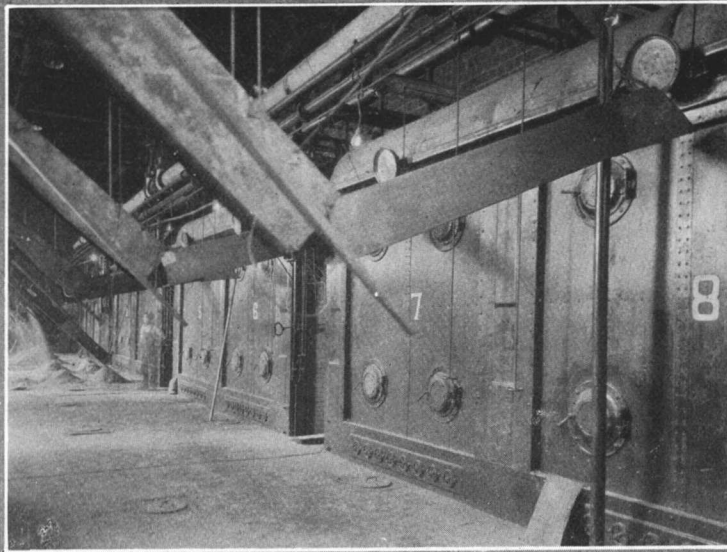
The gang mill, now under construction—which can be legitimately classified as a remanufacturing activity—is located on the northeast side of the sawmill between the burner and the sorting chains, 75 feet from the sawmill building. It is of the usual frame construction, resting on a piling foundation. The foundation for this gang—which is a 20x46-inch Diamond Iron Works machine with 44 saws—was secured by driving 57 piling 40 feet in the ground. Other machines installed in the gang mill are a 24-foot Allis-Chalmers automatic air lift trimmer, and a 6x8-inch Portland Iron Works edger.

The mill is equipped with a Northwest Engineering Co. overhead crane operating on a 20-foot span, and a 4-ton two-motor electric gang transfer crane used for handling

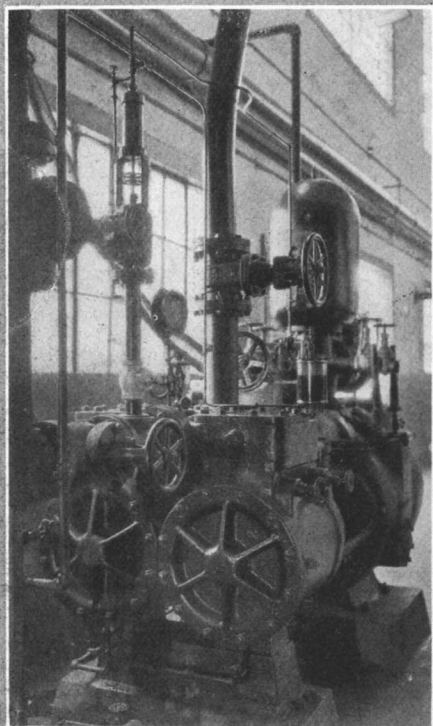




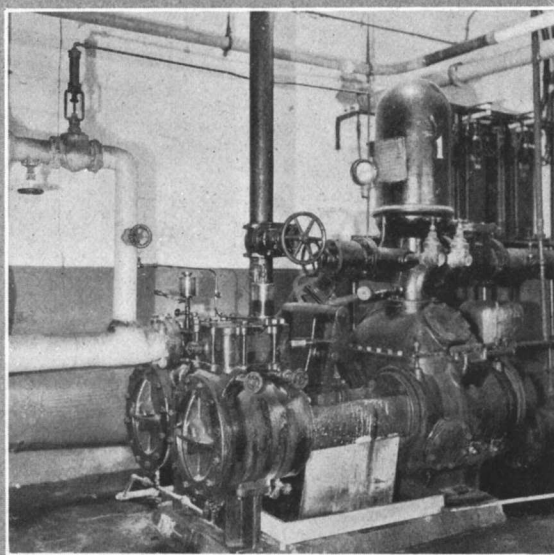
①



②



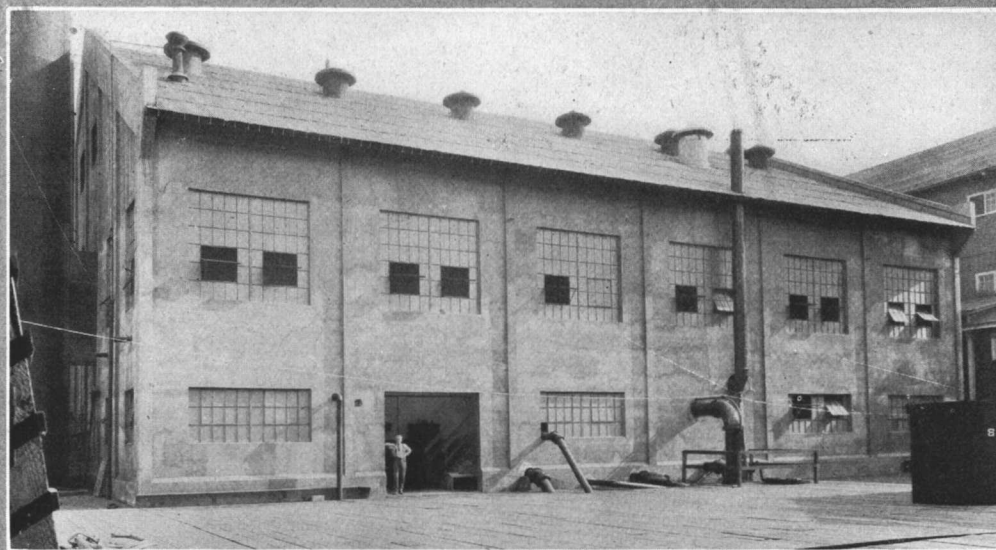
③



④



⑤



⑥

THE ABOVE COMBINATION ENGRAVING SHOWS POWER HOUSE FEATURES OF THE PACIFIC SPRUCE CORPORATION  
 (1) General View of the Dutch Ovens in Boiler House. (2) Boiler Fronts of the eight Boilers and the Fuel Conveyors. (3) Fairbanks-Morse Underwriters' Pump 18x10x12. (4) Another Underwriters' Pump, Capacity 1,000 Gallons per Minute, in Power House. (5) Semi-Mechanical Dry Pipe Valve of the Sprinkler System. (6) Side View, Concrete Power House.



the cants to the gang from the storage space. This storage space is 200 feet long and is used to store cants as they come from the right-hand band-saw in the sawmill, segregated as to quality and size, the idea being to separate all cants, according to sizes and grades, so as to have a supply of cants on hand to fill any order promptly.

When the lumber leaves the gang it goes directly to the sorting chains leading from the sawmill, where it is accorded the same treatment as all the rest of the lumber.

#### THE NEW PONY BAND MILL

The new "pony" mill which is being installed will be located on the south side of the sawmill in a building 36 feet wide by 190 feet long, specially erected for it, of frame construction in conformity with the other buildings. It will contain a 9-foot pony band with a five-block carriage, with 54-inch headblock openings, driven by twin

is to increase the output of high-grade spruce lumber, so greatly in demand both domestic and foreign.

Such clear spruce timbers as are manufactured in the pony band mill are neatly trimmed at both ends with a swing cut-off saw, and transported by means of rolls and chains to the timber-loading docks, where they are loaded on to cars.

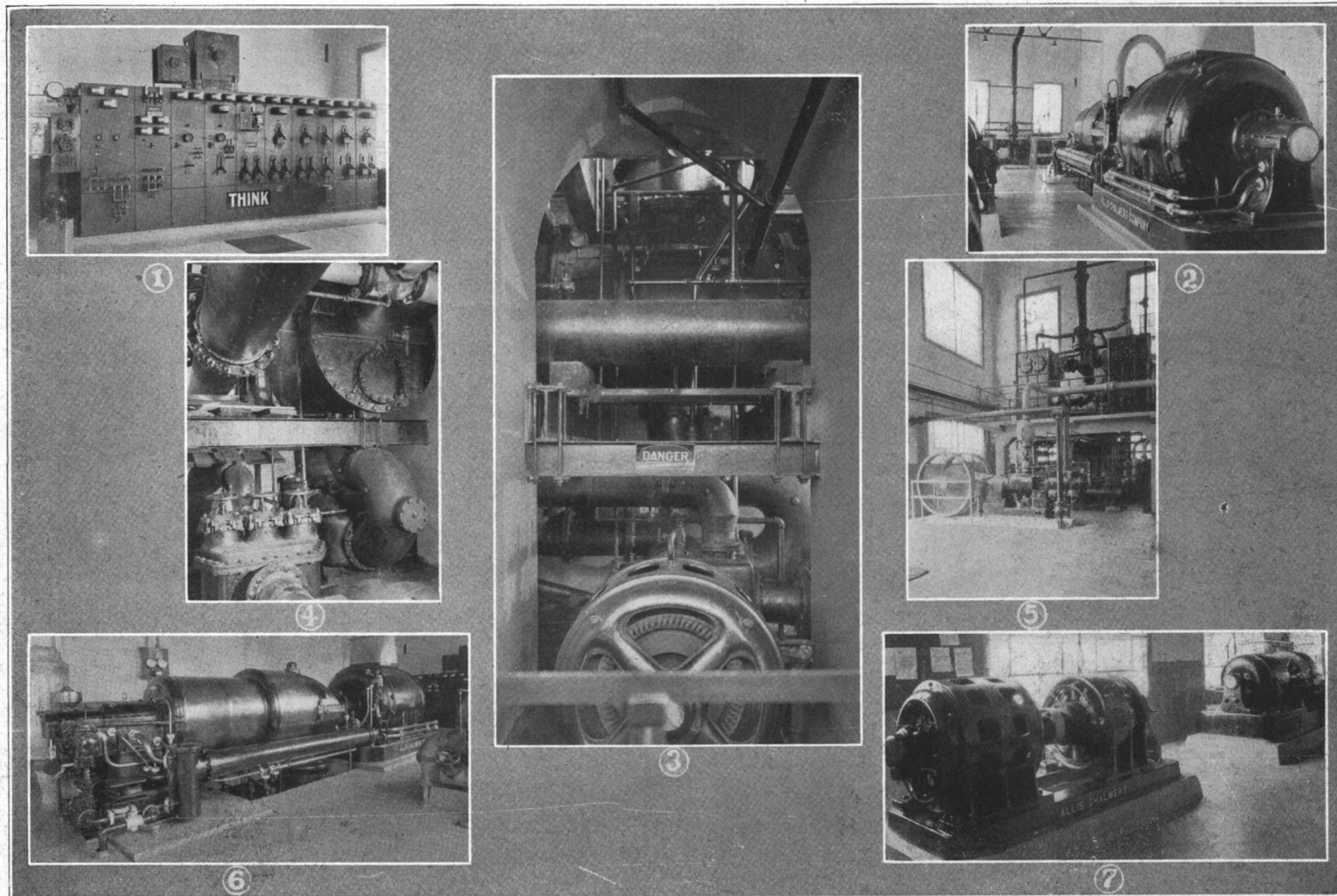
Other timber and lumber, a portion of which is passed through the edger—the other portion going direct by rolls—all finds its way to transfer chains which convey it to the 40-foot automatic trimmer where it is trimmed, and such lumber as needs resawing is then taken off at the horizontal resaw, and such lumber as is perfect in manufacture is conveyed by an independent set of chains, running OVER the chains which convey the lumber to the resaw plant, and thence to rolls and transfers which deliver it to the second set of sorting chains at the sawmill, where it is graded, segregated as to sizes and

of grading, except the obvious necessity of marking each piece for its "unit!"

On each side of both chains, extending their full length, unit frames, about 300 in number, are provided, giving a sufficient number of places in which to pile the lumber according to grade, length, width, thickness and SPECIES, so that each unit, when completed, shall consist of a uniform size, kind and quality of lumber. These unit frames are 4 feet wide and the lumber is piled in them to about 4 feet in height, each unit containing about 1,800 feet, and weighing about 8,000 pounds. These units are carried to the several departments of the plant by the monorail which will now be considered.

#### GENERALLY CONCERNING THE "MONORAIL" SYSTEM

The Pawling & Harnischfeger monorail system of the Pacific Spruce Corporation at Toledo is one of the most extensive and complete of any sawmill in the United States.



#### SOME OF THE ELECTRICAL EQUIPMENT IN POWER HOUSE OF THE PACIFIC SPRUCE CORPORATION AT TOLEDO, OREG.

(1) The ten-panel Allis-Chalmers Switchboard in the Power House. (2) Allis-Chalmers Co., 1,500-K.W. Steam Turbine and Dynamo, 2,255 Amp., 480 Volts. (3) Condenser and Motor Drive Under Allis-Chalmers Turbine. (4) The Condenser Under the Allis-Chalmers Turbine. (5) Ingersoll-Rand 14x12 Air Compressor. (6) Another View Allis-Chalmers 1,500-K.W. Steam Turbine. (7) Synchronizing Allis-Chalmers Co. Light Service Motor.

engines with a double rope feed. The edger will be 8x48 inches. The trimmer is 40 feet in length, of the automatic top-saw air-lift TYPE. One 36-inch single cut-off saw will also be installed.

The pony band mill is for the remanufacture of certain lumber and timber, produced by the head rigs and edger, that needs remanufacturing for the purpose of improving the grades, mainly to secure vertical grain, the motto being "Quality First."

Cants destined for the pony band mill will largely be taken off the main-line live rolls, from the left-hand head rig, to transfer chains, which will convey them to the pony band mill carriage. Cants MAY be taken from BOTH head rigs, after they have come through the edger, and transferred by rolls onto the chains which will convey them to the pony band mill.

The main purpose of the pony band mill

lengths, and assembled into units as previously mentioned.

#### THE SORTING CHAINS AND THEIR WORK

Two sorting chains, on which the lumber is graded, and from which it is removed at various points and piled into units according to grades, widths, thicknesses and lengths, extend northeast from the sawmill a distance of 500 feet. These chains parallel each other, and a portion of the lumber is transferred to the second chain from the first, near the point where the first chain emerges from the mill, by a system of live rolls; and the lumber on BOTH chains is then graded by experts who mark with black crayon the usual cabalistic signs upon the lumber which designate the grade, and also the UNIT into which it is to be assembled. Of course there is nothing different or new about the method

It is 7,000 feet in length, uniformly constructed of heavy timbers which rest upon capped piling to which they are securely anchored, and which carry the single rail from which the system derives its name, at a height which is uniform throughout and which is sufficient to enable the operator to pile the units five high, with cross-pieces between, at any place desired, in the various storage places.

The system extends over the four rows of units which have been assembled on either side of the two sorting chains, and is continued from their outward end by a system of switches, which are under control of the operator, to the green storage, the dry lumber building, the planing mill, the dressed lumber building, the shipping dock, or any OTHER part of the plant to which the monorail has been extended.

The travelers which run upon this mono-



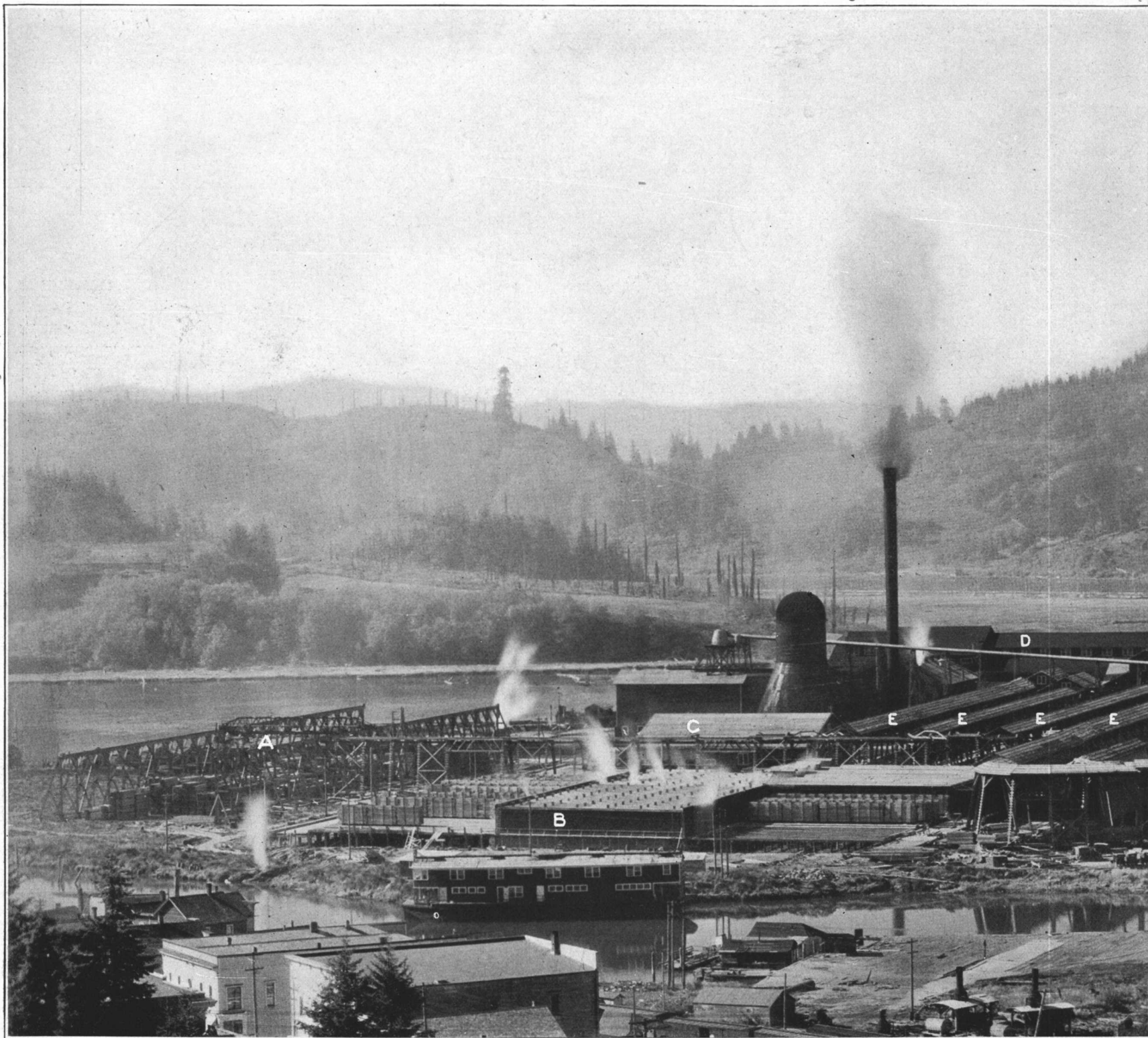
rail consist of a cab in which the operator is located and a car which contains the motor and from which are suspended the lumber lifting hoists. Six of these lumber hoists are in continuous operation on the monorail of the Pacific Spruce Corporation. Traveling bridges are provided in the green lumber storage, the rough dry lumber building, the dressed lumber building, and at the shipping dock, which enables the car to proceed upon

company to sell its product at the market price, either by rail or water, as quickly as possible after it has been manufactured. "We make lumber to sell, not to look at!" says the management.

The green lumber storage is located northeast of the end of the sorting chains and is reached by a branch of the monorail system. It consists of a foundation resting upon piling driven thirty to forty feet into the

species, where it remains until needed for shipment.

The northwest end of the green storage reaches Depot Slough, which, dredged and provided with a slip, enables the barges to load from this point as well as the other loading dock on the river at the other side of the mill. The capacity of the green storage yard is about one million feet per 100 lineal feet, or about 6,600,000 feet all told.



THE ENTIRE PLANT OF THE PACIFIC SPRUCE CORPORATION AT TOLEDO, OREGON, FROM A POINT ON THE HILL TO THE NORTHEAST. (B) BATTERY OF TWENTY DRY KILNS WITH DAILY CAPACITY OF 300,000 FEET. (C) STACKER HOUSE WHICH CONTAINS FOUR 1,000 FEET IN LENGTH. (F) THE CAFETERIA AND "SMOKE HOUSE." (G) ROUGH DRY SHED HOLDING 4,000,000 FEET OF KILNDRIED UPPER DIVISION, THE LOADING TRACK WHICH HOLDS TWENTY STANDARD

such a bridge, which is movable laterally, the length of the building, or storage place, and allows the unit to be placed at any point SELECTED.

#### THE GREEN LUMBER STORAGE YARD

The green lumber storage is the only lumber yard the Pacific Spruce Corporation has, with the exception of the decks of the barges which lighter the lumber to the steamship "Robert Johnson," for it is the policy of this

ground, and the supports of a bridge runway. It is 660 feet long and 98 feet from center to center of the bridge runway. Its purpose is for the storage of such green lumber as is not intended for immediate shipment by water or rail, or for the dry-kilns. The monorail cars arriving at the green storage from the sorting chain at the mill pass onto the 98-foot bridge, which then moves toward the other end of the green storage, thus allowing the operator to deposit the unit with other units similar in grade and

#### THE DRY-KILN SYSTEM IN ITS VARIOUS PARTS

Sufficient dry-kiln capacity has been provided by the Pacific Spruce Corporation to dry that portion of its lumber which is intended for shipment, either rough or in the dressed state, proportionate to the output of the mill. Should the capacity of the mill be further increased, the dry-kiln capacity may be correspondingly increased by the installation of kilns additional to the present battery of twenty, and a further extension of the trans-



fer system by which the kilns are loaded and discharged. Its present capacity will take care of the cut of the mill operating on two shifts.

The kilns already installed are of two makes, six being furnished by the Moore Dry Kiln Co. of Jacksonville, Fla., and Portland, Oreg., and fourteen by the Northwest Blower Kiln Co. of Portland, Oreg. These kiln buildings are uniform in construction. They rest

the power house, and from which point it extends to the power house, where the expansion is taken up.

#### Stacking Lumber for Kilns

The lumber intended to go through the dry-kilns is pulled off the sorting chains and piled in units which the monorail then carries to the stacker house, a building 125x140 feet in size, in which four Evans stackers fur-

a transfer system, which is able to take a load the moment it is finished without interrupting the work on any of the other stackers and transfer it to the dry kilns.

The advantage of this system is that it allows the lumber to be assembled uniformly as to grades and lengths, in which manner they are delivered to the kilns, thus insuring better drying quality and securing greater kiln capacity. The transfer system with its



DESCRIBED AS LETTERED, FROM LEFT TO RIGHT: (A) THE GREEN STORAGE SECTION WHERE SPRUCE BOX AND DIMENSION ARE EVANS" STACKERS. (D) THE MAIN SAWMILL UNIT. (E-E-E-E) THE TWO OUTSIDE BUILDINGS UNDER (E) COVER THE SORTING CHAINS GRADES (H-H-H-H-H). THE GREAT BUILDING WHICH CONTAINS FOUR DIVISIONS; THE PLANING MILL, THE DRESSED LUMBER ARS, AND THE "BROKEN UNITS" FOR MIXED CAR LOADING

upon a pile foundation, the piling being spaced on 3-foot centers and staggered 6 inches from center lines. A concrete foundation is built upon these pilings, upon which the "I"-beam track supports in the kiln are laid. From the tracks upward, the kilns are of hollow tile walls and roof. The blower system of the Northwest Blower kilns is located beneath the tracks leading from the charging platform to the kilns, and steam is delivered to all the kilns by an 8-inch pipe, which is anchored opposite the kiln nearest

nished by the North Coast Dry Kiln Co., Seattle, Wash., are located. Here the monorail deposits the units on dry-kiln trucks 4 feet long. A transfer car facilitates the delivery of any truck before the particular stacker by which it is to be handled. Men take the lumber from the trucks and place it upon chains which carry it to one of the stackers in the building. Here the lumber is stacked on edge, as shown in the pictures illustrating this article.

After the lumber is stacked it is carried by

transfer car handling the loads on the dry kiln trucks, is able to deliver any carload to any kiln as it is needed.

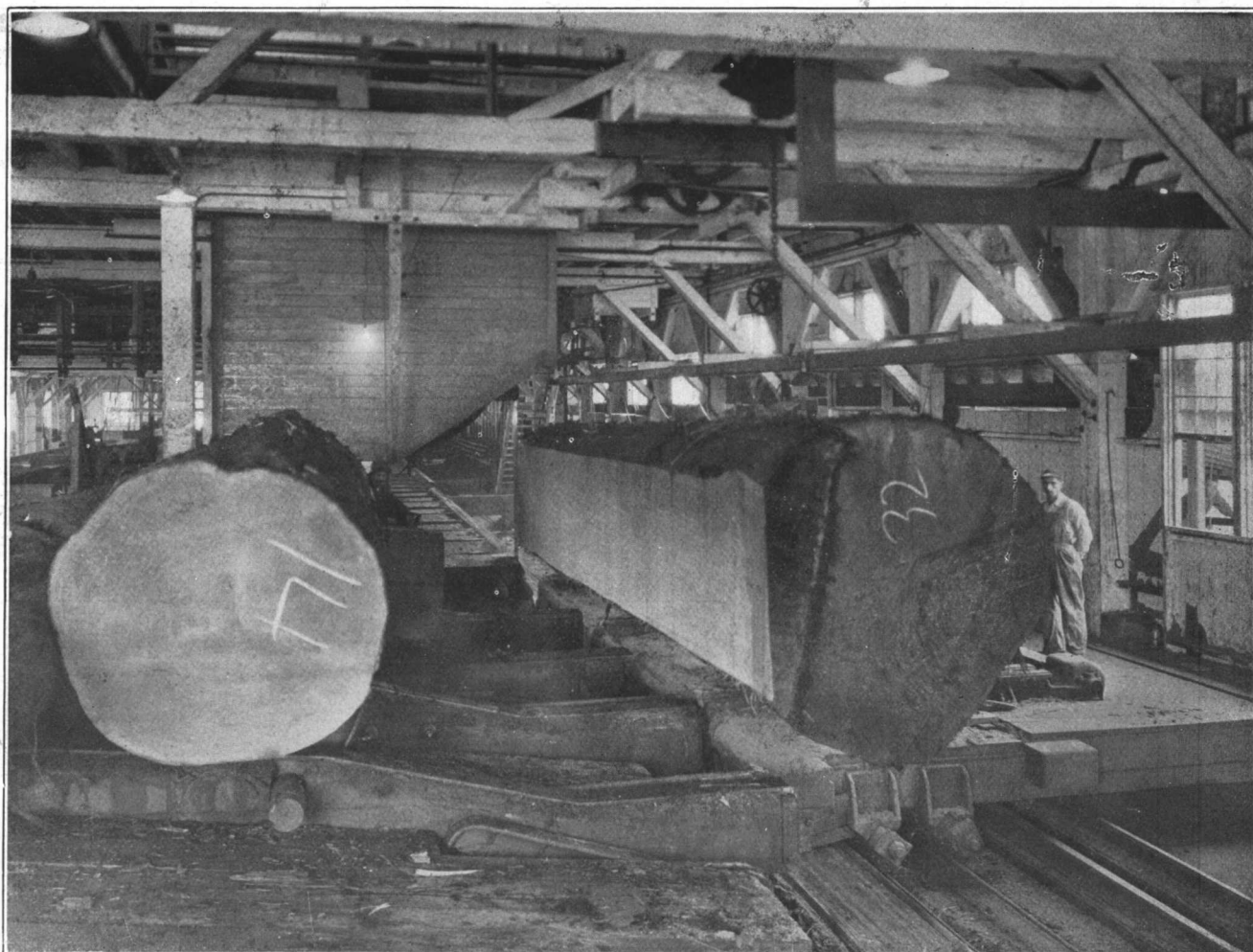
The charge system of kilndrying is used, the lumber being put in at the front end of the kiln from the receiving platform, and being taken out of the end of the kiln onto the discharging platform and into the cooling room. The receiving and discharging platforms of this battery of twenty kilns are of such dimension and arrangement as to allow assembling a full charge for the kiln at the



THE VIEW  
AT THE RIGHT  
SHOWS A  
NUMBER OF  
GREAT SPRUCE  
LOGS ON THE  
LOG DECK  
AND ONE  
OF THE  
CARRIAGES  
OF THE PACIFIC  
SPRUCE  
CORPORATION  
AT TOLEDO,  
OREGON,—ONE  
LOG SLABBED.  
A RARE  
INTERIOR  
PICTURE TAKEN  
WITHOUT  
ARTIFICIAL  
LIGHT



ANOTHER RARE  
INTERIOR  
PICTURE TAKEN  
WITHOUT  
ARTIFICIAL  
LIGHT, OF  
THE DETAILS  
OF ONE OF  
THE ALLIS-  
CHALMERS  
10-FT. BAND  
MILLS SHOWING  
A LOG SLABBED  
AND THE  
CARRIAGE RUN  
BACK FOR  
ANOTHER CUT,  
WITH ANOTHER  
BIG LOG  
WAITING ITS  
TURN AT  
THE LEFT

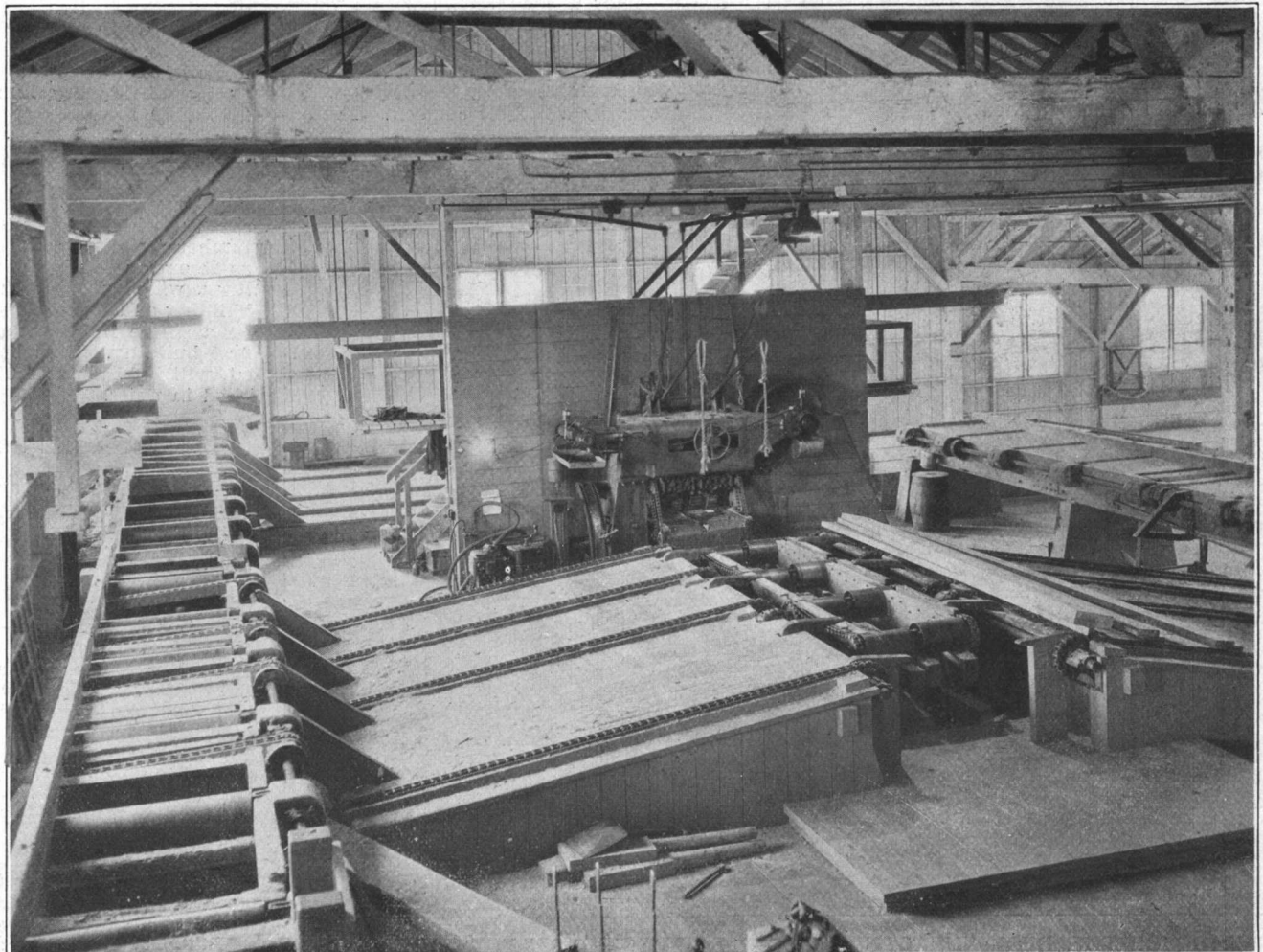




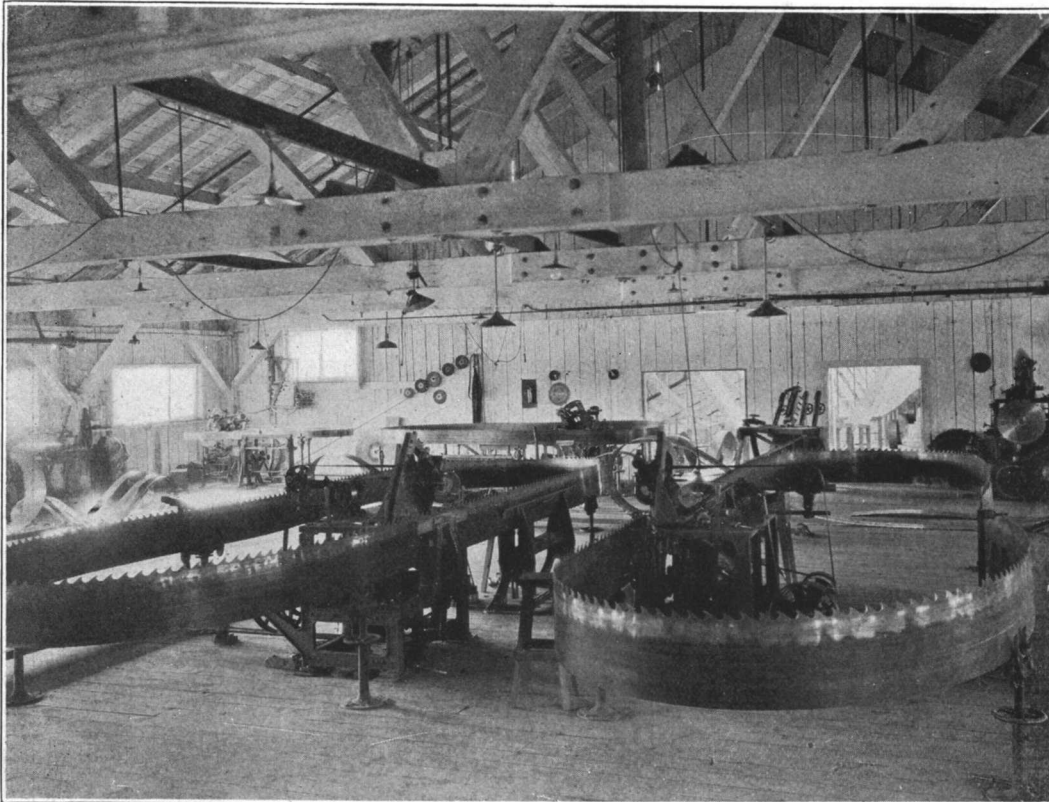
THE VIEW  
ON THE RIGHT  
REPRESENTS  
THE INTERIOR  
OF THE SAW-  
MILL OF THE  
PACIFIC SPRUCE  
CORPORATION  
AT TOLEDO,  
OREGON, TAKEN  
FROM THE  
NORTHWEST  
SIDE—ANOTHER  
PICTURE OF  
THIS  
SERIES OF  
FOUR  
INTERIORS,  
ALSO DONE  
WITHOUT  
ARTIFICIAL  
LIGHT



THE LAST OF  
THIS SERIES OF  
FOUR SAWMILL  
INTERIORS  
TAKEN WITHOUT  
THE AID OF  
ARTIFICIAL  
LIGHT, SHOWS  
A VIEW OF  
THE PRESCOTT  
7-FOOT  
HORIZONTAL  
BAND RESAW  
LOCATED IN  
THE BACK END  
OF THE  
SAWMILL OF  
THE PACIFIC  
SPRUCE  
CORPORATION  
AT TOLEDO,  
OREGON







INTERIOR OF THE FILING ROOM OF THE PACIFIC SPRUCE CORPORATION SAW-MILL AT TOLEDO, OREGON, SHOWING VERY SUPERIOR EQUIPMENT OF COVEL MACHINERY FOR THE EXPEDITIOUS FITTING OF SAWS

receiving end, and taking out a full charge—six cars—at the discharging end, at one time. When a charge has been in the kiln about 72 hours—which is the average time required for drying the lumber—the doors at the discharging end of the kiln are opened, the six cars removed onto the discharging platform, the door closed, and the door at the receiving end opened and a new charge immediately put in, thus insuring a maximum capacity with uniform drying conditions, because the kiln has not had opportunity to cool during the opening and closing of the doors.

#### Thermometers Ingeniously Arranged

An ingenious arrangement of the ther-

mometers of the twenty kilns, which F. W. Stevens, general manager of the plant, modestly admits he originated, is found in the location of these sensitive instruments, which are usually affixed to the kiln door where they are subject to escaping steam and affected by the elements. The thermometers for the Pacific Spruce Corporation battery of kilns however are located in sets of four on an 8x14-inch upright timber, securely anchored to a piling about six feet in front of the kilns. They are housed in 2-inch walls, with a door 14 inches wide, which when open reveals the four thermometers, one above the other, each numbered with the corresponding number of its kiln, with which it is connected by a flexible conduit. The ad-

vantage of such an installation is that the thermometers are protected from the elements and from the steam that comes out of the dry kilns around the doors. The heavy type of housing is designed to protect the instruments should a load of lumber fall against the timber to which they are attached.

#### Cooling Room and Unstacker

When the six carloads of lumber have been taken from the car at the delivery platform they remain on the trucks in the cooling room about 24 hours. The cooling room, with its annexes, is 105x242 feet, and is of the same general mill construction, in common with the other plant buildings, with the exception that the walls do not extend to the floor, but stop about three feet above it on two sides, which allows the free ingress and egress of air.

When the lumber is sufficiently cooled, the loads are taken to the unstacker, which deposits the lumber upon a chain which carries it by a swing trimmer and a Wm. B. Mershon & Co. band rip-saw, to which that portion of the lumber which is in need of refining is conveyed, and which lend their efforts in sustaining the quality.

The chain on which the lumber is carried from the unstacker is 240 feet long. Here it is regraded, and all the lumber is removed, and again assembled into units, according to grades, lengths, thickness, and widths, and is again carried by the monorail system to the dry lumber building, the planing mill, or the car loading dock.

#### The Dry Lumber Building

That portion of the kilndried lumber which is not needed at the time the monorail takes it from the dry lumber sorting chains (for further manufacture in the planing mill, or for shipment is picked up by the monorail in the units in which it had been assembled and carried to the dry lumber building, located northwest of the dry kilns.

The dry lumber building is 84x465 feet, and 36 feet high, its timber foundations resting upon piling driven twenty-five to thirty feet in the ground.

The monorail enters this building at its northeast corner, where, by an arrangement of switches, it divides into four parallel lines, down any one of which the hoists can carry the units, and deposit them with OTHER units of similar grade and species. The capacity of this dry lumber building is about 2,000,000 feet.

Another dry lumber building now under construction to the northwest of this building, and parallel to it, is 189 feet wide, 470 feet long and 36 feet high. The monorail system, which continues from the first dry lumber building to this second one, divides, as it enters the building, into eight separate lines, which proceed the entire length of the building and emerge from its farther end upon a single line, as do the four lines in the first building. This building, when completed, will hold about 4,000,000 feet of lumber, piled in units.

#### THREE GREAT DEPARTMENTS UNDER A SINGLE ROOF

The planing mill, the dressed lumber division, and the miscellaneous lumber department, are so constructed that each adjoins the other, and all are covered by the same roof. This building is the largest one belonging to the Pacific Spruce Corporation—if not the largest building devoted to such activities in America—and its size may be VISUALIZED by the information that the planing mill occupies a room 200x200 feet; the dressed lumber storage (in which is also included the car-loading docks) is 84x720 feet, and the miscellaneous lumber space is 45x306 feet.

The building is of the general mill construction type of the others, with a timbered foundation resting on piling driven twenty-five to thirty feet in the ground. The portion of this building which is occupied by the planing mill is built entirely of Sitka spruce, with the exception of the floor, which is of old growth yellow Douglas fir.

The purpose of having these three buildings under one roof is to insure that the lumber which comes from the dry-kilns or



INTERIOR OF THE REMANUFACTURING ROOM OF PACIFIC SPRUCE CORPORATION AT TOLEDO, OREGON, SHOWING RESAWS AT THE BACK AND A FINE SWEEP OF ALL EXCEPT THE TRANSFER TO SORTER



the dry storage building, on the monorail, for manufacturing purposes in the planing mill, or for shipping at the loading deck, shall not be subjected to the elements, but shall remain under cover from the time it is taken to the building until it is loaded in the cars.

#### THE SUPERIOR PLANING MILL AND ALL COLLATERAL FEATURES

The planing mill is situated in the great building referred to above, 105 feet southwest of the dry lumber building, and is 200x200 feet in area, and under a roof of sufficient height to allow the installation of the blower system, and the cyclone, of the Archer Blower & Pipe Co. of Seattle, above the MACHINES, and beneath the roof.

The planing mill has an abundance of windows which provide sufficient light for the workmen.

The monorail system with its lumber units from either the dry kilns or the dry lumber storage, enters the planing mill at its southeast corner and extends the full length of that side. Directly under the monorail are six sets of gravity rolls, upon which the units are placed by the monorail, and which rolls convey them to those particular machines by which they are to be converted into the finished product. These gravity rolls are each of sufficient length to accommodate five units of lumber, thus providing a continuous supply for the machines.

The planing mill of the Pacific Spruce Corporation enjoys the distinction of being the nearest to 100 percent electrified of any planing mill we have had the privilege of describing in these columns. The first 100-percent motorized planer ever constructed—a No. 701-B Woods moulder—made by the S. A. Woods Machine Co. of Boston, Mass., is installed here. Five other machines are located in this planing mill, side by side, and others will be installed as the needs demand.

The S. A. Woods Machine Co. of Boston, Mass., has a well balanced installation of machines in this plant, as follows:

Two No. 404-B 6x15-inch matchers, motor-driven side heads, and motor to drive countershaft, top and bottom cylinders belted to countershaft.

One No. 701 6x15-inch, full 100-percent electrically-driven moulder.

One No. 131 fast-feed outside moulder, motor-driven side heads; countershaft driven by motors; cylinders driven by belt from countershaft.

One No. 404-B 6x25-inch fast-feed planer with motor-driven countershaft; side heads and cylinders driven by belts from countershaft.

One No. 404-BM 6x15-inch 100-percent motorized planer and matcher.

One No. 404-C 6x19-inch planer and matcher. The last named machine has motor-driven countershaft, with top and bottom cylinders belt-driven from countershaft.

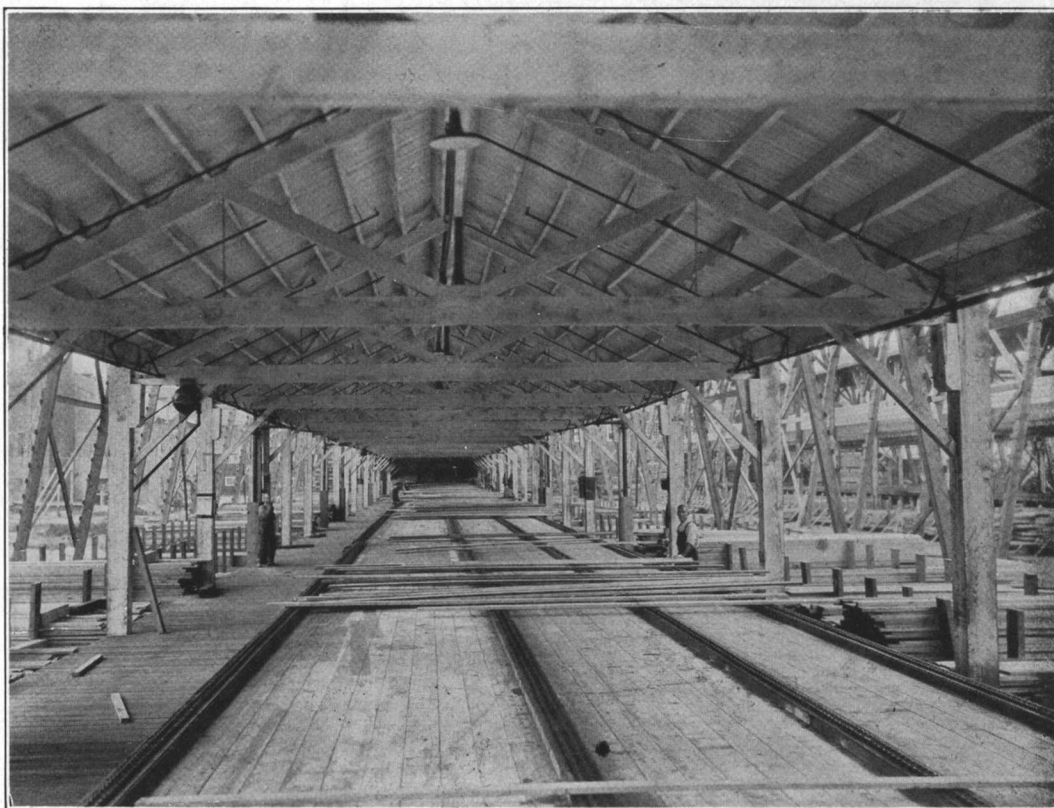
In addition to the above machines the S. A. Woods Machine Co. has installed one No. 226 automatic knife grinder; one No. 227 side and profile head grinder; one No. 229 setting and jointing stand and three Woods patented automatic feeding tables.

In addition to the above machines, the planing mill has a Wm. B. Mershon & Co. band resaw, an American Wood Working Machinery Co. band rip-saw, and one Stetson-Ross 6x15-inch matcher.

#### SECURING PLANING MILL PERFECTION

As an evidence of the desire of the Pacific Spruce Corporation to produce perfect finished stock, attention is directed to the apparatus and methods used in trimming the lumber which comes from the matchers, which also are used in trimming lumber from all the machines. This device is a gauge manufactured by the Leaver Manufacturing Co. of California. It consists of steel stops, which by means of a screw are adjustable to the smallest fraction of an inch, these stops being spaced 1 inch apart, for a distance of 20 feet in the steel angle gauge bar, each instantly movable in or out of action.

As an example of the perfection of these stops in operation, the management cited the case of the manufacture of the siding used



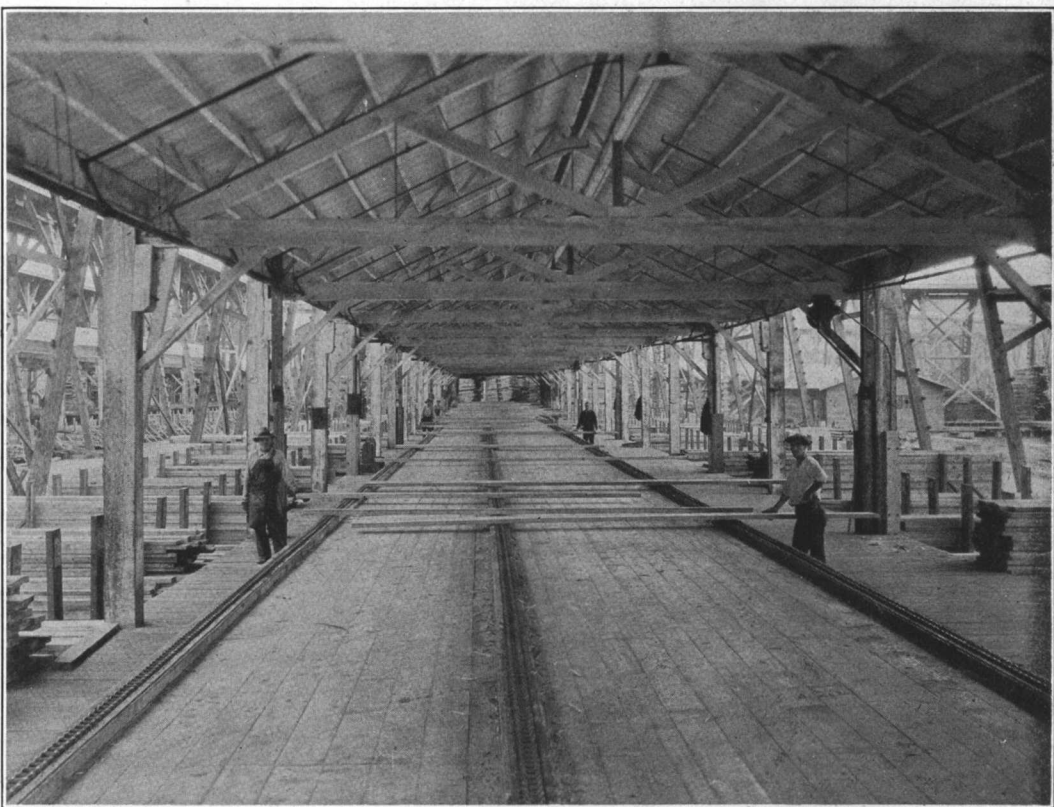
**SORTER NO. 1 OF THE PACIFIC SPRUCE CORPORATION AT TOLEDO, OREGON, SHOWING HOW CLEAR LUMBER IS HANDLED TO THE STACKERS AND THENCE TO THE KILNS OF THAT INSTITUTION**

on the large dressed lumber building, as follows: "The studding being placed on 24-inch centers, it was necessary that the lumber be trimmed to exact lengths, and this was accomplished by adjusting the screws in the slot so that when the siding was cut and applied to the building it was not necessary for the carpenters to square or saw off any of the ends, except around the windows."

The lumber from the 404-B matchers is deposited on a chain which conveys it to a belt. From this belt it is automatically delivered to another belt (running in the opposite direction and to which there is an incline), which carries it to a chain directly above the one on which it was delivered from the machines, and where it is then graded.

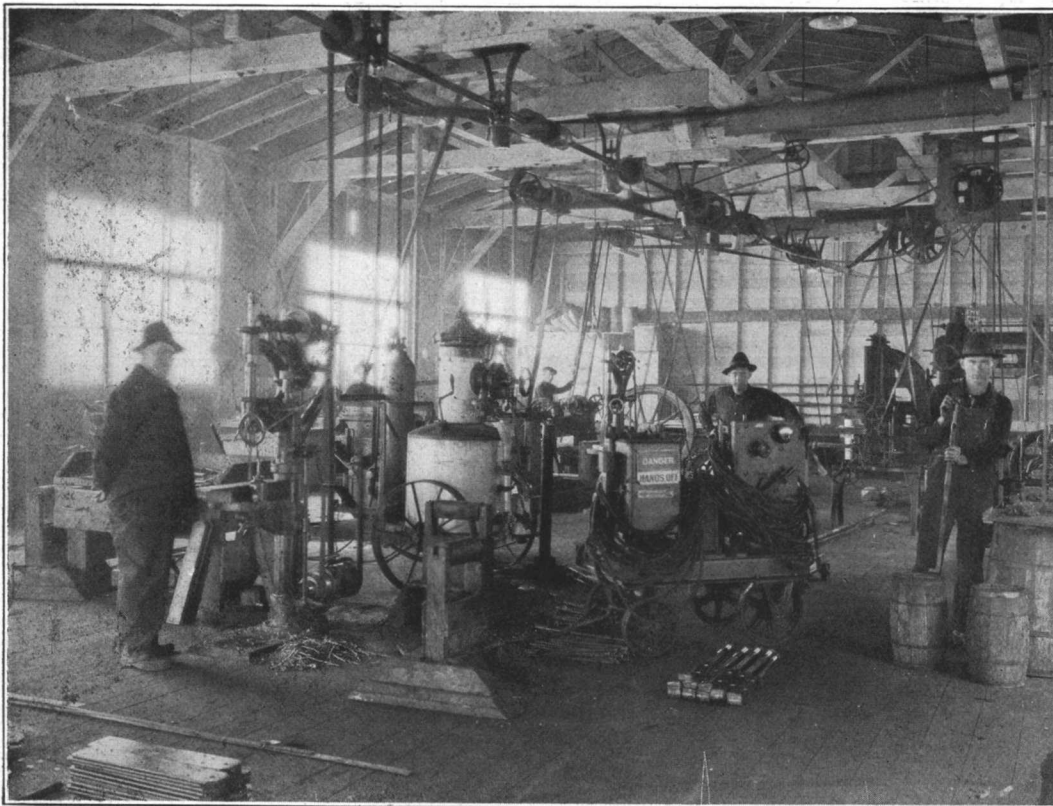
The advantage that is gained by this installation of chains and belts—which is locally called the "Merry-Go-Round"—is that the lumber, whatever its length may be when it comes from the planer, is presented to the grader with the ends even.

The lumber which is perfect is removed from this chain and placed in its proper compartment of the sorting box, of pigeon-hole type, for bundling. The lumber which is imperfect as to trim is pulled off the sorting chain, and placed upon a table at a trim saw, where the trimmer trims it and deposits it again upon a belt which conveys the board back onto the upper section of sorting chain, where it again passes the grader. After it is graded it is then put into its proper



**SORTER NO. 2 OF THE PACIFIC SPRUCE CORPORATION AT TOLEDO, OREGON, SHOWING HOW THE COMMON LUMBER IS HANDLED, MOST OF WHICH GOES TO THE GREEN STORAGE YARD FOR WATER SHIPMENT**





INTERIOR OF THE MACHINE SHOP OF THE PACIFIC SPRUCE CORPORATION AT TOLEDO, OREGON, SHOWING A SMALL PART OF THE COMPLETE EQUIPMENT NOT INCLUSIVE OF THE BLACKSMITH SHOP

compartment as to grade, size and length, preparatory to bundling.

Should there be more pieces to be trimmed than it is possible for the first trimmerman to take care of, such pieces continue on the sorting chain to the end, where they drop on to a belt which conveys these pieces to a table in front of a second trimmerman, who trims them and deposits the lumber on the lower section of chain where it starts on its second or backward course, joining the stream of lumber from the other trimmer.

Following the grading of the lumber and the bundling of that part of it that is to be bundled, the finished product is again assembled in units according to size and grade,

and a close tally is kept of all lumber so placed in units. When a unit is completed the exact number of feet it contains is marked upon a board, which is secured to the end of the unit, and upon this board is also placed the number of the unit, the grade and the kind of lumber.

In addition to the standard patterns of all dressed lumber and mouldings, the planing mill of the Pacific Spruce Corporation specializes in  $\frac{1}{2}$ x4-inch Sitka spruce California novelty siding, for which it has developed an excellent rail trade.

#### The Blower System

The blower system consists of a double 100-

inch fan furnished by the Archer Blower & Pipe Co. of Seattle, and is driven by a 300-H. P. synchronous General Electric motor belted to the fan. The main blowpipe is 740 feet in length and is of 34 inches diameter, and the pipe leading from the fan to the cyclone is 38 inches in diameter. The suction pipes taper as the distance to the machine is increased.

#### Planing Mill Grinding Room

The grinding room equipment in the planing mill was furnished by the Machinery Co. of America of Big Rapids, Mich., and consists of one No. 226 knife grinder; one No. 229 jointing stand; one No. 227 head grinder, and one bench emery wheel. Winningham and Philbrick cutter heads are used, the former manufactured by the Smith Cannery Machine Co. of Seattle, and the latter by the Philbrick Cutter Head Co. of Seattle.

#### Disposition of Refuse

Two outlets are offered for the refuse resulting from these trimmers at the present time. A quantity of it has been sold in the past to the people of Toledo for fuel; another portion has been fed to the knifeless hog, manufactured by the Williams Patent Crusher & Pulverizer Co. of St. Louis, Mo., from which machine it is carried to the fuel house, by the blower system.

The Pacific Spruce Corporation is now preparing to use a vast portion of spruce waste for many various purposes, by a well-known laminated process.

#### THE DRESSED LUMBER STORAGE DEPARTMENT

Following the planing mill, the most important department in this great building, which houses three departments, is that in which the dressed lumber is stored, and there, active up and down the lines, the Gerlinger lumber carrier, manufactured by the Dallas Machine & Locomotive Works, Dallas, Oreg., shows its greatest activity, picking up the units of lumber and transporting them to a point under the great 80-foot span crane which operates in this division over the storage and shipping platforms. The Gerlinger is a type of motor truck familiar in the west, which "straddles" its load and lifts by slings, much as "big wheels" straddle a load of logs.

The crane picks up the "unit" and either places it in storage or delivers it at the car door.

#### STORAGE DIVISION FOR THE SURPLUS UNITS

In addition to the large dressed lumber department, the third general division of this building is of adequate capacity to store that proportion of units coming from the dressed lumber storage which cannot be put into the car; and also to provide a place for miscellaneous lumber.

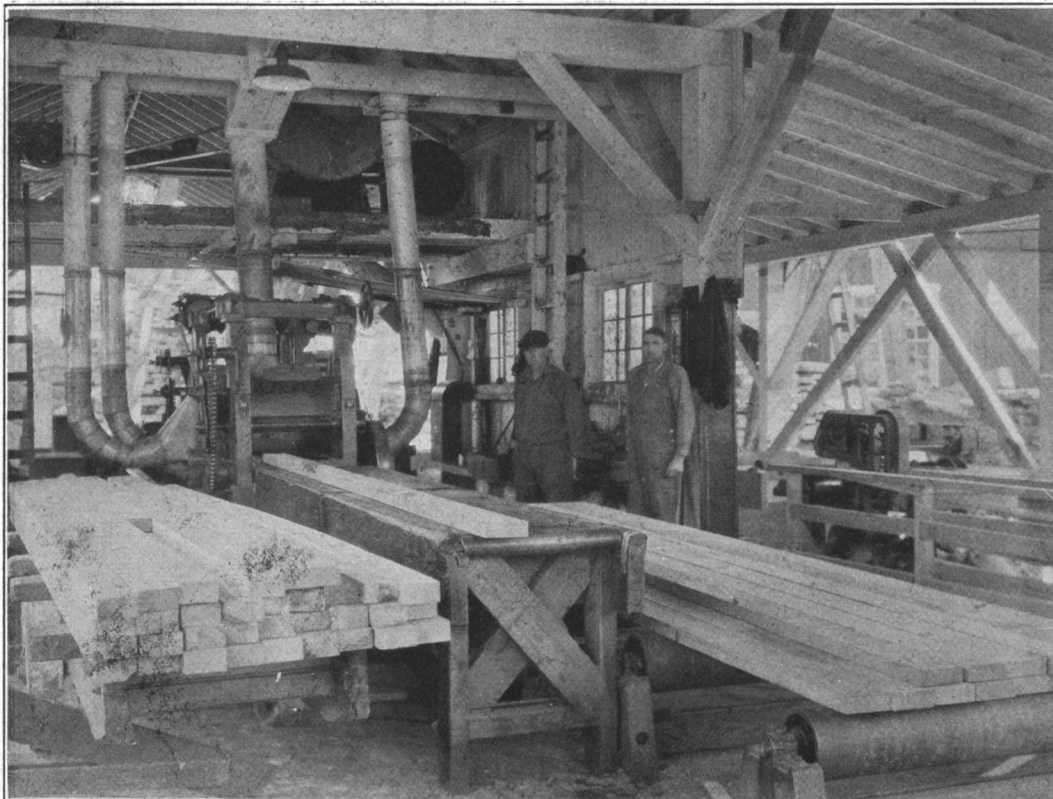
The lumber is carried into this division by the Gerlinger carrier and stored vertically. The purpose of this building is to fill mixed car orders and to take care of local sales.

A building 24x80 feet located 250 feet northwest of the dressed lumber building, and of skeleton frame construction, with galvanized iron sides and roof, is the storage place for the Ford jitneys used about the plant, and for the Gerlinger lumber carrier.

The loading dock, from which the cars are loaded, is located within this great "three-purpose" building. It is 20 feet wide and 520 feet long and can accommodate fourteen cars. Loading is done from the right-hand side facing the back of the building.

#### THE LARGE TIMBER SIZER AT THE TOLEDO PLANT

The timber sizer of the Pacific Spruce Corporation is a 16x20-inch Stetson-Ross Co. (Seattle, Wash.) machine, located in a building 20x30 feet, frame construction on piling, situated adjacent to the timber dock at the end of the mill. The timbers to be dressed are brought to the sizer and taken away from it by the monorail system; and in addition thereto, lumber may be taken from the sorting chains, or the green storage, and delivered in units by the monorail, at the sizer, on the open chains.



THE GREAT STETSON-ROSS MACHINE WORKS SIZER NO. 4-A, WITH ITS CREW, AS INSTALLED BY THE PACIFIC SPRUCE CORPORATION AT TOLEDO, OREGON—AND SHOWING MACHINE FROM DELIVERY END





**VIEW MADE TO SHOW THE EQUIPMENT OF THE MONORAIL SYSTEM ERECTED AT THE PLANT OF THE PACIFIC SPRUCE CORPORATION AT TOLEDO, OREGON, FOR THE ECONOMIC CONVEYANCE OF LUMBER. IN THE PICTURE CARRIER NO. 5 SHOWS IN THE FOREGROUND, WITH CARRIER NO. 4 ON THE CURVE IN REAR CENTER**

The unit is then transferred to the front of the sizer where it is fed through, and again assembled as a unit, on rolls at the rear of the machine.

When a unit is completed, it is then moved on the rolls a short distance to a set of transfer chains where it is again transferred under the monorail. The monorail then picks up the unit and places it on a lighter or on a flat car. By this method of handling it is necessary to use only two men for the operation.

We next come to the machine shop on the dock next to the river.

#### **THE MACHINE SHOP AT THE TOLEDO PLANT**

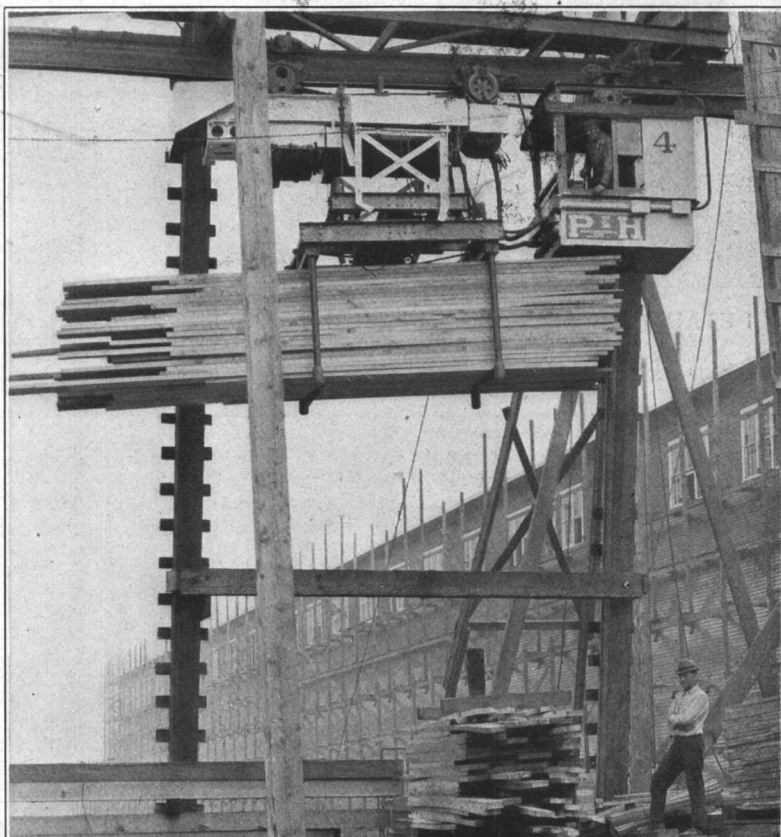
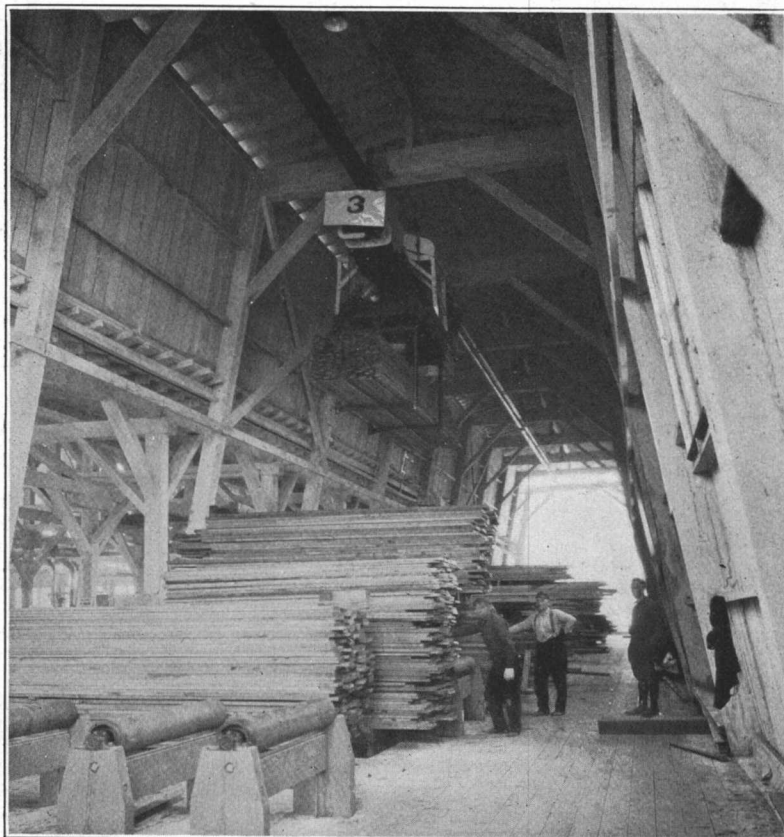
This building is 40x120 feet, 20 feet high. It is located parallel to the sawmill and about 50 feet distant and southwest from it.

The equipment in this building consists of two lathes, a shaper, two drill presses, a bolt threading machine, a large planer, a boring mill, an acetylene welding outfit, one electric welder, a trip-hammer, and equipment for sheet metal work, consisting of a roll, shears and a pincher, two forges and a power shear and punch.

#### **THE TELEPHONE SYSTEM OF THE PACIFIC SPRUCE CORPORATION**

The switchboard of the Pacific Spruce Corporation office is connected with Toledo by two trunk lines and is in charge of an operator who performs the usual duties. The different departments of the plant are interconnected through this switchboard by eight stations, any one of which can be connected with the main office or any other department of the plant or on long distance.

Camp 12 is reached on a privately owned line direct from the office switchboard. There are about seven miles of copper on this line.



**THESE TWO PICTURES SHOWN ABOVE ARE PRINTED TO ELUCIDATE FURTHER THE USE OF THE PAWLING & HARNISCHFEGGER MONORAIL LUMBER CARRYING SYSTEM AT THE PLANT OF THE PACIFIC SPRUCE CORPORATION AT TOLEDO, OREGON—CARRIER UNITS NOS. 3 AND 4 AT WORK**



Connection with Camp 1 is made through Newport, Oreg. The logging operations of Camp 1 have a telephone at every one of the sidings, in the office, at the log dump and the machine shop, and at the home of the superintendent. About 25 miles of line are being maintained to Camp 1.

#### HIGH-CLASS FIRE PROTECTION FOR THE TOLEDO PLANT

The Pacific Spruce Corporation has perfected in great detail the installation of equipment, and organization, to protect its sawmill and other buildings from fire. In addition to a complete hydraulic system, various fire-protective practices have been inaugurated, and appliances provided, which reduce the fire hazard of the company to a minimum.

The main fire system consists of one Worthington No. 1 fire pump and one Fairbanks-Morse No. 2 fire pump, both 10x12x18 inches

and a lock. In case of fire, if the key cannot be found, the leather hasp may be cut with a knife, and the door opened.

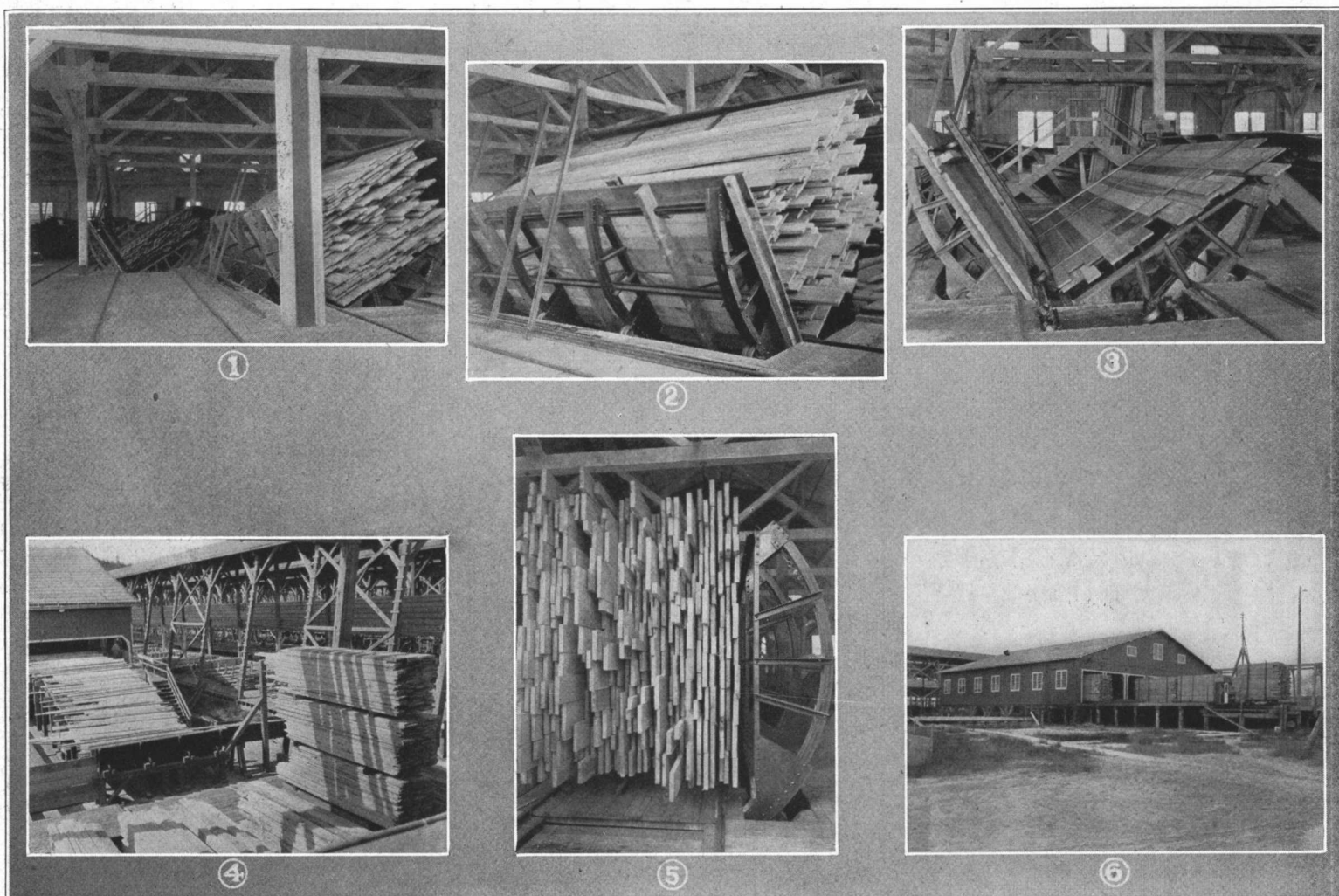
#### The Sprinkler System

As a further precaution against fire, each building is equipped with an automatic sprinkling system, furnished by the Pacific Fire Extinguisher Co., of San Francisco. Leading off of the 8-inch main are 42 dry-pipe lines, each one of which carries an average of 300 automatic heads, the entire number of heads throughout the entire plant being 12,600. The 42 dry-pipe lines are located as follows: Sawmill, 10; fuel house, 1; sorting chain, 6; stacker house, 2; dry lumber building, 2; dry kilns, 2; cooling building, 4; unstacker room, 2; cafeteria, 1; timber sizer, 1; planing mill, 5; loading mill, 4; and dressed lumber building, 2.

There are 26 post indicators to the dry valves with a glass in the top showing

Adjacent to every motor is a barrel filled with water and provided with two pails; also a Pyrene fire extinguisher. At various points throughout the plant, sixty two-gallon acid tanks are hung on posts. These posts are painted red, as is the adjacent woodwork around them, making them strikingly distinguishable from any part of the building.

Every forty or fifty feet throughout the mill and in the other buildings, a 2-inch waterpipe is brought up through the floor from one of the laterals and attached to it is fifty feet of 1½-inch hose, folded neatly in a hose rack. Two of these are located in the boiler room above and two on the lower floor in front of the Dutch oven. There is one back of the boiler; three in the fuel bin, nine in the dressed lumber building, six in the planing mill, two in the cafeteria, two in the "Smoke House," and the others are distributed throughout the sawmill and other buildings, at such distances that four or five



#### DETAILS OF LUMBER STACKING OPERATIONS OF THE PACIFIC SPRUCE CORPORATION, AT TOLEDO, OREGON

(1) Interior of Stacker Building Equipped with Four North Coast Dry Kiln Co. Evans Patent Stackers. (2) Close View of Evans Stacker with a Nearly Completed Load of 2-inch Stock. (3) Showing detail of Evans Patent "Tilting Lumber Stacker," Two Courses of Boards in Place. (4) View Showing at Right, part of Cross Transfers. (5) Detail of Stacker after Binders are Put On. (6) The Stacker Building of the Pacific Spruce Corporation at Toledo, Oregon.

with combined capacity of 2,000 gallons per minute, located in the power house, where they are connected with an 8-inch main from which all the laterals are carried to the hydrants and sprinklers. The pumps have 12-inch suction pipes and are located near the water line, which assures a maximum of efficiency. From the 8-inch main, 27 6-inch laterals are taken off which lead to the 27 hydrants, located at conveniently available points in and about the plant.

Eleven of these hydrant houses are equipped with a 100-foot rope, eye-spliced at the end and sized at the other, which is used to carry the hose to the tops of the buildings when necessary. The nozzles have 1½-inch openings, and have known pressures of 100 to 147 pounds at the nozzle.

Either one of the pumps located in the power house is capable of sustaining a 100-pound pressure on four nozzles. Each hydrant has a door provided with a leather hasp

whether they are open or closed. These are painted maroon and are conspicuous from a considerable distance.

#### Auxiliary Equipment

The Pacific Spruce Corporation's effort to secure complete fire protection does not end with the hydrants and the sprinkling system, but is carried out in minutest detail in other installations.

The moment a fire starts and the automatic gong is sounded, the pumps are started and a Lunkenheimer steam siren sounds the general alarm. Cards giving the signals for the location of fires are posted throughout the plant.

Fire companies have been organized for the manning of each hydrant; captains are selected and practice frequent drills.

Every building is equipped with one or more spruce fire ladders placed conveniently and constantly ready for service.

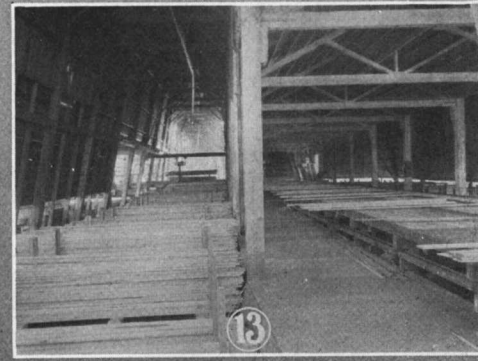
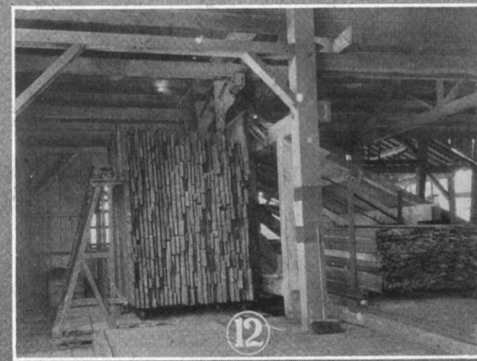
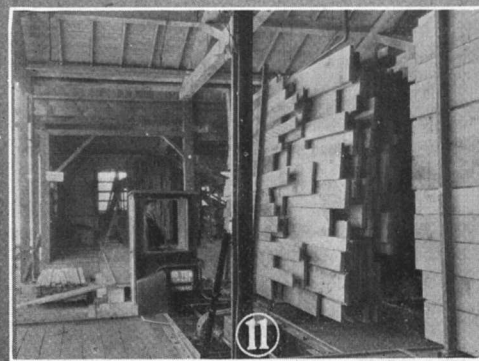
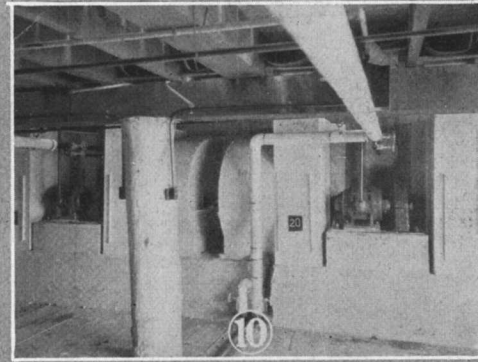
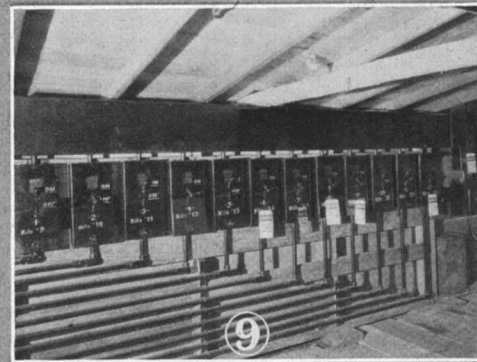
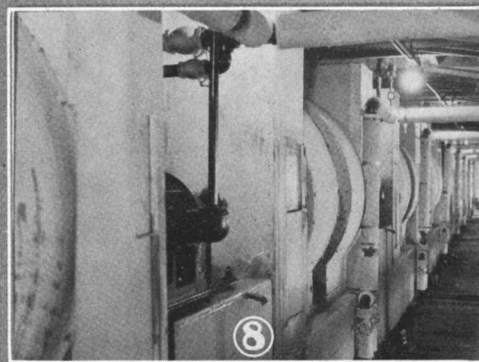
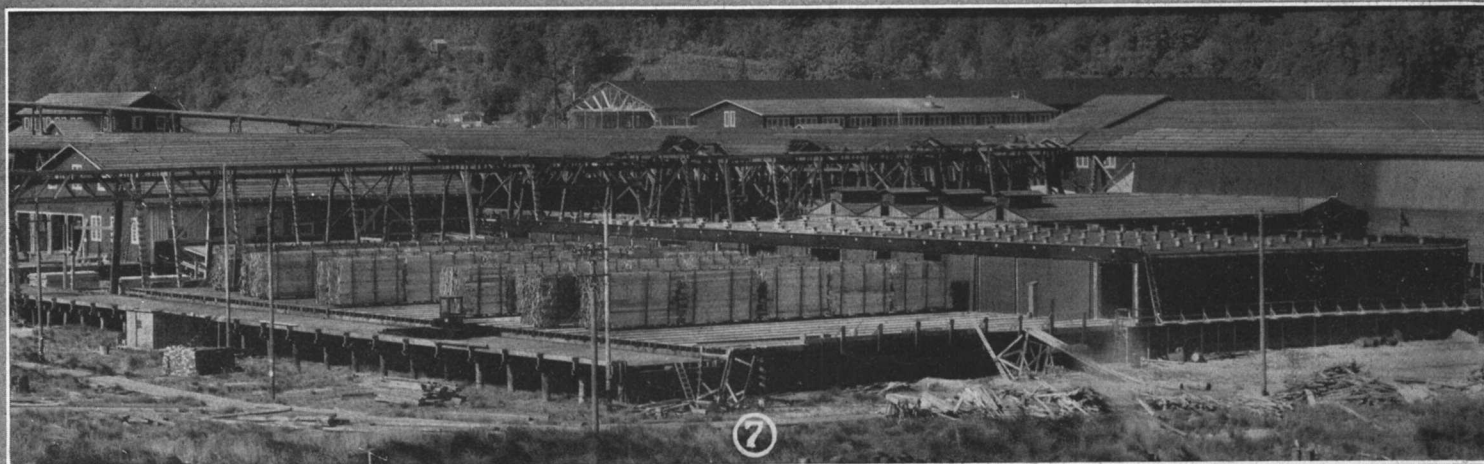
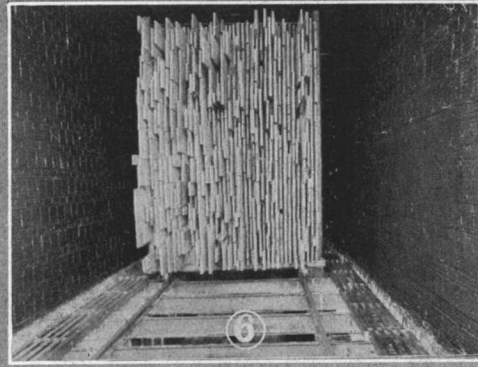
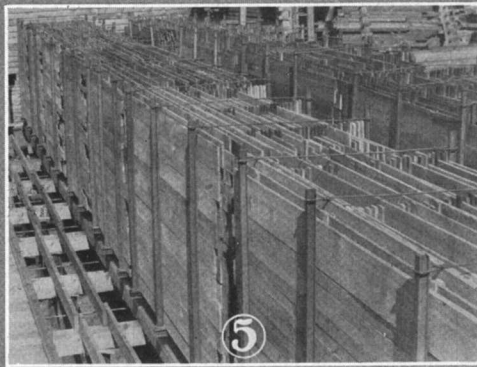
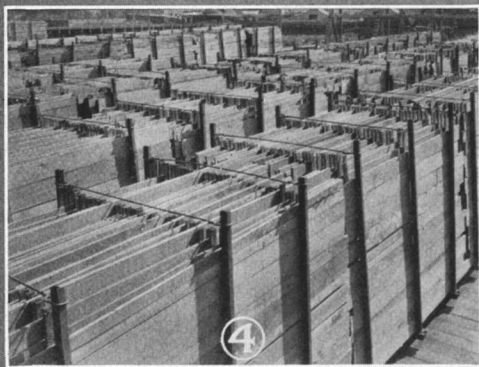
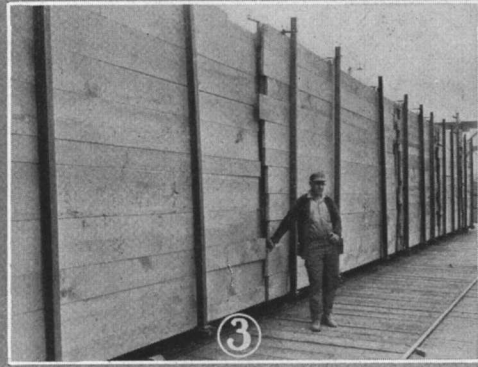
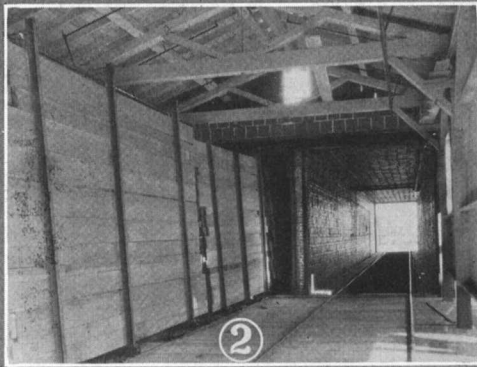
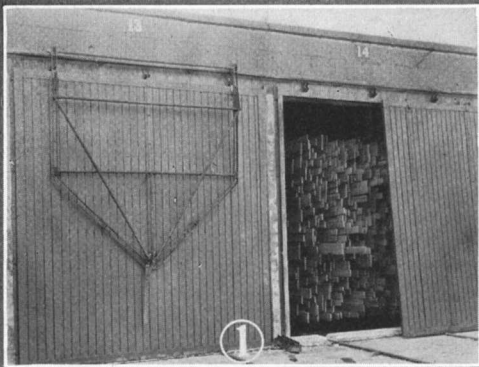
streams from these pipes may be turned on an incipient fire at the same time.

Each day the entire sawmill and other buildings are hand swept, and on Sundays and holidays an air compressor cleans the walls of the building and the timbers thoroughly.

#### The Fire Chief

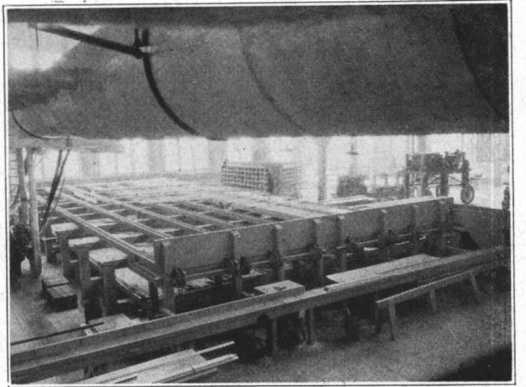
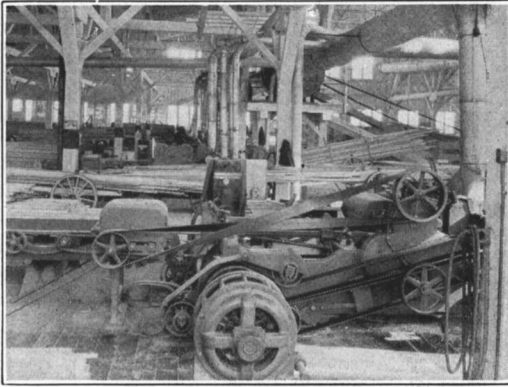
E. D. Tibbets, chief engineer of the Pacific Spruce Corporation, and who has complete charge of the fire equipment, as well as all other engineering features at the power house, was born and raised in Minnesota, where his father was owner of a sawmill. He has followed sawmill and power plant engineering for 23 years. Since coming to the west, about six years ago, he has managed a power plant at Springfield, Oreg., and held the position of chief engineer for a large lumber company at Eugene, Oreg. His son, Harry A. Tibbets, is first assistant. Mr. Tibbets takes particular pride in the fire protection department of





**COMBINATION ENGRAVING SHOWING DRY-KILN EQUIPMENT OF THE PACIFIC SPRUCE CORPORATION**  
 (1) Kiln Door Carrier. (2) Two Kiln Cars Dry Lumber in Cooling Shed. (3) Kiln Trucks of Sitka Spruce Shop. (4) Green Lumber on Kiln Trucks. (5) Fourteen Kiln Trucks of Dry Lumber. (6) Interior of Kiln No. 13. (7) General Birdseye View of Kiln Group. (8) Fourteen Northwest Blower Co. Fans. (9) Electrical Switches Under Dry-Kilns. (10) Fan Motors. (11) Transfer Car. (12) "Unstacker." (13) Dry Lumber Sorter.





LEFT-HAND ENGRAVING REPRESENTS S. A. WOODS MACHINE 404-B. CENTER ENGRAVING SHOWS LINE OF S. A. WOODS MACHINES, 404-B IN FOREGROUND. RIGHT ENGRAVING SHOWS MANY OF THE PLANING MILL DELIVERY TABLES FOR "FINISH" LUMBER

the Pacific Spruce Corporation and personally investigates the entire system from time to time.

The lumber manufacturing plant of the Pacific Spruce Corporation was purchased from the Spruce Production Board along with the timber, but not in altogether the form in which it now exists and has been described. It WAS a good and up-to-date plant for its original purpose, having been designed by Peter Swan, a millwright, who has built many of the modern Pacific coast plants; and the Allis-Chalmers Co. was awarded the contract for the complete mechanical equipment. This was signed on August 8, 1918—and then along came the Armistice! By the eleventh of November, however, when it became known that the need for spruce wherewith to build airplanes with which to help whip the Germans had completely abated and disappeared.

the Allis-Chalmers people with their customary dispatch had most of the machinery delivered or en route, and the government decided to go on and build the mill.

As originally designed the mill was strictly a spruce-manufacturing proposition. The principal changes required to adapt it to all-round commercial manufacture of all the timber species we have mentioned herein were the addition of more edger and trimmer capacity.

**SERVICES RENDERED THE CUSTOMER BY PACIFIC SPRUCE CORPORATION AND SUBSIDIARIES**

The customers of the Pacific Spruce Corporation, through the C. D. Johnson Lumber Co., are assured a supply of ALL their Pa-

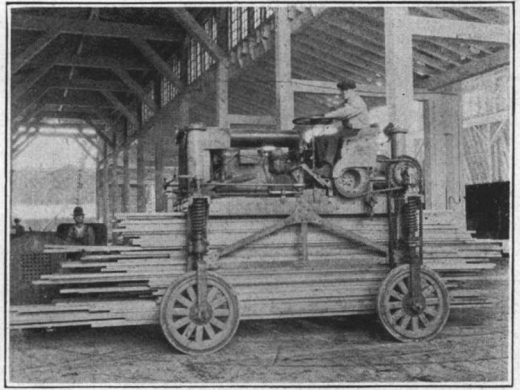
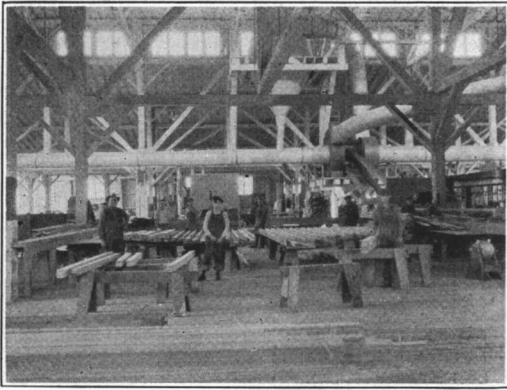
cific Coast products, at market prices, for an extraordinary length of time. The customer who buys here and there and who forms no permanent connection with a company able to supply his EVERY need at all times, with promptness and careful attention to the minutest detail, has failed to realize the benefits to be derived from forming such a connection, as enjoyed through a long period of years. Customers of the C. D. Johnson Lumber Co. are assured of such enviable service through the timber resources of the Pacific Spruce Corporation.

Right at this point the customers of the Pacific Spruce Corporation, buying through the C. D. Johnson Lumber Co., are informed that they will be able to secure the highest grades and types of Sitka spruce and old growth yellow Douglas fir at this institution



THIS PANORAMIC VIEW OF THE INTERIOR OF THE PLANING MILL OF THE PACIFIC SPRUCE CORPORATION AT TOLEDO, OREGON COULD BE MADE OF THE INTERIOR. THIS IS NOT A BUILDING BY ITSELF BUT ONLY ONE OF FOUR DIVISIONS IN A GREAT GENERAL TYPE ON THE PACIFIC COAST AND IS MADE UP ALMO





LEFT VIEW, PLANING ROOM BUNDLING DEPARTMENT, WHERE SIDING, CEILING AND FLOORING ARE HANDLED. CENTER ENGRAVING, THE WESTINGHOUSE INSTALLATION OF SWITCHES IN THE PLANING MILL. ENGRAVING AT RIGHT, THE GERLINGER LUMBER CARRIER—WHICH RUNS LIKE A RABBIT OVER ALL THE WORKS

for at least forty years; and western hemlock and western red cedar for the same period of time.

It is realized that this statement is rather astonishing; and it is not handicapped by any comparison of this locality with any other locality as to such prolonged service to a customer. There may be operators who MAKE such a statement; but the writer (who makes THIS statement) stakes his reputation as having worth-while judgment in matters of timber research—done practically—and with a view that those in interest may afterward predicate any arguments they wish to advance in connection with the selling of their timber products, on the statements made in this article.

#### Quality Is Aim In Manufacture

The supply being assured for a long pe-

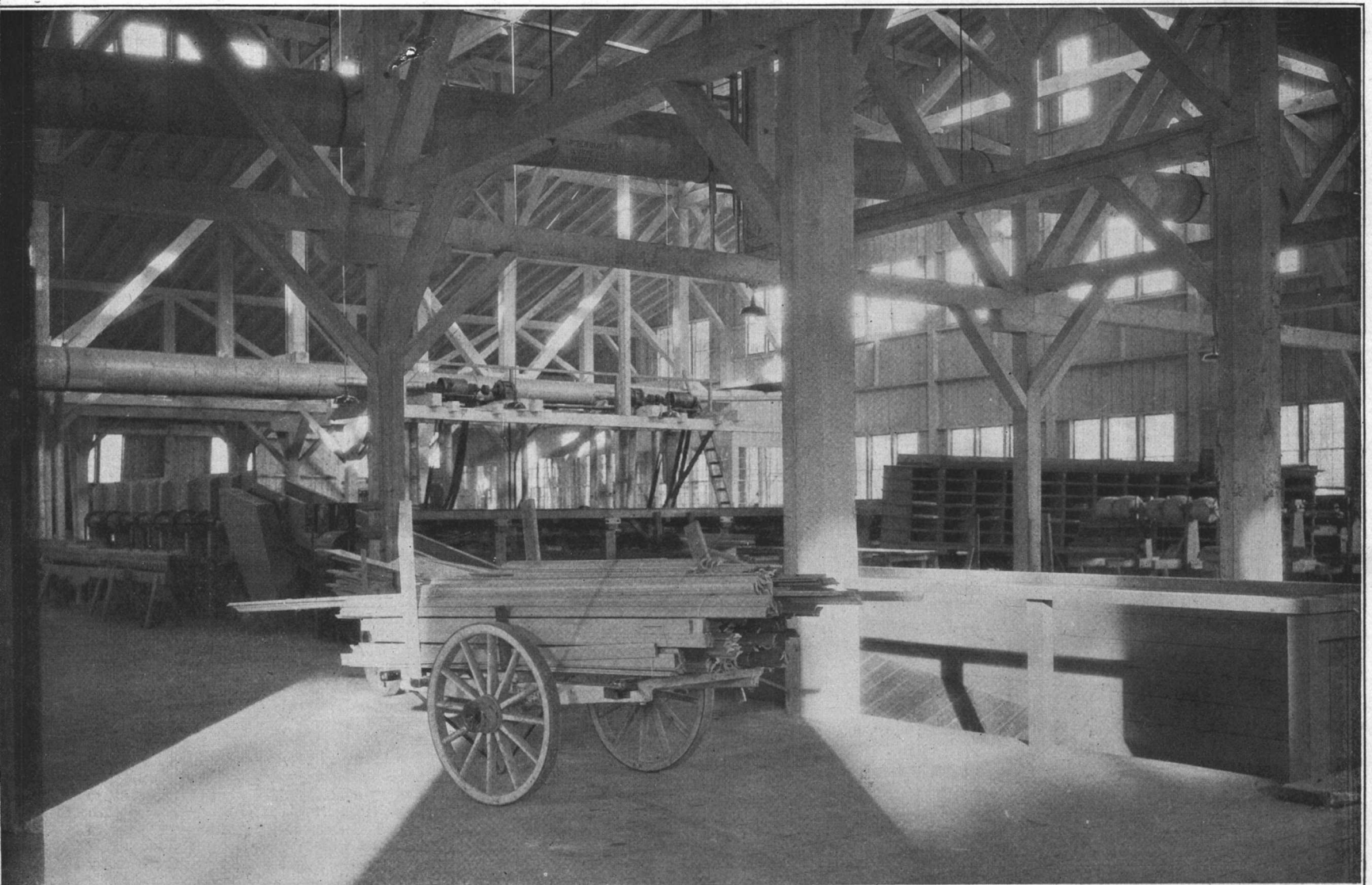
riod of time, the next thing to be considered by the long-time customer is the quality of the product; and here is where the Pacific Spruce Corporation took every precaution and exercised every care in order that the customer may be assured the very highest quality of lumber and also uniform grades, thicknesses, lengths and widths—those characteristics which make for satisfied customers, which is the aim and purpose of the company throughout all processes of manufacture and shipment of the product.

The timber holdings of the Pacific Spruce Corporation are equally divided with respect to the amounts of Sitka spruce and old growth yellow Douglas fir; and the timber is about the same age, and admits of the same treatment in manufacture to insure the highest quality of product.

Of necessity some of the statements that already have been made in the discussion of the timber and some that have been made with regard to the manufacture of the lumber, enter into the service rendered the customer and these features cannot be too strongly dwelt upon. The buyer will find on reading ALL these grand divisions that the Pacific Spruce Corporation has had his needs in mind first, last and always; and this will be realized from whatever angle viewed, as presented herein.

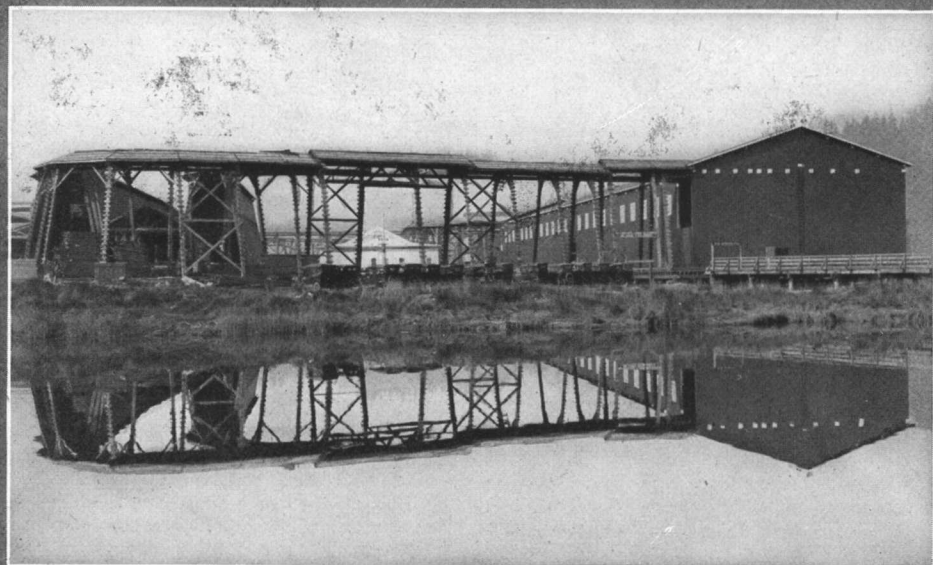
It is well to touch here on some of the many factors where "service of the customer" is the watchword of the Pacific Spruce Corporation, in producing high-grade specialties.

**Fir Finish**—One of these is fir finish, made from the old growth yellow Douglas fir. The

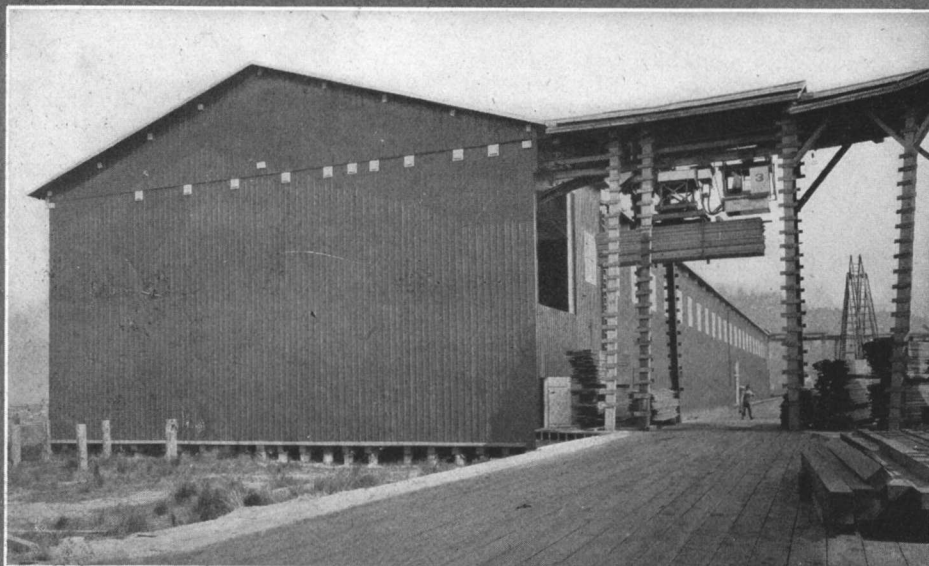


WAS SECURED IN NORMAL DAYLIGHT—IT SHOWS THE WHOLE SWEEP FROM THE ONLY VIEWPOINT FROM WHICH A PHOTOGRAPH PURPOSE BUILDING USED FOR MANY INSTALLATIONS. THIS IS AN ELECTRICALLY INSTALLED PLANING MILL OF THE HIGHEST ENTIRELY OF S. A. WOODS MACHINE CO. MACHINES





①



②



③

**VIEWS CONVEY MUCH PACIFIC SPRUCE CORPORATION INFORMATION**  
 (1) Monorail Trestle and Dry Lumber Shed. (2) Dry Lumber Shed from Southwest with Monorail Carrier No. 3. (3) Big Dry Lumber Shed, Depot Slough Logs in Foreground.

superior qualities of the timber are retained by the exercise of greatest care in the dry-kiln department. With its battery of twenty kilns the company has a dry-kiln capacity which allows it to dry the lumber slowly and uniformly; and the expert foreman in charge of this important phase of the work is unceasingly vigilant that only the most perfect result shall be secured.

**Spruce Finish**—Spruce finish has all the fine qualities of yellow poplar and takes paint better than any known wood. It is subjected to the same careful treatment in dry-kilning and manufacture that is accorded fir. It is replacing cypress in New England, Ohio, New York and Indiana. The customer can always get his orders filled by the Pacific Spruce Corporation through the C. D. Johnson Lumber Co.

**Vertical Grain Fir Flooring**—The installation of a gang mill and a pony band gives the Pacific Spruce Corporation unusual facilities for producing vertical grain fir flooring (as well as fir and spruce uppers), and insures a plentiful supply of this remarkable flooring, always on hand in the dry lumber room ready for shipment. Orders can be filled within two and a half or three hours after being received. The uniformity of this product as to quality and grade is assured for all time by the quality of the timber and the uniform process of manufacture.

Other specialties in old growth yellow Douglas fir are casing, base, stepping, siding (both bevel and drop), and all upper grades from the same timber, which are submitted to the same careful manufacture according to the standards of the West Coast Lumbermen's Association.

**Fir Shop**—It is comparatively but a few years since fir shop lumber received much attention from the eastern door factories. Today the Pacific Spruce Corporation is shipping fir shop as far distant as Florida. It is believed by some that it is the coming wood for doors, which should commend the large supply of the Pacific Spruce Corporation to those manufacturers who are seeking a permanent source of supply of a high-grade product.

**Spruce Shop**—Spruce shop is rapidly growing in favor everywhere it has been used; and the dealer or factory operator desiring to replace some disappearing species—cypress, for instance—with a wood that will give the very best results and which will be available for many years to come, can find such a wood in Sitka spruce as manufactured by the Pacific Spruce Corporation. The secret of the excellence of Sitka spruce shop lumber made by this company lies in its treatment in the dry-kilns, where an expert engineer exercises every care to produce a uniformly perfect stock.

**Ladder Stock**—The Pacific Spruce Corporation carries a large supply of ladder stock on hand and is ready at all times to fill any order it may receive for this material in Sitka spruce, which is ideally adapted for this use. There is no sort of ladder, from the longest to the shortest, the stock for which may NOT be furnished by the Pacific Spruce Corporation, because coupled with its long clear stock ALWAYS on hand, the company takes special pains to save the short lumber and caters to this industry in step stock also.

**California Novelty Siding**—Dealers in California will find real values in the California novelty siding manufactured by the Pacific Spruce Corporation from its Sitka spruce. This wood is able to withstand the extreme heat of the California valleys, never warps and is cheaper than redwood. A supply is always on hand to fill any order by rail shipment.

**Spruce Bevel Siding**—Dealers will find in the dressed lumber division of the great general purpose building of the Pacific Spruce Corporation at Toledo, quantities of Sitka spruce bevel siding, ready for immediate shipment. This wood is popular throughout the entire country and especially so in the middle west, where it most favorably compares with redwood and cedar, and which it excels in that these two woods require three coats of paint to secure the results that are secured by two coats on Sitka spruce.

#### **Service in Loading**

The customers of the C. D. Johnson Lumber Co., are given valuable service in the load-



ing department of the Pacific Spruce Corporation, a service which includes promptness of shipment and perfect delivery of the stock.

The dressed lumber department carries several million feet of finished stock of all kinds and the rough dry lumber building contains several millions more, ready to be run through the planers to fill any large or special order. The monorail, with its unit system, fully described elsewhere, gives immediate service at the loading dock and cars for any order can be loaded in two and a half to three hours' time; so that the Pacific Spruce Corporation—splendidly served with cars by the Southern Pacific R. R.—can give its customers car numbers ALWAYS in a minimum length of time, and the corporation has gone far enough along the road to consider itself a pace-maker at this business.

The utmost care is used in preparing the cars for loading the finished stock. The floors of the cars are swept and clean shavings are laid down. The walls are battened or stripped, so that the lumber will not touch the sides of the car and be marred in transit. The car is loaded to leave six inches at top to facilitate unloading, and arrives at destination as it left the mill, in perfect order.

#### C. D. Johnson Lumber Co. "Quality"

In order to secure the high standard set by the West Coast Lumbermen's Association (of which the Pacific Spruce Corporation is a member) in the grades established by that association for its membership and others, a large corps of graders is always at work maintaining the standards of the association and in so doing produces what has become known as "C. D. Johnson Quality Lumber."

All upper grades of lumber are first graded in the remanufacturing plant, where remanufacturing and regrading are accomplished. On the sorting chains, after the lumber has passed out of the mill, a corps of four trained graders, under the supervision of a chief inspector, grades the entire cut. After going through the dry-kilns it is again graded and remanufactured and regraded—in order that it may reach the planing machines in perfect order and at standard grades—by two graders and a chief inspector. After going through the planers it is AGAIN graded—all this in the interest of the customer who demands and gets—"C. D. Johnson Quality Lumber."

#### Service by Cargo

Through the "Robert Johnson" the California box markets are now assured about 3,000,000 feet of box lumber each month.

The rough green Sitka spruce lumber is assembled at the sorting chains in units, as fully described in the transportation division of this story, in which form it is loaded on the steamer. These units are loaded in the vessel in such manner that when unloaded they come out as they arrived at shipside, according to lengths and sizes, eliminating the work of assorting at the unloading dock and saving that expense to the customer.

Any cargo order from California, for box lumber, or for lath, can be filled in three weeks' time.

In every department, then, it is found that the Pacific Spruce Corporation has placed the needs and requirements of the customer first and that the entire organization is run to meet these needs and requirements in the best possible way, with lumber that is dependable as to grade and quality and which is available for immediate shipment, and which may be secured throughout a long period of years by those who desire to make long-time connections.

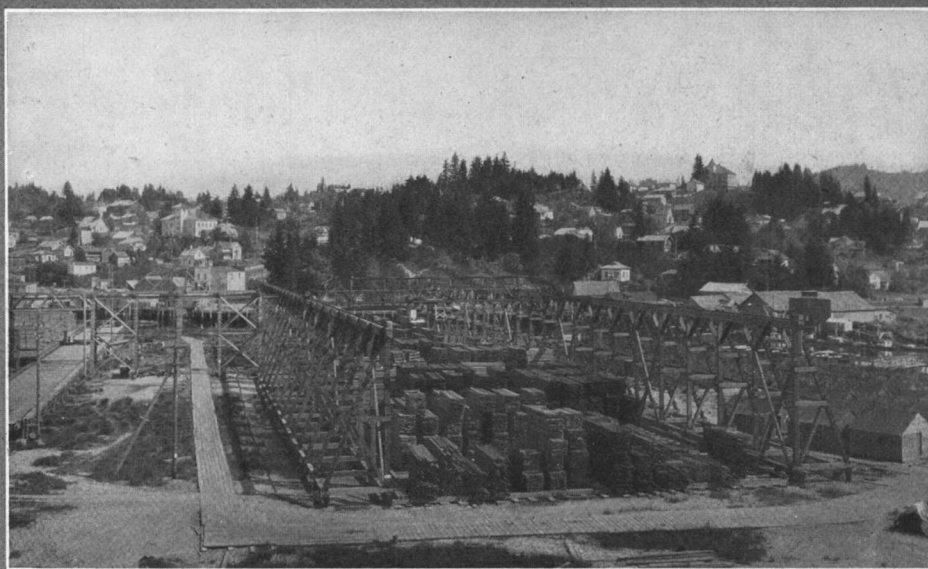
#### THE VARIED "USES" OF PACIFIC SPRUCE CORPORATION PRODUCTS

Never before has this writer in the preparation of any illustrated descriptive article felt called upon to write a chapter on the "uses" of the products of the company or corporation under review; but the most VARIED uses of the products of the Pacific Spruce Corporation make—in this case—a department of that character imperative and of vast moment!

Before we pass into specific statements about the uses of Sitka spruce it should be



①



②



③

TO APPRECIATE THE INFORMATION IN THESE VIEWS ANALYZE THEM  
(1) Interior of Dry Lumber Shed from near Center, Lumber in Units at Left. (2) Green Crane yard. (3) Interior Dry Lumber Shed, showing Unit Lumber Packages.



stated briefly in this section that all have much information to expect from an investigation made by Benson H. Paul, of the staff of the Forest Products Laboratory of Madison, Wis., in the Pacific Spruce Corporation holdings in southern Lincoln County, Oregon, during October, 1923. The Forest Service literature is so meager on the subject of Sitka spruce, however, that it is hoped the whole of what Mr. Paul may have to say will not be confined to tree growth, environment, influence and all of those things—interesting enough in their place but which have no place when we come to consider "Sitka Spruce and its Uses," to which this part of the story of the Pacific Spruce Corporation is devoted.

#### Sitka Spruce "Arrived" During the War

Sitka spruce was etched into the minds of the lumber buyers and lumber users of the whole world during 1917 and 1918 by the U. S. Spruce Production Division.

The LUMBER WORLD REVIEW was urged to make a painstaking research in an endeavor to discover what it was that the Spruce Production Division of Aircraft Production, operating so vastly in Oregon, from its head-

duction of airplane lumber at the Vancouver plant. It was developed that in the time elapsing between August 1, 1917 and August 1, 1918, the Spruce Production Division had shipped a grand total of 86,434,405 feet of airplane lumber, of which 59,576,899 feet was spruce and 26,917,866 feet fir.

After the advent of the lumber talent, represented by Maj. Griggs and Col. Breece, production had been speeded up and the prospects then were for at least 20,000,000 feet of airplane lumber per month. On August 20, 1918, the United States Spruce Production Corporation was formed, the directors being Col. Brice P. Disque; Maj. C. P. Stearns; Maj. Everett G. Griggs; J. J. Donovan, Bellingham, Wash.; Wm. Ladd, Ladd & Tilton Bank, Portland; Amos S. Benson, lumberman and capitalist, Portland, and Mark G. Reed, lumberman and logger of Seattle.

Up to October, 1918, the Spruce Production Division, as recounted in our "Adventures in Spruce—and Other Woods," had shipped of all kinds of lumber 107,800,898 feet, about the same percent of volume still standing as between spruce and fir. During all these months of 1918 the six monographs printed

August 1, 1917 and November 1, 1918, a period of fifteen months, secured and shipped only 87,715,319 feet of Sitka spruce airplane stock as against 56,156,473 feet of fir for the same purpose, is now no argument against governmental inefficiency—but it does show that a lot of other uses than airplane stock HAD to be discovered for Sitka spruce lumber before it could commercially arrive.

All this, however, has happened to spruce since 1918, and the beautiful thing about it is that it has happened in greater measure and more swiftly than in the history of any other species of lumber on the market.

#### Sitka Spruce In Place of Poplar

A lumberman of prominence who knows and who is an acknowledged authority, and who has been a lumberman for thirty-five years in this country with a varied experience in the Mississippi valley, made this statement within the last month: "Sitka spruce can be used for anything and EVERYTHING for which that now scarce wood, yellow poplar, may be used."

This lumberman who had cut and handled poplar and is now cutting and handling Sitka spruce, quoted from an old monograph on yellow poplar of date March 21, 1908, which said: "The remarkable fact in connection with this material is that for certain purposes there has not been evolved, as yet, any absolutely satisfactory substitute." Continuing his statement the veteran lumberman said: "That might have been true in 1908; but that condition has long since ceased to be true, for Sitka spruce is QUITE as good for the manufacture of wagon, buggy and automobile bodies as poplar ever was." Continuing, he said: "Of course, you must know that wagons are still built and buggies are still built and automobile bodies are still built—out of WOOD." Further, he said: "A large percentage of the low-grade product of Sitka spruce has no known equal in the manufacture of certain kinds of boxes and packages. So in filling the enormous demands for high-grade Sitka spruce, one need never have any fear for the amount of low-grade lumber which might accumulate, for the demand on the Pacific coast for all kinds of package material is always strung up to high tension. For butter boxes, starch boxes and fruit boxes—for all kinds of boxes, in fact, which demand that there be no odor absorbed from the wood—Sitka spruce, like poplar, is tasteless and colorless in so far as its effect upon the articles that are contained in the packages is concerned, and preferred just as poplar was preferred in the semi-old days. Yes, too, let me tell you that Sitka spruce takes and retains paint and is susceptible of a high polish."

Later, in the cafeteria of the Pacific Spruce Corporation, were seen several dining tables made plainly, but substantially, of Sitka spruce lumber, from what the manufacturer would term "band belt" vertical grain boards and even in a fine city restaurant nothing could be found more beautiful. Those tables were built by an expert carpenter at the mill of the Pacific Spruce Corporation, a man without any pretense of possessing artistic merit, or fine design, but nevertheless those tables are not only useful but very beautiful.

Sitka spruce makes as fine chests of drawers, when the drawers need to be shallow and extraordinarily long, as any wood we have ever seen, as evidenced by a series of drawers in the vault of the Pacific Spruce Corporation which contains units in the way of drawers that are 70 inches long, 54 inches wide and 2½ inches deep and in which the great number of building plans, timberland maps and such accumulation of the company archives are kept; and though of such large size they work as smoothly as if an old-time cabinet maker had put them together. They were not built by a cabinet maker, but by a local carpenter, from well dried "B and better" vertical-grain Sitka spruce lumber, and constitute a fine piece of office equipment. Office equipment manufacturers, wherever located, would do well to look into the purchase of Sitka spruce of this character for just THAT character of drawers.

The reader must not think by thus apostrophizing this grade of spruce that it is not already very popular, for it is; and as an evi-



**THIS FINE PICTURE TAKEN IN ORDINARY DAYLIGHT SHOWS THE ENTIRE SWEEP OF THE LOADING PLATFORM IN THE BIG SHIPPING DIVISION OF THE GREAT BUILDING WITH TEN CARS AT THE PLATFORM**

quarters in the Yeon Building, was actually doing; and the experiences which followed stand the writer in great stead now in recounting the facts as to uses in these piping times of peace.

#### A Three Months' Investigation

The editor of this publication went to the coast and spent three very interesting months, August, September and October, 1918; and found Col. Brice P. Disque—not a lumberman but a colonel of the Signal Corps of the U. S. Army—and Col. George E. Breece, a real lumberman, temporarily of the Signal Reserve Corps, Aviation Section, manager of lumber production at the Vancouver (Wash.) plant of the Spruce Production Division, and Maj. Everett G. Griggs, another lumberman of national reputation, also of the Signal Reserve Corps, Aviation Section, manager of fir production at the airplane lumber mill at Vancouver, Wash.

We found Col. Disque ready to talk and there was given to this publication, with an immediate release, the first statement printed in the United States concerning the actual pro-

duction of airplane lumber at the Vancouver plant. It was developed that in the time elapsing between August 1, 1917 and August 1, 1918, the Spruce Production Division had shipped a grand total of 86,434,405 feet of airplane lumber, of which 59,576,899 feet was spruce and 26,917,866 feet fir. After the advent of the lumber talent, represented by Maj. Griggs and Col. Breece, production had been speeded up and the prospects then were for at least 20,000,000 feet of airplane lumber per month. On August 20, 1918, the United States Spruce Production Corporation was formed, the directors being Col. Brice P. Disque; Maj. C. P. Stearns; Maj. Everett G. Griggs; J. J. Donovan, Bellingham, Wash.; Wm. Ladd, Ladd & Tilton Bank, Portland; Amos S. Benson, lumberman and capitalist, Portland, and Mark G. Reed, lumberman and logger of Seattle. Up to October, 1918, the Spruce Production Division, as recounted in our "Adventures in Spruce—and Other Woods," had shipped of all kinds of lumber 107,800,898 feet, about the same percent of volume still standing as between spruce and fir. During all these months of 1918 the six monographs printed

of course the fact that Col. Disque, with something like 18,000 soldiers, between



gence of that popularity, in a recent month the rail shipments from the Toledo mill of the Pacific Spruce Corporation were 2,000,000 feet "B and better" Sitka spruce out of total shipments for the month of 3,500,000 feet of lumber of all grades and species.

#### Final Words Concerning Spruce Uses

No more epitomized or more authoritative statement concerning the uses of Sitka spruce can be had than the statement which occurs in the "Standard Classification, Grading and Dressing Rules of all the Lumber Produced by the West Coast Lumbermen's Association" and it should make comfortable the owners of any considerable amount of Sitka spruce stumpage to know that in the arrangement of the material in that book the information about Sitka spruce directly follows that of Douglas fir, second on the list. It would be interesting to run back through the files of "Standard Classification, Grading and Dressing Rules" of the years before the war to see how Sitka spruce gradually crept into the record, then all at once bulged out in full measure, stood up and shook itself and then walked into second place; which is really just what has occurred.

There are no more sensible statements printed in English concerning the uses of Sitka spruce than those printed in that little book and we will epitomize the whole thing in one paragraph:

"This timber grows only on the north Pacific coast and differs from all other species of spruce in that it is the giant of the genus, in both size and quality. The wood is soft and light, but tough and very strong for its weight. It is even grained, long fibered, odorless, tasteless, flexible and easily worked. It does not warp or split and therefore is particularly adapted to core stock for veneered articles. Its strength, lightness and lack of odor and taste make it particularly valuable for box and cooperage manufacture where foodstuffs are to be encased. It also is well adapted for many other purposes, such as refrigerator stock, sash and doors, ladder stock, car stock, framing, shelving, sheathing, flooring, lath, ceiling, stepping, sidings, battens, turning squares, moulding lumber, mouldings, factory lumber, panel stock, car siding and roofing, common dimension—in fact, Sitka spruce is an excellent wood where such qualities as ease of working and painting, light weight and ability to take and hold nails are required. Its long, straight grain and fibre, fine texture, the large and clear sizes obtainable, coupled with its resonant qualities when cut in thin boards, make it an extraordinarily good wood for use in the manufacture of piano sounding-boards and stringed musical instruments. In airplane construction, Sitka spruce has proven itself superior to any other wood in the world and an immense amount of it is used in maintaining the air service of several European nations, as well as by the leading builders of airplanes and hydroplanes in the United States."

Sitka spruce, when manufactured into factory, or shop, lumber, is possessed of many potential uses. It is manufactured in thicknesses of 4/4, 5/4, 6/4, 8/4 and 10/4, and in widths up to 30 inches, surfaced, which is something that can be said of hardly any other species.

It is very popular among furniture, cabinet, coffin, refrigerator, and other factories, where a wood that is strong and light, and which has neither odor nor taste, and which does not stain the fabric decorations, is required.

Sitka spruce is handled by many hardwood concerns, for the reason that it is really a "cabinet softwood," and for numerous purposes it compares favorably with many of the hardwoods in use. As a material for making chests of drawers, and drawers of all kinds, it has no equal.

One special use of Sitka Spruce for which its particular qualities are rapidly making it the leader in this field, is for ladder stock. For this purpose it is manufactured in lengths of 12, 14, 16, 18, 20 and 22 feet, and the shorter lengths are used for making step-ladders.

The Douglas fir timber of the Pacific Spruce Corporation will be treated as timber, in the timberland section of this article; but in this

division will be referred to only as to its USES, which of course must go hand in hand with some statements regarding the character of the timber.

#### THE USES OF DOUGLAS FIR

As with other popular woods on the Pacific Coast, there has been a great rivalry between the owners and distributors of Douglas fir to endeavor to add something extra to the character of it, by giving it a sort of extra name, like "Columbia pine," "Puget Sound pine," "Oregon pine," "Douglas spruce," etc., none of which ever meant anything or added to its sale.

If careful cruising may be considered seriously—and it certainly may in connection with the Pacific Spruce Corporation—then the quantity and quality of the old-growth yellow Douglas fir which is possessed by the Pacific Spruce Corporation, when considered along with that company's possessions of Sitka spruce, make it easily one of the most fortunate concerns now actively engaged on the Pacific coast in the manufacture of lumber intended for all purposes.

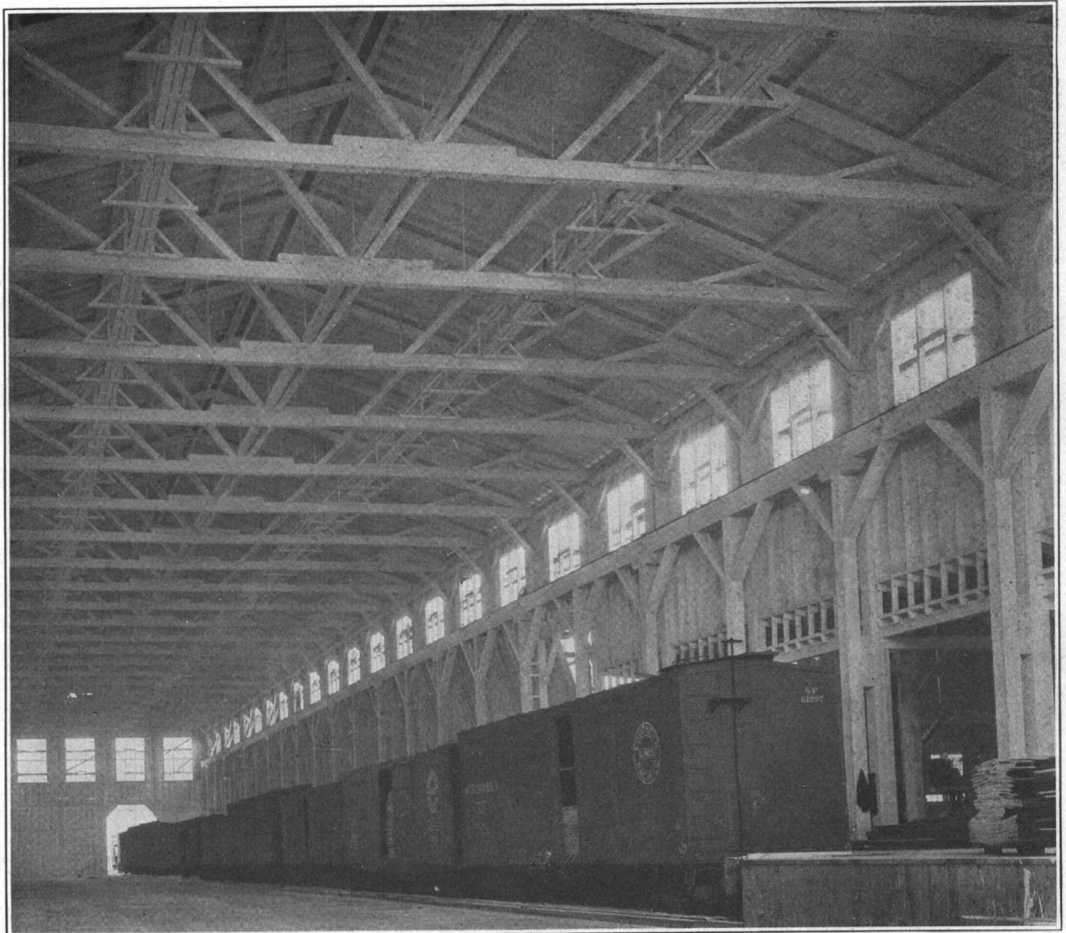
between the spring and summer wood, quite as attractive as the grain of many hardwoods. Flat-sawed Douglas fir takes stain so well on this grain that it may be easily made to take the place, in appearance, at least, of a number of rare woods.

#### "USES" OF THAT BEAUTIFUL WOOD—WESTERN HEMLOCK

It is the writer's opinion that western hemlock in the past has been treated by western operators very much like a bound-boy, or a stepchild.

Any student or even casual reader of the test charts that have been gotten out by the Forest Products Laboratory from the days of the famous "No. 108" to and including the latest issues, have noted undoubtedly the "forward upright steps" made by western hemlock during the past six or seven years concerning its tensile strength.

Western hemlock can be used for just about as many things as Douglas fir can be used for. Hemlock does not interest the Pacific Spruce Corporation as much—naturally—as does its wonderful Sitka spruce and old growth yellow Douglas fir, but only because



INTERIOR OF THE GREAT SHIPPING ROOM IN THE HUGE BUILDING WHICH SHOWS TEN CARS LOADING AT THE LUMBER LOADING PLATFORM, THE AREA OF THE SPACE BEING 80x488 FEET

This old-growth yellow Douglas fir is light weight, easy to work and handle; an ideal wood for practically all building purposes; and owing to its high tensile strength and the great height to which it grows, can be furnished in timbers in the largest dimensions required for modern heavy construction.

In making a resume of the good points of old growth yellow Douglas fir for general building, it is recounted that it is practically impervious to water, holds nails firmly, takes stains well in any shade or color and combines beauty, utility and durability; and that it is a superior wood for sash, doors, silo stock, car material, ship spars, boat and barge material, ladder stock, bridge material; and in addition to all this, works into all forms of dimension stock for general building construction, the lightness of which stock fits it for joists, floor beams, rafters and other timbers. Though of comparatively light weight, this coupled with its strength, fits it also for flooring and especially edge-grain flooring. When this lumber is sawed flat it shows pleasing figures and a great contrast

it has not as much of this wood; for it has already been discovered that western hemlock is suitable for inside joists, scantling, lath, siding, flooring, ceiling, also heavy timbers, if you please; and is especially adapted to uses that require ease of working, a handsome finish or lightness, combined with a large degree of strength. For the manufacture of sash and door stock, fixtures, furniture, wainscoting, panels, turned stock and the like, it is recognized as a wood of exceptional merits.

#### USES OF WESTERN RED CEDAR

The Pacific Spruce Corporation does not own a very great quantity of western red cedar, but such as it has is fine in individual character.

This cedar is the largest of the four true cedars in the world and from time immemorial has been famous for its resistance to decay and its remarkable durability. It makes fine exterior finish, corrugated decking, porch floorings, battens, flume construction, drains, canoes, rowboats, trellis work, hothouse



frames and sash and for all purposes in which the material used is exposed to the weather or comes in contact with the damp soil.

From this wood is made 70 percent of the shingles made in the United States.

The Pacific Spruce Corporation has made no special preparation to manufacture cedar into anything but lumber and will probably carry out its production along those lines; hence any extensive reference in this article to western red cedar shingles would be superfluous.

#### MARKETING THE PRODUCTS OF THE PACIFIC SPRUCE CORPORATION BY RAIL AND WATER

The lumber manufactured by the Pacific Spruce Corporation at Toledo, Oreg., finds its market through two outlets, water and rail. The water shipments, to date, are by the "Robert Johnson," a steamer of 3,000 tons dead weight, which carries 1,500,000 feet of lumber, making two round trips between Yaquina Bay and California ports each month.

The rail shipments are made over the Southern Pacific line, which extends from Yaquina City through Toledo, via Corvallis,

selling agency for the Pacific Spruce Corporation, with C. D. Johnson president, Dean Johnson vice-president, Ernest E. Johnson secretary-treasurer, and R. S. Trumbull assistant secretary.

In the early period following the incorporation of the C. D. Johnson Lumber Co., it proceeded slowly, but surely, on specific lines laid out by C. D. Johnson, in its development of markets; and when the mill at Toledo began operating two shifts, in 1923, it was in position to dispose of the entire output of the Pacific Spruce Corporation, a total of 10,000,000 feet monthly, with an ease which showed excellent groundwork in its organization.

#### OCCUPIES UNIQUE POSITION IN BOTH SITKA SPRUCE AND FIR

The C. D. Johnson Lumber Co. occupies a unique position in both Sitka spruce and fir.

Sitka spruce is the most newly arrived staple building wood known to lumber commerce; and so popular has it become that it is easy to sell and so scarce is the product on account of general lack of development in its manufacture, that here is a case where demand for the last two years has been excessive in proportion to the supply.

Now, while this is true, there is coming a

ter this feature alone would insure a product throughout the years which may be depended upon as always holding up in quality; and this of course is another fine selling feature.

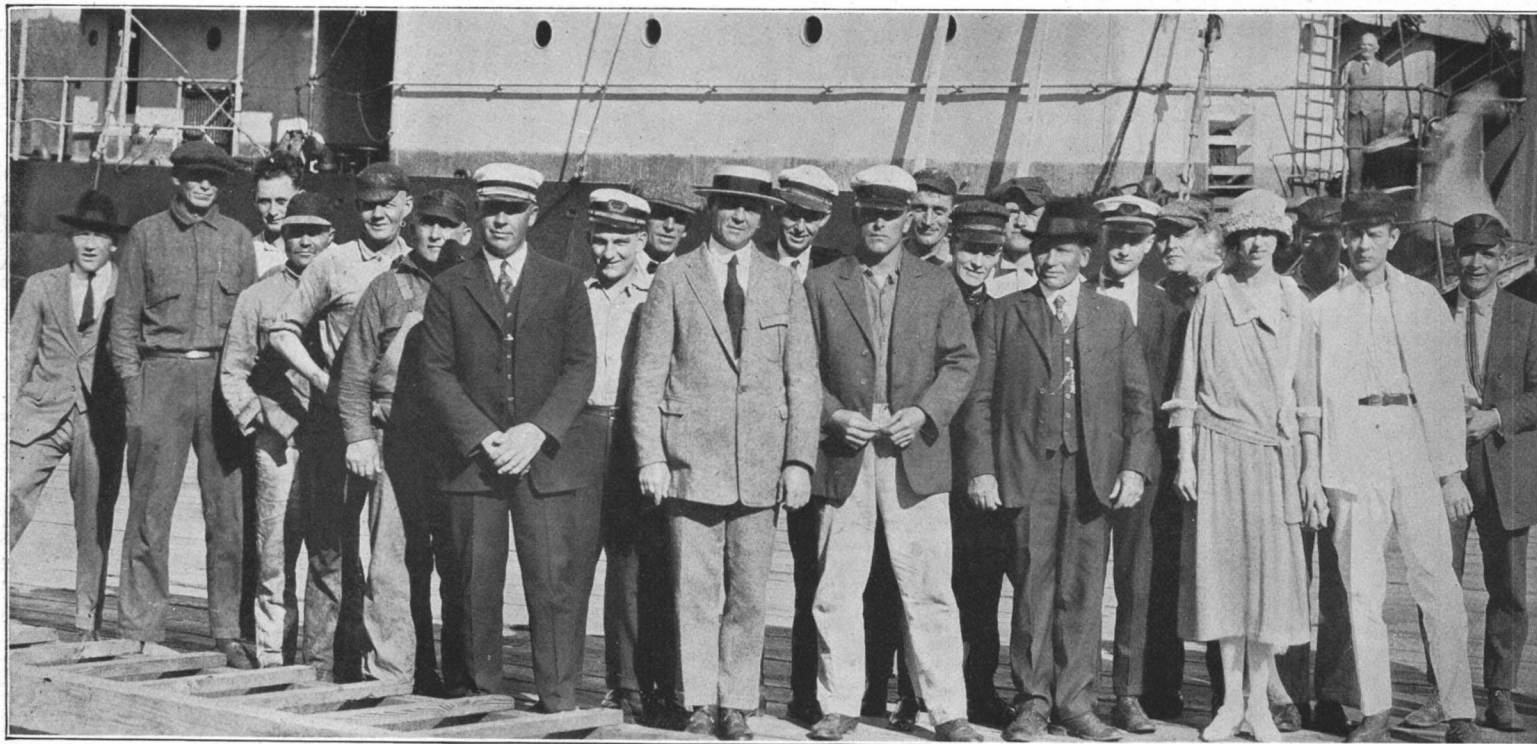
The markets in the east and elsewhere, which the Pacific Spruce Corporation is developing, seem just now to be running in Sitka spruce largely to bevel and bungalow siding, factory lumber, clears and ladder stock; and there has recently come to the C. D. Johnson Lumber Co. a very large demand from abroad, especially from Great Britain and the continent of Europe, for the higher grades of Sitka spruce.

Douglas fir vertical grain flooring, flat grain flooring, both vertical and flat-grain finish, casing, base, ceiling, drop siding, boards, shiplap, dimension and small and large timbers are in great demand.

#### THE GENERAL RAIL TRADE

It goes without saying, in any voluminous way, that any institution in lumber manufacture of which C. D. Johnson is the head, would dominate in a selling sense in the rail trade, on account of that gentleman's long activities in other and kindred lines of lumber.

Fully 50 percent of the rail shipments of



THIS VIEW OF A GROUP OF THE OFFICERS AND THE CREW OF THE STEAMSHIP "ROBERT JOHNSON," WAS TAKEN ONE DAY LAST AUTUMN, AS THEY WERE GROUPED ON THE DOCK AT NEWPORT, YAQUINA BAY—PILOT HOUSE AND BOAT DECK IN THE BACKGROUND

to the main line of the Southern Pacific Railway at Albany, Oreg.

The Yaquina Bay branch of the Southern Pacific began as the Willamette Valley & Coast Railroad in the early '70s. It was completed as the Oregon Pacific Railroad in 1884 and was purchased in 1892 by A. B. Hammond, of San Francisco, at receiver's sale and afterward sold by Mr. Hammond to E. H. Harriman, of the Southern Pacific.

The Southern Pacific Railway applies terminal rates on lumber eastbound from Toledo the same as from Willamette valley points.

The first lumber shipped by the Pacific Spruce Corporation from Toledo, Oreg., was on July 9, 1922, when a carload of No. 2 clear and better rough green fir was loaded for Sacramento, Cal.

The first cargo carried by the "Robert Johnson" left Yaquina Bay, May 30, 1923, and consisted of 1,500,000 feet of Sitka spruce box lumber for San Pedro, Cal.

#### THE C. D. JOHNSON LUMBER CO. ACTIVITIES

The C. D. Johnson Lumber Co., with offices on the thirteenth floor of the Northwestern Bank Building, Portland, Oreg., was incorporated January 18, 1922. It is the exclusive

time very soon when all who are concerned in the manufacture of Sitka spruce, from its most southern to its most northern habitat, will become more and more keen to forward their products to market. When that time arrives, we prophesy that the demand will continue to outstrip the supply in such a way as to stabilize Sitka spruce values, as has been done with cypress.

Sitka spruce will always maintain this unique position to the end of its career, many generations hence, on account of the fact that it is in few hands; and further will this be true on account of the fact that the surroundings and conditions will make it a wood easy and profitable to advertise.

#### Has Fine Douglas Fir Argument

If the reader will turn to the department in this article where are discussed the uses of the Sitka spruce, Douglas fir and western hemlock products of the Pacific Spruce Corporation, he will there ascertain that this company is peculiarly fortunate, especially in Douglas fir and Sitka spruce, as regards the even-aged character of both woods.

The Douglas fir might all be nominated as old growth yellow Douglas fir; and it seems that the fir possessions of the Pacific Spruce Corporation, being of this even-aged charac-

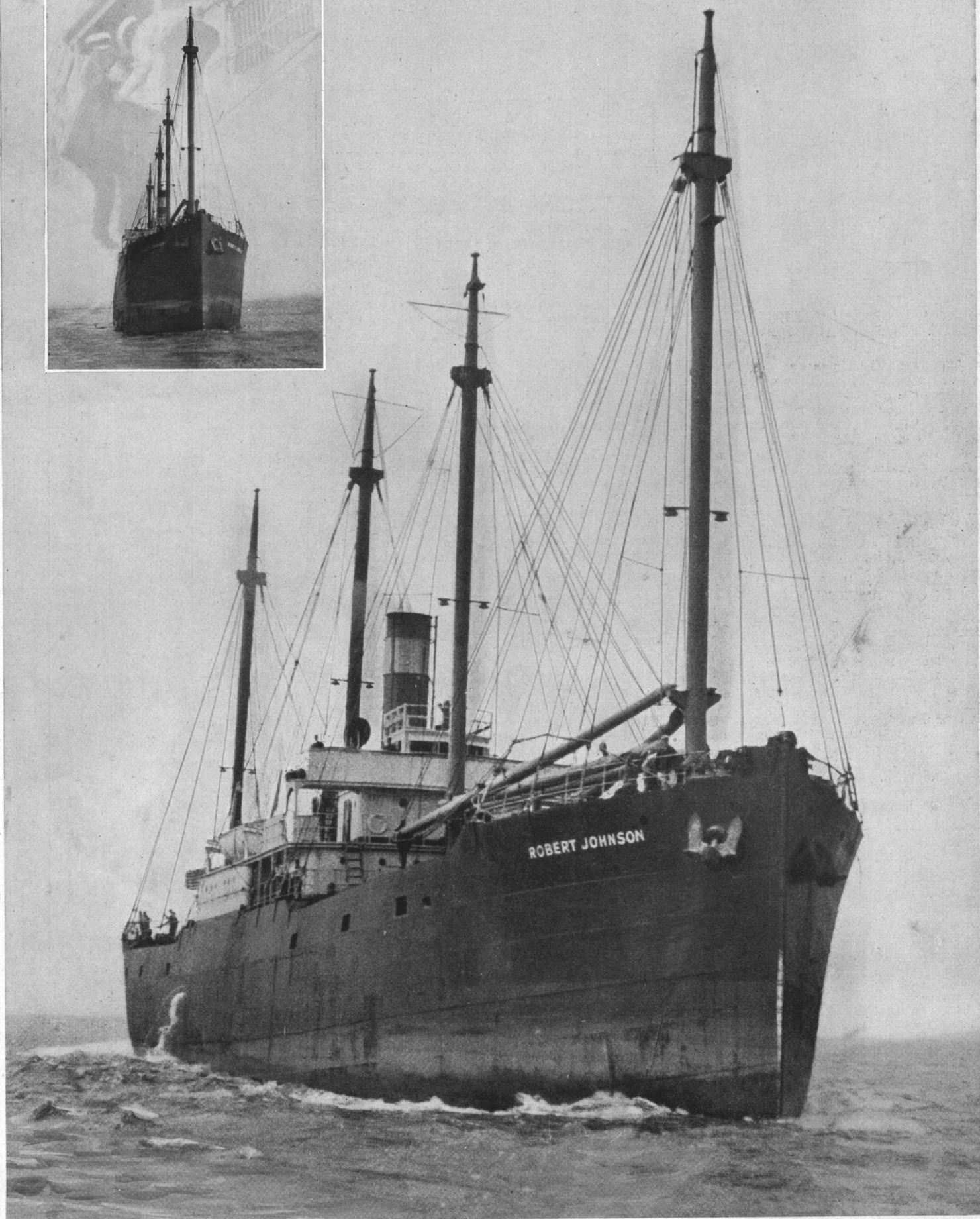
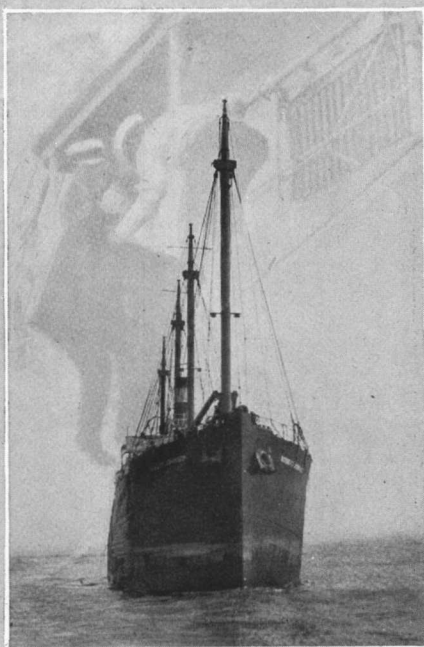
this company go into California where a large market has developed for California "Novelty" Sitka spruce siding. The balance of the rail trade is in the east. Chicago takes a considerable quantity of Sitka spruce siding; ladder stock finds a ready market in New York; and both Sitka spruce and old growth yellow Douglas fir finish move readily in the New England states.

The C. D. Johnson Lumber Co. is not alone looking to the immediate marketing of the output of the Pacific Spruce Corporation, but also looking far into the future when the nation will be more dependent on Pacific coast lumber products than it is today; and to that end it has inaugurated an advertising campaign for Sitka spruce and old growth yellow Douglas fir—the two woods which comprise the greater part of the holdings of the Pacific Spruce Corporation—which will carry these two woods into far lands and into every market in the United States.

#### Superior Loading Facilities

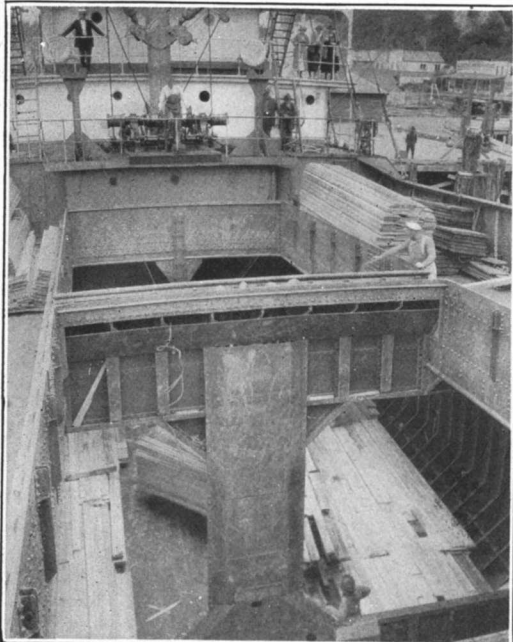
One argument which the C. D. Johnson Lumber Co. may use with impunity in connection with the selling end of its business is that its ability to handle all its lumber actually under cover, from the time it leaves the tail of the mill of the Pacific Spruce Corpora-





A STARBOARD VIEW OF THE STEAMSHIP "ROBERT JOHNSON" OF THE PACIFIC SPRUCE CORPORATION FLEET, SHOWN ON ARRIVAL IN NEWPORT HARBOR, FROM ONE OF ITS RECENT VOYAGES—THE UNUSUAL PICTURE LOCATED IN THE SKY ABOVE IS A "SPIRIT" PICTURE OF "TAKING ON THE PILOT"





**FORWARD HOLD OF STEAMSHIP "ROBERT JOHNSON" LOOKING TOWARD BRIDGE FROM WINCH PLATFORM**

tion at Toledo until it is placed upon the car for rail shipment, is quite unprecedented. The greatest building connected with the production of west coast lumber—which facility is enjoyed by the Pacific Spruce Corporation—contains three loading spurs in that building and within its yard at Toledo there are 4,000 feet of loading tracks, all told.

The Southern Pacific system has recently put in two sidings near the property for the accommodation of empty and loaded cars. Switching of cars at Toledo is done by a 25-ton oil-burning Baldwin locomotive—and done with great dispatch.

#### **SHIPPING LUMBER BY WATER GREAT IN OPPORTUNITY**

From the very beginning the Pacific Spruce Corporation, through its selling end, the C. D. Johnson Lumber Co., has enjoyed a heavy coastwise trade to California points, notably to San Francisco and Los Angeles, having early possessed itself of the steamer "Robert Johnson," so that it might ply independently in that trade, without let or hindrance. Since the "Robert Johnson" went into commission it has sailed twice each month, with an average load of 1,500,000 feet of lumber, for the two California ports mentioned.

Truly the water trade of the Pacific Spruce Corporation, through the activities of the C.



**TRAFFIC MANAGER THOMAS ON BOAT DECK "ROBERT JOHNSON." COMPANY TRADEMARK ON HIS RIGHT**

D. Johnson Lumber Co., is only in its infancy. One can see other ships coming under the house flag of the Pacific Spruce Corporation and a broadening of cargo movement of the products of that company to the eastern coast of the United States, and also to all the nations across the Seven Seas.

It may be stated, in closing this review of the selling end of the C. D. Johnson Lumber Co., that this part of the proposition had fewer problems to solve than any other department of the business, and that the world, both domestic and foreign-wise, is clamoring for the volume and superior quality of the Pacific Spruce Corporation's products.

#### **THE "BIOGRAPHICAL" FOUNDATION STONES OF PACIFIC SPRUCE CORPORATION ACTIVITIES**

Houses of business—if the business is to endure—must be built upon rock, and the foundation rock of any business is represented first by the strong man who conceives that business and by the other men whom he gathers about him to act with him and to help to work out the policies of that business and to become his partners in FACT.

On page 37 of this issue we print pictures of the men who stand nearest to C. D. Johnson in the administration of the affairs of the Pacific Spruce Corporation and its subsidiaries. Those men are the rocks upon which this business is built; and following this brief statement we print herewith a brief biographical sketch of each of the persons named.

#### **Robert H. Downman**

Robert H. Downman, of New Orleans, La., a native of Virginia, has been for thirty-five years a lumberman, for twenty-five years one of the leading cypress manufacturers, and for twenty years—at least—a national figure in the lumber trade of America. For several years Mr. Downman battled for the general uplift of the lumber industry of America as president of the National Lumber Manufacturers' Association. He is one of the largest stockholders in the Pacific Spruce Corporation and one of the most enthusiastic members of that organization.

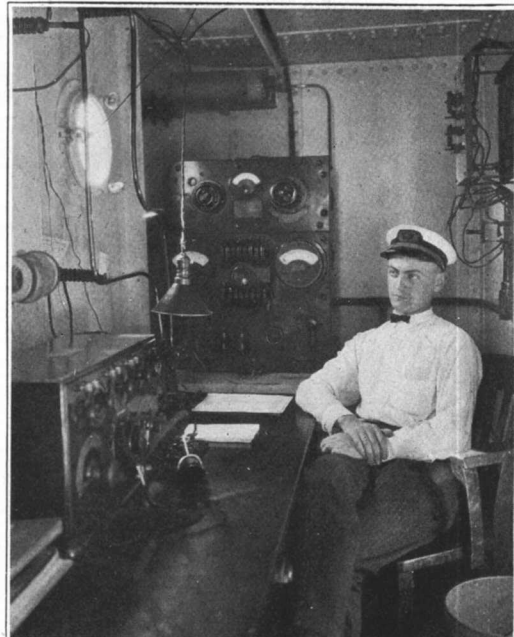
Mr. Downman was born near Warrenton, Fauquier County, Virginia, in February, 1860, and was educated in his native state in the common schools and ultimately at the Agricultural and Mechanical College at Blacksburg.

About 1880 he took up his business residence in Texas and was early associated with J. W. Castles in Waco. Mr. Downman was married in June, 1888, to Miss Annie S. Cameron, daughter of the late William Cameron, of Waco, and entered the firm of William Cameron & Co. early in 1889. After Mr. Cameron's death in February, 1899, Mr. Downman took over the cypress interests of the Cameron estate, then an unknown and untried quantity in the lumber markets of America, and this on his BELIEF in the FUTURE of that business. Since then he has been the largest stockholder in the Iberia Cypress Co., Ltd., the Bowie Lumber Co., Ltd., the Des Allemands Lumber & Shingle Co., Ltd., the Whitecastle Lumber & Shingle Co., Ltd., and the Jeanerette Lumber & Shingle Co., Ltd., all Louisiana concerns.

Mr. Downman is still very actively engaged in the cypress trade, being associated officially and in a large financial way—besides his Louisiana cypress interests—with the Carolina Cypress Co. and Black River Cypress Co., both of Gable, S. C., and the Big Salkehatchie Cypress Co. of Varnville, S. C.

Within recent months he and his long-time partner, H. B. Hewes of Jeanerette, La., have become the leading stockholders in the Clover Valley Lumber Co., of Loyalton, Sierra County, Cal., a California white pine lumber manufacturing concern.

In the beginning of the Great War, after the United States had entered it and the Council of National Defense was born, the committee on raw material was one of its main committees and R. H. Downman was appointed chairman of the sub-committee on lumber of this committee on raw materials.



**WIRELESS ROOM OF THE STEAMSHIP "ROBERT JOHNSON" WITH OPERATOR C. M. CARLQUIST ON WATCH**

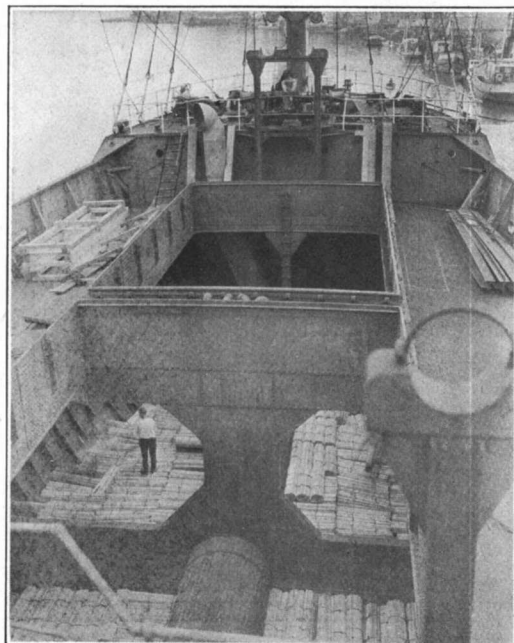
Later, when the War Industries Board superseded the Council of National Defense, Mr. Downman became director of the lumber department, in all of which positions he served his country as valiantly and as unafraid as any citizen of the Union EVER did.

Mr. Downman was "King of the Carnival" in New Orleans, in 1907. He is a high Scottish Rite and York Rite Mason, a member of the Boston and Pickwick Clubs and various carnival clubs of New Orleans, and a member there of the Board of Trade and Association of Commerce; is on the board of directors of the Louisiana Red Cypress Co., the Canal-Commercial Trust & Savings Bank, the largest financial institution of the south; the Morris Plan Bank; the Liverpool, London & Globe Insurance Co., and the Jahnecke Dry Docks, Inc., all of New Orleans.

Some years ago Mr. Downman invested in a farm at The Plains, Virginia, about fifty miles from Washington, and we have reason to believe that he finds more sport and good old-fashioned mental athletics out of that job than any he ever undertook.

#### **Nathan Paine**

Nathan Paine, a member of the board of directors of the Pacific Spruce Corporation, is president of the Paine Lumber Co., Ltd., Oshkosh, Wis.



**AFTER HOLD OF THE "ROBERT JOHNSON" AS VIEWED FROM BOAT DECK. COURSES OF LATH IN PLACE**



Mr. Paine's antecedents were from New England and New York state. The New England progenitors on one side arrived on the Mayflower. The men of the line participated in the Revolution and in most of the succeeding conflicts in American history, down to and including the Civil War. When not fighting, they divided their activities, principally, between preaching and wood-working or lumbering. Mr. Paine's individual branch of the family left a woodworking business in New York state, and settled in Oshkosh, Wis., in 1853, embarking there in the lumber business. The principal in this migration was Maj. Edward L. Paine, grandfather of Nathan Paine. His son, Col. George M. Paine, shared in the enterprise and eventually succeeded to the management of the business. It was incorporated in 1884 as the Paine Lumber Co., Ltd., which is the present corporation, controlled by Mr. Paine, who became its president on the death of his father, George M. Paine, in 1917.

The company operates one of the largest woodworking or millwork plants in the United States, at Oshkosh, Wis., on the exact location of the modest sawmill of the original pioneer, Maj. Edward L. Paine.

#### H. B. Hewes

Harry B. Hewes, vice-president and treasurer of the active cypress producing company, the Jeanerette Lumber & Shingle Co., of Jeanerette, La., is a director and large stockholder in the Pacific Spruce Corporation, and very actively interested also in the Clover Valley Lumber Co., of Loyalton, Sierra County, Cal.

Mr. Hewes has large cypress interests in South Carolina, being associated there in his investments with R. H. Downman and others, and in fact he has very largely grown up in the cypress industry.

Mr. Hewes was born in Houston, Tex., in June, 1866, a son of Samuel D. and Elizabeth Moore Hewes. Mr. Hewes very naturally is deep-dyed in his Americanism. His forebears on his father's side were Quakers from Birmingham, England, and came to America with William Penn; and one of his great-uncles, Joseph Hewes, was a signer of the Declaration of Independence.

Samuel D. Hewes, Harry B. Hewes' father, was a confederate soldier in Hood's Brigade, and his forebears on his mother's side also came from fighting stock, his grandfather on his mother's side having been with Gen. Sam Houston in the battle of San Jacinto.

Mr. Hewes was educated in the public schools of Houston and the Western Normal College of Shenandoah, Iowa, and entered the lumber business with M. T. Jones, of Houston in 1886, and went to Jeanerette, La., as a bookkeeper for Milmo & Stokoe, who operated a cypress mill at Jeanerette. Young Hewes bought an interest in the business. Afterwards the partnership was dissolved, and the Jeanerette Lumber & Shingle Co., Ltd., was incorporated in 1894, the Cameron interests of Waco, Tex., buying out the Milmo interests. Thus H. B. Hewes and R. H. Downman came into business relations in 1899 and grew up with that business together.

Mr. Hewes has always been a most earnest association man, and for many years has been a prominent member of the Southern Cypress Manufacturers' Association, a worker in the National Lumber Manufacturers' Association and an important official in each.

#### Clyde R. Lyon

Clyde R. Lyon, a member of the board of directors of the Pacific Spruce Corporation, is president of the G. S. Lyon & Sons Lumber & Manufacturing Co., of Decatur, Ill., a company which his father assisted in founding, and which has been engaged in both manufacturing and retailing lumber since its inception.

Mr. Lyon became president of the company on the death of his father in 1899, and since then has been active in the management of the business with which he has been connected since 1885; at which time, after leaving school, he went to work for his father, driving a one-horse wagon delivering lumber. He worked for three years as an apprentice in the planing department, and in 1888 took

over the books of the company, and until he became president of the organization he was in charge of this department.

#### Dean Johnson

Dean Johnson is assistant general manager, vice-president and director of the Pacific Spruce Corporation; and in addition to the duties mentioned above—in which he finds an outlet for his great energy—he is secretary and director of the Manary Logging Co.; vice-president of the Pacific Spruce Northern Railway Co., and vice-president and director of the C. D. Johnson Lumber Co.

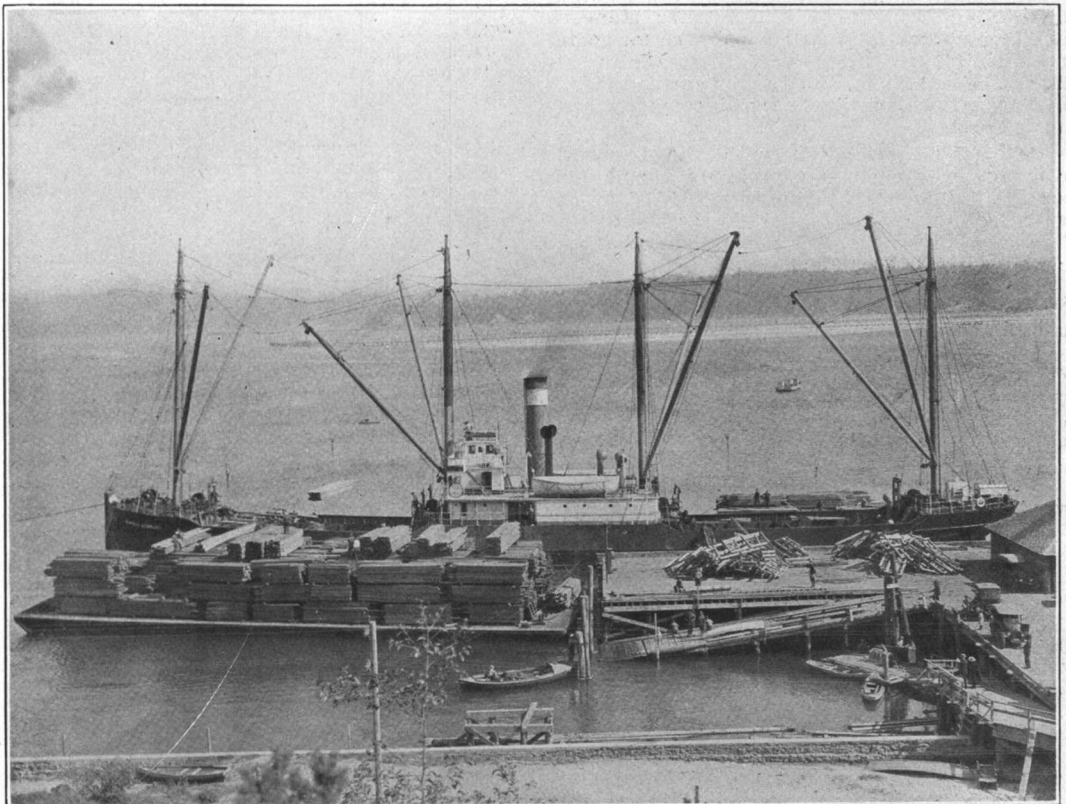
Mr. Johnson, eldest son of C. D. Johnson, was born in New Lewisville, Ark., January 2, 1895. He attended Smith Academy at St. Louis, and from there went to a preparatory school at Lawrenceville, N. J., from which he graduated, and then enrolled at Cornell University. Before he completed his course at Cornell, the land called Mr. Johnson, and he entered man's estate as the manager of a 2,000-acre farm in southeastern Missouri.

When the United States declared war he enlisted in the officers' training camp at Fort Sheridan and received a commission as sec-

ond lieutenant. He was later transferred to Camp Grant, and later into the Twentieth Engineers. He went overseas with this division and was in France two years.

#### Frank W. Stevens

Frank W. Stevens, general manager of the Pacific Spruce Corporation, lives right on top of the job of mill management at Toledo, and necessarily and on account of his great abili-



THIS VIEW SHOWS THE STEAMSHIP "ROBERT JOHNSON" LOADING LUMBER AT NEWPORT HARBOR, YAQUINA BAY, WITH THE LIGHTER IN THE FOREGROUND NORMALLY LOADED TO THE FULL

ond lieutenant. He was later transferred to Camp Grant, and later into the Twentieth Engineers. He went overseas with this division and was in France two years.

On the signing of the Armistice and his return to America, he connected himself with the American Steel Foundries of Alliance, Ohio, where he remained two years. He became assistant general manager of the Pacific Spruce Corporation in 1921. Mr. Johnson was married to Ruth Robertson at St. Louis, Mo., in 1920, and makes his home in Toledo.

#### Ernest E. Johnson

Ernest E. Johnson, son of C. D. Johnson, is secretary-treasurer of the Pacific Spruce Corporation, the C. D. Johnson Lumber Co. and the Pacific Spruce Northern Railway Co., and also sales manager of the above named selling organization, the C. D. Johnson Lumber Co. He was born in St. Louis, Mo., July 12, 1898. His early schooling was at Smith Academy, St. Louis. After finishing there he enrolled at Cornell University, Ithaca, N. Y. While he was at Cornell, the war called the young men of the nation and Mr. Johnson enlisted in the officers' training camp at Plattsburg, N. Y., for the Field Artillery. At the

ty fills a very important position with that institution, commensurate with his judgment and energy. He is a stockholder and from the beginning has been a director of the Pacific Spruce Corporation.

He was born in Michigan in April, 1873, at Montague, Muskegon County, and his father, Robert Stevens, was a sawmill man. He was educated in Montague, and in the Muskegon common and high schools and finished his education in a business college in Big Rapids, Mich. He started his lumber career when he was sixteen years old, driving logs in the summertime on the Muskegon River; and from there graduated into the yard handling of lumber, grading, etc., at the plant of the Thayer Lumber Co.; inspected lumber at Muskegon and Menominee, Mich.; was with the Kirby-Carpenter Lumber Co. of Menominee, Mich., for five or six years, and then with the Northern Supply Co. at its mill at Fisher, Mich., as a superintendent. In 1898 he went to Florida for Simpson & Co., of Bagdad, who sold to the Stearns & Culver Lumber Co., in 1903. The name of the concern was later changed to the Bagdad Land & Lumber Co., in which Mr. Stevens was a stockholder and of which he was general manager, and with which company he was



employed practically all of the time until that company sold out in 1918.

In 1917, during the World War, and at the request of the Council of National Defense, the Southern Pine Association—of which the Bagdad Land & Lumber Co., through F. W. Stevens was a very active figure—was called upon for a committee with power to act in lumber matters concerning the stockholders in that association, and F. W. Stevens, on account of his ability, was made a member of that committee.

During the World War Mr. Stevens was also vice-chairman of the Southern Pine Emergency Bureau, which was created to take care of the requirements of the government in the way of lumber and timber.

In addition to Mr. Stevens' other heavy duties, he was conscripted as a member to take up certain work in assisting in the closing up of various lumber and log matters of the U. S. Emergency Fleet Corporation, so he was in service throughout the entire war, spending over half of his time in Washington and always subject to call.

After the war Mr. Stevens became associated with Lyon, Gary & Co., now Baker, Fentress & Co., of Chicago—one of the leading financial institutions in the lumber trade—and in his work for that company he for some months looked after operating affairs at Tupper Lake, N. Y., and Leavenworth, Wash., in each of which the financial company had an interest.

After his association with the financial company mentioned—or probably during his association with that company—Mr. Stevens with his family took up his residence in Portland, Oreg., where he later became associated with C. D. Johnson, and at Mr. Johnson's invitation became affiliated with the Pacific Spruce Corporation in the capacities mentioned above.

Mr. Stevens was married in October of 1898 to Miss Pearl Moeller, of Milwaukee, Wis., and has two daughters, the elder of whom is married and resides in Portland. His younger daughter, Frances, is eleven years of age.

Mr. Stevens, together with his wife and his younger daughter, resides in Toledo.

#### W. J. Thomas

W. J. Thomas is manager of the transportation affairs of the Pacific Spruce Corporation and the C. D. Johnson Lumber Co., and his special pet is the steamship "Robert Johnson," which he speaks of as affectionately as a father would of a child.

Mr. Thomas takes so much interest in the shipping affairs of these companies—especially in the water shipping affairs—that he is known along the waterfront of Toledo and Portland, as "The Admiral," but we would rather think of him as a brevet liaison officer between President C. D. Johnson and the various allied institutions.

W. J. Thomas was born at Mattoon, Ill., and was educated in its public schools.

He began his workaday life in the local freight department of a railroad; he was a telegraph operator at sixteen; he went to Cairo for the Big Four Railroad in 1897; he left the Big Four in 1900, and went to the "Cotton Belt" in Cairo, as commercial agent.

In 1903 he located in St. Louis with the St. Louis Southwestern Railroad, and was in its employ until 1909.

In 1909 he resigned his position with that railroad and accepted a position as traffic manager for the Frost-Johnson Lumber Co.

In 1918 Mr. Thomas migrated to the Pacific coast and settled in Seattle. In 1922 he moved to Portland, Oreg., as traffic manager of the Pacific Spruce Corporation.

Mr. Thomas married Amy L. Treggerthen in St. Louis in 1897, and resides in Portland, Oreg., with his wife, son and daughter.

#### R. S. Trumbull

R. S. Trumbull, of the board of directors of the Pacific Spruce Corporation, and assistant secretary of this company and two of the subsidiary companies, was born in Illinois, near Chicago, April 16, 1875. He graduated from the Evanston (Ill.) grade and high school, and attended Northwestern University there for two years.

At the close of his school life Mr. Trum-

bull identified himself with his father, who was a large stockholder in the Marinette Iron Works of Marinette, Wis., which went out of business in 1900. He remained with this company until that year, with the exception of two years spent in California. At that time he entered the lumber business in the accounting end with Isaac Stephenson of Marinette, Wis., where he remained eight and a half years, when he went west and settled at Spokane. For three years he was connected with several Inland Empire lumber operations in the accounting department, and then moved to Portland to accept a position with the Silver Falls Lumber Co., with which he remained six years.

During the war he was accountant for a shipbuilding company and in January, 1921, accepted the position of auditor with the Pacific Spruce Corporation.

Mr. Trumbull was married in 1901 to Miss Eleanor W. Fairchild, of Marinette, Wis. They have three boys, Austin, Edward G., and R. S., Jr., all living at their home in Portland, Oreg.

#### James Manary

James Manary, president of the Manary Logging Co., was born in Toronto, Ont., in 1861, and when sixteen years of age moved to Michigan, where he went to work as bull-puncher in one of the pine camps, rising to the position of boom boss in 1891, in which year he migrated to the Pacific coast.

He first worked in a mill at Latourelle Falls, Oreg., owned by H. R. Duniway, where he stayed for two years; then he went to a tie mill on the Sandy River. It was not long before he had his own camp and equipment.

He can smile today at the memory of the first camp on the Sandy, but it was a serious business then, for it was started on borrowed capital. He negotiated a loan of \$200, with which he purchased two bull teams, one for \$85 and the other for \$100. With \$15 cash in hand, unlimited energy and a logger's natural optimism, he opened the camp, went to work, and made good.

Cone Brothers of Troutdale, for whom he was logging, decided to build a mill on Beaver Creek. Mr. Manary took the logging contract with them; but in a short time the mill closed down and he went back to the Sandy, where he took charge of a camp for Henry Powers, which had enjoyed the distinction of having three foremen in the preceding four months.

It was then that Mr. Manary had his first contact with steam logging, for Powers owned one of the small primitive donkeys then in use on the river; and under Mr. Manary's management an old machine and its crew got in the logs, which is the first and last purpose in the life of a logger.

He then purchased the Cone mill, which he ran for two years. Then he sold out and went to the lower Columbia on a job for Powers at Marshland. Here he operated his own equipment in his own camp. Two years later he disposed of this outfit and went to Cathlamet, where he logged for the Export Lumber Co. for a year.

Next he is found at Parsons as foreman of the camp, where he was destined to remain twelve years during which time he became sole owner of the Oregon Timber & Lumber Co., one of the best known and most successful operations on the Columbia River. Mr. Manary had remained with this company as foreman but three months before acquiring a quarter interest, and four years later purchased the other three-quarters.

It was while there that he conceived the idea of a loading donkey. He had a machine built by the Puget Sound Iron & Steel Works, according to plans furnished by himself, which supplanted the jack screws used on one side. This machine was a one-drum affair and proved successful. The next loader ordered had two drums and before any other operator on the river was using a steam loader Mr. Manary was running a three-drum machine.

After Mr. Manary sold out the Oregon Timber & Lumber Co., he went to Clallam Bay, Wash., where he took full charge of opening up the logging operations of the Goodyear

Logging Co., one of the big Puget Sound concerns.

When the war broke out Mr. Manary offered his services to the government in the Spruce Division, as manager, rejecting all offers of the official title of major.

Shortly before moving to the Pacific coast Mr. Manary returned to Toronto, where he married Esther A. McKerrow, to whom there was born during the years two sons and three daughters, Gordon J., Roland M., Gertrude, Frances and Helen.

#### Gordon J. Manary

Gordon J. Manary is vice-president of the Manary Logging Co., and logging superintendent at Camp 1. He was born at Gresham, Oreg., July 6, 1895. He attended the public schools of Marshland, Oreg., and graduated from the grammar grades, after which he attended Washington High School in Portland from 1912 to 1915. He then took a business course at the Behnke-Walker Business College in Portland.

Mr. Manary started his logging career as whistle-punk in his father's camp at Clifton, Oreg., and did practically everything in the camp within the next few years. When the war broke out he was cruising for Meserve & Thomas of Portland; and in May, 1917, he enlisted with the 148th Field Artillery, and for nineteen months was overseas. On his return from the war he re-entered the logging game as timekeeper for the Clark-Wilson Co. of Goble, Oreg. He later became foreman of the Winchester Bay Lumber Co. at Reedsport, Oreg., and later, in company with his brother Roland, took a contract with the Tahekenitch Logging Co. at Reedsport, where he remained until the incorporation of the Manary Logging Co., of which he was elected secretary and became superintendent of Camp 1.

Mr. Manary was married to Miss Ruth Prudence Hawley, July 25, 1920, at Portland, Oreg. They live at Camp 1 in one of the handsome four-room bungalows erected by the company.

#### Roland M. Manary

Roland M. Manary, treasurer of the Manary Logging Co., and superintendent of Camps 11 and 12 of that company, was born at Cathlamet, Wash., September 1, 1898. He attended the grade schools there and at Clifton, Oreg., and entered the Washington High School, Portland, Oreg., from which he graduated in the class of '17. He also attended the University of Oregon, taking one year in the commercial department.

When the United States entered the war Mr. Manary enlisted in the navy, and served over seas for twenty-two months, during which time he was on a number of the deep sea fighters of the American fleet.

When the war was over Mr. Manary turned his attention to logging, and with his brother Gordon took a contract with the Tahekenitch Timber Co., near Reedsport, Oreg., where he was engaged a year before coming to Toledo to identify himself with the Manary Logging Co. He arrived at Toledo in March, 1922, and started a crew at work cleaning up the south logging road, which was ballasted and put in shape at that time. He opened Camp 2 of the company at Twelve-Mile Post, and took out several million feet of timber, the first logs delivered by the Manary Logging Co., for the Pacific Spruce Corporation.

During one summer Mr. Manary had charge of the railroad construction of the Waldport spur, following which he cruised timber north of Yaquina Bay, in the Siletz district, during the winter of 1922 and 1923.

In March, 1923, after the Pacific Spruce Corporation had secured the Siletz tract, Mr. Manary became logging superintendent of Camp 12, and later opened Camp 11 on the Siletz River, both of which operations are now under his management.

#### Wallace McCamant

Wallace McCamant, legal adviser of the Pacific Spruce Corporation and its various subsidiary companies, is a member of the law firm of McCamant & Thompson, Portland, Oreg., with offices in the Northwestern Bank Building.



Mr. McCamant was born at Hollidaysburg, Pa., September 22, 1867. He graduated from Lafayette College in 1888, after which he read law in the law office of Brown & Hensel, Lancaster, Pa., for two years, and was admitted to the bar in October of 1890. As soon as the young lawyer had received his credentials as a practicing attorney he removed to Portland, Oreg.

# ACTIVITIES OF THE PACIFIC SPRUCE CORPORATION FOR "THE COMFORT OF THE PEOPLE"

We have watched the evolution of the American sawmill in all its environments and phases for thirty-six years. It has been a great privilege to have been connected with

the sawmill man wanted to communicate with the next sawmill he did not lift up the telephone, nor motion for his chauffeur and transact the business in a few minutes; and sawmills then ran from "daybreak to early candle-light," and the employer and the employee were EACH as uncomfortable as the OTHER.

Oh yes, even THEN Uncle Amos Kent—of



THE OFFICE HOME OF THE PACIFIC SPRUCE CORPORATION AT TOLEDO, OREGON, BOTH "INSIDE" AND "OUT"

(1) General View of the Office Home and Large and Commodious Garage. (2) Dining Room in the Office Home. (3) The Long Hall, Looking from the Lounging Room, to the French Doors at North End. (4) The Cozy Kitchen. (5) One of the Bedrooms. (6) Grilled Front of the General Office. (7) Lounging Room on Second Floor.

Mr. McCamant has taken an active part in politics in the state of Oregon, where his voice is often eloquently heard on subjects pertaining to better government. He was a delegate to the Republican National Conventions in 1896, in 1900, and again in 1920.

From January, 1917, to June, 1918, Mr. McCamant was associate judge of the Supreme Court of Oregon. During the years 1922 and 1923 he was president of the General National Society, Sons of the American Revolution.

any one particular industry in America for that length of time, even if for no better reason than to note the progress the industry has made in the consideration of the human beings associated with that industry as employees.

We can remember back to the unlighted, not overly well ventilated board houses in sawmill towns, built all in rows and looking exactly alike, as they were thirty years ago; but at that time, too, we must remember, if

Kentwood, La.—had vision. We asked him one day why half of his houses were vacant in his sawmill town, and Uncle Amos—although a New Englander—actually understood the mind and soul of the darkey and epitomized that fact in his reply. Uncle Amos said: "Our darkies are a valuable asset. We cannot afford to lose any of them. About every four months a darkey wants to move and when that feeling hits him, we give him a chance! Instead of moving to some other town, we can give him an opportunity



to move to some other house in OUR town; which pleases HIM, and does not lose him from our payroll."

During the last ten years the American lumber manufacturer wherever situated has done marvelous things for the comfort of the people who were associated with him, but we even yet hear a lot of loose talk from anarchistic, bolshevistic-minded men concerning the attitude of the logging and lumber-manufacturing fraternity toward the care of its people; and SO we have set out to show, with pictures and pen, that the Pacific Spruce Corporation has not overlooked an opportu-

ity since its inception, to arrange for the comfort of its people.

### "COMFORT OF THE PEOPLE" SHOWN IN PICTURES

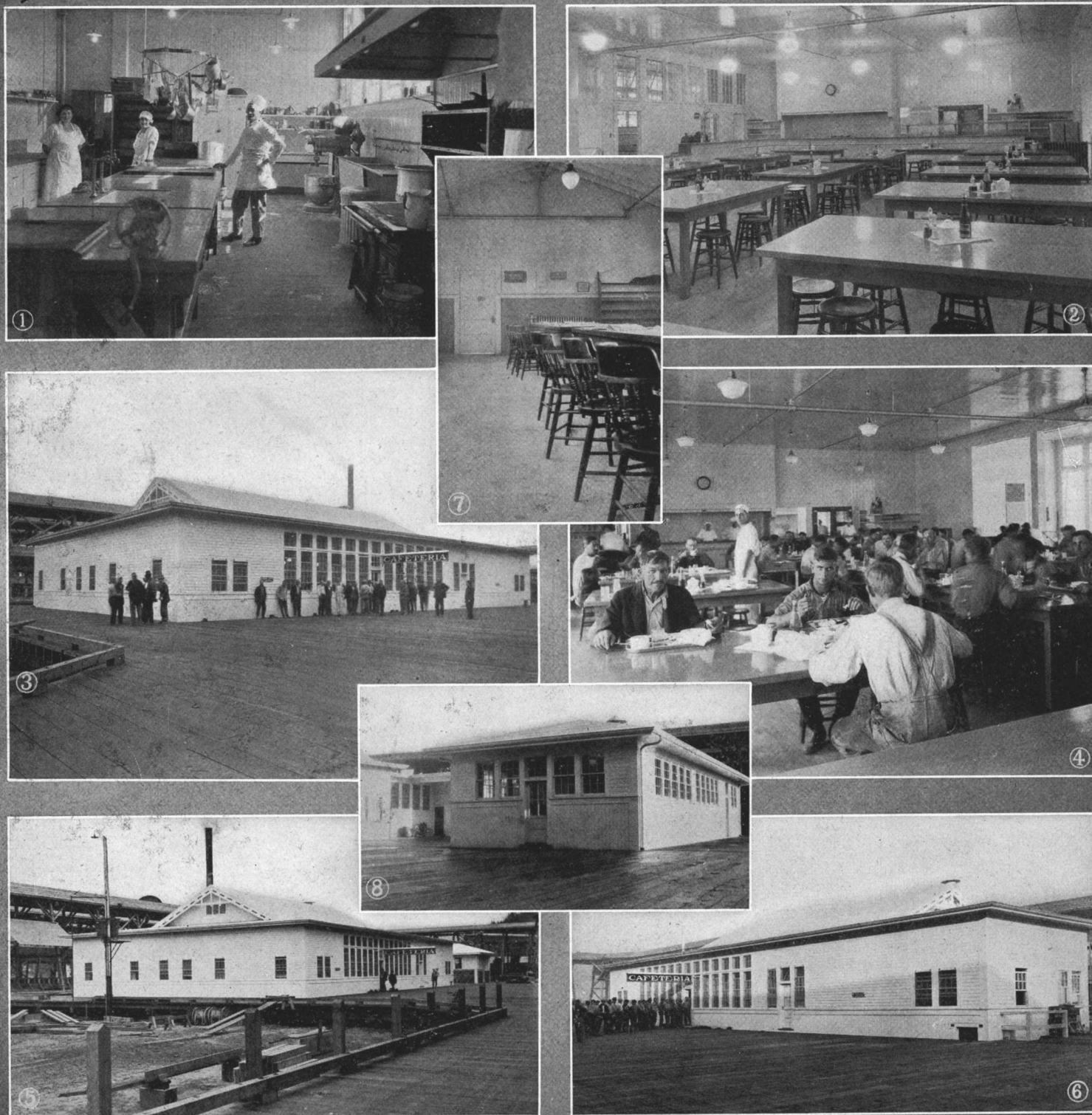
We have been so impressed with the practical way in which the Pacific Spruce Corporation—through the Manary Logging Co. and directly through its own efforts—has approached this matter of "Comfort of the People" in the buildings of all kinds that have been erected, which are in the PROCESS of being erected, or are PLANNED for the immediate future, that we have caused photographs to be made, of all finished buildings

which are in active operation, and we have had those photographs especially grouped in a community way, for the purpose of adorning several pages of this article with them—believing that great is visual evidence.

### "FOR THE COMFORT OF THE PEOPLE" IN AND ABOUT TOLEDO

Toledo is the sawmilling headquarters of the Pacific Spruce Corporation and always will be. We will discuss the various departments which have been instituted at Toledo in the town and in the sawmill district, looking to the comfort of all the people associated collectively or collaterally with this institution—800 men and their families.

## For the Comfort of the People, and Community Development



### FOR THE COMFORT OF THE PEOPLE AND COMMUNITY DEVELOPMENT—CAFETERIA AT THE TOLEDO PLANT

(1) Kitchen of Cafeteria. (2) Interior of Cafeteria. (3) Cafeteria Showing Group of Men awaiting Dinner Hour. (4) Interior Cafeteria at Noon. (5) General View of Cafeteria—corner of "Smoke House" in Background. (6) Line of Men Entering Cafeteria for Dinner. (7) Interior of "Smoke House." (8) Exterior of "Smoke House."



Contemporaneous with the making of the contract with the government to take over the mill at Toledo the company encouraged the organization of the Toledo Investment & Development Co.; and although this company does not appear as a subsidiary of the Pacific Spruce Corporation, the interest of the corporation in that company is large—we understand something like 50 percent, the leading citizens of Toledo carrying the other half of the investment. The plan of the Toledo Investment & Development Co. has been to purchase well located building lots throughout this little city and to erect there, through various high-class builders and Ward Mayer,

a prominent architect of Portland, and his associates, many types of houses which those people with families may rent or purchase.

F. W. Stevens, general manager of the Pacific Spruce Corporation, has a dwelling of the western bungalow type, costing about \$7,500.

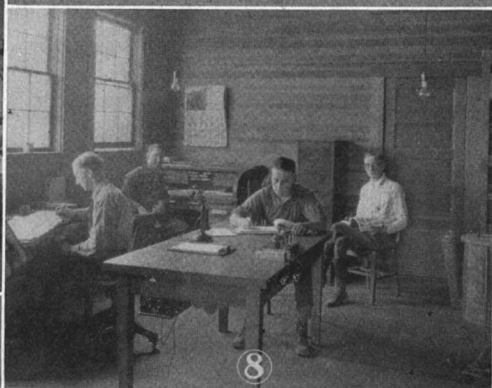
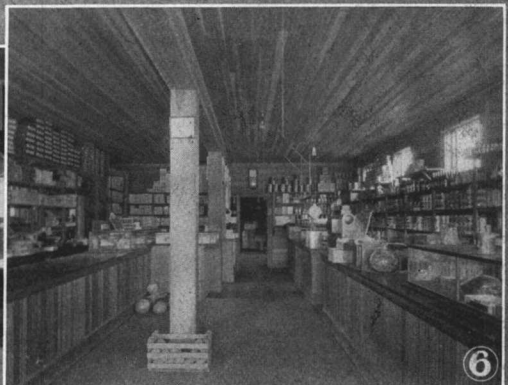
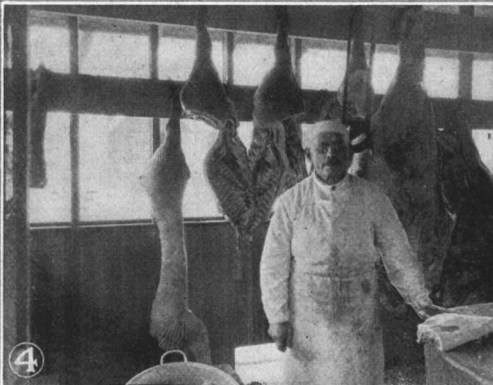
Dean Johnson, assistant manager of the mill at Toledo, has a two-story semi-colonial dwelling, built at a cost of \$6,500, and there have been built five five-room bungalows and ten four-room bungalows costing \$350 per room, in addition to the value of the land—also eight six-room houses of the same gen-

eral type at \$350 per room, the price of these houses including woodsheds, septic tanks, and in some instances garages.

#### Two Large Dormitories Being Erected

One of the biggest enterprises of the Pacific Spruce Corporation in recent weeks has been the purchase of seven acres of land adjacent to the mill property, whereon will be erected two rooming houses by Mr. Mayer, each a two-story building and each 36x116 feet in area and of frame construction. In each building there will be accommodations for 41 men and also quarters for a matron to be placed in charge of each building, and

## For the Comfort of the People, and Community Development



FOR THE COMFORT OF THE PEOPLE AND COMMUNITY DEVELOPMENT—GENERAL VIEWS AT CAMP 1  
(1) The Neat and Comfortable School House. (2) Office, Home and Store. (3) Interior of the Kitchen. (4) Interior of the Butcher Shop. (5) View of the Dining Room at the Dinner Hour. (6) Interior of the Store. (7) Types of Four-Men Bunk-Houses. (8) Interior of the Office. (9) Office-Home Living Room.



there will be a spacious lobby or living-room in each of these buildings. The buildings will be provided with lavatories and showers for the convenience of the men. The bedrooms will be 12x14 feet in size and all will have outside windows. The beds will be comfortable single beds—not cots. Each building will be stocked with an ample supply of linen.

While these buildings will furnish homes for 82 single men, and of as sanitary a character as can be managed, we think the real achievement in connection with the purchase and occupation of these seven acres by the Pacific Spruce Corporation lies in the fact that the corporation will at once erect upon that

tract twelve or fifteen four- and five-room bungalows to be rented to its employees who have families.

#### THE PEAK OF COMFORT IS THE "CAFETERIA"

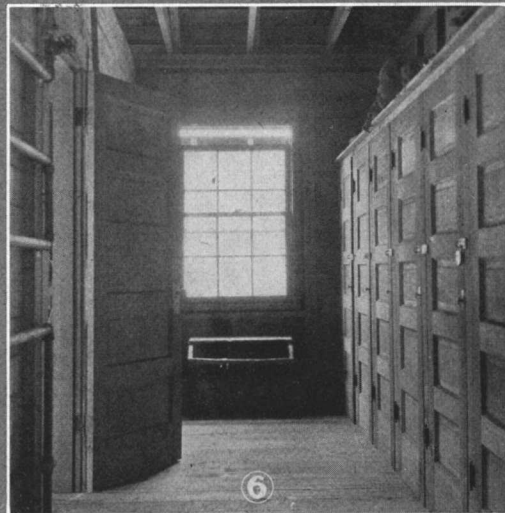
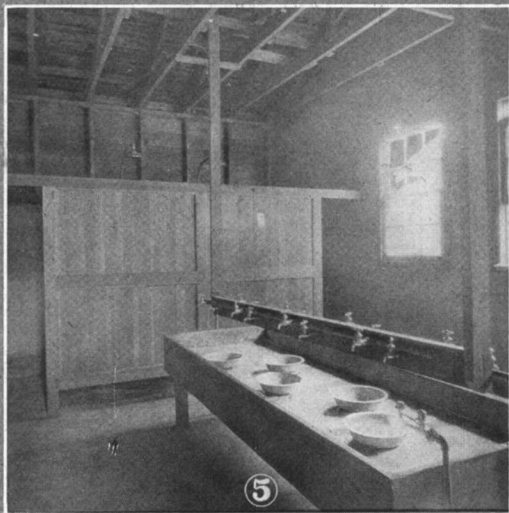
We were especially pleased with the cafeteria, an immense institution built in the center of the Pacific Spruce Corporation plant site in Toledo, which is making good as a comfortable and high-class place to eat and has become very popular with the traveling public passing through Toledo, and also with the citizens of Toledo, in addition to the employees of the operation; and it does not have

to be subsidized from month to month in order to keep it a going proposition.

This cafeteria was a perfectly new sensation to us and we doubt if there is anything else like it, associated with the lumber trade of America.

There was at the Toledo plant a fairly well constructed building, size 40x60 feet, which had been built by the government during its occupation of the property and used as an office. The Pacific Spruce Corporation also used this building as an office until the completion of its new office building. Then it moved this old office building from its first position to a place in the heart of the plant

## For the Comfort of the People, and Community Development



FOR THE COMFORT OF THE PEOPLE AND COMMUNITY DEVELOPMENT—GENERAL VIEWS AT CAMP NO. 1  
(1) Camp Boarding House. (2) Officers' and Foremen's Houses, the One in Foreground Being Superintendent Gordon J. Manary's Residence. (3) Row of Bungalow Cottages. (4) Another Row of Cottages. (5) Interior of Typical Washroom in Bunk-House. (6) View Showing Typical "Locker Room" for Bunk Houses.



grounds, where it might be most accessible to all employees.

The building was then enlarged to 64x90 feet, and besides two small wings were built, 12x14 feet in area. The ground being solid at this point no piling was used, but the building rests on concrete piers. The dining-room proper is 40x60 feet and has a 12x40 foot lobby on each side of the building. Covered vestibules are provided for entering these lobbies and in case of expansion—which may have to come—portions of the lobbies can be used in which to place more tables for the guests.

In one end of the building there are pro-

vided four sleeping rooms for the employees of the cafeteria, with all modern conveniences; and at the other end of the dining-room are located the serving tables, frying table, steam table, automatic coffee urns, egg boilers and every modern convenience of an electrical nature for speedy and fine cooking.

The steam table and fry station are all under one canopy and there you will see many kinds of electric toasters, automatic egg boilers, and waffle irons, to intrigue your hunger as you glide by with your aluminum tray, which no one of whom we have YET heard—not even this writer, with a gastronomic record—has ever been able to fill so full that

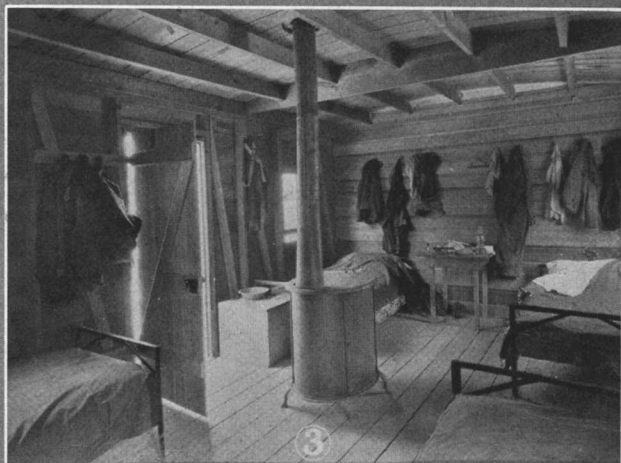
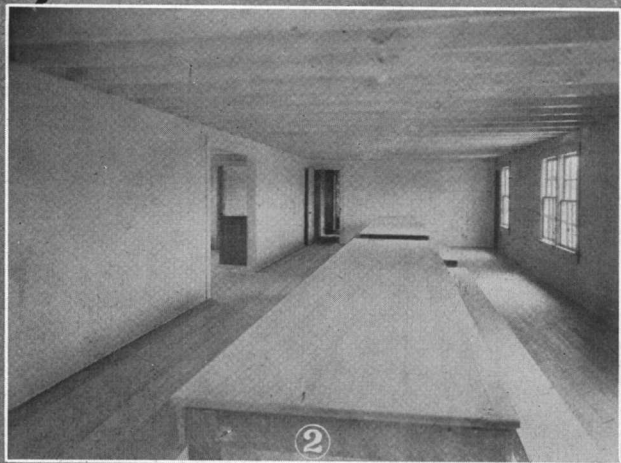
the meal would cost more than 75 cents.

The entire equipment is electric which does not absolutely HAVE to be of steam, and it would fill too much space to enumerate and would read too much like an invoice to repeat the devices that kitchen includes.

Drawers, rather than bins, are supplied for kitchen supplies, the drawers being more sanitary.

There are power potato peelers; power dish-washing machines washing and sterilizing the dishes; and at one corner of the kitchen a door leads to a two-story stock room, strictly in charge of one man who gives out supplies to the cafeteria on requi-

## For the Comfort of the People, and Community Development



FOR THE COMFORT OF THE PEOPLE AND COMMUNITY DEVELOPMENT—VIEWS AT CAMPS 11 AND 12  
(1) "The Ark"—a Unique and Comfortable Houseboat Home. (2) View of Dining Room in "The Ark." (3) Interior of Typical Bunk Car. (4) Office and Dining Car of Camp 12 and General View of Camp 12. (5) Interior of the Office Car and Store at Camp 12.



sition in accordance with dispatching routine.

At one side of the kitchen two great refrigerators are located, 7x12 feet in area and 11 feet high; one being used for vegetables, fruit and dairy products and the other for meats. In addition to those two refrigerators there is also a display refrigerator, back of the main serving table in the dining room, and there is a 1-ton Harris Ice Machine on the premises which cools all these various refrigerators.

The tables in the dining room, and the counters, and the hall-trees, are all made of clear vertical grained spruce lumber, and they are beautiful, and have been especially

described in the section of this story on "New Uses For Sitka Spruce."

This building also shows a fine use for western hemlock, it being fitted with a parquet flooring of that wood, of a grade No. 2 clear and better; the parquet pattern being used so that when the tramp of feet wears the floor in front of the serving stations and elsewhere, as will of course happen, those parts can be easily repaired.

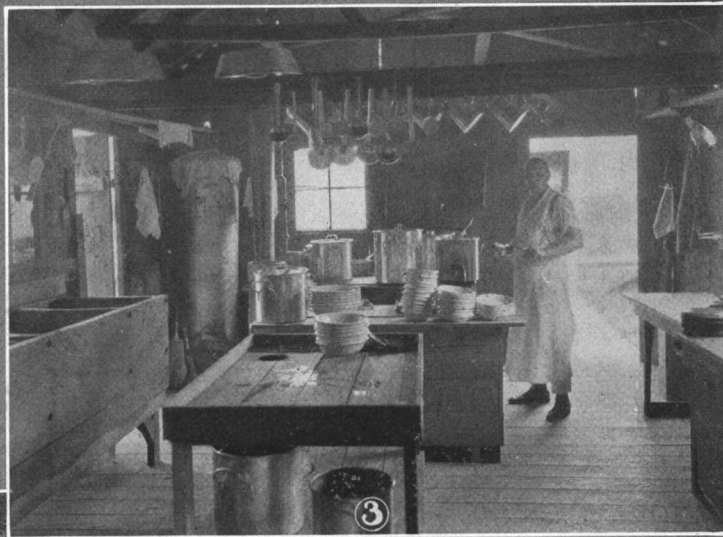
#### THE "SMOKE HOUSE" AN UNUSUAL COMFORT

We have seen so-called club-rooms where the employees were supposed to reach the

highest points of life when shooting untrue billiard balls over second-hand billiard tables; and even gymnasiums where they might punch bags, do all sorts of gymnastic work, play at ten-pins, and otherwise disport themselves, in a way which has always seemed rather bromidic, rather commonplace and unattractive to us—but we never before have seen a large, well-erected, properly-proportioned building, in any sawmill manufacturing plant, named the "Smoke House"—but that is what the Pacific Spruce Corporation accomplished at Toledo, and we want especially to tell you about it.

The "Smoke House" is a great big high-

## For the Comfort of the People, and Community Development



FOR THE COMFORT OF THE PEOPLE AND COMMUNITY DEVELOPMENT—VIEWS AT CAMPS 11 AND 12  
(1) View Showing Well-Glassed "Filing Room Car" and Two Bunk Cars at Camp 12. (2) Interior of Meat House at Camp 12. (3) Close-up View of the Kitchen at Camp 12. (4) Interior of the Tent Dining Room at Camp 11. (5) Dining Room Interior Camp 12—Table Set for Dinner.



ceilinged comfortable building, in two rooms, one a lavatory, and the other 24x64 feet in size, provided all around the walls with a permanent lounging seat. Down through the center of the room is a long table or series of tables, on which is piled the literature of the day, of every sort and character known to the editorial mind and the printer's craft.

The "Smoke House" is but a few feet removed from the cafeteria and was constructed in order that the employees might have a place in which to rest and smoke following their meals. We might say in this connection that naturally no smoking is permitted elsewhere about the plant or in the cafeteria.

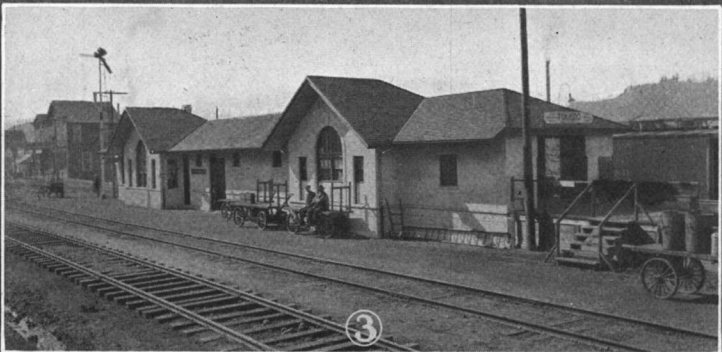
#### THE TOLEDO OFFICE ITSELF —A VERY GREAT "COMFORT"

We have seen all kinds of office buildings in the lumbering sections of America, from the utilized cast-away freight car to structures, especially in the southern United States, built in imitation of foreign palaces, and intended—when the trees are gone—to house museums and libraries and institutions of that character; but we have never before seen a combination office and home, built at a minimum of expense, which in any way compared with the great white frame structure especially erected for the use of the Pa-

cific Spruce Corporation at Toledo, Oreg.

That is INDEED a building which is a "comfort" every hour of the twenty-four, to those who live in it and work in it. We have this building pictured in this story in a separate way, and it also appears in connection with the panoramic view of the sawmill plant and the bird's-eye view of the sawmill plant, used in this story; but it happens in connection with this building that no photograph is possible of it that will adequately tell from the OUTSIDE the story of it. The various interiors have been photographed in the highest style of the art and will be enjoyed by those who read this article.

## For the Comfort of the People, and Community Development



#### FOR THE COMFORT OF THE PEOPLE AND COMMUNITY DEVELOPMENT—GENERAL VIEWS AROUND TOLEDO

(1) Panoramic View of the City of Toledo, Oregon. (2) Typical Row of Houses in the City of Toledo, Oregon. (3) The Southern Pacific Railway Station at Toledo, Oregon. (4) Residence of Dean Johnson, Toledo, Oregon. (5) Exterior View of the Hotel at Toledo, Oregon. (6) Main Street of Toledo, Oregon, Showing the Two Banks.



This building is 30x96 feet and two stories high. It was built in the winter of 1922-23 and was erected on the piling which was under the original machine shop which was moved to Camp 1 of the Manary Logging Co. This building is of frame construction—the lower floor accommodating the main offices of the company at Toledo, inclusive of the lobby and general office; offices for the general and assistant general manager, cashier, the timber-land man; the cruiser; and also contains a fine fireproof vault, a stationery room and the most modern lavatory facilities.

On the second floor there are several suites of rooms occupied by various office em-

ployees, guests of the company and the officers of the corporation when they visit Toledo; and a large living-room for the use of the occupants of the building and their friends. Among other things there is a perfectly equipped electrical kitchen and a dining room, which are often utilized when guests of the management visit Toledo. The building is heated throughout by steam furnished from the center power plant and is electrically lighted, and equipped throughout with a high grade of modern plumbing.

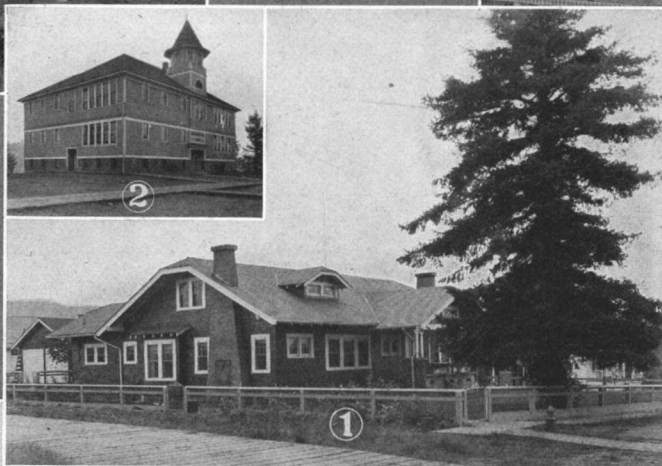
The exterior of this building is painted white and makes a beautiful appearance. Roadways have been built to the plant and

up to the front of this building, which radiate to the towns of Toledo and Newport and the sections of the plant, so that those arriving in automobiles may have a comfortable swing for their machines. For the particular accommodation of the officers and managers of the corporation, there has been a garage erected to provide for storing six machines, located near the office building.

#### THE "COMFORTS OF THE PEOPLE" IN CONNECTION WITH CAMP 1

Headquarters Camp, or Camp 1, has many comforts, which will be spoken of under various headings—but briefly in each case—because this vast story must be epitomized in

## For the Comfort of the People, and Community Development



FOR THE COMFORT OF THE PEOPLE AND COMMUNITY DEVELOPMENT IN AND ABOUT TOLEDO, OREGON  
(1) Residence of Frank W. Stevens, Toledo, Oreg. (2) Toledo High School. (3) A Typical Row of Residences, Toledo, Oreg. (4) Another View of Residences in Toledo, Oreg., showing Construction and Progress. (5) Another High-Type Bungalow, Toledo, Oreg. (6) Residence and Grounds of Frank Orr, Mill Superintendent, Toledo, Oreg. (7) Typical Row of Residences, Toledo, Oreg.



SOME of its parts in order to be printed at all in one issue of this paper.

Journeying in the early morning of any day down the Yaquina River in the speed boat "Go-Getter" to the log dump at South Beach, the traveler comes in sight first of a mess-house capable of feeding the twenty-four people at this point who are engaged in the dumping and rafting of logs into Yaquina Bay for transfer by tug up the Yaquina River to the mill at Toledo.

This camp cook-house at South Beach is up to the Manary Logging Co. standard of service, as in all its camps, each of which will receive proper mention.

#### Office-Home and Store at Camp 1

A very commodious office-home and store, warehouse, etc., has been erected at Camp 1, in the shape of a 2-story frame building, 30x70 in size, resting on concrete footings. The lower floor of this building is given over to store and office purposes, with a supply room in the rear; and on the second floor there is a large living-room with a fireplace in it (also a heating stove), and six bedrooms; and, besides, the private office of James Manary.

The building is equipped throughout with modern plumbing and has shingled walls and roof. This type of construction is practically

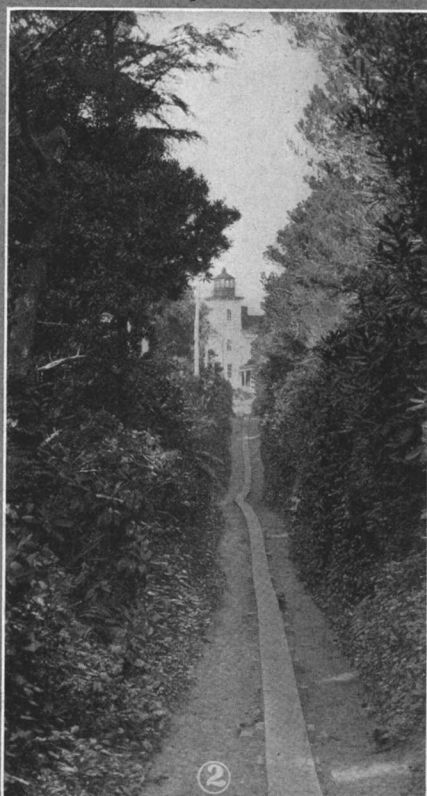
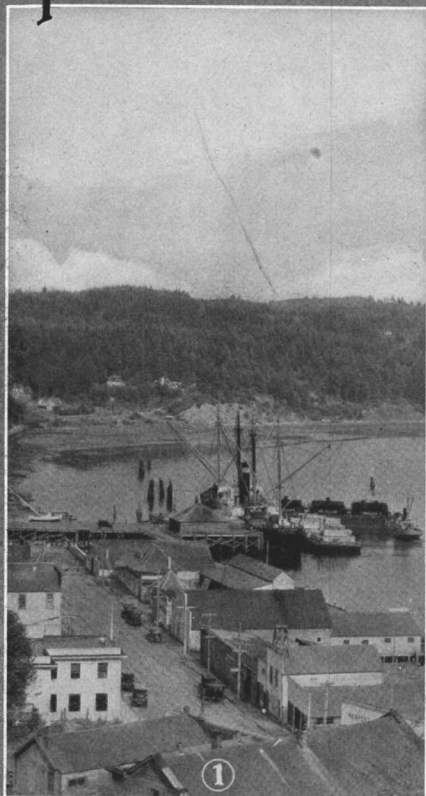
the same under the entire Manary Logging Co. management.

This building is located between the main line and spur of the logging railroad, so that the supplies for the camp can be easily unloaded and cared for.

This whole building is electric lighted and heated with steam coils and stove; has bathrooms, lavatories and everything possible for the comfort of those who are permanently at this camp and of the visitors who may abide there for a time.

The store maintains a \$10,000 stock, which is sold to the employees at a very low percentage of profit, a turnover of the stock being made three and a half times each year.

## For the Comfort of the People, and Community Development



FOR THE COMFORT OF THE PEOPLE AND COMMUNITY DEVELOPMENT—VIEWS AT NEWPORT, OREGON  
(1) Wonderful View of the Port Commission Dock at Newport, Oreg. Steamer "Robert Johnson" Loading. (2) Rhododendron Walk, with the Coast Guard Station and Lighthouse in Background, Newport, Oreg. (3) Western State Bank, Newport, Oreg. (4) The Hotel Abbey, at Newport, Oreg. (5) General View of Harbor Front, Newport, Oreg.



### Cook-House "Comforts"

The cook-house building contains a dining room 18x100 feet, and a kitchen 28x30 feet and has a 12-foot ceiling in order to permit plenty of light and air. At one end of the dining room, quarters have been built in for the cook and his family, with full bath-room equipment. The seating accommodations of the dining room are for 160 people, and an innovation in the dining room is the use of four-legged stools, instead of the benches USUALLY used in logging camp dining rooms. These stools are very convenient and add to the efficiency with which the floors

may be kept clean, and help thus to maintain sanitary conditions with less trouble.

The kitchen is equipped with a large Lang range, adequate sinks, bins, drawers, cupboards and storage for supplies. The store-room is replenished daily. The stores are kept in a separate room off the kitchen, and the bake ovens are also in a separate adjoining room.

There is an adjunct to the cook-house built in the form of a special building, for the special housing of the waitresses and general help. This building has five bedrooms and a porch in front, and is provided with modern bath-rooms, lavatories and also a private

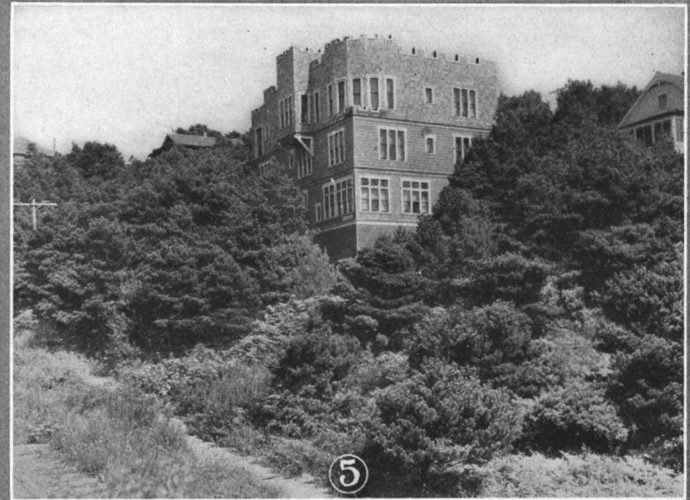
laundry-room, so as to permit the help to do their own laundrying, if so desired.

### Dwelling and Bunk-House "Comforts"

The dwelling-houses built at Camp 1 of the Manary Logging Co. are of ordinary frame construction, with shingle walls and roofs and provided with modern plumbing. The first erected were ten four-room bungalows 24x30 feet costing \$350 per room. A bungalow of this general type, but a little larger than the general run of bungalows, was erected for Gordon Manary, the superintendent.

A little later ten three-room houses were built. All these houses are equipped with

## For the Comfort of the People, and Community Development



FOR THE COMFORT OF THE PEOPLE AND COMMUNITY DEVELOPMENT—MORE BUILDING VIEWS AT NEWPORT  
(1) Coast Guard Station on the Bluff at Harbor Entrance. (2) The Agate Beach Hotel. (3) The Old Ocean House Hotel. (4) Center View of the Town of Newport (Oreg.) Waterfront, the Picture Made from the Tug "Go-Getter." (5) Studio Castle of C. A. Roper. (6) Residence of Frank Priest, Vice-President Newport Port Commission, Newport, Oreg.



modern plumbing. Besides these bungalows several cottages have been privately erected.

The houses at this camp are all connected with board walks, and householders seem to be taking great pride in planting flowers and creating lawns; and as it happens that the rhododendron in its natural state covers the face of nature in this locality, many of the families have transplanted these flowers to their yards in a most effective manner.

The first bunk-house accommodations of this camp were four houses, 20x60 feet in area, standard frame construction with roofs and sides, with a partition run through the center of each building making two rooms each 20x30, each room accommodating eight men, making sixteen to each bunk-house. Individual lockers 2 feet square and 6 feet high are provided for the use of the men.

Built on the side of each one of these buildings is a wash-room 12x18 feet, with concrete floor and cement-plastered walls to a height of 6 feet, so that rooms can be cleaned out with a hose.

Following the construction of the first type of bunk-house mentioned above, there were later erected ten smaller bunk-houses, each 12x20, frame construction with shingled roof and walls; each house to accommodate four men. These smaller bunk-houses were built in two rows facing each other; and at one end between the rows of buildings another building was erected containing a wash room with shower baths, etc., similar to those provided for the larger bunk-houses.

Having described how the families are cared for and the single men are provided for as to their physical comforts, let us tell you in a few brief words what all this does to their pocketbooks. Meals cost the employees of the Manary Logging Co. 40 cents each and they pay a fee of 15 cents a day for bunk-house accommodations, the bunk-house being cleaned and beds made daily.

#### "Comforts" of the School-House

The school-house is a short story but a very important one. It was erected by the company for the use of the children of the camp. The building is of frame construction 24x36 feet, is lighted and equipped according to the Oregon school requirements, and provides for the accommodation of twenty pupils.

A high-class teacher, paid enough salary to make it worth her while, is employed to conduct school in this building nine months out of the year; and the citizens of this camp are loud in their praise of the spirit demonstrated by the company in providing this great necessity.

The entire camp is supplied from Divinity Creek with very superior high-class water, which already has been named "Divinity Water" and is served throughout the entire camp through a gravity pipe line from a 50,000-gallon tank placed on a wooden tower 36 feet high which rests on a concrete foundation.

#### THE "COMFORTS OF THE PEOPLE" AT CAMP 11

Camp 11 of the Pacific Spruce Corporation is the second type of camp referred to in a general paragraph in the introduction to this grand division describing "The Comforts of the People."

Camp 11 is one of the newest camps of the Manary Logging Co., and is situated on the Siletz River, about seventeen miles from its mouth.

The logging equipment and all there is to make it an active logging camp are described elsewhere in this article. We have covered the character of the timber in yet another section; and we have here to tell only the story of the building of "The Ark," and its transportation to and establishment at Camp 11.

Now this "Ark" affair is a great house-boat, upon which many men may live and be comfortably cared for while taking a part in the work of the Manary Logging Co. It only had to be seen by some fundamentalist who still believed in his Bible, to be immediately—on sight—called "The Ark," and thereafter naturally to have remained "The Ark" in the locality and in this story; and of course the watchman who remains on it during the close-down in the rainy season is called "Noah."

Now let us pay our respects to the building of the "Ark." There was in use at Toledo, Oreg., by the Pacific Spruce Corporation a sea-going barge, 36x108 feet. This barge had finished its days as a sea carrier, and it was decided to utilize it as a building foundation for a great floating home for the people who were going into the venture of logging the upper reaches of the Siletz River. So, after the barge was thoroughly repaired, a two-story building, 30x90 feet in area, was erected thereon—and that in itself would be quite a building for camp purposes, erected anywhere on land.

On the lower floor or deck were built the kitchen, meat-house, dining-room, commissary and time-keeper's quarters; and two rooms for the cook and his family, provided with bath-rooms. There is also one extra bedroom and a washroom built on this floor for the use of the men.

On the second floor were placed ten bedrooms 12x18 feet, accommodating four men each; also two smaller bedrooms accommodating one man each, these last two rooms being provided for the help on "The Ark."

At one end of the second floor, the filing room was established, for the use of the camp, this room being glassed in on three sides and provided with the usual filing bench and racks for saws.

The building was heated by a low-pressure steam plant placed in the hold; and lighted by an automatic starting and stopping gasoline driven electric plant.

Water was provided under gravity pressure from a tank placed on top of "The Ark."

"The Ark" is painted with two coats of light grey paint on the inside, the exterior being painted red with white trimmings.

"The Ark" was constructed in Toledo and towed around in the Pacific Ocean to the Siletz River. It was built in September and October, 1923, and towed to its station immediately thereafter.

#### THE "COMFORTS OF THE PEOPLE" AT CAMP 12

Camp 12 we will call the "Car Camp," as at the establishment of that camp the men all lived in camp-cars. At the next location—to which the camp was being moved in December, 1923—about one mile from the village of Siletz, there will be many changes, which we shall note in the proper place in this article—but first we will describe the original Camp 12.

Camp 12 is the nearest camp of the Manary Logging Co., to Toledo, Oreg., and it is situated on the Pacific Spruce Northern Railway; for a time situated five and a half miles from Toledo, and in the latter weeks of December, 1923, was in the process of moving to another location.

This camp, as well as Camp 11, is under the immediate management of Roland Manary, and their installation, equipment and administration are very largely due to his engineering skill and industry—and we must remember, too, that the problems were numerous and not easy.

The company had available a number of small logging trucks, no longer fit for the transportation of logs, and upon these trucks there were built five bunk cars.

These cars were built with partitions in the center, making two rooms 12x20 feet, accommodating four men each; each compartment provided with stove and tables.

In addition to the five bunk cars mentioned, one car of similar size was converted into a three-room cottage for the use of a time-keeper. This cottage-car is provided with modern plumbing arrangements—the rooms consisting of a bedroom, living-room, kitchen and bathroom, the kitchen being provided with a Dutch cupboard and small dining room.

After all this building there was the building of still another car, providing accommodations for office, commissary and sleeping quarters for the foreman of the camp. Still another car was erected and provided, which is used entirely for a bathroom and lavatory.

In addition to the camp cars described above, there was constructed a commissary and office building, also a commodious kitchen and dining room, with warehouse and meat-house in connection, all of which are shown in the illustrations elsewhere in this article.

The car which we are last to mention is to our mind the most interesting of all, the filing room car. This car is of very careful construction and thoroughly substantial throughout. Its sides are largely of glass—at least on three sides—and in the glazed portion of the car the saw-filing is done in a place as light as day.

The successful building and installation of these cars of various kinds (bunk-cars, bathroom cars, filing-room car, etc.) encouraged the company to construct every building for Camp 12 that can be so erected, so that it can be carried from one camp site to another, as Camp 12 will be successively moved. It is now planned and is being carried out so that all the bunk-houses will be built on skid foundations 14x20 in size; and for each four of these houses a bathhouse and toilet of similar size is being installed, according to the established principles of a certain well known army accessory. Each of these lavatories has three shower baths, a wash-stand and seven laundry trays. Whenever there is moving to be done, the great Industrial Works crane will be used to pick up all this impedimenta and place it on flat cars for removal to the next site.

Camp 12, at the second site before referred to, located about one mile from the town of Siletz, and about eight miles from Toledo, will be more nearly of a permanent nature than Camp 12 started out to be in the first location.

#### Miscellaneous "Comforts" at Camp 12

The children at Camp 12 will have the privilege of going to the excellent schools—both high and graded schools—at the old town of Siletz, a mile distant.

Such bungalows as are built at the new Camp 12, will duplicate those of Camp No. 1. The cook-house or mess hall will be a duplicate of that at Camp 1.

A combination store, warehouse and office, with recreation rooms, is planned. This building will be 50x100 feet on the ground floor with the second story 25x100 feet. The lower floor will contain the office and the warehouse for the store and cook supplies. The upper story will contain four bedrooms with bath, and a recreation hall.

Roland Manary is planning to fit up this recreation hall with pool and billiard tables, card tables and a library. A fireplace is included in the plans. The hall will be about 25x50 feet and one end will have a screen for moving pictures and stage to be used for public performances.

Because of the good country road between Camp 12 and Toledo and Newport, it is expected that a great number of the employees will own and use automobiles; and to provide for the accommodation of these machines a commodious garage will be erected in which stalls may be rented at a small charge per month by the machine owners.

#### THE MEDICAL "COMFORTS" WHICH ARE RENDERED

The Pacific Spruce Corporation and all its subsidiary companies have a contract arrangement, with the National Hospital Association, Inc., of Portland, Oreg., to take care of the physical welfare of all the employees and the sanitation of all the camps and headquarters.

When injury or illness occurs, the matter is brought to the attention immediately of the physician—if the condition is serious the physician is brought to the patient; then if it is necessary that the patient be brought in from the camp he is sent to hospital quarters at Corvallis or to one of the four large hospital institutions in Portland. In the simpler cases ward beds are used; if it is necessary private rooms and the services of night and day nurses are furnished.

To the writer, the most important piece of information given to him in this connection was the statement made by C. C. Bechthold, general manager of the hospital association, that the Pacific Spruce Corporation was an ideal institution as to its camp situations, hygienic surroundings and all natural features making for the health and happiness of its employees; one of the "very best" that he knew within his charge out of many such industrial plants served by his association.





①



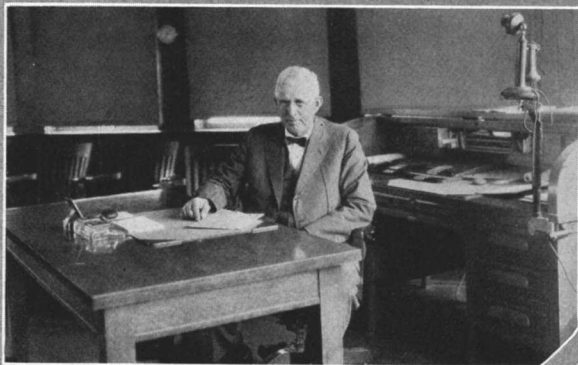
②



③



④



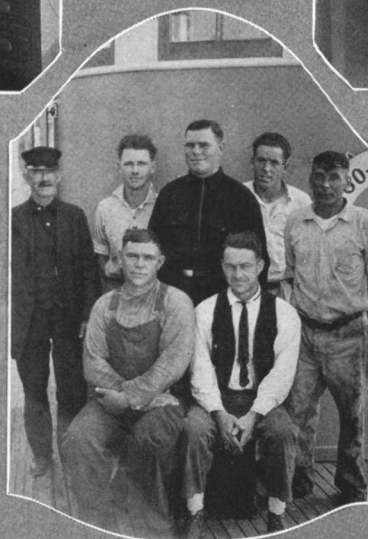
⑤



⑥



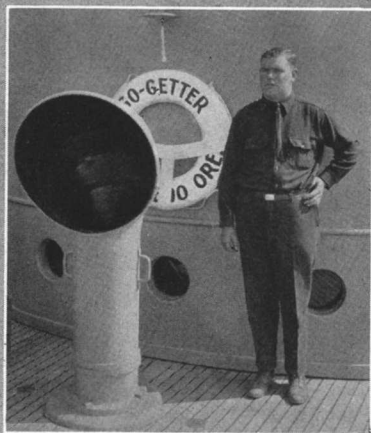
⑦



⑧



⑨



⑩



⑪



⑫



⑬



⑭

**INFORMAL PORTRAITS OF A NUMBER OF PEOPLE ASSOCIATED WITH THE PACIFIC SPRUCE CORPORATION**  
 (1) James Manary and His Son, Roland M. (2) Mrs. Gordon J. Manary. (3) Andrew L. Porter and C. M. Mackey. (4) Gordon J. Manary. (5) Frank W. Stevens. (6) Dean Johnson. (7) Office Force. (8) Crew Tug "Go-Getter." (9) Foremen at Toledo. (10) Capt. H. M. Brown, Tug "Go-Getter." (11) Capt. T. W. Davis, Pilot. (12) Capt. Peter W. Johnson and Chief Engineer Bjarne Cook, "Robert Johnson." (13) Cook Comartin. (14) Traffic Manager Thomas and Steamer "Robert Johnson."



# THE SECOND COMING OF YAQUINA BAY

*Editorial in the LUMBER WORLD REVIEW, February 10, 1924.*

**T**HE ILLUSTRATED STORY of the Pacific Spruce Corporation, which appears in this issue of the LUMBER WORLD REVIEW in all the glory and sweep of its ninety-two pages of type and pictures, marks the second coming of Yaquina Bay on the west coast of Oregon, where the fresh water of the Coast Range meets the salt water of the Pacific Sea, down past Toledo and Newport, its two ports of call on Yaquina Bay.

It may seem to some who will read that article that we may have had our labor for our pains in producing the two hundred column inches of type matter, in writing and printing the division of that story entitled "Development of Yaquina Bay, Yaquina River, and the Ports of Newport and Toledo."

Under the general inclusive title, "Pacific Spruce Corporation and Subsidiaries, the C. D. Johnson Lumber Co., the Manary Logging Co. and the Pacific Spruce Northern Railway Co.," one would not ORDINARILY expect that one of the largest divisions of such a story would be devoted to the history of the efforts to secure governmental aid, and public interest, in the creation of a port of entry; but so closely linked in this day and time with the lumber trade is the matter of transportation of the lumber product that it is not at all strange that this great corporation, by the side of the Pacific Ocean, should seek to uplift its community, and at the same time better its OWN condition, in the advocacy of a just reason why that section of the great commonwealth of Oregon should be made easy of access to all the ships that sail the Seven Seas.

We did not realize until we were two-thirds through with the undertaking just what a task we had set for ourselves in the gathering of information that would enable us to write the history of the Yaquina Bay movement.

We doubt if there ever was collected in one spot—before OUR collection of that material was made—exactly all of the historical documents from which the story of the rise and progress of the Yaquina Bay and the Yaquina River could have been procured; and—as a matter of fact—if any such thing had ever been before thought WORTH WHILE. For making this collection of data possible we have many earnest people to thank, but they have ALL objected to any announcement of their assistance.

Such a proceeding might MANY times have been well thought of, and MANY times it has been PERFUNCTORILY touched, in high places; but, REALLY, it is one thing to conceive of a necessity for doing a public work like that, and quite another thing to secure the time and money with which to accomplish such an undertaking. But we were furnished the OPPORTUNITY and the MEANS with which to make the investigation.

From the moment C. D. Johnson and his associates concluded to build the great Sitka spruce, Douglas fir and western hemlock producing plant at Toledo, Oreg., it became a foregone conclusion to the editor of the LUMBER WORLD REVIEW that there now was ANOTHER chance to do what MIGHT be done in the way of championing ANOTHER waterways improvement proposition—for such tasks as that have always been appreciated opportunities to this writer.

From that May day thirty-three years ago, when we assisted a few other deep-water enthusiasts to organize the Mississippi Sound and Deep Water Improvement Association, we have been interested in doing anything that PUBLICITY might do, for any man or group of men, if what we MIGHT print could in any way assist in moving the products of our country, across sea water, to other nations who might want those products for the profit of our citizens.

In all the undertakings in which we have had the great privilege of helping in deep-water matters, there has always been—whipsawing back and forward—the question, "Is there enough commerce to justify it?" or "Will the deep water produce the commerce?"

In the matter of the Yaquina Bay improvement, in the interest of which we file our brief before the National Congress in this issue of the LUMBER WORLD REVIEW, there is no doubt about the fact that the commerce is THERE, on this side of the blue Pacific, to JUSTIFY EVERY CLAIM THAT THOSE IN INTEREST HAVE MADE.

Always, too, there comes up the question: "Is, or is not, this matter one of special legislation; and if special legislation, is that ever justified?"

We have always proceeded on the belief that there could be in deep-water affairs no such thing AS special legislation; that any improvement of our waterways (either the opening of a harbor that foreign trade may come in or the deepening of a river that there might be greater domestic intercourse) is of just as much interest to all citizens of the Republic as it could be to those citizens who are DIRECTLY benefited thereby.

The more good water ports we have, the more commerce we will secure; the deeper our rivers become, the easier our commodities will be exchanged; and in this country, with its long

lines of latitude and longitude, there is no greater problem, domestically, than the interchange of our commercial products—whether those products be lumber or wool, or apples or oranges, or corn or wheat.

Yaquina Bay, and the Yaquina River citizens, do not seek profit above their neighbors, but only that they may profit as much as their neighbors.

Then, again, Yaquina Bay seeks this improvement on the principle that the foundations have been laid by the expenditure of both local and government treasure in the PAST, and that ALONE is a reason for building up the superstructure on the foundation ALREADY PUT DOWN.

In causing this great ninety-two page illustrated story to be printed in the LUMBER WORLD REVIEW, and in printing besides many thousands of copies of this story for general distribution in the months and years to come, the Pacific Spruce Corporation has done for Oregon and its commerce what no group of citizens, or Chambers of Commerce, or other organizations, MIGHT have done; and in doing this it has produced "documents in evidence" which never could have been produced in any OTHER way than by private enterprise.

In telling both the domestic and foreign worlds of its wares and its commodities for sale, the Pacific Spruce Corporation has done more for Oregon and its commerce than any other group of citizens of that country has done and has also given more active commercial uplift to Lincoln County, Oregon, than has ever before occurred in its history.

In writing our history of Yaquina Bay we could not well inject much editorial opinion. The story we tell of the rise and progress of Yaquina Bay and the Yaquina River in commercial affairs must needs be largely historical; and while among our statistical facts we occasionally laid down some conclusions, we desire here to come to general conclusions in regard to Yaquina Bay and the Yaquina River and their improvement. It could not have been properly covered in the ninety-two pages of text and pictures in this issue.

We believe that those who have had in their hearts the welfare of Yaquina Bay and the Yaquina River during the last sixty years have worked somewhat at cross purposes—maybe not so much at cross purposes as at a wrong purpose. They have worked more assiduously in removing harbor mouth obstructions than they have worked in producing a navigable Yaquina River. They have occupied their time and their money vastly more to secure the opportunity of commerce passing OUT to the sea than they have in deepening the waters of the Yaquina River that commerce might more readily pass DOWN to the sea.

The communities of the West Coast that have looked after the matter of getting their commerce to the sea's edge have prospered the most—as, for instance, Coos Bay, which has put in its time and its treasure in RIVER improvements and the like; and Coos Bay therefore has done wonders, for, behold, if the commerce is there hammering to get out, surely government is bound to help it out, and ALWAYS does.

We rather fancy, too—knowing all that we do about the Yaquina River and Yaquina Bay—that there is a whole lot of "unfinished business" with which the citizens of Lincoln County, Oregon, might busy themselves in connection with the Yaquina River. We are keen enough to have those citizens start a new project along its way for the improvement of the Yaquina River; but before they DO that, it strikes us that really here is an unfinished project.

There have been already a lot of preliminaries done in the asking for a sixteen-foot channel for the Yaquina River that have not yet borne fruit, but SHOULD.

There are always four steps to take in securing governmental aid in matters of this kind: (first) An application to the local congressional delegation to get an item into the Rivers and Harbors Bill; (second) after the Rivers and Harbors Bill item has been passed, to see to it that it goes before the proper authorities of the Board of Engineers; (third) after the engineers have approved, that a survey and estimate be ordered; and (fourth) after all the preliminaries, to endeavor to show Congress that an appropriation SHOULD be made.

We believe that our historical survey of Yaquina Bay and Yaquina River entitles us to the thought that there remains right now the possibility of working out the plans of other years, which have been only held in abeyance, but certainly cannot have been lost from the records.

If a new project must be started, based on the commercial possibilities of the section, then it is up to the citizens of that part of Oregon to START the movement. We have furnished them all of the arguments they need for all time to come in the ninety-two pages of matter that precede this page of editorial utterance. We have done what we could; let them do what they may—thanks to the Pacific Spruce Corporation and its voluntary and substantial help.