CONSOLIDATIONS IN THE LUMBER INDUSTRY

By

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Object

The object of this thesis is to show what consolidations are and their relative trend in the Lumber Industry, the reasons for such consolidations, the difficulties which confront such combinations, and the possibilities which they may have.

Source of Information

The main source of information for this thesis has been the industrial census reports. Other sources have been current magazines and periodicals and information obtained from prominent men in the industry itself. The last available census is that of 1921, but these figures have been supplemented by data obtained from recent literature.

The Reason for This Study

The present state of the lumber industry is such that a great number of the companies have been forced to shut down and those that are operating are doing so at a loss. Something must be done for the industry in order
to keep it out of the hands of receivers, and its companies out of the long list of failures.

BODY

Historical

In order to get a better understanding of the present system of industry, it is necessary to go back even into the time when England began her industrial reign. To go even farther back than the industrial reign we find that nearly all of the things produced were by hand and either in the home or in very small shops. In some cases the family was practically self-supporting. They produced everything that they needed.

Then came the step into the small shop. One man found that he was fitted to produce one group of articles better and more easily than some of the other people, and that these people would in turn give him the things that he desired. This system was carried on for a great number of years, in which time there was little or no progress made in new methods or increased production.

In the eighteenth century, certain machines were invented which started a decided change in system then in existence. With the coming of machines the shops grew very rapidly. This change started what is known as the
industrial revolution. The beginning of the industrial revolution marked the starting place of a new era. With this came a large number of social and economic problems.

Machinery in its very nature is inducive to larger more centralized plants. There is a certain fixed overhead charge which can be reduced by the increasing of the number of such machines in one plant. At present there is a great tendency in this direction of combination. A large number of consolidations are in existence.

This concentration and consolidation has been brought forward in leaps and bounds in the past few years, due to the increases and improvements in other lines. The two factors which have had the most affect, are the increased speed and reliability of transportation, and the concentration of the population in large cities. Other factors of importance are the location of raw materials and supply of labor.

Problems to be met

This is an age of consolidation, forced in most cases through sheer economic pressure, and a recognition of the breaking down of the individualistic competitive system, with all the wastefulness the system implies. It is only necessary to look at the headlines of the daily papers to recognize the inevitable trend. The lumber industry must
accept the challenge to put its financial house in order through natural regional consolidations, if it would hope to exist and serve efficiently.

The lumber business is the last big industry to recognize this fact. Conditions have changed in the past twenty years, especially in the region west of the Rocky Mountains. It is no longer possible for a sawmill to predicate an ultimate profit through diminution of its available supply of timer and consequent increase in stumpage values to recoup the losses incurred in production.

The lumber industry must recognize the imperative necessity of securing a fair manufacturing profit, irrespective of any additional profits accruing from increase in stumpage values. These values are not on the increase, but on the decline, due to increased carrying charges accrued faster than the increase in the value of the stumpage itself.

In this paper the word merger has been expressed as combination or a consolidation. A merger is an industrial combination consisting of a number of formerly independent mills which have been brought together into one company. An establishment consisting of a number of mills, which has grown by the addition of new plants, or by the purchase of old ones, is not a merger. This last group is the outgrowth of efforts over a long time.
In the present day and age all things are related. Our system of industrial organization is such that one industry is dependent on all of the other industries of the world. To make a comparison of any one thing in such an organization, it must be done in a relative way. In order to predict and show changes in the industrial trends, it is necessary to get the basic facts and all other possible information at the time which the trend is being made. Any change within the industry itself must also be carefully noted, for it may have a great importance in the determination of the desired trends. Such facts might include a change in machinery and processes, a change in the geographical location, a change in the source of supply, and a change in the market.

In the past, a few combinations grew to very large proportions and were dominating in their field. For example, those in the oil industry grew to such proportions that the public became alarmed, and as a result several laws were passed to prohibit these large organizations from regulating the price of the product that they produced. The best known law in this regard, is the Sherman Anti-Trust Law, which was aimed at the Standard Oil Company and several large steel trusts. In other words, the public as a whole does not favor anything which it has reason to believe may
become so strong that it will be able to control the price of the product which is produced. It is for this reason that any combination in the Pacific Northwest must choose wisely, and step lightly, or it is apt to gain some very unfavorable publicity.

In the study of the trends of industry, it is not true to say that all industries have increased in size, for there are some that have not. However, these are very few and can be classed as exceptions. The general run of industry has been toward the large and centralized organization. In 1919, the industries which totaled only 2.2% of the entire group, employed 53% of all the wage earners. This would indicate that there are a few very large industries.

There have been numerous changes and developments in the field of consolidation. A notable one is that of a central office or management center. The office may be in one part of the country and the factory in another. This seems to be a modern tendency which is growing very rapidly. Usually one of these head offices or management centers will control several factories, and sometimes the products will be very dissimilar. Still, for all the advantages of executive control, the factories should be regionally located and all producing the same or similar product. There are also financial trusts and pools,
holding companies, and interlocking directorates which are on the increase in spite of laws forbidding them.

COMBINATIONS IN RELATIONSHIP TO THE LUMBER INDUSTRY

As has been shown, all industry in the past has trended towards consolidation. For many years such consolidations have been knocking at the door of the lumber industry. Especially those larger companies who have been trying to expand and reach out for wider markets with larger volumes of trade. These companies have shown a keen interest in such steps. They have realized the advantages of consolidations, but very few have taken any active steps in that direction. Even the few that have tried their hand at it have not met with any marked degree of success, and the majority of these well meant plans of combination have met with failure. The reason for the failure of such consolidations are several, lying both in the methods employed and in the nature of the industry itself.

Most of the efforts at consolidation never got beyond the debate stage, while others made only inadequate and indefinite study of the situation. Most of the plans for combinations were quickly thrown away when financial negotiations were begun. The largest single drawback to consolidations has been that the companies interested did not recognize the difficulties which the nature of the
lumber business has set and will continue to set up for some time to come. Besides all of the natural objections which are opposed to consolidation, there is an attitude which seems to be characteristic of all lumber operators. A position of independence and individualism, regardless of what it may mean to the industry.

THE ADVANTAGE OF CONSOLIDATIONS

The advantages of consolidation and the consequent large scale operations are obvious, provided that the industry is suited for consolidation. Some industries by their very nature or inherent characteristics, are eligible for consolidation, while others are better fitted with individual control and operation.

The economies which are possible for the consolidations to obtain may be segregated into several divisions. These will be the natural divisions which all industry is divided such as; production, merchandising, management, and financing.

The advantages found in the field of production are: A larger purchasing power, when goods are bought in large amounts it can be obtained at a much better price, both through the actual price of the raw material and in the transportation of it to the various plants. It is also possible to have a better utilization of labor. If labor
of a certain type is more plentiful in one place than it is another, it will be a relatively simple matter to transfer men. A better utilization is also obtainable through the larger amount of varied jobs. If a man is not fitted for one job, it will be possible to put him on another, rather than discharge him. This will reduce the labor turn-over, as in keeping more of the men in the factory in this way.

The equipment of the various factories can be more fully utilized. A large organization may be able to keep one certain machine producing on a special product, while in some smaller organization it will be necessary for the company to use the machine in several different operations. In this same connection it is much easier to standardize the product and to produce in mass. Mass production has the advantage of complete and the most efficient use of the machines in the factories. There is no lost time in the setting up of the machine for several different articles.

In the field of marketing or merchandising the large operation has also a large number of advantages. When goods are shipped it will save on the freight rate to ship in large quantities. It will be possible to ship a solid car of one certain type of product, which means a considerable saving in the handling of the goods at either
end of its transportation. In the case of some products it is possible to establish line storage points or warehouses in which a considerable amount of produce may be kept. This is an especially advantageous point for the lumber industry, for it is impracticable for a mill to have all of its supply located in one place. Line yards, as such points have been termed, save not only in transportation, but also in speed with which orders can be filled by having the supply points advantageously located through the country.

Advertising is perhaps one of the strongest points in favor of consolidations. Through this means the public is brought to realize the value of a product. They become familiar with a certain brand and will without a thought buy the same articles that they see advertised. It is possible for the large concern to have a large advertising program, which is an impossibility for a group of smaller operators.

One of the present difficulties in all industry is the duplication of the selling forces. Is competition such an important factor that there should be four or five salesmen, where one could do the work? In the past the feeling has been one of strong individualism, to get the market regardless of the price cutting required to get it. Such cut-throat methods and wasteful duplication will be eliminated to a large extent by consolidation.
Management is another very important cog in any industry and through consolidation it will be possible to eliminate several expenses which come under this head. All the overhead expenses will be reduced. It will be possible to obtain better managers and organizers to carry on the company. Through proper management there will be a smoother working unit, a more complete and useful set of records will be kept, a better cost accounting system, a more standardized production organization, and better and more extensive methods of research.

The financial status of a company is increased if it has the proper reserve. With large organizations it will be possible to give better security for money borrowed, and such money may be had at a lower rate because of the better security. With a large combination or company it is possible to have sufficient money reserve to tide the business over any short depression which may cause some to go out of business. A large organization may also be able to absorb any loss due to fire or other means in any one portion of the company, when such a loss to a smaller concern would mean disaster.

These advantages, with many others, should be enough to make any company wish for consolidation. This would be the case if all of these advantages were realizable in all industries, but there are also certain drawbacks to consolidations. One of the largest hinderances is the loss of personal initiative, that is in the managerial end
of the organization. Then there is the feeling which has been built up within the organization itself which is one of strong independence.

There is but one way of properly determining the status of an industry, and that is by comparison with all industries in the country. Such comparison must be allocated as to time and including all existing conditions within a given period of years. Enough time must be included so that any trend will be the true information of the conditions of the particular time, and not the mere effect of irregular or local condition.

COMPARISON OF THE LUMBER INDUSTRY WITH ALL INDUSTRIES

In the comparison of the lumber industry with all other industries, it is necessary to keep in mind all the advantages of combinations and whether or not they will be realizable in the lumber industry. In order to obtain data for trends and information on all industries, it has been necessary to refer to the industrial census taken at regular intervals between 1900 and 1925, the last census data are not available.

At first glance the census figures do not seem to show any trends or other information which can be of use, but after making graphs and tables, it is apparent what developments have taken place within the last quarter of a century.
Of primary importance is the size of the various operations with its relationship to the number of concerns in each size group, or the per cent of the total number of operations. These operations are grouped as to the amount that each produces in the period of a year.

LUMBER OPERATIONS

<table>
<thead>
<tr>
<th>Mills having a production of:</th>
<th>The per cent of the total number:</th>
<th>The amount in per cent of total produced:</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,000,000.—Over</td>
<td>1%</td>
<td>28%</td>
</tr>
<tr>
<td>$ 500,000.—$1,000,000.</td>
<td>2%</td>
<td>21%</td>
</tr>
<tr>
<td>$ 100,000.—$500,000.</td>
<td>7%</td>
<td>32%</td>
</tr>
<tr>
<td>$ 20,000.—$100,000.</td>
<td>15%</td>
<td>12%</td>
</tr>
<tr>
<td>$ 5,000.—$20,000.</td>
<td>29%</td>
<td>5%</td>
</tr>
<tr>
<td>$ 5,000.—Under</td>
<td>46%</td>
<td>2%</td>
</tr>
</tbody>
</table>

ALL INDUSTRIES

<table>
<thead>
<tr>
<th>Mills having a production of:</th>
<th>The per cent of the total number:</th>
<th>The amount in per cent of total produced:</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,000,000.—Up</td>
<td>2 1/2%</td>
<td>58%</td>
</tr>
<tr>
<td>$ 500,000. —$1,000,000.</td>
<td>4%</td>
<td>12%</td>
</tr>
<tr>
<td>$ 100,000. —$500,000.</td>
<td>15%</td>
<td>19%</td>
</tr>
<tr>
<td>$ 20,000. —$100,000.</td>
<td>28 1/2%</td>
<td>7%</td>
</tr>
<tr>
<td>$ 5,000. —$20,000.</td>
<td>28 1/2%</td>
<td>3%</td>
</tr>
<tr>
<td>$ 5,000. —Under</td>
<td>21 1/2%</td>
<td>1%</td>
</tr>
</tbody>
</table>

From these tables we can readily see that for all industry the greater percentage of the volume is
produced by the large plants. By studying the tables certain facts stand out.

The industries in general are much larger than those of the lumber industry. There are 2\% of all the industries which produce more than $1,000,000, worth of produce in the period of one year. In the lumber industry there is but one per cent in this class of producers.

In the next group we find that for all industries there are approximately 4\% of the total of all concerns. The lumber industry for this group has but 2\% of the total number. In the group having a production of five hundred thousand to one hundred thousand annual production, we find that in all industries there is 15\% of the group but in lumber there is only 7\% represented.

The next group of producers for all the industries we find 28\%, while in the lumber concerns of this class there are only 15\%. Following this there is the point where the percentages of the two comparative groups are about the same. There is 28.5\% while the lumber shows that there is 29\% who fall in this division.

The last group throws a good deal of light on the question, for in all of the industries there is but 21\% who are producing less than $5,000. per annum. In the lumber industry there is the largest percentage of all
the groups in the class, 46% of the total which is more than twice that of the same group in all of the industries. This would indicate that the lumber industry is made up of relative small operations, but in all industries there must be some very large concerns which bring the total percentages up in the higher classes.

Perhaps of more importance is the production of these respective groups. In comparing these groups we find a few very significant factors. In all industries the group which has a yearly production of over $1,000,000 has 58% of the entire production of all industries. In other words, more than one half of all products are produced by 2\% of the existing companies. The lumber industry in this same production class has but 28\% of the lumber products. This would seem to show that in all industries the companies in this class have a higher proportional unit production than those in the lumber industry. But, if we examine the figures further, we find that 29\% of the total lumber production is produced by 1\% of the mills. If there were 2\% in this group, as there are in all industry, they would produce 72\% of the total produce. This fact would indicate that the mills having $1,000,000 of yearly production of lumber are proportionally larger than those in all industries of the same class.
One other significant point of interest in this table, is that the first three groups in the lumber industry are very near, or approximately the same with the peak of production in the third class, or the ones having $100,000 to $500,000. In all industry there is a very decided variation in the groups from 58% to 12% and then to 19%. The largest group produces over three times as much as the third group, and nearly five times that of the second group. From these relationships, one might assume that the medium sized companies and mills in the lumber industry are relatively more efficient and have a better chance of existence, than those in all industries.

Although the production of all industries for the companies which produce $1,000,000 or over is 58% of the total, if this were divided up into the various industries it is a very much higher percentage. The following table shows the per cent of production for some of the more important industries whose yearly production is more than $1,000,000.

<table>
<thead>
<tr>
<th>Industries</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Implements</td>
<td>75</td>
</tr>
<tr>
<td>Boots and Shoes</td>
<td>73</td>
</tr>
<tr>
<td>Car Shops</td>
<td>95.5</td>
</tr>
<tr>
<td>Cement</td>
<td>86.3</td>
</tr>
</tbody>
</table>
### Industries (Cont.)

<table>
<thead>
<tr>
<th>Industry</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton Goods</td>
<td>72</td>
</tr>
<tr>
<td>Electrical Machinery</td>
<td>80</td>
</tr>
<tr>
<td>Iron and Steel</td>
<td>93</td>
</tr>
<tr>
<td>Motor Vehicles</td>
<td>95</td>
</tr>
<tr>
<td>Paper and Wood Pulp</td>
<td>73</td>
</tr>
<tr>
<td>Petroleum Refining</td>
<td>96</td>
</tr>
<tr>
<td>Rubber Tires</td>
<td>92</td>
</tr>
<tr>
<td>Ship Building</td>
<td>93</td>
</tr>
<tr>
<td>Tobacco, Cigars and Cigarettes</td>
<td>69</td>
</tr>
<tr>
<td>Worsted Goods</td>
<td>87</td>
</tr>
<tr>
<td>Lumber</td>
<td>29</td>
</tr>
</tbody>
</table>

This table is very significant in that it shows that at the present time there are a greater number and much larger proportionate production capacity of the largest group in all industry class. It also points out that the lumber industry has by far the least amount of production in the large concerns than any of the other important industries.

In 1914, there were 54 lumber mills producing over $1,000,000 with an average of $1,625,000 for the group. In 1921 the number in this group had increased to 160, but the average production was but $1,650,000. This is less than a 2% increase in the amount of production. The production in all industries was averaged at $3,070,000.
while in 1921 the production had increased to $3,500,000 or an increase of 16%. This would seem to indicate that the lumber industries had not enlarged as fast as all the other industries.

The production in relation to labor is very significant. The cost of labor is important when it is considered that 60% of all costs of production are charged to labor. In the all industry group, the amount which is chargeable to labor varies a great deal, but the average is a little less than 40% of unit costs of production.

**LUMBER**

<table>
<thead>
<tr>
<th>Yearly production</th>
<th>Amount per wage earner</th>
<th>Per Cent of $3040</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,000,000 and up</td>
<td>$3040</td>
<td>100</td>
</tr>
<tr>
<td>$500,000 to $1,000,000</td>
<td>2740</td>
<td>90</td>
</tr>
<tr>
<td>$100,000 to $500,000</td>
<td>2340</td>
<td>76.6</td>
</tr>
<tr>
<td>$20,000 to $100,000</td>
<td>2030</td>
<td>66.6</td>
</tr>
<tr>
<td>$5,000 to $20,000</td>
<td>1590</td>
<td>52.6</td>
</tr>
<tr>
<td>0 to $5,000</td>
<td>1470</td>
<td>48.2</td>
</tr>
</tbody>
</table>

**ALL INDUSTRIES**

<table>
<thead>
<tr>
<th>Yearly production</th>
<th>Amount per wage earner</th>
<th>Per Cent of $7650</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,000,000 and up</td>
<td>$7650</td>
<td>100</td>
</tr>
<tr>
<td>$500,000 to $1,000,000</td>
<td>5450</td>
<td>71</td>
</tr>
<tr>
<td>$100,000 to $500,000</td>
<td>5160</td>
<td>67.5</td>
</tr>
<tr>
<td>$20,000 to $100,000</td>
<td>4440</td>
<td>58</td>
</tr>
<tr>
<td>Yearly Production</td>
<td>Amount per Wage Earner</td>
<td>Per Cent of $7650</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>$5,000 to $20,000</td>
<td>$3500</td>
<td>45.6</td>
</tr>
<tr>
<td>0 to $5,000</td>
<td>3315</td>
<td>43.3</td>
</tr>
</tbody>
</table>

There are several very significant facts in the preceding tables. Perhaps the most important is the production in the lumber industry is but 40% of that of all industries when based on the amount produced per man. When we consider that 60% of the cost of producing lumber is chargeable directly to labor, this fact is even more significant. It shows that as the general group of industries have improved their methods, increased their efficiency, and made machines do the work of large numbers of men, the lumber industry has fallen behind. Not that the lumber industry has not improved, but it has not improved nearly as fast as the rest, so in the relative sense it has fallen back.

These facts indicate that it is necessary to make some change in the lumber industry. The possibility of large consolidation is considered but this would have to be a natural change and there are certain factors which favor consolidations, and certain characteristics of an industry which make it eligible for consolidation.

The industry should require large capital. It is true that the lumber industry requires large capital in
the west, where the holdings of timber are large and the mills more or less concentrated. But even here there are a large number of very small mills. The small mills are more numerous in the eastern part of the country. These mills are portable and do not require a very significant amount of capital, nor do they employ many men to operate them. As has been shown by the tables, these mills are not as efficient as the larger mills, yet their very number is a factor which has had a marked affect in the consolidation of the lumber industry.

The products of the industry should be such that they may be standardized. There should be a given test of quality and uniformity of product.

In the past few years, there has been considerable progress, and many steps have been taken to insure a standard product, but even tho there has been many improvements in certain regions, the general run of the same class of lumber is quite variable. Much of this progress has been accomplished through the formation of certain grading rules and quality standards.

Industries in which the product is highly refined, and scientific study and research may be carried out to a marked degree of efficiency are more favorable to consolidation than other companies which do not have these factors. When a product can be made by a certain
set formula, or it passes through exactly the same number of motions each time, it can be put on a time basis and this is another step in favor of combination, for if it can be produced in large numbers, the proportionate cost of overhead will be reduced.

Industries which are monopolies have a strong tendency toward consolidation. When a group can so band together as to influence the selling price to any marked extent, it is an added inducement to organize and to consolidate if possible.

The lumber industry is one of the least, if not the least inclined toward any such leanings of all the industries. The very nature of the industry does not permit monopoly. From the beginning the lumber industry has been one of individual control and operation. The location of the operations and other basic facts make monopoly of this industry very difficult.

There have been a few consolidations tried in the lumber industry, but they have not proven themselves very effective or worth while. Most of them have disbanded or gone into the hands of receivers. There are a great number of factors which have caused these combinations to meet with little success. These reasons are also the ones which had a pronounced effect on the present backward position of the lumber industry.
Labor conditions have had considerable effect, especially in the logging department of the industry. The labor turnover is perhaps higher in the lumber industry than it is in 95% of all the other industries. This factor in itself is very costly and caused a great deal of inefficiency. There is also a decided lack of good managerial capacity within the industry. This is perhaps the cause of a large number of failures in the industries and one of the largest drawbacks to consolidation. The inefficiency with which the records of various companies are kept is an indicator of the very poor methods used and the pressing need of some systematic managerial organization. Few of the companies can place their finger on any definite cost records, or what any one specific type of lumber is costing them to produce. The woods are in the same condition, if not worse. There is but very few concerns which can tell just what will pay to take out and what they will leave standing. Even after the logs are ready to be hauled in, there is always doubt as to the merits of some particular log. How large, how long, and what grade of log will pay its way through the mill and bring an income rather than a loss to the producer? It is not one mill in fifty who can answer these questions with any degree of satisfaction.
No company is eligible for consolidation unless it can show adequate cost records. There has been a great amount of waste and enormous losses all because the companies did not know what the marginal log or stand of timber was.

THE POSSIBILITIES OF CONSOLIDATIONS

IN THE LUMBER INDUSTRY

The first thing that will be possible with combinations will be the installation of some definite and efficient system of cost accounting. Through this, and a more efficient managerial staff, the company will be able to find out just what things are costing them money and which are paying their way through the operations to the consumer. In other words, a more systematic working basis will be established.

Through combination, the efficiency of the group of mills will be increased. It is only logical that the efficiency of all of the mills will tend to come up to that of the best. The standardization of the products by advertising and selling in certain given units.

The elimination of waste is possible to a much larger degree. Large combinations will have better research, and by virtue of this fact they should have a greater utilization of the raw product.
Combinations through their increased capital and larger collective holding will be able to work out a system of management which increase the returns from the property. These operations will be large enough to desire a permanent supply of timber. Through such a desire it may be a step toward a continued production of timber.

The establishment of the line yards and a definite marketing system is one of the most important features of a consolidation. Through such a system they will be able to fill larger orders and in better time. The saving in transportation is another possibility of the combination. These charges will be saved both in the transportation of raw and the finished lumber. Orders can be so placed that the nearest mill or line yard will ship the order.

It will be possible for these combinations to hold a sufficient amount of stumpage for continuous production. But they will not be overburdened by large holdings of stumpage, which it is impossible to cut at the present at a profit. Through these large combinations it will be possible to limit the production in the slack times and thus bring the price back to that place where a fair profit can be made in the working part of the plant regardless of any increase or de-
crease in stumpage values. Most of the other advantages and possibilities of combinations have been given in detail.

CONCLUSION

With the lumber industry in the present state, it is necessary that something be done immediately. There must be a radical readjustment of the economic basis of the lumber industry.

No group of men or man can stand still, they must either advance with the rest, or fall out of line and decay.

Other industries have made improvements in organization and production methods, but the lumber industry has shown very few improvements or marked changes.

According to T.T. Munger, and Col. W.B. Greeley, there is but one hope left, and that is the combinations. "Regional consolidations is the one guiding star toward which the companies in the Pacific Northwest must set as their goal."
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