

to posterity. Granting that new thought will devise new methods, it yet is our duty to preserve for future generations all possible natural resources. Intensive education of all classes in the fundamentals of these principles is necessary to achieve results.

Some one has written, "To make men do good things willingly even when they are not easy to do * * *." To create and maintain interest on the part of the worker whether he wears overalls or a white collar; to increase craftsmanship technique; to reduce as far as possible the monotony of repetition work; to ascertain the view-

points, ambitions, and capabilities of the workers, young and old; to encourage suggestions; to reward for improvements; to compensate by genuine friendliness, by promotion for ability, as well as by money pay; to be fair and square; to not "nag"—these are some of the duties of management if they want their colleagues "to do good things willingly even when they are not easy to do."

To the worker, "one must give to receive"—and the giving comes first. We individually pay for our holdout on work. A poor barber has few customers.

THE ROAD TO BETTER UTILIZATION

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The Secretary asked me to speak briefly on the subject of how to correlate the forces or agencies which must be used in bringing about the closer utilization of our forests. Having little definite knowledge of the methods and processes of making wood pulp and its products, I naturally approach the subject from the standpoint of the conversion of the tree into lumber, and the ultimate uses thereof. From their nature, wood, pulp and its products invite much closer utilization of wood than does lumber and, therefore, the solution of that part of the problem should be much simpler.

The subject assigned to me for discussion is somewhat complicated. There is a nation-wide distribution of lumber producing and consuming plants, with a variety of processes and products, using many different species of wood, and whose products find their way to an almost endless variety of uses. However, if we can ascertain the nature of the disease, we then know what kind of a doctor to summon on the case.

In converting the tree into lumber and placing the product in the hands of the ultimate user, there are five general agencies involved. These are: (a) logging; (b) sawmilling; (c) retailing; (d) wood specification by architect and engineer; (e) conversion into form for final use.

Wood waste, be it unavoidable or otherwise, must chiefly be chargeable to one or more of these five.

In considering the facts in each of these processes, we have time to take up only the chief causes for failure

of better utilization, and to suggest the method for finding and applying the remedy.

Let us first consider the process of logging. Is there a waste in this? The answer must be undeniably, yes. What, then, causes this waste? The answer is clear—the chief root of the trouble is the handicap imposed by the economic conditions surrounding the lumber industry. In the Pacific Northwest, for example, where this waste is greatest, over 60 per cent of the sawmill product is to-day sold below the cost of production. Clearly, the sawmill man can not live, industrially speaking, on any lower grade of logs, and without a market the logger can not cut his timber any closer. We all know that with the enormous expense involved in building logging railroads and buying equipment the logger will naturally take from the forest every board foot which he can sell at a margin over the cost of production and of stumpage. Indeed, he is quite apt to go too far in this direction and accumulate a stock of unsalable cull logs. The fundamental difficulty, therefore, that prevents better utilization on the part of the logger is, as I have stated, economic.

There may be, and probably are, other loopholes for waste, but we know that all over this country the leading logging operators are meeting, freely interchanging experiences, and finding ways to reduce logging costs—a result that leads directly to closer and better utilization of the forest.

Next, what about the sawmill? Is there waste in this process? Again