

# TECHNICAL NOTE NUMBER D-13

FOREST PRODUCTS LABORATORY - U. S. FOREST SERVICE MADISON, WISCONSIN

OREGON STATE AGRICULTURAL COLLEGE

## CASEHARDENED LUMBER AND WARPED PRODUCTS

LIBRARY

Many of the warped and twisted wood parts received for examination by the Forest Products Laboratory are found to be made from casehardened lumber.

A wooden part manufactured from casehardened lumber is well on its way to the scrap pile. At the time of manufacture the part appears perfect, but later on it shows up twisted and distorted. Casehardened lumber is full of stresses which have been set up by faulty drying, and the balance of these stresses is easily destroyed by any one of several common manufacturing operations.

A casehardened board when resawed, for instance, has such a strong tendency to curl up that mere nails and screws will not hold it flat. If casehardened stock is run through the planing machine and a slightly heavier cut is made from one surface than from the other, warping results.

Saddle chair seats made from casehardened lumber warp because the material is scooped out only from one side. Pulley stock may be so severely casehardened that when a hole is drilled through it, a large crack or split will immediately occur, because the stress set up incident to casehardening is more powerful than the wood surrounding the hole. Patterns for castings if made from casehardened lumber are doubly sure to warp and "work" when shaped and subjected to varying moisture conditions.

In the manufacture of wood products, from telephone parts and other delicate and precise equipment to shipping boxes and crates, casehardened wood is responsible for a lot of trouble and excessive manufacturing costs.

Casehardening in lumber can be relieved by proper manipulation in the dry kiln. Kiln operators should learn the meaning of casehardening, its cause, and how it may be detected before the lumber is removed from the kiln. Directions for making casehardening tests may be obtained from the Forest Products Laboratory without charge.