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THE LUMBER INDUSTRY IN THE UNITED STATES

by

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Colonel Jordan and Gentlemen of the Army Industrial College:

I feel honored to have been asked to speak to you this morning, and am particularly glad to see some Navy officers here. During the Winter of 1917-18, I was in Norfolk as a young Captain in the Construction Division, sending buildings to France for the Motor Transport Repair Shops - as they were then known.

The long distance lines to Washington were continually clogged and so the Navy permitted me to use their private line for Army purposes. As a young upstart, that courtesy was particularly appreciated and this occasion permits me to acknowledge my indebtedness.

If my references this morning are mostly concerning the Army, I hope you will appreciate no favoritism is intended. Living in the West, I am not "a salt water Marsh, just a fresh water one".

I was greatly struck by Col. Jordan's Orientation Talk at the beginning of your work. May I first take you for a fast orienting visit to the earliest timber producing areas in this country, then as we see the national picture, we will be prepared to correctly consider the important points relative to lumber for the next war.

When the early settlers came to this country they did not find a land of milk and honey blessed, but rather a well forested area, New England having mostly White Pine and Hardwoods, while the South Atlantic had the familiar Yellow Pine, remnants of which you see hereabouts.

As happened through the rest of the country later, they first cleared off the timber to make way for farms, then took to cutting the timber for their own needs, putting in water power mills, near tidewater, getting out masts and in the South Atlantic states, starting early a Naval Store business with the Mother Country, which by the way is still continued.

Around 1850 sawmilling jumped ahead with steam power coming in, while in the 60's the first planing mill was started in Albany and by 1889 the bandsaw, with its small saw cut, or

kerf, came into use.

As the country grew - sawmilling moved ahead of agriculture, with lumber production increasing, in a pioneer country.

From 1870 - 1890 production in New England kept at a high rate, and even today New England supplies over one-half of its own lumber consumption.

As the country grew to the West, new areas were opened up, first New York and Pennsylvania, then the great Pine producing states of Michigan, Wisconsin and Minnesota, starting in the late 60's, and increasing to the turn of the Century.

Possibly one or two incidents may give a clearer picture, of the conditions at this time. Practically all the Great Lake cities were built by lumber, brought in by vessels, and I know the Chicago River was full of lumber laden crafts every morning, with the rough lumber cargo being sold "as is" and then unloaded and graded in the Chicago yards. I am going to speak of this word "grading" quite often because it seems to be one that bothers all of you. In desperation one of the railroads asked my Father to accept a Pass and go over their line to try to find a way to ship lumber, and this was the beginning of rail movement of lumber to Chicago.

By the late 80's large white pine timbers were getting scarce, so when Marshall Fields' large wholesale house was started in 1886 the builders had to send South for that strange wood not previously used in the North Central State called "Southern Longleaf Yellow Pine," but no southern mills could dress large timbers, so they had to be surfaced in Chicago. Strange, as it may seem, I found some of these first Longleaf Yellow Pine timbers were in use on a U. S. Engineer Lock and Dam project at Peoria, within the past 60 days, being used on top of a cofferdam as a mat for a steam shovel. Those were timbers, let me say, that were originally brought to Chicago in 1886.

As the White Pine in the Lake States became scarce Norway Pine was cut, then Hemlock and now today some Hemlock and much hardwood flooring is being produced thus giving the owners four crops -- so to speak.

While production was moving away from the edges of the Lakes, and the shores of the streams, shipping by rail became more universal, and the mills of the South began increasing in size. By 1890 Southern Pine production was

approaching that of the Lake States White Pine region, and by 1900 had almost exceeded the entire production in the North with large mills almost every half mile of railroad. The Worlds Fair of 1893 had been a tremendous stimulus to building, and rail freighting was most important.

May I mention in passing that not only now, but for many years past, products of the forest have been running third from the highest of all railroad tonnage--both on a weight and revenue basis.

Southern Pine production continued to rise until 1910's with the size and number of the mills increasing. I can well remember about this time while make a Forestry tour through the South, I was told by the Sales Manager of the 1,000,000' mill per day plant of Great Southern Lumber Company that soon there would be no more small mills. Just to the contrary we had a report in October of 1937 that this mill's life is now numbered by months. In passing may I say that the Great Southern Lumber Company organization at Bogalusa gave every possible help to those of us in service, in furnishing whatever was needed. I honestly feel they played the war game 100% and I regret their closing.

Today, the big mill in the South is fast passing out of the picture and the smaller mill, with its lower logging cost, is coming in, but it does not carry the large stocks of dry lumber on hand; more of this later.

Between 1890 and 1900 the Pacific Northwest was becoming an increasing factor in lumber production, particularly large timbers, in fact in 1893 the first Fir timbers were shipped East of the Mississippi River, and this by a mill that is still operating. Incidentally, it was shipped by Major Griggs of the St. Paul and Tacoma Lumber Company to the Marsh and Bingham Lumber Company at Chicago. It was not until 1930, however, that Fir shipments equalled those of Southern Pine, and today, the two woods are running a neck and neck race, although under greatly varying conditions. The large sawmill operation still persists on the West Coast, and probably will for many years.

Western Pine, growing in the inland Empire Region of Washington, Idaho, Oregon and California has grown greatly, but except for sash and doors, pattern lumber and crating, is probably a factor that you will not need to consider to any great extent. As a source of supply you can depend upon it for some years. The production of Western Pine, such as you saw

pictures of the other day growing in the inland empire regions of Washington, Idaho, Oregon, and California, has grown greatly, but except for sash and door lumber and crating it is probably a factor that you will not need to consider to any great extent. As a source of supply you can depend upon it for some years.

During these many years hardwood was being produced, but only about 20% as much as softwoods, this production extending from New England to New York and Pennsylvania, then through the Virginias to the North Central States to the Mississippi River and in more recent years down through the Southern Pine territory with numerous Pine mills now cutting hardwoods, alongside of the Pine. Certain of the hardwoods, such as the Oaks, become less suitable, particularly for timbers, as you go South. I am mentioning that in passing because a gentleman in the Chief of Engineers' office the other day objected very strenuously when he ran across a specification calling for Northern White Oak. I understand since then a rule has been found specifying just what Northern White Oak is.

You noticed as we reviewed the various producing areas, that the sawmills kept moving farther and farther from the center of population. This brings out the first fundamental fact, namely that the transportation question is very closely tied up with lumber production. Keep that continually in mind as in war time, it may be the prime factor in determining your course of lumber.

With this general background of the growth of the Lumber Industry, may we for a moment consider the various factors essential for a complete plan for the mobilization of industry.

(a) Procurement planning,
  (1) Determination of material requirements,
  (2) Plans for the procurement of such requirements,
(b) Plans for control of economic resources and mobilization of industry,
  (1) Determination of measures to be employed to insure the proper coordination and use of the Nation's resources.
  (2) Plans for the organization of administrative machinery to execute these control measures.

As I speak to you as an ordinary citizen, I, of course, have no knowledge of your contemplated requirements for the next Emergency, so much go back twenty years ago, and from that

try and draw a correct picture.

The "war load" on the Lumber Industry is not great, either as to the amount of lumber consumed, (about 1/5 of the total production) or as to the kind, except as regards hardwoods which are the smaller part of the needs.

It is quite likely that greater difficulty may be encountered with the smaller percentage of hardwoods, than with softwoods, although I shall give more attention to softwoods due to their much greater importance, early in the war.

Lacking figures as to the probable requirements of the next War, I will confine myself to what we used in 1917-18, leaving out such items as airplane spruce, wagon wheel stock, etc., which have since been eliminated.

In the World War, there was directly bought by the United States, approximately 6-1/2 billion feet of lumber, made up as follows, and as reported in W.I.B. Bulletin No. 43, "Prices of Lumber in the World War".

Cantonments, hospitals, warehouses	3,000,000,000-76% of this was Y.P.
Crating and boxing	2,000,000,000
Emergency fleet took	792,000,000
Airplane construction (now out)	181,000,000
Combat propellers	40,000,000
Gunstocks and hand guards	98,000,000
Art. Wheels - (now out)	19,000,000
Vehicles	97,000,000
Navy - Hardwood	121,000,000 (There is apparently something wrong with that figure. Another statement I have had since then brings that down to 19,000,000.)
	6,378,000,000

You therefore, see the necessity of understanding the importance of softwood, as this comprised practically 5 out of the 6-1/2 billion feet bought by the Government, just for cantonments, warehouses, boxing and crating.

New England Forests

In the Library at Harvard are five dioramas depicting in dramatic style various phases of New England's forests.

In the first, is a New England hillside scene, with a stream at the base, while all of the slopes are covered with virgin woods, containing large trees.

The second scene, shows this same hillside, with a small clearing and a settlers rough homestead, from which he goes to hew his farm out of the dense forest land.

In the third is a comfortable farmhouse, with all of the land cleared and growing crops, while the fourth scene is of an abandoned farm with the house in decay, and the fifth shows that same hillside growing a fine new crop of your forest growth.

There is the picture of New England as it is today, or should I say, as it should be, if fire were kept out. In other words, within the last year or so Yale University was given certain important land for growing trees. They had to give it back. Why? It was worth ten to fifteen times as much to sell to people commuting into New York than it was for growing trees. You can not economically grow timber under conditions like that. New England is a better growing land for forest than for the usual agricultural crops, but in many sections the tourist crop takes precedence over both.

In spite of fires, and careless handling, New England is still growing approximately half of the lumber that it consumes, most of this being the small stock coming from "peckerwood" mills.

The lumber cut in New England in 1934 was -

Softwood	378,951,000 ft.	(16.5% Spruce (56.5% Pine (9.6% Other softwoods
Hardwood	77,235,000 ft.	(17.5% Hardwoods
	456,186,000 ft.	

Of this total cut 88% went into New England States as follows:

Connecticut	31,160
Maine	101,786
Massachusetts	114,126
New Hampshire	108,934
Rhode Island	11,318
Vermont	33,739
	401,061 = 88% of New England cut.

Most of the balance, by the way, went into New York State.

There were, however, used in various states of New England the following amounts, which means that there were 336,000,000 ft. brought in from the outside.

Connecticut	110,626,000
Maine	116,678,000
Massachusetts	295,153,000
New Hampshire	125,265,000
Rhode Island	49,649,000
Vermont	40,092,000
	737,463,000

New England has an ideal setup as a source for crating and miscellaneous lumber for the New England industries, where a small freight charge permits the material to come to the consumer at a low cost. The production of sawn lumber by small units permits the use of a gasoline driven plant, instead of the former steam unit or the older water driven mill, so that the mill is operated "between times" or just on a custom basis.

With the tremendous mileage of good roads, it would be safe to say that New England could ship all of its lumber by trucks, or be able to take care of itself in any car shortage that might develop.

It should be kept in mind that Eastern Canada has available a large amount of lumber, readily accessible, including Spruce which could help out New England in an emergency, if boats were not available.

Of the woods from other territories, roofers, or one inch boards, from the South Atlantic Coast territory form the biggest bulk of the Yellow Pine, while the large docks at Providence, Boston, New London and Portland take care of tremendous Fir shipments, as also should be mentioned Poughkeepsie from which the Berkshire territory is served. During the past summer, I noticed on many of the Connecticut roads large truckloads of Fir, which could be recognized as having come from cargo shipments by the fact that the cargo identifying mark was still on the load.

During the late war there was a New England Emergency Bureau, but time has not permitted my going over the records to see just what was accomplished.

Southern Pine Forests

Now let us turn to that territory that furnishes 76% of the 3,000,000,000 feet used for cantonment construction - the Southern Pine Forests. Your own general familiarity with Southern Pine Forests makes it unnecessary to go into any general discussion as to the openness of the woods, the prevalence of ground fires in the spring, and the fact that it is possible to easily walk, or drive through them in almost any place. You probably do not, however, know that the reproduction of Pine, particularily Shortleaf, is very rapid. One midnight about Christmas time, of 1917, I was down near Albermarle Sound, in North Carolina, looking for piling, and we were trying to make time over some of those muddy N. C. roads. The going was pretty rough, so to lighten the load - and probably to keep warm, I went over to the fields to run alongside the team. Much to my surprise I found that by taking a little longer jump than usual, I would land on a high spot of ground. Later I learned that this particular forest land was similar to much thereabouts, namely civil war abandoned cotton fields that were then yielding piling and lumber logs for the World War. A great deal of the territory which has been stripped has now grown up into a second growth of merchantable logs and are keeping many small mills busy today. And that, by the way, will continue to increase.

According to the Southern Forest Experiment Station, the present indications are that saw milling will continue to

be the major industry in the territory south of the Tennessee - North Carolina State Line, extending from the Atlantic Coast well over into Oklahoma and Texas.

In the late '30s the progressive exhaustion of supplies in the North turned the larger mill industries Southward. As large Pine mills cut out, small ones have come in.

During the code years of 1934 and 1935, when we have the best records that have ever been kept, there were in this territory some eight thousand mills.

Pine		Hardwood	
1%- 80 M Cap. per Day	36% of cut	1%- 80 M Cap. per Day	47% of cut
1%- 40-79		6%- 40-79	
6%- 2-39	17% of cut	10%- 20-39	31% of cut
92%- under M	46% of cut	83%- 20	23% of cut

I am going to emphasize the fact that 92% of the mills cut under 20,000 feet of lumber a day, less than one carload, because that 92% of the small mill producers is going to want to help out during the next emergency, and they are a hard bunch to handle. Unless you find some way to take care of them they are going to make you a lot of trouble on the far end of Pennsylvania Avenue.

The actual selling price of the 36% cut by the larger mills is somewhat greater due to the higher quality and better marketing.

The growing development in the South is the concentration yard, bringing rough lumber from small mills. There are now over one thousand of these, concentration yards, collecting rough lumber from small mills and storing, drying and dressing the material in one large yard, but dependent on dry weather. (And for some reason, it seems, when we have any national emergency there is no dry weather.)

Logging in the South consists of two separate operations, the bunching of logs in the woods mostly done by animals (mules and some oxen) then the transporting of the logs to the mill, which is usually by Railroad and trucks, with the trucks becoming an increasingly important factor year by year although the large mills are particularly using Railroads. This is also true on the Pacific Coast.

In a typical Pine operation in the South the average labor required to produce one thousand feet of yard lumber is as follows:

Woods work	9.9	man hours each
Mill work	13	" " "
Sell and Admin.	2	" " "
	24.9	man hours each to produce one thousand feet of lumber.

(This 24.9 compares to 12.4 hours for Fir.)

I am bringing that point out because late in 1918 the question of man hours was all important.

From an economic standpoint it is interesting to note that the lowest logging labor consumption is in connection with the smaller mills, or the very largest operations, while milling labor is usually lowest with the small mill. In fact the two smaller type mills get out lumber with one man day less than the 40 to 80 thousand capacity mills, but much of this difference is due to the fact that the smaller mills do not manufacture material to the extent that the larger mills do. The larger mills cut items of casing, flooring, and other such further refined stock, so to speak, that the small mills do not produce.

The earliest Emergency Bureau to be formed, after this country went to war, was the S.P.E.B. with Mr. Harry L. DeMuth as its Washington Representative, and Mr. W. J. Sowers in charge of their New Orleans office. Let me say in passing that these emergency bureaus that I am now to speak about were really subsidiaries of the lumber manufacturers' associations. I want to bring that out on account of something that has developed within the last week or so. As 76% of the cantonment lumber was furnished in Yellow Pine, and mostly by this Southern Pine Emergency Bureau, you can appreciate what a large job was accomplished.

During the war period of 1917-18 there were in existence three well-managed, efficient saw mill associations in the Southern Pine Industry; namely, the Southern Pine Association of New Orleans, the Georgia-Florida Saw Mill Association, with headquarters in Jacksonville and the North Carolina Pine Association, with headquarters at Norfolk. Of course, of these three the Southern Pine Association was much the largest and really controlled the industry. Incidentally, of those three there is now but one - the Southern Pine Association of New Orleans.

The Southern Pine Association, of course, was the first to organize and the other two followed shortly thereafter and

later on in the war a group of small mills in North Alabama and Mississippi formed another organization, the Alabama-Mississippi Emergency Association, which was represented in Washington by Mr. Middleton Wooten, composed mostly of small mills. When I mentioned the trouble that small saw mills were, I had this particular association in mind because I used to have a great deal of trouble getting shipments from those mills.

In those days approximately 80% of the Southern Pine production was represented by mills members of the various associations. Today with only one association, namely Southern Pine, functioning in the South, it was proven during the N.R.A. regime that the Association represents only approximately 30% of the production in the Southern Pine area, the remaining 70% being made up of small, independent operators not members of any association. This fact alone you can readily see changes the picture considerably and would make organization of an efficient producing bureau more difficult and complicated. However, it could, of course, be done with the Southern Pine Association as a nucleus around which it could be built. Chances are very logical that if we had a Southern Pine Emergency Bureau during the next war we then would have to have two or three emergency bureaus handling Southern Pine in different parts of the country, such as Jacksonville and Norfolk. However, I think I have a better suggestion than the emergency bureau.

The chances are that an independent bureau would have to be built up in the Southeast, as not over a half dozen mills in this entire Pine producing territory belong to the Southern Pine Association, but that also could be accomplished.

May I give you the comments of one of those Lumber Emergency Committee members, so that you can the better appreciate the tremendous need for what you are now doing. He wrote me last month, as follows:

"We had much more difficulty in handling matters at the start than later on, for various reasons, but I would say that the main difficulty we had in starting was that there were no practical lumbermen in any of the Departments in Washington, with the possible exception of the Bureau of Supplies and Accounts of the Navy, and we were called upon to handle our business and try to talk lumber to ex-bank clerks, shoe salesmen, etc., who were wearing a Lieutenant or Captain's uniform and insignia, and who knew nothing at all about what they were trying to do, so far as lumber was concerned. This

is not intended as a criticism or as sarcasm, as the whole thing grew so fast that it was impossible of course to fit the right man in the right place at the start, but I would suggest that should another emergency arise, that the various purchasing Departments of the Government, including the Army and Navy, put experienced lumbermen in their Departments, thereby expediting the handling of these affairs. This remark would also apply to all of the lines of business, as we were all in the same predicament, as far as that was concerned."

The writer of that letter performed in great fashion during the war, and it is his suggestion that in case of another emergency there should be in Washington just one agency representing Southern Pine to handle all affairs direct with the Government Departments and let that Agency distribute the orders to the one or more bureaus that might be formed. This would do away with a lot of complications and difficulties which arose during the last emergency, caused by the fact that each of the three emergency bureaus had their own representative here each trying to get orders for his bureau. The recommendation of this member of one of the Lumber Emergency Committees is that all the Pine production (which again I will say was such a large factor) should be represented in Washington by just one committee; orders to be given to that one committee and that committee to distribute them among as many emergency bureaus, or something like that, as we might have.

As I said earlier, there are some small orders that often are far harder to handle satisfactorily than the very large ones. Such seemed to be the way with piling orders which had to be produced during the winter and early spring of 1917-18. There is ordinarily no large scale piling production, but rather a gathering together of individual wood lot production, from here, there and everywhere.

May I give you a little incident which will illustrate some of the difficulties likely to be encountered, and illustrating that production of lumber products is to but a small extent a question of production but to a larger extent is a matter of distribution and transportation. Let me just mention this. When you pay $40.00 for Fir lumber say here on the Atlantic Coast, less than $2.50 represents the value of that tree growing in the woods on the Pacific Coast. Likewise, when you buy Yellow Pine less than $5.00 represents the value of that tree in the South. Consequently, the big problem is distribution or transportation. Those of you who had to stay in this country during the War will recollect how early it

became cold during that winter of '17. One evening while I was in Norfolk, Washington phoned that a Richmond, Virginia Company had a large contract for getting out piling for the Quartermaster Supply base at Newark and that the piling had to be driven through the ice as there were only skid rigs available that could operate on it and not on water, therefore, the Piling had to be gotten out while the Jersey swamps were frozen over. Piling production is ordinarily a problem for a small producer and not an adjunct of a large saw mill operation, however, in this particular case the saw mill was attempting to get out Piling along with their saw mill logs, but with the Dismal Swamp frozen over with a quarter inch of ice and then six or eight inches of snow they could not get either regular colored or white labor to work so that in desperation we borrowed a Company of Stevedore Troops from Camp Stuart and while they were still being carried on the rolls there, we had them working in the Dismal Swamp of Virginia and North Carolina getting out this piling under a private contractor. In passing I might mention that I have never yet discovered why I was not sent to jail for getting this Company of Stevedores to work on a private contract, but anyway it resulted that after we had taught them how to log we did get out the piling only to find that Hampton Roads had frozen over and we could not shoot the material to Newark by the ordinary route, that is Pennsylvania (N.Y.P. & N.) from Norfolk. A year ago when Daniel Willard spoke to you he mentioned something about Hog Island piling. There were a good many thousand of piling ordered and put on cars before any arrangements were made at destination either for the tracks or for unloading the piling. Consequently, all the way from Charleston, South Carolina, to Norfolk, Virginia, every sidetrack on those Southern railroads seemed to be flooded with long piling for Hog Island and we could not get our short piling up for the Quartermaster base at Newark, New Jersey.

Charley Denney, who is now President of the Erie Railroad was then handling transportation for the Construction Division of the Army as a civilian, doing yeoman service, and although every side track from Philadelphia to Charleston, South Carolina seemed to be loaded with long piling destined to Hog Island and all piling shipments were consequently embargoes nevertheless, Mr. Denney arranged for us to send solid trainloads of Piling up from Norfolk to Newark, all rail. In order to do it we had to make solid trainloads of piling at Norfolk and instead of jumping across Hampton Roads, which was frozen over, we had to go from Norfolk over the N. & W. to Petersburg, then up over the Atlantic Coast line to Richmond, the R. F. & P. from Richmond to Potomac Yard here across the river, and then on up to Baltimore through the tunnels there. You will be

interested in knowing that a carload of Piling is a good deal like the middle of an officer who does not take his morning setting up exercises in that it is inclined to bulge in the middle as it travels, consequently, I accompanied that first solid trainload of some forty-five cars from Norfolk. Every car was trimmed nicely as it left about 8:00 in the evening traveling over the Norfolk & Western to Petersburg, there only to find that one had a hot-box, and the Railroad people wanted to set it out, but I knew that meant that it would not reach Newark for a month so that after repairing this the train continued to Richmond, arriving there about 5:00 or 6:00 in the morning, where the R.F.& P. refused to accept the cars until all bulging stakes were pulled in knowing that the train had to go through the Baltimore tunnels, then the same thing had to be repeated when by noon we arrived at Potomac Yard, across the River from you and it was the next morning before the train finally arrived at Newark, but it resulted in the Piling getting to destination when needed. This little incident - which stands out rather vividly in my own mind because I was almost arrested as a tramp on my arrival at Washington after that trip - well illustrates the fundamentals of the lumber business today, and more particularily in my mind the troubles that are likely to be encountered in getting lumber to the place needed. In other words distribution and transportation. May I say in passing, in case Daniel Willard did not mention it in his talk to you, that during the war we did not have so much of a railroad failure as we had a failure to have places to unload the equipment or to put the material after it was unloaded from the cars. I could talk more than an hour on that subject.

The Pacific Northwest

Leaving the Southern Pine Region for the moment, let us consider the other large producing softwood area, the Pacific Northwest, comprising the States of Washington and Oregon, which contains the largest timber growing area in this country, with twenty nine million acres of forest holdings, half private and half National Forests. Generally speaking it lies West of the Cascade Mountains, extending from the tide water up to the mountain tops, having usually abundant moisture due to the trade winds from the Pacific. However for three months during the summer, the woods are very dry, and consequently vulnerable to a bombing attack, as also are the many tidewater mills.

Trees of dense growth and large size characterize the Northwest, with about 60% of the trees Douglas Fir, Hemlock about 20%, the balance being Red Cedar, Sitka Spruce and other species. Oregon has the larger amount of standing timber but

Washington has the largest production.

The size of the timber makes mass logging essential, presenting many problems calling for the highest kind of engineering knowledge. On the Pacific Coast the operation is much more with machinery, outside of the felling. We have not as yet found a successful way to fell timbers by machinery. Labor in the Northwest commands the highest wages, which constitutes one of the fundamental factors in this Douglas Fir region. After falling and bucking, which means cutting into proper lengths, the logs are ready for yarding, which means the drawing in of the logs from distances up to fifteen hundred yards by a powerful steam, gasoline or electric yarding engine, donkey engine. Well do I remember an experience in one of our own operations when a donkey engine started up just after the noon shut down, and shot out a few sparks which caught the woods and in sixty minutes six miles of timber had caught fire running up a valley, a fire which it took many months to put out and meant much red ink.

May I mention in passing that the West Coast is like many other regions in having operating conditions so different that lumbermen from other regions going out there usually find that their experience is of no avail, this being illustrated by the many Southern Piners who have gone West only to lose all that they made in the South, such as R. A. Long, of the Long Bell organization, and Mr. Charles Keith of the Central Coal and Coke Company.

May I give you another story? I am rather an experienced operator on the Pacific Coast. I feel a good deal like the mother at a large meeting, who, when a call was issued asking an experienced mother to arise, arose and said: "I am an experienced mother. I have given birth to ten children and buried eight of them." Well, I am an experienced person on the Pacific Coast. I have buried a lot out there. All of us in the lumber business think we know something about it. I did until sixty days ago when I started working on this speech. I thought two or three hours a day would be plenty - I found I did not know a thing. A man may know a good deal about one region and absolutely nothing about another. That is why, among other things, it is exceedingly hard for a Government inspector to inspect lumber. I know all of you have had lumber inspection by the Government and have been rather dissatisfied with it. Let me give you a personal example. I grew up in a lumber family. I used to hear father tell about 2x4's when I was that high (indicating). I could not understand what 2x4's were. I went to New Haven

because I wanted to take a forestry course. Believe it or not, I have two degrees in forestry. I went into the lumber business; then I ran after lumber for the Government, and I have been selling to the Government ever since, but I would not make a lumber inspector. A man may know Yellow Pine but if you ask him to inspect Fir he is lost. I am mentioning that because you all have trouble with getting Government inspection of lumber and I want you to understand that it isn't at all the fault of the Government. It is just one of the things we are up against.

Fir logs are usually cut into lengths from 24-40', and loaded on to skeleton cars for shipment to the mill, although long logs for barge construction are usually just set on individual trucks, the logs themselves acting as the car sills. The longest logs or timbers of which I have any recollection were 128' in length, these having gone to the lower Mississippi for a levee dredge--for which we unfortunately never received payment.

You will be interested in knowing that the man hour consumption in this West Coast logging is 4.9 per M' compared to 9.9 in the Southern Pine region.

Both band and circular saws are used on the Coast, the logs passing from the headrig--as the front saw is called--back in the mill either as squared timbers to go directly to the ramps for loading into cars, or to be cut up into dimension--that is 2" lumber, or one inch boards, on larger multiple saw machines. As the lumber passes on to the graders on large sorting chains it is graded in the rough, and put in small piles. Much of the material moving to the Atlantic Coast is shipped while still green--or wet--but usually dressed. As a rule the Fir mills are not as accustomed to storing material to dry as are the mills in the South. For comparitive purposes you will be interested in knowing that on yard lumber, such as would usually be bought by the Government, the man hours on Fir are 6.5 per M' compared to 16.3 on Southern Pine.

The tremendous organizations on the Coast necessitate thorough organization, and result in high wages, averaging from 1 1/2 to 2 1/2 that in other forest regions. Lumber and its related industries form the economic background of the States of Washington and Oregon and create one dollar out of every three paid for the products of the Northwest, as well as accounting for sixty per cent of the industrial employment and two thirds of the traffic originated in that region. You can thus appreciate its importance to the Civil population at all times.

Its greatest drawback is the great distance from the market, although the opening of the Panama Canal did much to bring the Pacific Northwest closer to the big Eastern population centers but the great question is whether you could let it have ships during war time for the handling of lumber. It would seem an easy matter for another nation to not only disable many of the tidewater mills, but to fire the woods in summer, and to quite permanently disable the important transcontinental railroads through well organized bombing attacks. Fortunately the transcontinental roads are some of the strongest financially in the country, but they are at the same time quite vulnerable.

May I say in passing that if there is to be another wooden ship Emergency Fleet operation, the country will have to depend to a far greater extent upon the Pacific Northwest, as the supply of Longleaf in the South is fast disappearing.

No discussion of the West Coast would be complete without bringing to the fore the fact that not only is the Pacific Coast well organized from a Union standpoint, but that it is full of dissenting radicals, that is some belonging to the A.F.L. and others to the C.I.O., and right now they are bitter enemies often causing complete shutdowns on account of what might be called inter-union disputes. For instance, today all of the territory around Portland, Oregon is shut down. Why? Because American Federation of Labor teamsters will not work when you have C.I.O. Stevedores, or visa versa. Consequently, the employers are shut down entirely through no fault of their own. The situation there is very bad, in fact some operators feel so strongly on the subject that they claim it is impossible to effectively longer operate on the Pacific Coast. It should be kept in mind that during the World War there was organized a loyal legion of loggers and lumbermen, representing both employees and employers, that was effective in pulling the various factors together and this organization lasted for many years after the war, but since the code days has not been important.

Since the passage of the Wagner Act the Loyal Legion of Loggers and Lumbermen have passed out of the picture.

May I mention in this connection that one mill on the Coast has recently signed up with an A.F. of L. Union with a financially backed agreement against unauthorized strikes--the only such agreement that I know of in any industry with any Union in the country. And that agreement, by the way, was okeyed by President Hutchinson of the Carpenters' Union.

Hardwoods

The three principal hardwoods used by the Government appear to be Walnut - for gunstocks; Ash, going mostly to the Navy; and Oak, going to both the Army and Navy.

When this country went into the War, most of the American Walnut Manufacturers had been furnishing gunstocks to our allies, and the five large manufacturers were called to Washington, a Committee selected of Penrod, Clark and Pickrell which represented 35 to 40% of the total production. The great problem was to get Walnut logs at a price, as the source of supply is the ordinary woodlot of the Middlewest, but the farmer hates to let go of his Walnut trees. At the same time, I recollect when unloading ties for the large freight yard just behind the present Sixth Corps Area on Pershing Road in Chicago, many of the so called White Oak ties, actually were Walnut.

The production of Walnut is almost entirely a Middlewest woodlot proposition, with the native farmers usually being unwilling to give up their favorite largest trees. Nevertheless when our country joined the Allies the problem was to be able to get sufficient Walnut logs without starting a competitive struggle for the available supply. Consequently, a price was set for paying for the logs. A group of the five largest Walnut manufacturers was called to Washington by the Lumber Committee, and from this a Walnut Committee composed of three famous names in the Walnut industry, Messrs. Penrod, Clark and Pickrell, representing directly 35 to 40% of the industry, was formed and they assured the authorities that sufficient Walnut could be furnished much to the discomfiture of the Mahogany, Birch and Gum people. Instead of having the individual manufacturers order the stocks, the orders were given out by the War Department, the factories speeded up and eventually the three members of the Committee personally guaranteed all the gunstocks that would be needed.

It is reported that due to increased wages, and difficulty in having contracts revised upwards, some of the Walnut was produced at no profit, but practically everyone agrees that gunstocks were furnished faster than the guns were manufactured, and that a good job was done. I am led to believe that you now have about two million rifles on hand so probably Walnut will not play a very important part early in the next emergency.

Since the war, Walnut growth has kept up, and during the depression has undoubtedly gained, on consumption, so there will be no difficulty in securing the supplies needed. It would be possible in a few days to make up a Committee composed of C. & L. Clark of Des Moines, Iowa, Robert Hartzell, of Piqua, Ohio and Ray Pickrell of St. Louis, three of the largest producers, together with say, W. B. Jordan or A. D. Maddux, both of the Smyrna Lumber Company of Smyrna, Tennessee, small mill men but extensive Walnut log buyers, and with another independent log buyer or small hardwood producers, have a committee that could quickly formulate rules and a basing point price, either delivered or shipping point, which should enable sufficient gunstocks to be produced to satisfy any contemplated demand. Very likely it would be necessary to shut down on the production of Walnut veneers, which is now a big source of the outlet for Walnut, but the gunstock blanks could be secured.

I was talking with the Secretary of the American Walnut Manufacturers' Association the other day and he said: "Here is an interesting article on propellers, entitled 'New Royal Air Force Propellers'". I could not get the exact source of it, apparently it came from the magazine "Wood" published in England. Anyway, it was sent to the Walnut Manufacturers by the Technical Director of the Timber Development Association, which apparently is an English organization. Let me read extracts from it:

"All wooden air propellers supplied to the Royal Air Force are now required by the Air ministry to be finished by a process which hardens the wood and preserves it from changes and deterioration due to atmospheric conditions.

The new hardening process is a reinforcement of the leading edge of the blade by a narrow brass sheath sweated to a strip of specially manufactured phosphor bronze gauze. The propeller is then covered with sheet celluloid, which is forced into the wood under enormous pressure in a sealed chamber.

The surface thus made is so hard that it is impossible to stamp the identification particulars in the usual way. They have to be stamped on a brass plate inserted flush with the covering.

The propellers, although made of light wood, are immensely strong. They are unaffected by heavy hail, which scarifies the edge of the ordinary wooden propeller, and they may be left exposed to the weather when a machine is standing in the open.

The blades are much lighter than metal ones. By employing them in variable pitch propellers a big reduction in weight is secured.

Associated with the blade-hardening process is a new method, from the same inventor, by which the blade root is made of hard wood treated by a new pressure and impregnating process, which gives it a tensile strength of 16 tons per square inch. The method solves the difficulty of making a satisfactory wooden light-weight detachable blade for variable pitch propellers.

The blades are of laminated light wood construction, and the blade root, made of the hardened hard wood, is spliced into the several laminations.

The importance of the above process is all the greater in view of the large size of propellers now in demand, owing to the more powerful aero engine used. With increased diameter the weight of the metal propeller becomes a serious disadvantage. Metal, moreover, is subject to 'fatigue.'"

The production of hardwood for Governmental use is in the Central States usually from small mills, that log as they manufacture, compared to the ordinary large hardwood mill that cuts its logs ahead of time. Thus for instance I am now buying some 18' White Oak timbers for constructing the movable part of a Dam, such as is used on the Ohio River from Pittsburgh to Cairo. A small mill can get this out, but a large mill has its logs all cut in lengths 12' - 16' long, hence cannot accept orders for special cutting. This is quite typical throughout the country, especially in hardwood.

Certain companies specialize in just one wood thus in Memphis is an organization handling White Ash exclusively. During the War an Abundance of Ash was used by the Navy and some by the Army, the Navy taking stock from 1 - 4 inches thick and of high grades. Early in the war attempts were made to inspect by emergency governmental employees and this caused much trouble.

As I said earlier, while the hardwood production is only 20% of the softwood production, very often one little item will cause a great deal of difficulty, so let me spend a little time on this point.

In the Hardwood field, the rules for inspection were formulated forty years ago, and at the time the National Hardwood

Lumber Association was organized to administer the application of the rules in order to promote the best interests of all in the hardwood lumber industry. The NHLA membership is composed of manufacturers, yard distributors, wholesalers having offices only, and consumers of lumber, making a representative cross section of the country. That is in contradistinction to the softwood manufacturers' associations, who make up their rules, administer the inspection, and everything else. That is, in hardwoods you have what you might term a more or less disinterested association. The members pay yearly dues, and a fee for inspection when the service is used. Incidentally, I should say that the Government uses that service quite extensively. The executives and inspectors of the association are authorized by the members to conduct the inspection department on an impartial basis and to wholely conform to the Rules and Regulations at all times. The inspectors are instructed to carefully and correctly apply the rules, or other definite specifications when issued, who issue a bonded certificate certifying to grade. This bonded certificate is backed by a financial guarantee, which is very important. Incidentally, it makes the inspection twice as hard.

During the World War, the inspection department of the NHLA assisted materially by grading millions of feet of hardwood and cypress lumber for the United States Government, the British Ministry and the French Commission. Since then the inspection department has graded millions of feet of hardwood and cypress lumber for the United States Navy and other departments of the Government. The NHLA stands ever ready to cooperate with the Government in times of peace or an emergency. Their only function is to assist in the formulation of rules or other specifications, and to carefully and properly grade lumber, timbers or other hardwood and cypress material. They are ready at all times to assist all departments of the Government and private concerns interested.

Let me illustrate just in passing what I did yesterday morning. I happened to have an order for getting out wicket timbers, 16 and 18 foot White Oak. I won't mention the district. One district has a Government inspector who is exceedingly lax. To get around that difficulty I called in a National Hardwood Lumber inspector. I had him inspect it and then it will go on to another district and be inspected by the engineers. What will happen on that second inspection is going to be exceedingly interesting. Naturally I haven't mentioned to the engineers that I first had a National Hardwood inspection, but I am convinced in my own mind that if I let the easy Government

inspector first make the inspection I would be responsible. I would be hit at destination to the extent of 20% to 25%. Just recently I have made some shipments from another territory, that is, where the lumber was inspected by the representative of one district and by the time it got to another district it was reinspected and there was a discrepancy of as much as 10%. Ordinarily a discrepancy of 5% is not counted. That is just a question of judgment; but 10% you pay for out of your pocket.

In the Softwood field, the three leading associations - the Southern Pine Association, the Southern Cypress Manufacturers' Association, and the West Coast Lumbermen's Association, have formulated rules for the inspection of lumber and timbers, and their inspectors visit the member mills to instruct their inspectors in proper grading, and also conduct inspections on disputed lumber at destination points. When disputed lumber at destination points does not hold up to the invoice of the mill, the mill makes an adjustment in accordance with the report of the association inspector. The softwood associations are fully prepared to issue certificates on lumber inspected at mill points by their inspectors, and stand ready to assist all departments of the Government.

The inspection of lumber is a most important part of the lumber industry. It usually takes from four to six years of practical experience for an inspector to be able to correctly grade lumber. There are many competent inspectors at the present time, and we have no doubt about their ability to take care of all the inspection demands now or in the future.

I mention that because frankly I know the Navy, and I think the Army, are coming more and more to use this National Hardwood Lumber Association inspection. Maybe I can just give you a little instance of how important this is. We'll try to camouflage the places. There was a carload of Ash inspected, say somewhere in New York State by a Navy Yard inspector and sent to another Navy Yard down the coast somewhere. It was passed 100%, we'll say, in New York State and it got down around here and it was turned down 100% by another Navy Yard inspector. Now it appeared that the purposes for which that Ash were put in the North were somewhat different and they had been accustomed to a different grade around here. They called in a National Hardwood inspector. There had been a bit of misunderstanding as to the coarseness of the grain. Actually this inspector passed 51% and turned down 49%, or vice versa. But we so often find on Government material that

men are accustomed to certain things and they inspect that way.

I don't see anybody here who has had any experience on the Missouri River but I'll mention that out there they probably have more trouble than anywhere in the country. They have an inspection for mattress lumber which is based on whether the material is suitable for the purpose intended. That stock cannot be allowed to lie around 12 months. Nevertheless when they inspect it they do it not knowing when it's going to be used and if there's anything in the world that was ever a gamble that is. Nevertheless, we can't get permission to have it inspected at the mill. The procuring offices haven't been able to evolve any scheme that gives any producer protection. You find this quite often, that those of us who sell the Government, along the Missouri River, will sell it for years and then a new bunch of suckers will come in, and stay for a year or so, and they just keep coming in and out all the time. We have a good many things like that that are not all the fault of the Government but it puts us who do sell the Government in a good deal of a hot box.

Inspection

In the Hardwood field, the Rules and application of those Rules, has for the last forty years, been a function of a non owners association, while in Softwood all the Rules and the Inspection generally are handled by the sawmill association representatives. The National Hardwood Lumber Association not only makes the rules, but furnishes bonded Inspectors, with the association guaranteeing the grades and assuming the cost when an error is made. The Hardwood people do not believe that stamping a grade mark on a piece of lumber actually makes that piece the grade that is stamped upon it, hence feel that grade marking is sort of a "false face" proposition. It should be remembered that most hardwood is bought by those who know a good deal about grades, while softwood which is sold so largely through yards, more or less to the public goes to people who do not know grades, hence in the sales to them, the placing of a grade mark on the piece, with the name of the mill is certainly a step in the right direction.

In time of war, where it is many times, yes most times, impossible to have governmental inspection of softwoods, every effort should be made to try to get grade marked stock, as certainly a mill will ordinarily hesitate to put its number and grade on a large amount of material if it thinks some

knowing person at destination is going to see it and know that the grade has been beaten. In other words the grade marking is a step in the right direction, but should not at all be considered a cure-all. As a matter of fact, I understand that one of the Pine Associations finds that when it re-inspects lumber, after complaints, 90% of the complaints, both on grade marked lumber, as well as ungrade marked stock, are justified.

In regions where 85% of the mills production belong to an Association, the grade marking provision does not materially restrict chances to get the stock wanted in a hurry, but we have found that in Yellow Pine, such a specification increases the price and greatly restricts the number of mills able to furnish a given bill of material. Remember that comparatively few of the smaller mills either belong to an association or have the right to grade mark.

In case of a possible war, very careful consideration should be given to having lumber grade marks, with the inspectors, at the mills in some way licensed by the Emergency Bureau so that in case gross carelessness or absolutely dishonest handling was found, the mill employee would be subject to action by the Government. It would, of course, be possible to take this same action with those using the Association Grade Mark, by having the Individual Mill number registered as being in the hands of governmental licensed inspectors. Please note that I am not suggesting that this should apply to peace time business, as I certainly am not now suggesting that the government should oversee grading of lumber. I am, however, insistant that the government should get what it buys.

Now, in passing, let me mention another point, somewhat on the other side of the fence. You have, in government regulations, a provision to the general effect that it is only the last inspection that counts. This is, of course, to prevent collusion, but unfortunately it is used to represent the difference in opinion of two individuals inspecting material, and often times a few per cent will be thrown out at destination when all has been passed at the mill. It is that kind of action which so greatly discourages shippers of governmental lumber. Watch for an opportunity to stop such practices by governmental employees.

I have gone into this matter thus at length, so that you may fully appreciate that to give the Government what it wants in war time, this matter must be threshed out fairly,

recognizing both sides, remembering that war time labor is extremely expensive and that cheap material is a tremendous handicap to cheap labor.

Your problem in war time will not be in lumber as it is in ordnance, for instance, such as asking a factory to switch from making speedometers over to making fuses for shells, but will rather be the proper distribution of orders to take care of what stock is on hand at the various mills and what can be the most quickly produced. In other words, you will then have a problem of doing exactly what the regular wholesalers have done who sell the Government in peace time.

In view of the many problems which could be threshed out ahead of time before any National Emergency arises it would seem to me most logical to have a central committee working, composed mostly of those who regularly sell to the Government. Now this is something of a radical suggestion as ordinarily you are naturally subject to the greatest pressure from the National Manufacturers' Associations, but as these manufacturers are not those who ordinarily sell the Government it would seem to me that my suggestion is much more to the point than trying to use manufacturers. Think this over.

In considering changes during the past twenty years, we must not overlook some substitutes for the usual house-building lumber. The mere fact that modernistic houses of steel and concrete have not proven much more than a sink hole for experimental money should not blind us to the tremendous strides made by Plywood, or wood veneer and Masonite.

The rapid, substantial development of Plywood, especially Fir since the War has been most important to not only the lumber business, but to those of you studying the possible war requirements. You have of course seen much of this for coverings to stores during remodeling operations and those who have been doing construction work have undoubtedly used it for concrete forms, but it is coming into considerable use for sheathing as well.

The best of the Fir logs, in the Northwest, are taken by the Plywood mills, and peeled with a rotary cutter, the ply then thoroughly dried out, then put together as either three or five ply stock, glued and in some cases redried, trimmed and ready to ship. For building work, you can consider that thicknesses up to five sixteenths are three ply and over that are five ply. Being a man made product, considerable care is

necessary in its construction, and a great deal of experimentation has been done with the glues. Cold glues are usually either Soy Bean, or Blood albumin, with the glue being put on in liquid form much as ink is put on newspaper presses. For concrete forms a heavier glue spread is given, and a more waterproof glue is used, and the more progressive makers seal the edges as well as oil the face of the plys to prevent moisture absorption. A growing, but considerably more expensive Plywood is made with resin glue hot pressed together, resulting in an almost vulcanization so that the bond is even stronger than the wood itself. There are, however, two kinds of resin glues, those which take a high temperature to act, and those taking about one hundred degrees less, and I believe the lower temperatured glue will win out as the result is a Plywood which checks far less than the higher temperatured wood.

Various grades of Plywood are manufactured, the lowest being the familiar Wallboard three ply quarter inch stock, used so much for interior partitions, and quite effective for inside coatings where you cannot trust a softer board such as the fiber ones used for insulation only. Other grades are sound two sides, good two sides, sheathing and then the Concrete Form grade. The sheathing grade will very likely play a large part in the next Cantonment construction, for both outside and inside purposes and for sub-flooring in barracks.

The U. S. Forest Service, in a recent letter to me said that on the basis of comfort and health of the occupants it can be assumed that one half inch Plywood would be equal to, possibly superior to, standard matched (25/32 which is made from one inch lumber) sheathing. However, an additional lining of Plywood on the inside, even if only 1/4 inch would be of very great additional value in preventing heat loss and adding to the comfort both in cold and during hot weather.

For uses of not over two years' time, it is thought that the usual cheap Plywood, made of soy bean glue, with the edges painted and covered with battens would probably be satisfactory, although a slightly more expensive sheet, with a more water resistant glue would probably be a better purchase for the Government. The industry is blessed with having most of the glue made by the Laucks Laboratories of Seattle, with the result that they are continually testing different combinations and are ready with suggestions.

The fact that Plywood usually comes in large sheets, four by eight feet, and can be nailed with 6d nails six inches apart on the edges, and 12 inches on interior supports, means that even the most inexperienced labor could apply it and the

infiltration of air would be greatly reduced compared to board lumber, and bracing of the side walls is considerably reduced.

Last year the production was over seven hundred million feet on a 3/8" basis, and this year the capacity is well over a billion feet, and under war conditions it might be speeded up over that.

In producing the lower grades for building purposes there is of course, a large amount of clear stock produced near the outside of the lob. One of the interesting features of Plywood production is that the inner coarser stock can be utilized for the cores of the Plywood while the better stock is used on the outside, thus using up most of the log.

For concrete form purposes, contractors throughout the country are fast coming to Plywood, although as I previously stated, there is still much to learn, and considerable experimental work to do. A fine clean surface is secured, with practically no loss of grout, and with careful use of vibrators, to keep them away from the surface, wonderful results are secured at a low cost.

Since the World War, Masonite, and its hard little brother, Presdwood, have made tremendous strides. To consider it, may I for just a minute take you into a somewhat elemental discussion of wood. A tree is somewhat like the Chrysler Building, namely a tall structure with a lot of rooms - or cells - surrounding a vertical axis. With a tree, a new series of cells, or rooms, are added each year, those all tending to make the tree of greater diameter, and the cells that come in the spring being much larger than those in the summer, the latter being mostly all wall, and very little room space, thus causing the dark line which you will notice marks the end of the growth for each year. Then when the next year's growth starts, the tree, just like any of us, is full of pep and vinegar, and jumps ahead with many large cells. May I just mention that lumber containing six of those rings - or years growth - per inch is known as dense, and has far greater strength than lumber with say but two or three rings. Each room, or cell, is made of almost innumerable bricks, cylindrical in shape, called fibers made up of cellulose while the mortar that holds these fibers together is lignin, which can be softened so that when the fibers are subjected to steam pressure they can be separated by an explosion of that steam. Would that I might further explain to you the technical details of that wood construction.

In sawmilling, over 50% of the cubic volume of the tree is lost in the making of lumber, and some years ago, a Mr. Mason, in

Laurel, Mississippi, developed a process of taking sawmill waste, consisting of slabs, etc., chipping these up, then heating them i a cannon (somewhat like puffed rice) with steam, and suddenly exploding the cannon, which causes the cells of the wood to explode, resulting in a product that looks very much like wool off of a black sheep. When this is cleaned, and then put in water it can be handled just like pulp, that is through heated rolls and comes out as a thick blanket, which is an inch thick insulating board. If the board is further compressed it becomes Presdwood, and if during the pressing it has Tung Oil mixed in, it becomes the Tempered Presdwood which is so extensively used. The less compressed stock is most suitable for insulating material, being full of small air cavities, while the harder stock is suitable for filler material, in fact many of the floors which you walked over at the Century of Progress were of Masonite Presdwood. Some cases of success have been noted in using Tempered Presdwood as a concrete form material, but there is still something lacking to make it perfect.

Masonite, and to a greater extent Plywood, will want to be kept continually in mind by you, in planning for the next war, both having considerable value due to the size of the sheets, which prevent infiltration of air.

An interesting development during the past summer was a portable timber military bridge built out of Douglas Fir for Division loads. A forthcoming issue of the "Military Engineers", I believe around the first of the year, will carry an article describing this construction by the 108th Engineers of the Illinois National Guard. An article in an earlier issue of the "Military Engineer" by Captain T. C. Combs describing modern timber connectors had caught the eye of Staff Sergeant H. M. Koplin, a member of the Society of Military Engineers, and working in conjunction with his commanding officer, Lieutenant Beedle and Colonel Karl Hobart, a portable military bridge for a 30' span 9'6" roadway and 7-1/2 ton truck or tank load was designed which could offer a 3/16 inch deflection with a 6-1/2 ton load and had an impact factor of 50 per cent.

Their design made use of available timber from an 1869 Pontoon Bridge using old Fir timbers that were bought in 1915 and had been in use in various places finally coming to Camp Grant, where they had been for some years. They figured that a platoon of Engineers can set this up in ninety minutes.

Trusses used 5" x 5" fir timbers connected by steel K shaped gusset plates on each side at each joint. These K

plates were so detailed as to be interchangeable, and were designed to fit over the projecting hubs of 3-1/8" TECO shear plate timber connectors installed in the ends of the 5" x 5" timbers. Thus, maximum interchangeability of parts was realized.

Man Hours In The Lumber Industry

Now I want to move over just a minute to this question of man hours in the lumber industry because I think it is going to be very important.

An excellent job has been done by the Bureau of Labor Statistics, U. S. Department of Labor, results of which are published in their Serial R.529 entitled "Labor Requirements in Lumber Production".

This is of particular interest to you in case a question comes up as to conserving labor in an emergency. Based on what is called yard lumber which is the most comparable to the bulk of the material that would be ordered by the Government, this bulletin shows the full comparison between the two great softwood building woods, Yellow Pine and Fir.

	Southern Pine	Fir
Logging	9.9	4.9
Manufacturing	13.0	6.5
Selling and administration	2.	1.
Transportation	7.3	9.7
	32.2	22.1

In this connection it is also interesting to note that the average freight cost was $8.00 per M'BM for Southern Pine compared to $18.00 for the Douglas Fir region. You will note, however, that the difference in freight is considerably greater than the difference in man hours.

I should also state in passing that the man hours required for producing Plywood is 24-1/2 per M sq. ft., compared to the 22.1 for yard Fir lumber. It is also interesting to note that Western Pine takes 25.3 man hours; redwood 32.2 and Southern hardwood 36.

For those of you who enjoy additional statistics may I call your attention to West Coast Lumber Facts pamphlet published by the West Coast Lumbermen's Association dated January 1, 1937, which contains a host of statistics, most of

which have no place in a short discussion this morning.

In connection with the greater number of man hours needed in the South compared to those needed on the Coast, it is only fair to call your attention to the fact that the Lumber Code Wages of 1934 averaged 29.55¢ in Southern Pine compared to from 55¢ to 60¢ on the West Coast. The average worker in the South putting in about 45 hours per week compared to 35 on the Coast.

Fir Production Board

Now I want to talk to you on a subject that is particularly close to my heart because it emphasizes the difference between the emergency bureaus fathered by an association and a Governmental bureau.

No contemplated plans relative to lumber production in another emergency will be complete without giving careful consideration to the success of the Fir Production Board.

On account of the distance from the Capitol, and the fact that this Board did not come under the War Industries Board, but under Emergency Fleet Corporation, little seems to be known in the East about its activities. This organization, however, I believe pointed the way to what should be followed in the next emergency for all lumber producing sections.

I believe (I am using that word "believe" because I have found in the last sixty days there were a lot of things I have had to un-know) in the early days of the War, Camp Lewis near Tacoma, was built with the Government taking bids in the ordinary peace time method, but this was not getting results so Mr. Geo. Long of the Weyerhaeuser organization stepped in and said: "I will furnish the material" and he allocated orders to various mills and got the lumber there when needed.

The big demand on the Coast, however, early in the War was for the Emergency Fleet Corporation, and the situation became so serious that Captain Blaine of the Emergency Fleet Corporation had declared an embargo on shipments from all mills, I believe, in December of 1917, therefore permission had to be secured to make any shipments from the two embargo officers, J. Hamilton of Oregon and C. W. Stimson of Washington. This naturally upset other Departments of the Government who wanted to know where they came in, and suggestion was made in

the West and taken to Washington by Mr. J. C. Eccleston, (by the way, if Mr. Eccleston is still in the Government service I'd get more details from him) Civilian of the E.F.C., relative to the formation of a Fir Production Board, and as a result the inter-departmental committee composed of representatives of the Army and Navy, Emergency Fleet Corporation, etc., formed the Fir Production Board with Mr. J. H. Bloedell as Chairman, and with H. P. Van Duzer of Portland, Oregon and General Disque as co-members.

Unfortunately the feeling became very strong that this Board was strictly a West Coast Lumbermen's Association function, and Mr. Bloedell who was a strong association member, resigned, his place being taken by C. W. Stinson who had originally been appointed to the embargo office of the Emergency Fleet Corporation on Walter Nettleton's suggestion.

The production between the States of Washington and Oregon at that time was such that it was decided to allot one-third to Oregon and two-thirds to Washington, although at the present time the production is such that a 50-50 division would be considerably fairer.

This Fir Production Board, instead of being a subsidiary of a lumber association, actually operated as a part of the Emergency Fleet Corporation to the extent that their expenses were underwritten by the Corporation, although they were given powers by the Army and Navy, in fact seemed to have more power than any body outside of the President of the United States; the Board being given the right to confiscate and condemn while the Railroad Administration gave them the power to embargo cars even to the extent of ordering cars to be taken away from a mill that was not cooperating.

The Board working with the Price Fixing Committee determined the maximum prices of Fir, putting prices up on such items as were particularly wanted by the Government, and down on those items that were not needed, and, by having the power of giving priority, they could say what mill was to get wire-rope, fuel oil, etc., and thus entirely control the actions of the mill.

This Board received the lumber orders directly from Washington, allocated them to the individual mills and in turn had all invoices come to the Board which were then checked for footage, price and extension, certified and forwarded to the disbursing officer so that the latter could pay for the shipments

even before they were received, although I think actually the mills often had to wait 45 to 60 days for payment.

It is of vital importance to know in this connection that the Board virtually took over the Pacific Lumber Inspection Bureau which was then young, but had some 275 trained inspectors, and before long had 800 inspectors who were paid by the P.L.I.B. and who tallied, inspected and certified the shipments as they left the mill. The invoices were certified to the Disbursing Officers who then had the power of paying those invoices. Incidentally, the mills even then had to wait 45 to 60 days. When you get to discussing finances in the lumber industry, Captain Winslow and some of the others will soon find out that the lumber industry has no finances left, and you've got to make some arrangement for getting those invoices through promptly. It's bad enough in peace time, but in war time you must find some way of doing it.

Over these P.L.I.B. inspectors were district supervisors who might drop in on a mill at any particular moment to check up on the character of inspection given. This permitted a disinterested inspection of the lumber to be made, and allowed the Fir Production Board to certify as to the grades furnished so that disbursing officer could make payment with the certification of a disinterested party, and thus do much to speed the payment of the invoices. It would be of interest to know that the cost of operating this Board was approximately 3¢ per M'.

Having the power to shut down a mill if it did not cooperate with the Government was so effective that in the whole state of Washington only three mills had to be called "on the carpet", while on the Columbia River it was only necessary to reprimand one mill and that was because of a labor scale question in connection with some material for General Disque.

The operation of the Board really was directly in the hands of the two civilians as General Disque was busy on his Spruce Production Board work.

This plan worked wonderfully and was so successful that in September 1918, the request was made that those who handled the Fir Production Board prepare to go South into the Pine region to take over furnishing of lumber from there with the idea of eliminating the jealousies which are unfortunately so inherent amongst lumbermen, especially in the South.

My very strong recommendation to you is that in planning how lumber should be procured for the next emergency you have very careful consideration given to the formation of Production Boards, disassociated from any present associations, and with full powers to condemn and confiscate as well as the power to embargo cars, and control priorities.

I understand that the records of the Fir Production Board are probably in the files of the Emergency Fleet Corporation rather than in any records of the War Industries Board as is the case with the Emergency Bureau files although there is a very good chance that all of these may have been sent to the Bureau of Archives which latter Bureau I understand is fast collecting and tabulating invaluable information which may help those of you who are further studying the Lumber Industry during War time.

A central tentative committee of lumbermen might advantageously be appointed now, and could look into this, in fact could go further and put the matter up to the various regions, particularly the Fir and Pine regions and determine if Production Boards would not give more favorable results than having emergency bureaus operating really as a function of an association.

The whole Production Board idea is so very sound and such an improvement over the Association Emergency Bureau idea that it should be further studied with the idea of applying it to many more - if not most - of the industries of the country. I know that C. W. Stimson of Seattle, Washington, one of the Directors of the Fir Production Board, would be glad to at any time give you more complete information, or come on and talk the idea over with you.

One point that should early be determined is the parenthood of the Lumber Producing Agency. When an Emergency Lumber Bureau is Fathered and Mothered by a Lumber Association, it is entirely natural that the Bureau is beholden to the Association, and this causes tremendous political repercussions on Capitol Hill.

What must be avoided are the vociferous complaints of the innumerable small millmen, 90% of the total in the industry, and many of them located near the cantonments and many of them with from one to five carloads or even more of such material as goes into a cantonment, but with no large amount of any one item, such as a contractor prefers handling.

Your own sense of political judgment will, I am sure, cause you to avoid any situation that will bring the wrath of these 90% down on you. During the late war, I had innumerable occasions to call on these mills to rush their shipments, and I know how they can be delayed in their logging and in their milling by bad weather, but remember, Gentlemen, they go to make up a large part of the civil population in many sections of the country, and in the final analysis their support is essential.

The formation of a Production Board, as was done on the Pacific Coast, backed and financed by a Governmental Agency, but utilizing the trained Inspection forces already available, will permit you to in a great measure avoid upsetting the political applecart.

Please note that I have carefully avoided any recommendation as to the Military forces producing lumber. I have not gone into the history of the Spruce Production Board which utilized soldiers, instead of civilians, but I understand that while the soldiers were struggling on the Pacific Coast at terrific expense, the Navy grew apprehensive of results and went to New England and at one quarter the cost got quick results through regularly established lumber organizations.

This quite imperfect presentation of the Lumber Industry, may I hope, give you a clearer picture of some of the factors to keep in mind. Although it is twenty years since the War, there are still many active lumbermen who took a leading part in lumber procurement activities at that time. A number have greatly aided me in bringing these facts to your attention, but these are likely to be many.

Now, gentlemen, the hour is up, but may I for a moment leave the lumber subject to speak on the proposition of construction, which is what I really have followed for the past twenty years.

As near as I have been able to figure out, your Industrial Mobilization Plan provides for divided responsibility on construction so that a good part of the construction would be handled by the corps areas. This would mean, for instance, if you were to build another Camp Grant at Rockford, Illinois, that the construction would be handled from Chicago, but (and that is a capital <u>but</u>) your lumber requisition from the corps area in Chicago for use at Rockford would be sent to Washington for the Lumber Commodity Committee to place in New

Orleans or in Seattle, Washington. In other words, you would have to again centralize your decentralization and you would not get anything like the effectiveness which you had in the World War, where you had a Construction Division right here in Washington that distributed the orders to the Lumber Commodity Committee, working in continual touch with you daily. Now, as I say, this is really not exactly on the subject of lumber but it has seemed to me that your present plan for construction needs to be revised.

As a wholesaler, I can not but feel that if you did have these various corps areas doing the work a lot of us wholesalers would get a lot of business, but I can not believe the arrangement that you have is for the best interest of efficient results. Do, please, give this point careful consideration, as your present plan is definitely wrong.

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A. F. Marsh (Disc.)
11-9-37?

Colonel Jordan: Gentlemen, are there any questions that you desire to ask?

Q. You stated, sir, that in the west the C.I.O. and the A.F. of L. were in warfare right at present and that the longshoremen and teamsters refused to handle lumber mill-trucked by the C.I.O. I understand that in some cases the carpenters have refused to handle C.I.O. lumber.

A. That mostly was a threat. As a matter of fact it was not a factor here because the Carpenters Union would not know where the lumber would come from but in Takoma and around there, which is the most radical part of the country, that fact is undoubtedly true and it's just a continuation of this fight between, say, the teamsters and the stevedores who may be a C.I.O. union. They did come out with that threat, but back here it hasn't bothered us at all.

Q. Its operation is local?

A. I got prepared to take care of it by asking my contracting customers whether they were operating C.I.O., A.F. of L., or what, but I never had to use it. In asking questions, will you state what branch of the service you are in and I'll try to direct my answers to that branch if it will help any.

Q. I am of the Engineer Corps. I lay myself wide open because I have dealt with Mr. Marsh for a number of years.

Colonel Jordan: I might say that when I introduced these two gentlemen I found out that they were old friends. They knew all about each

other and there were not many things that were down to the credit of the other.

Q. To get back to the war, Mr. Marsh said transportation was a big problem in getting the lumber in the wartime production of lumber. I was wondering whether he would have a word or two to say with regard to the transportation of lumber procured in the south?

A. I take it for granted that you have all read Colonel Ayer's book, "The War with Germany." If so, you will remember a figure in there showing that most of your wartime construction projects were, say, from Boston down to Norfolk. That meant that all the lumber had to travel either from the south or from the coast a pretty long distance. I was sort of a trouble shooter for the Construction Division, first going from one emergency bureau to another early in the war. I was in the North Carolina Pine Emergency Bureau pepping up the lumbermen. Then I went down to New Orleans with the Southern Pine Emergency, and another at Birmingham, and I found every construction project up here in what we call the northeast was wiring down, "Where is this car, that car," etc. It just happened that I had spent most of my lumber experience in the traffic end of it and in our own business we have made a big point of keeping jobs notified as to where lumber is. If you couldn't make time, the suggestion was made of organizing solid trainloads of government lumber, both Army and Navy, from the pine producing territory up in New England. Of course there was the Railroad Administration then in Atlanta, the Illinois Central headquarters at Chicago, M. & O. at Mobile, and L. & N. at Louisville, and the Southern Railroad. All of those people cooperated. We had two trainloads a day,

as I recollect, from Birmingham, one from Meridian and one from Water Valley. When a car went bad -- by the way, they will in the next emergency because the railroads are in terrible shape.

Q. That's all roads?

A. Yes. When a car went bad order instead of being set out and put into the next drag it was held up for the next Government train and then copies of the manifests were sent to all cantonments and large construction projects so that each expeditor at destination could regularly see what progress his car was making. It worked out most effectively and I really got more of a kick out of that than anything I did during the war.

Q. I am in Field Artillery. We never lay ourselves wide open. I have a few questions. What do you consider the general effect of the national and the regional trade associations at the present time, that is, as far as controlling the policies and practices of their men?

A. Will you say that once more?

Q. What do you consider the general effectiveness of both the national and the regional trade associations at the present time in controlling the policies and the practices of the members of the various associations?

A. Well, I would put it the other way around. The members control the policies of the associations. But get down to your specific point and then see if I can work back to your general question.

Q. You stated that the National Hardwood Lumber Association lays down the rules for grading the inspection and the members adhere to it. What about the National Lumber Manufacturers Association?

A. I get your point. The National Hardwood is composed of manufacturers, wholesalers, such as we are, and everybody in the hardwood game,

you might say. They therefore try to make up the rules to take into consideration all factors of the industry. Now in the softwood the rules are made by the manufacturers and very often the consumers say they are done irrespective of the consumers. Does that clear up the point in your mind a little bit, sir?

Q. Just what do you think the effectiveness has been?

A. It is generally felt that the Hardwood rules are much fairer to all concerned than are the manufacturing rules. Let me just go a little bit further. Remember that the rule covering lumber is supposed to name the worst piece that is to be shipped. Let me illustrate it this way. Take a thermometer. From 90 to 100 degrees temperature we'll call clear lumber. From 90 down to 70 is No. 1 common. From 70 to 40 is No. 2. Now if I ship 41% of my lumber and call it No. 2 I am theoretically within the grade. I have given you nothing but No. 2 lumber. The associations won't inspect on that basis. The rules specify that you should have a gradation between your 40 to 70 and not just around 41. Let me give you a more specific instance that might bring out your point. I bought this summer some lumber going to a dam, we'll call it at Dover, Ohio, being built for Colonel Arthur of the Engineers. I bought 3 or 4 cars from a small mill of 2 by 6, I guess it was, longleaf. My customers happened to be particularly good friends of mine so I said, "I'll go to one of the best concerns in the south." I went to the biggest mill in the south and they shipped up stock that had knot holes in it. I claimed that was a poor grade of No. 2 common, but unfortunately it was up to specifications. It was not an average grade at all. But that didn't do any good. A great

many customers think that the tendency is for the larger mills to grade down close to that 41 degree, if you get what I mean. Have I come a little closer? In other words, most of the larger mills are members but not the smaller mills as a rule.

Q. I have another question. Do you think that the lumber committee of the War Industries Board should work with the National Lumber Manufacturers and the National Hardwood Association in procuring lumber for wartime construction?

A. My hour was up before I got to that point. I'm very glad you brought that up because my definite impression is that during peace time about 90% of the lumber sold to the government is sold by wholesalers. I'm a wholesaler and I'm biased on this whole question, but take this into consideration. Now if 90% of that lumber is sold by wholesalers, who should be looked to in time of war? Wholesalers or producers? Why wholesalers are the ones that sell the government is a hard question to answer, but remember this, a sawmill sales manager wants to sell what he has. A wholesaler sells what he knows can be gotten somewhere. Consequently, most sawmill sales managers will not quote the government direct. Therefore, 90% of the sales to the government are done by wholesalers. I'll go further than that. Some of us will sell some departments and not another. For instance, a man that sells crating is delighted to sell to the Q.M.C. I can't get any kick at all out of selling crating. It's just like selling sugar. You just pick it off the shelf and shoot it in. I like the hard jobs. For instance, if you were to ask me something about long timbers from 60 to 120 feet, I could tell you the cost of those any place in the country.

Q. Don't you think that the lumber committee of the War Industries Board could find out through these national trade associations better

than they could from any other place where to get it?

A. Yes, better than through any other place as now constituted. But the trouble of it is this: 92% of your sawmills do not belong to any association and during the war there was a representative here of the Southern Pine Emergency Bureau who spent practically all of his time at Capitol Hill keeping the politicians quiet because those 92% of the mills kicked, and the condition will be infinitely worse in any new emergency because the feeling is so much stronger in the south than it was, say twenty years ago. Their jealosy came up as a result of the code days. For instance, a personal friend of mine who was in a very influential position in one of these associations that the Major mentions wrote south something like this: "The small mill men are beginning to make money. They are getting cocky. We must hold them down." You can see what that does for jealousy. Personally, I would like to see this investigation, if you want to call it that, continued with a committee composed not only of manufacturers but also of wholesalers, based on the fact that it is the wholesalers that sell, I think, to a far larger extent than mills do. But as far as facts are concerned, that is, production, economics, etc. you have got right here in Washington through the National Lumber Manufacturers Association more facts than are known anywhere else. There has recently been written an article on "Forest Economics" that I am trying to get. I think one of the taxing boards here in Washington has swiped the only copy, and I hope to get that for your information later, Colonel.

Q. I have one more question.

A. I like yours.

Q. Have any of the provisions of the N.R.A. had any lasting effects on, first, production control?

A. No, but they are trying to follow out the forestry provisions of N.R.A. Let me answer that another way. I have asked both of the two big softwood associations, fir and pine, to what extent the prices could be used as a basis, and they say almost to no extent whatsoever. As a matter of fact, today Southern Pine code prices are not used at all and Fir is only used only in the case of 2-inch.

Q. What effect on the wages, sir?

A. There is no effect whatsoever. They go from 12½¢ an hour up.

Q. What do you consider some of the outstanding unfair trade practices at the present time in the industry?

A. On the Government's part?

Q. No, on your own part.

Colonel Jordan. He brought that up. He said he had some of the trade practices of the Government he was going to criticize.

A. I am not allowed a week in which to talk. We are in the position, "Here is the angel and there are the devils." Let me try to honestly answer that question, as far as the industry is concerned. We ship lumber green. It's a crime. You've got a provision that 1-inch and 2-inch lumber, for instance, should be dry. When it has gone through a kiln it's dry, but incidentally, if it's shipped in a car lined with wood it will come to you in good shape and if in a steel car, terrible shape. When it has been raining cats and dogs in the south and one of your procuring officers is threatening to cancel the order we are inclined to go out to that wet pile and dress the lumber and ship it and then get hell. There is something of an inclination, when the market is low, to ship you that 41 degree lumber

instead of tending up to the 69 degree. I am fighting right now with the Southern Pine Association on their paragraph, I think it's 117, and I believe eventually they are going to have to say when they inspect a carload of lumber that it is an average grade. Aside from that, most of the unfair things are on the part of the Government. Have I missed anything that you think of?

Q. What about splitting commissions?

A. It isn't any of your business. I'm glad you brought that up too. Take our maple flooring. You'll be interested because it comes from your part of the country. Maple flooring manufacturers allow a 6% commission. Well, you know in bidding the Government 6% of, say, $70 is $4.20. That is more money than you can make selling Uncle Sam. Knowing that they have a very close association, I said, "Do you mind if I bid under your price?" "The mill's price is my price to you, $74 less 6%. What you do is none of my business," was the reply. In other words, I can not make $74 on a simple item that goes through my books like that. Now something like oak timber -- I'll try to get a whale of a good profit. I've got all kinds of grief, all kinds of unintentional unfairness, and I'll try and make $5, maybe $10, a thousand. That's what I start out to make.

Q. You wouldn't cut your price on any shipment?

A. Oh, yes. On maple flooring I have cut below that price. It shouldn't be done but when I find it is being done I have written to the mills and asked them if they are willing -- the answer is, "What you do is your business." But I don't see it. I don't like the policy. 6% ordinarily is too little. There's a lot of difference between 6% on $20 lumber and 6% on $70 lumber, although it doesn't cost them any more if the Government would pay it

promptly. The prices of lumber are always based at mill rate. I'll be buying Pacific Coast fir today for $16 or $15.50. 6% on that is what? Nothing, see? But 8% or 6% on $70 -- then I can buy breakfast, lunch and dinner.

Q. I am in the Ordnance Department. I would like to know if you can give us any information of the sort of supplies on the hardwood acquired for wood distinction products and how that would fit in with the lumber problem during wartime?

A. Yes. What do you want?

Q. I want acetic acid and solvents that are made from that, including wood alcohol.

A. You asked just the person -- I took freshman chemistry at New Haven for three years. I couldn't pass it today either. Just as a bit of introduction in the lumber business, our money originally was made by the rise in timber prices. That is, we cut off our timber and turned that into cash. Today the inclination is coming to make money more as a going concern. That means you cut the timber off, say for what it costs you, and you grow more. See? Now as that new lumber comes up you would like to take on a given acre -- you'd like to cut off those branches because branches make knots. A knot is nothing but a knot fallen off and covered over with new growth. If you can have, in connection with your sawmill, a paper plant and a chemical plant as one concern is doing most successfully today, the Crossett Lumber Company, Crossett, Arkansas, then you can afford to go on to an acre of land so as to develop clear lumber and put a great deal of that into paper and a good deal into acid. You are getting more and more of

that on the Pacific Coast in connection with paper plants. As a matter of fact, they have got a binder out there that is being made from what you might call wood waste. I am taking a little time but he asks a question that I would like to clear up for you. Suppose this room is one cell of a piece of wood. Unfortunately, it's a concrete room. It ought to be of brick. Each one of these bricks which you should see along here is duplicated in a cell, that brick being cellulose. The mortar which holds those bricks together is lignin, and that is sort of a cement. Now you can break down your cellulose and break down most of your lignin. I imagine that what you want is in the lignin. They know what 70% of that lignin is and they are trying to find out what the other 30% is. We don't exactly know. When we make something like masonite -- this isn't, although it ought to be -- what we do is to take wood chips, put them into a puffed rice cannon, put them under steam, steam pressure of about 1,000 pounds, and then open that cannon and out comes your exploded cells that look a good deal like the brown wool off a black sheep. Something comes off -- apparently it's that mortar in the bricks or the lignin. I don't know whether it takes care of your situation, but we are fast getting an answer to what you are asking about. I do not dare say very much more.

Q. The thing I want particularly is: p - acid, which is the basis of most of these chemicals -- they take it and hardwood and heat them in an oven where there is no air present. This acid, these volatile matters in the wood come off and are later distilled and then it appears to a great extent on the market. Then the chemical industry takes that and makes it into acid , etc. I want information as to where most of that is coming from and how the transportation of this wood from the forest is going to fit

in with your transportation of your heavy lumbers that you move? I am trying to get that wood from the forest to the chemical plant.

A. That's very easy. The chemical plants move to the forest in increasing quantities. The chemical plants are going down to the forests to a great extent. I might mention that most lumbermen are not interested in distilleries but I'll get you that information more accurately, and I won't flunk on that point.

Q. What is the difference between longleaf and shortleaf?

A. Maybe I can clear that question up to this extent. A tree is a good deal like any of us. That is, in the spring it's got a lot of pep. It grows large cells. Then as the dog days come along it hasn't got quite so much pep. Now the main difference between shortleaf and longleaf is in shortleaf you've got a lot of large cells so when you look at the ends of a piece of lumber you see the white. It has very few small cells. A small cell is all cell walls and very little air. In longleaf you've got mostly those small cells, mostly walls and very little air. Consequently, you've got far more strength in longleaf than you have in shortleaf. There is a technical way that the Forest Service has of telling the difference between long and shortleaf. It's one of the few things I didn't bring with me for this talk today, but the pith in longleaf is about an eighth of an inch in diameter and in shortleaf it is a very fine pencil point. Then you count, I think it is the second and third rings, and that gives you the distinction. I can't go into too much detail because it's a rather complicated proposition. Some pieces you can quickly recognize and some you cannot tell for love or money. Have I covered that a little bit, Captain?

Q. Just two or three other questions. We have a certain amount of reservation that covers the procurement of lumber. As Mr. Marsh mentioned a minute ago, as I understand it, the marking of the national tree symbol on lumber is a thing of the past except possibly for one or two mills.

A. They voted about a month ago to give it up.

Q. The next question is about grade-marking as compared to obtaining lumber on a certificate of inspection. Our present regulations give preference to lumber that is grade-marked over lumber that is furnished on a certificate of inspection and, as I understand, trade is objecting to that particular thing of our regulations.

A. No, I wouldn't say the trade is objecting. I'm just telling you that it is hay wire. Let me explain that proposition. Under your Army regulations, 5-150, etc., issued September 23, 1937, suppose you should get prices all the same -- which you don't do, but suppose you should -- then you must give preference first to that which is grade-marked. Now that grade-marking is done by a mill employee, not a licensed inspector -- John Smith; and you put his work -- a paid sawmill employee -- higher than that of a disinterested Association representative.

Q. He belongs to the Association and he gets his stamp from the Association.

A. No, he doesn't belong to the Association, and he pays cash for his stamp. He is supervised by the Association but, for instance, I'll illustrate it. I got a request the other day from somebody down south to furnish them some lumber, no matter what the grade is it must be stamped No. 1 common. See? Now during the cantonment days, what I am fighting against, among other things, -- and I really didn't bring it out properly this morning --

is we've got a tremendous rush of lumber. You must not let that stuff come to the cantonment unless it is right and unless you have a protection of some kind with unprejudiced inspectors. A grade-marking is honestly far better than ungrade-marked lumber although 90% of the complaints, both for grade-marked and ungrade-marked, are substantiatiated in favor of the complainant; but more of the stuff that is off is ungrade-marked than grade-marked. I'll put it this way. It's really a step in the right direction, but for goodness' sake, your disinterested Association inspector should be regarded twice as high as grade-marking. Now here is another little point which I happened to run into in my own business. As I say, I think 90% of the lumber furnished to the Government is by wholesalers. If only 30% of the pine is grade-marked, or less than that, it is hardly fair to put us up against, or rather, to make us furnish grade-marked lumber. On the other hand, there's a good deal to say from your point of view, Captain, and that is you want to be damned sure that you are getting what you buy and in most cases your grade-marking does give you what you buy and in case of war it is much better to get grade-marked lumber at a cantonment so that one Government inspector working around can see S.P.A. Mill No. 7, No. 2 common and he willknow in five minutes if that is No. 2 or 3 and if it is No. 3, which a lot of it was in 1917 and 1918 he is going to have the basis to go back to that mill. That's why I say it is a step in the right direction, although in peace time operations you certainly should put your disinterested Association inspector above a mill employee's inspection.

Q. Then your objection to the preference clause that we require is that the inspection should come ahead of the grade-marking? Well, that's

what we permit, and do in fact insist, that lumber in a carload or more be furnished on a certificate of inspection. That is not required to be grade-marked but, on the other hand, we feel that the Army is better protected, as you say, in buying lumber if we require the lumber in less than carload lots to be all grade-marked rather than Government inspected. The Government feels that there are places where the Government doesn't have the personnel and the inspection --

A. You're dead right on that.

Q. While the regulations don't absolutely require it, it says that if the Government qualified inspectors or someone qualified --

A. Yes, but what I was trying to bring out was the fact that you have sort of put the cart before the horse. You've put the grade-marking above the Association inspection.

Q. How about buying in less than carload lots?

A. I'll answer that question in the affirmative. The reason most retailers do not like to buy grade-marked lumber is because when they buy a carload of No. 2 common they want to pick out what they call No. 1 and put it a little bit higher grade. Therefore, you had better buy grade-marked lumber.

Q. What are you going to do in a case like this? The option permitted in the specifications providing for inspection of the purchasing agency will be used as such a basis only because of great difference in cost or the inability of the inspection Associations. How would the Comptroller General interpret the great difference in cost?

A. He'd ruin any Disbursing Officer. I don't know whether any of you

have ever been ruined. He ruins me many a time. I don't believe you can get a correct interpretation of that thing. If one can go out and buy lumber that isn't grade-marked and feel that the Government can properly inspect it then he doesn't have to require it to be grade-marked.

Q. You stated a few minutes ago that the Government was very slow in paying their bills.

A. During the war, very much so.

Q. That's true, but there is a lot of misconception along that line, particularly in peace time. Where there's a discount allowed on the invoice, if the invoice is properly put through and is according to the terms of the contract there should be no trouble in paying.

A. You'll take the discount from what date? From the date that the very last man has got everything signed, sealed and delivered although those papers may have been --

Q. I beg to differ with you.

A. I don't have very much to do with the Q.M. --

Q. I have found this to be true in many instances, that people complain about their bills not being paid when they don't understand that possibly it is the contractor. If he has done something that wasn't in the terms of the contract or he failed to deliver on time, the account has to be settled in a different manner. That's usually the way it happens.

A. Here's something that hasn't anything to do with the Q.M. One place they are buying F.O.B. mill and taking advantage of the land grants. They can't tell us as to within 12 months when they want it. We can't hold the material on hand. Nevertheless, we must say where that stuff is to originate and then they give us the release, any time within 12 months, we've

got to ship at the rate of . In case we don't -- and we can't possibly do it -- they will hold back 5% of the invoice and then the final invoice will go to the General Accounting Office for settlement and then it's a question of years, with the emphasis on the "s" as to when we get our payment. There's 5% that you are held up on for two or three years anyway, and what percent do you have to have in order to make that a profitable order? Ordinarily we handle this Government lumber on a small profit. Again, this is not Q.M.C. Suppose a man buys 281,000 feet of lumber and says we'll pay for this lumber when the whole is delivered, and then he wants his discount. Now in code days you could cite him before General Johnson. It's contrary to all lumber terms. Nevertheless, he wants to take his 2% discount and he takes it on the full delivered price by the way. But, as I say, in so very many cases they hold the payment up. It's 10 days from the time the final clerk gets the completed papers although they may have been in their office. However, the point I was trying to illustrate was the fact that in so very many cases the lumber people will have to finance through a factor of one kind or another. That is, they cannot wait for their payment. That is going to be increasingly true because the mills are nowhere in the shape they were twenty years ago. You are all getting hungry. If you're not you should be. I'll be delighted to answer any other questions.

Colonel Jordan: Captain Winslow, would you like to say something?

Captain Winslow: It has been very instructive and very interesting.

Q. It's a little late in the day but I'm a little on the defensive on our Army regulation. I want to say a few things about it. There's one thing that our office looks askant at and that's high pressure salesmanship. I think there is more high pressure salesmanship on lumber than anything else I can think of. I have heard it said the Army gets gipped more on the purchase of lumber than anything else we buy. I don't know about that, but I do know this, that since 1926 when I first came to the Assistant Secretary's Office there has always been something in the offing asking for special procedures in the purchase of lumber. There was one gentleman here who was employed by the lumber people for many years. He hounded our office continually for months asking us to prescribe that all lumber that the Army had be grade-marked. He was escorted out of the office several times. Later I found out he had a job with a lumber company but had an office in the Department of Commerce, putting forth his propaganda in the case of lumber. I found out later that he was a Government employee. Now the facts in 1935 were something like this. When I came back to the office I found that there had been coordinated and properly published two Federal specifications on lumber. Those Federal specifications, presumably brought about by coordination between the entire industry and between all of the Government departments, -- they are still in existence -- state that since the Government departments are not usually in a condition to inspect lumber properly preference shall be given to this grade-marking, pine tree symbol, and Association inspection. Now remembering that high pressure salesmanship, as I say, will always get you into trouble I don't like any one of those three because despite what Mr. Marsh says an Association inspector is not a disinterested inspector. Any time the Government is forced to take

anybody else's inspection it runs the risk of getting hooked. The ideal situation would be if the Government could afford proper inspection. We can't inspect anything properly, except a few special things that we buy, such as food. We have to inspect that. We have to inspect our military supplies properly. We could no more hope to have proper lumber inspectors than we have proper petroleum inspectors or proper inspectors of paint. We depend on the honesty and integrity of the people that sell the Government to safeguard us and safeguard themselves, incidentally, against the crook. Now if you can't depend on the lumber industry itself to clean house of the crooked people in the lumber industry, well, then the Government's got to direct. We can't hire enough inspectors, properly qualified inspectors, to inspect our lumber and neither should we, in my opinion, be dependent upon Association inspectors for our inspection. Maybe this Army regulation was a clumsy attempt but it was the best attempt we could make after consultation with every branch of the War Department that buys lumber who put down for the guidance of a purchasing officer what he should do to buy lumber, and from reading the specifications and hundreds of protests from Congressmen about an inspection by Association inspectors. It bears in mind that you can't wait for inspection by an Association or that the Association will swing a big stick over the head that has perfectly good lumber but they'll say, "You can't sell this unless you've got my inspection." There are a lot of things about that. The reason this was written was to give the purchasing officer a right to buy without an inspection by the Association. In the final analysis you've got to depend on the sound judgment of the man who is buying for the Government to safeguard the interest of Government, still bearing in mind that this

specification does give certain preference to the Association inspector. That's all that Army regulation is. Now if the pine tree and national symbol to that extent is wrong it should be wiped out, but in justification of that the Federal specification still has that in it. Now if the Director of Procurement, who is supposed to coordinate all purchasing for the Government service and the Federal Specification Board, which is presumably on the job to see that the Federal specifications are proper, they should revise their specification to knock that thing out but as long as it stands there it will stand here and when the Federal specifications are revised we shall revise this.

A. I think the Office of the Assistant Secretary of War has too long hid under a . Really I think you have a chance to do a great work by letting the rest of us know what you are trying to do. I happen to be disinclined ever to bother them for any information. I think I have been making a great mistake in not doing it. I hate to suggest a publicity agent. I do believe if you could let us all know what you are trying to do in there that you could get a lot of help. I have kept you too long, gentlemen.

Colonel Jordan: I want to ask one man, Major Simpson, Quartermaster Corps, to say something.

Major Simpson: It is rather late to say anything now but I certainly believe in grade-marked lumber. One thing is that, with all due respect to the wholesalers, most wholesalers are nothing but brokers. They haven't a mill, they never see the lumber. They buy by the carload and if it doesn't turn out good they don't pay the man. But a man has a mill which

he operates and the man owning the mill bases on some kind of integrity. The superintendent is around there to see how it is graded and they can actually see the commodities they sell, which is more than the average broker or wholesaler does. To that extent grade-marked lumber is certainly superior. We had one project all of various grades of lumber. Why buy at various grades if you are going to have it all jumbled so nobody knows where grade 1 or 2 or select is.

A. There's a whale of a lot in the Major's favor on most of those points he made, especially where you have men who don't know what they are handling. Some departments have even gone further; they make us number the sizes so they'll know whether a piece is 4 by 6 or 4 by 8. I am doing that today. Don't laugh at the Major. 99% of what he said was dead right. Your construction costs were 25¢ a cubic foot. Why was that? Because most of your carpenters had new tool boxes, in other words, were darn good farmers. You've got to give them what they want and let them know what it is they are going to use. I am not in favor of putting grade-marked above an Association inspector. The point certainly wants to be given a great deal of carful consideration. I'd like to talk with you on another point.

Colonel Jordan: Major Simpson, I do wish you two gentlemen could see Mr. Marsh and have a heart to heart talk with him about things. That same invitation extends to you also, . I want to express my appreciation of your coming here and I want to tell you you're the first speaker on this platform who really has presented all sides of the mobilization problem we are going to be up against. I want to express all of the appreciation of the College to you, and I mean it.