

The Effect of World War II  
On Northwest Forest Products

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## Introduction

This thesis has for its objective a discussion of the effects which the present World War has had on the forest products of the Pacific Northwest. The problem also involves predictions as to what future effects may be expected. A careful study of these influences and their results may divulge the reasons for the evident effects and help to chart a possible future course of the forest products industries in the Northwest. International relations and trends in the struggles of nations are having a tremendous effect on these forest products industries. This fact has prompted the writer to make this study with an eye to viewing the picture in the light of economic developments.

The wood products industries are generally considered to be the greatest single industry classification in the Pacific Northwest. Wood products are rated second only to petroleum as a war material by certain military experts. Thus, the question at hand is a vital one to the Pacific Northwest and to the nation and the world in general. Careful analysis of the problem can result in the establishment of a plan for insuring the continued security of these industries.

This question will be handled from the standpoint of foreign trade in these forest products and the past and present effects of World War II on these exports and imports, as well as from the standpoint of the American trade. Both national defense activity and the regular

trade will be considered in the light of past and present effects of the war.

The probable future effects of the war, both on foreign trade and American trade, are the bases for predictions as to the course of the forest products industries in the years to come.

Sources of material for this thesis are manufacturer's associations, shipping agencies, current periodicals, and reports of governmental commercial and industrial bureaus.



## PART I

### Recent and Present Effects

#### Chapter I

##### Exports of Lumber

The past effects of World War II on the foreign trade of the northwest lumber industry have been far-reaching. Lumber exports from the Pacific northwest throughout 1937, 1938, and the first 8 months of 1939 attained a monthly average of 35,441,000 board feet. After the start of the war in Europe the exports show an average monthly volume of 30,792,000 board feet. This drop is inclusive of the long time record high of 60,875,000 feet in October, 1939. This high volume of exports in October, the month following Germany's invasion of Poland, shows that foreign customers, foreseeing considerable difficulty in obtaining trans-oceanic shipments, placed unusually large orders with Pacific northwest lumbermen. The sudden drop to 21,299,000 feet in November of 1939, demonstrated in part the effectiveness of the blockade war at sea.

Exports of northwest lumber gradually rose to a monthly figure of 44,006,000 feet in May of 1940, and remained slightly below this volume until September. This was a result of the expansion of lumber exports to consumers in non-belligerent countries, especially South America, as well as the rest of the western Hemisphere and to the South Pacific and England's Australian and New



Zealand empire.

In September of 1940 exports of Pacific northwest lumber dropped off to 21,093,000 board feet; this came as a result of the increasing dangers incident to foreign shipment during wartime. Other contributing factors were the satisfying to a certain extent of the needs of consumers whose previous sources of lumber had been cut off by the war. This includes occupation of lumber-producing Scandinavian and Baltic countries. Another reason for the drop in September exports is the diversion of large amounts of lumber from export channels to the national defense needs of our own country.

An interesting point in the export trade of northwest lumber to nations at war, particularly England, has been the large quantities of specialty items included in these shipments. Airplane spruce is an important item in this line, and one which is becoming increasingly scarce in the United Kingdom. Facing this fact, English research experts in forest products have successfully substituted Douglas fir from the Pacific northwest in aircraft construction.

The most noteworthy effect of the war on exports of this lumber has been the cutting of average monthly exports by approximately 15% with the start of the war in September of 1939. One of the brighter sides to this phase of the picture lies in the research carried on by foreign consumers toward wider use of the more obtainable species and grades of lumber.

Monthly Exports  
Pacific northwest lumber

<u>Year</u>	<u>Month</u>	<u>Board feet</u>
1939	September	21,492,000
	October	60,875,000
	November	21,299,000
	December	25,513,000
1940	January	27,590,000
	February	34,087,000
	March	37,318,000
	April	39,643,000
	May	44,006,000
	June	32,364,000
	July	42,161,000
	August	41,708,000
	September	21,093,000
	October	22,011,000
	November	28,934,000
	December	15,987,000

\*Note: The figures and statistics in the foregoing chapter are computed from data supplied by the Information Department, West Coast Lumbermen's Association, Seattle, Washington; as is the list of export figures above.

## Chapter II

### Exports of Pulp and Paper

The present war has had certain effects on the export trade of the Pacific northwest pulp and paper industry. Among these are the decreases noted because of the impossibility of shipping to certain foreign consumers. In peace times France and Italy have been the largest customers for northwest pulp and paper. Under the present circumstances, they cannot reach the market for these products.\* A factor which offsets this effect to a certain extent is the recent increase in exports to Latin American markets. This is a result of reductions in the shipments from Scandinavia, formerly the chief source of supply of pulp and paper for Latin America.

Unduly low prices prevailed in the export market for this commodity in August of 1939. Then the wave of war buying, which amounted nearly to hysteria in almost all commodities, hit the pulp and paper export trade. Prices rose approximately 50% with shortages threatening. As in most industries, the volume of sales returned to near normal very shortly, and in the case of pulp and paper exports, dropped well below normal due to shipping difficulties and to the changed status of former consumer nations.\*\*

\*Business Week, April 6, 1940.

\*\*Printer's Ink Monthly, "Paper in the Present Crisis", John Cornell, Sept., 1940.



### Chapter III

#### Exports of the Miscellaneous Forest Products

The export trade of the miscellaneous forest products of the Pacific northwest has behaved in much the same way as the export trade in lumber and pulp and paper as a result of the war to date. The most important item in this category, plywood, has received certain impetus from the discovery of new uses. Foreign users, particularly British, have evolved many new uses for plywood, especially in airplane construction. These new uses have offset to a degree the detrimental results of transportation and delivery difficulties incident to the war. Non-belligerent nations have come to regard the United States and the northwest as primary sources of plywood.\*

Other miscellaneous forest products which have felt certain changes in export trade include the wood-derivative plastics. As an example, shatter-proof sheets of transparent plastic are replacing glass windows to a certain extent as a result of bomb damage.\*\*

On the whole, the miscellaneous forest products export trade has felt sharp decreases due to the war, chiefly through cutting out of some markets and the increasing difficulty attending transportation. These effects have been offset to a small degree by new utilization methods and the cutting out of certain competition from former large producing countries.

\*Timberman, Feb, 1941.

\*\*Business Week, Dec.7, 1940.

## Chapter IV

## National Defense Trade in Lumber

The lumber industry of the Pacific northwest has undergone considerable impetus as a result of national defense orders. However, from the start of the war in September or 1939 until July, 1940, no outstanding increases in government orders was noted. There was a strengthening of this demand, however, during July, 1940, which by August was a leading factor in the market. Principal orders were for camps and air bases and additional cantonments necessary for the National Guard mobilization and the selective service draftees. September saw the first stage of readjustment of northwest lumber markets following the distortion due to emergency national defense buying. By October the industry was experiencing another peak of defense buying. Approximately 25% of the October production of Pacific northwest mills went to national defense orders. Throughout November these orders increased until over 30% of the production was taken for national defense. In December the most important single factor in lumber production was still national defense orders, but in steadily diminishing quantities as the cantonment construction program neared completion.

During the last six months of 1940 the government bought nearly six hundred fifty million board feet of northwest lumber. By working at capacity and using extra shifts in many cases, the Pacific northwest lumber indus-



try was able to meet government orders practically on schedule. This was despite the fact that the national defense orders came unexpectedly and under forced draft and that ten to fifteen percent of mill capacity was closed down by labor trouble during part of the time.\*

Prices followed the natural result of the threatened lumber shortage, rising sharply in July of 1940, but leveling off with the end of the year. In June, 1940, the average price was \$20.92 per thousand board feet, but by December had reached \$26.50 per thousand. With eight hundred uncontrolled and unregulated sawmills operating in the Douglas fir region alone, prices were pushed up in the shortage, just as they are pulled down in a surplus. The price increase amounted to approximately 26% as a result of the national defense orders. The average price of northwest lumber for all of 1940, however, has scarcely exceeded the 1937 average of \$22.19 per thousand feet.\*\*

A discordant note in this field lies in the fact that increasing amounts of lumber from British Columbia appeared in California markets and elsewhere in the fall of 1940. This was a result of the falling off of Canadian lumber exports to the United Kingdom. Protests were lodged with defense boards against the use of Canadian lumber in national defense construction.\*\*\*

\*Information Department, W.C.L.A., 1940.

\*\*Address by Col. W. B. Greeley, Jan. 15, 1941.

\*\*\*Business Week, Dec. 14, 1940.



## Chapter V

## National Defense Trade in Pulp and Paper

The preparedness program of the United States has had little effect, of itself, on the pulp and paper industry of the Pacific northwest. Although a considerable amount of pulp and paper has been purchased by the government for national defense needs, this tonnage has not been diverted from industry. Rather, it has been supplied through increasing the production of pulp. The fact that certain imports of pulp into the United States, especially from the Scandinavian countries, has been curtailed, has been reflected by a severe rise in price. National defense buying, although constituting an unexpected drain on the supplies of Pacific northwest pulp and paper, has had little effect on this price change. Actually, the converting mills have been affected most by the rise in price, and not the government in its status as a purchaser of paper products for national defense needs.\*

\*Printer's Ink Monthly, "Paper in the Present Crisis," John Cornell, Sept., 1940.

## Chapter VI

### National Defense Trade In The Miscellaneous Forest Products

In general, the needs of the government for national defense have produced an upswing in the business trend of the miscellaneous forest products industries of the Pacific northwest. Plywood, especially, has felt this effect. Many new uses for plywood have been developed through efforts of national defense agencies. Among the more noteworthy of these developments is the use of plywood in constructing "mock-ups" for the aircraft industry. "Mock-ups" are full size scale models of airplanes, used in wind-tunnel tests for turbulence, air-resistance, streamlining, etc. They also are used for practical tests of capacities, accommodations, and appearance. The appearance of an easily molded plywood has aided in the quick and relatively cheap manufacture of wings and fuselages for training planes. Plywood has found a wide usage in the quick, economical construction of cantonments and other national defense buildings.\* Prefabrication of buildings and demountability is a factor greatly facilitated by the use of plywood.

In the field of plastics and plasticized wood, national defense requirements have brought about great developments. These plastics are produced from the lignin content of wood after the cellulose has been removed by a special new process. The use of such plastics in the manu-

facture of airplane parts is an important factor in national defense. Alpha cellulose removed from wood by a newer, more efficient process has been converted to nitro cellulose, a valuable ingredient in the manufacture of explosives. Wood treated with a plastic solution which enters and becomes an integral part of the wood substance is utilized to a great extent by the national defense program in various phases of manufacture. A lignin derivative effectively raises the octane rating of gasoline.\*\*

While the above mentioned developments have not been confined to the miscellaneous forest products industries of the Pacific northwest, there has been a very noticeable effect in the northwest from this activity. This has been reflected in the wider utilization of waste as well as in the increased production and sales in this field.

\*Timberman, Feb., 1941.

\*\*U.S.F.S. Bulletin, "Forest Research and Defense,"  
C. L. Forsling, Dec. 1940.



## Chapter VII

## The Regular American Trade in Lumber

The most outstanding effect of the war on the regular American trade in Pacific northwest lumber has been the retarding of commercial shipments. As national defense buying began to demand large volumes of lumber, these orders were given first call by the industry, resulting in late deliveries for some commercial purchasers. Principal late shipments were mixed carload orders. Another factor which retarded shipments was the diminishing supply of shipping space in the industry's inter-coastal trade.\*

The Pacific northwest lumber industry experienced a sharp buying wave in September of 1939, the month the war started. October saw a break in this buying wave, but toward the end of 1939 demand resumed the normal course of pre-war months in satisfying the building demands of the United States.

The first few months of 1940 showed the slowly strengthening trend of general business reflected in northwest lumber. Retarding influences were increasing lack of shipping space and a wide-spread cold wave throughout the midwest and east which slowed up the ordinary trade in farm and home construction materials. By May Congressional enactment of the Buck-Johnson resolution made available the laid up fleet of the Federal government, and shipping space difficulties were lessened. May too, showed a marked upswing in all forms of private building.

Lack of confidence and fear on the part of private consumers brought about by the war situation were the main adverse conditions evident during the first half of 1940 in the Pacific northwest lumber industry.

By July and August the commercial and private consumers of lumber were feeling the retarding effect on shipments brought about by the volume of national defense buying, which took precedence over private orders.

As expained before, prices of northwest lumber rose sharply following the rush of defense orders. This was largely due to the fear of a lumber shortage and the "hurry up" character of many private orders. Other reasons included tie-ups because of labor trouble. During this period of advancing lumber price, it was noted that prices of lumber in certain other parts of the country advanced more than twice as much as did the prices of Pacific northwest lumber. By the close of 1940 prices were again slackening.

While war-time orders had certain effects on northwest lumber, small home and farm construction have remained the greatest market for this product, throughout the course of the war to date.\*\*

\*Information Department, W.C.L.A., 1940.

\*\*"West Coast Lumber Looks Ahead to Normal Commercial Trade," Information Department, W.C.L.A.

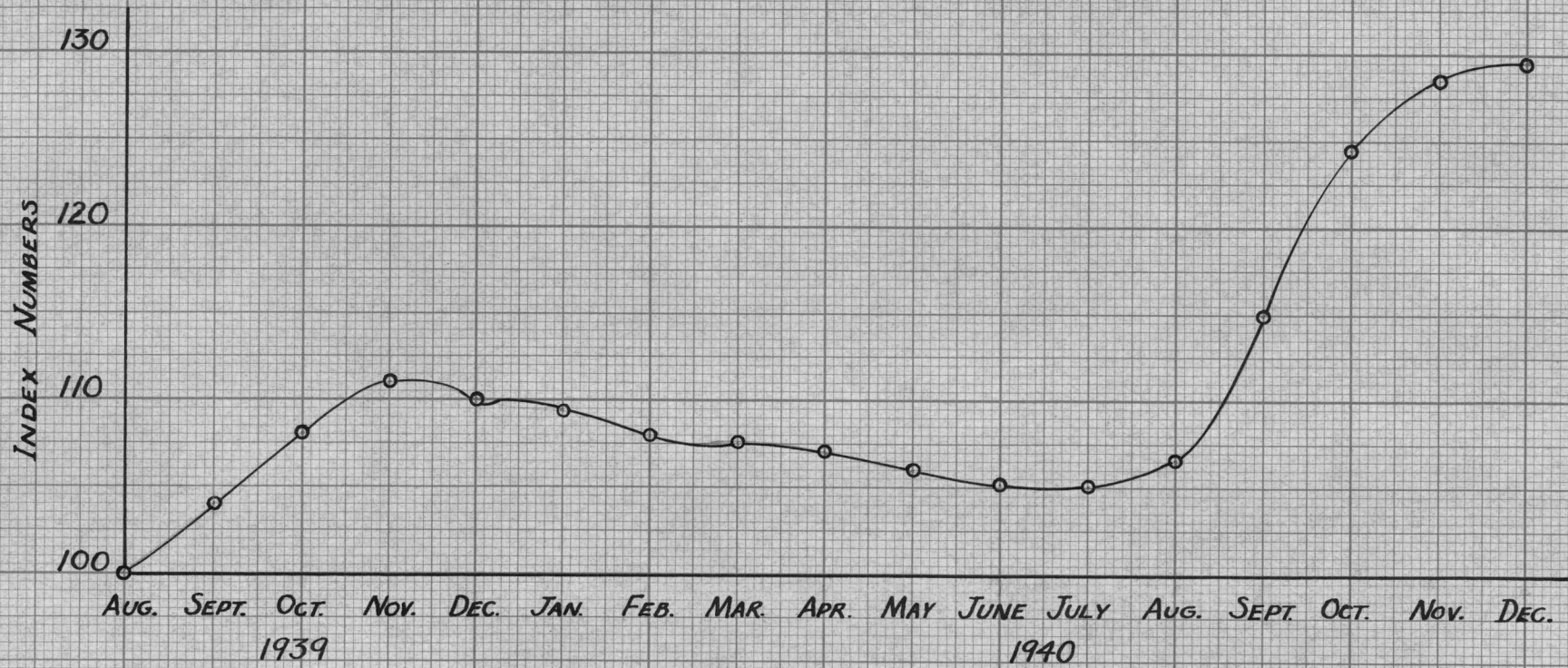
Weekly Average Orders  
Pacific Northwest Lumber

<u>Year</u>	<u>Month</u>	<u>Board feet</u>
1939	September	170,910,000
	October	124,416,000
	November	102,675,000
	December	115,644,000
1940	January	131,169,000
	February	130,595,000
	March	136,441,000
	April	139,076,000
	May	133,372,000
	June	132,705,000
	July	162,298,000
	August	181,539,000
	September	163,724,000
	October	157,605,000
	November	143,571,000
	December	137,912,000

\*Note. The above figures are from newspaper releases  
of the West Coast Lumbermen's Association, Seattle, Wash.



# LUMBER PRICES



## Chapter VIII

## Regular Trade in Pulp and Paper

The most important effect of the war on the normal American trade in northwest pulp and paper has been the rise in price. Consumers of paper have not been greatly affected. The converting mills which purchase the pulp experienced a price increase of almost fifty percent over the unduly low prices which prevailed in the northwest prior to the start of the war in September of 1939. This was followed by only a moderate increase in the prices of paper; thus the converting mills bore the brunt of the price change. It is expected that as long as Scandinavian supplies of pulp are cut off, there will be a possible shortage of pulp on the market, although the increasing imports from Canada will probably lessen this effect. Trends in the regular trade in northwest pulp and paper have closely followed the trends of general business.\*

\*Printer's Ink Monthly, "Paper in the Present Crisis,"  
John Cornell, Sept., 1940.



## Chapter IX

## Regular Trade in Miscellaneous Forest Products

One of the chief effects of the war on the miscellaneous forest products trade of the Pacific northwest has been the great number of new developments in manufacture and utilization. Such developments, brought about largely for war needs, have found wide use in the field of the normal American trade in these products.

The extended use of plywood in the production of military aircraft, for example, has shown the way to a wider use of plywood in private commercial plane construction. The use of plywood for quick and economical construction of cantonments has aided in the wider use of plywood in private home building.\* New methods for removing cellulose from wood more efficiently and economically for use in military explosives, have also proved valuable in obtaining cellulose for celluloid and celluloid products. A lignin derivative which raises the octane rating of military gasoline will do the same for the gasoline you and I buy for private automobiles.

On the whole, the private and commercial consumers of the miscellaneous forest products of the northwest have been offered increasingly wider choices of better products as a result of the war.

\*Christian Science Monitor, "Steel from Wood", Kate Archibald, Jan. 25, 1941.



## PART II

## Future Possibilities

## Chapter I

## Foreign Trade

The future of the export trade of the Pacific northwest forest products industries seems to lie chiefly in the prospect of increased trade with Central and South American countries. With European sources at present unable to supply the lumber which they formerly sold in Latin America, the Pacific northwest lumber industry should be able to greatly enhance its market there. The fact that certain lumber producing areas of Latin America are able to supply species of woods and other forest products which are not available in the United States offers an encouraging circumstance for reciprocal trade.\*

By building up confidence in northwest forest products of all kinds through careful, planned merchandising, the export market can be further steadied. A study of the specific needs and an attempt to supply those needs for the foreign consumer will do much to increase the export market.

At the close of the war, one undeniable fact will stand out. The terrible destruction of war will need to be rebuilt. Here, too, northwest forest products should play a large part. The amazing developments in quick economical construction with forest products which have characterized

the past few years in America should prove an immeasurable aid in this reconstruction, and consequently in building up the export trade of forest products.

The fact that certain of the nations now at war are rapidly depleting their timber supplies in their war effort is another point that may increase the export trade in the future.\*\*

\*The Annalist, Sept.5, 1940.

\*\*Survey of Current Business, Jan., 1940.

Patronized  
OLD RELIABLE BOND  
HAS CONTENT

## Chapter II

### American Trade

The future business of the northwest forest products industries lies, as it always has, in farm and home construction. The policy of wide-spread publicity for new ideas in the building of wooden homes is an excellent method of insuring future trade. In spite of the tremendous volume of national defense orders for 1940, ninety percent of the lumber business in the northwest for that year was still for farm and home construction, and for the ordinary channels of industrial trade.\*

Recently the supplies of metal products going into aircraft and shipbuilding have been appearing seriously behind schedule. We are told that by the end of 1942 the demand for steel will be approximately fifteen million tons ahead of present installed capacity. This anticipated lag may well necessitate the use of wood products in many places where steel is used now. Warfare is destroying merchant shipping by the thousands of tons per month. The present installed capacity of American shipyards is being used to the limit. As speed becomes more and more essential we may again be building ships of wood. There are also vast uses for wood in place of metal in the field of motor and rail transportation, where the combined lightness and strength of wood products will be valuable.\*\*

Wider utilization of forest products waste materials may come about as more coal and petroleum fuels are needed



for military uses. Approximately forty percent of the expected orders of the government for wood products in national defense remain yet to be placed. Within the next two years the effect of these orders will be felt by the industry, although in less concentrated loads than occurred in 1940.\*\*\*

\*The Lumber Picture, 1940-1941, W. B. Greeley.

\*\*West Coast Lumber Looks Ahead to Normal Commercial Trade, Information Department, W.C.L.A.

\*\*\*The Lumber Picture, 1940-1941, W.B. Greeley.

## Summary

Taking advantage of the present boom in forest products seems to be the best course for the forest products industries of the Pacific northwest in the future. This consists of continuous efforts to insure the future of a good trade in these products. Successful merchandising is the kind that gives maximum value to the consumer. This means that the customer must receive service with his purchase. When the customer gets intelligent information, help in visualizing just what he wants, help in translating his wants into a design, etc., he has received a lot more than just a bill of goods.

Research is a large part of this service. New uses for wood products adapted to the consumer's needs can go a long way toward establishing the forest products industries on a firm basis, and maintaining them on that basis.

The recent Federal indictment of the lumber industry may have placed doubts in the minds of some as to the future of the lumber industry on this account. In the words of Colonel W. B. Greeley:

"One of the wisest of the old proverbs, whether it came from the mouth of Confucius or some other sage, runs to the effect that an opportunity lurks in every obstacle. We must find the opportunity that lies within this changed attitude of the government toward industry. We must make the most of the fields for industry cooperation, like trade promotion and standard qualities of product, that remain open to us. In plain terms, I hope that the .....lumber industry will take the Federal indictment in its stride and go right on."

On the whole, the war appears to have had a beneficial

effect on the forest products industries of the northwest. It is the opinion of many, however, that the war, coming as it did during a period of general business recovery, proved to be only a moderate influence toward a result that would have occurred regardless. The best policy still seems to be that of taking advantage of every opportunity.

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