

largest trees were removed, could have been cut more heavily with very substantial production. Over a century of careful forestry created this condition and provided the material that was so essential in the engineering work in France. It is not pleasant to contemplate what the situation would have been if the French had been as indifferent to a proper forest policy as are we in the United States.

Most of the discussion of the war uses for forest products has been centered on the needs of the armies in

of national defense. The war uses of wood products by the army were as follows:

|                                    | Board Feet.   |
|------------------------------------|---------------|
| Construction.....                  | 2,973,000,000 |
| Boxes and Crates.....              | 2,555,00,000  |
| Vehicles and Artillery Wheels..... | 116,000,000   |
| Gun stocks.....                    | 94,832,000    |
| Aircraft.....                      | 45,672,000    |
| Implements.....                    | 24,000,000    |
| Miscellaneous.....                 | 229,355,000   |
| Total.....                         | 6,037,859,000 |



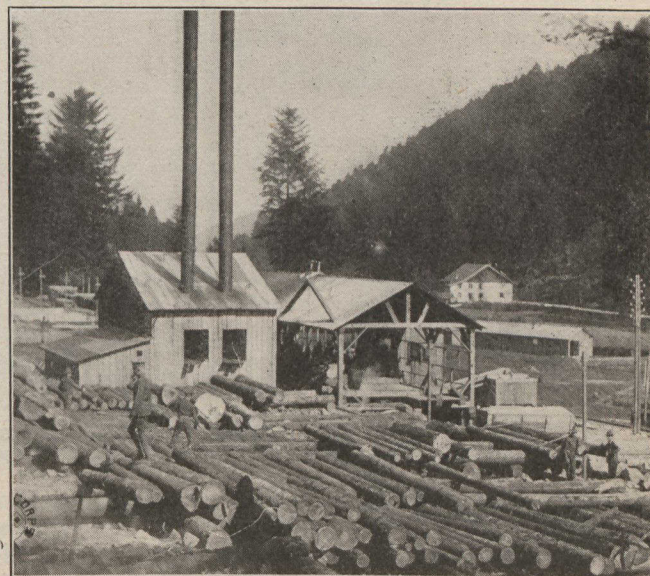
Logging in the Oregon forests

France. Great as these were, they aggregated only a fraction of the requirement in this country for temporary buildings, for boxes, crates, and other containers, for ships, for the manufacture of war vehicles and implements of all sorts, for chemical products of wood, and the like. The total quantity of wood products used for war purposes aggregated no less than 8.5 billion board feet, not including the requirements of the railroads for cars, bridges, cross ties, and miscellaneous uses, which amounted to about 4.5 billion feet more. The following table, from material compiled by the U. S. Forest Service, indicates as closely as can be determined, the amount of wood material used in the United States for war purposes:

|                                              | Board Feet.    |
|----------------------------------------------|----------------|
| Army Requirements.....                       | 6,037,859,000  |
| Navy Requirements.....                       | 309,197,000    |
| Shipping Board and Emergency Fleet Corp..... | 1,691,500,000  |
| Allies.....                                  | 660,094,000    |
| Railroads.....                               | 4,500,619,000  |
| Totals.....                                  | 13,199,269,000 |

A complete analysis of the lumber requirements of this country during the war would be beyond the scope of this article. Certain features, however, are of interest as showing the future problems of forestry in a plan

The great quantities of softwoods needed for construction and other purposes were furnished with reasonable promptness. It was possible to meet this emergency because we still had in the east a certain amount of virgin forest and a well-organized lumber industry. It was the large mills operating in bodies of heavy timber that made possible a large production of the soft wood lumber needed at once. If the war had taken place fifteen years later, we could not have accomplished what we did, because the virgin supplies of the east would by that time have been largely exhausted and the large mills will be a thing of the past. The seasoning of wood offered a perplexing problem, especially with high grade hardwoods. It was possible to use lumber for construction and for most containers without seasoning, but this could not be done in manufacturing vehicles, implements, and aircraft. Ordinarily the material used for these purposes had been air-dried. Some lumber can be dried in six months to a year. Thick stock of oak suited for artillery wheels requires two or sometimes three years for proper air-seasoning, while it can be seasoned by dry-kiln methods in ninety days. It was necessary to install a great deal of new equipment and to train men to use it. One concern manufacturing gun stocks lost 60,000 blanks by using improper specific-



Sawmill at Camp Weed, United States Engineers, near Bruyeres, France, July 1, 1918.

ations for drying. The Forest Service was able to assist the army and navy in formulating specifications for seasoning, and to aid the manufacturers in the development and operation of new dry kilns.

The existing lumber industry backed by substantial bodies of virgin forest was able to provide the ordinary grades of lumber. Greater difficulty was encountered in the case of specialized material such as high grade ash, oak, hickory, walnut, and locust. The Government,

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