

# TECHNICAL NOTE NUMBER 125

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

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## IDENTIFICATION OF OAK WOODS

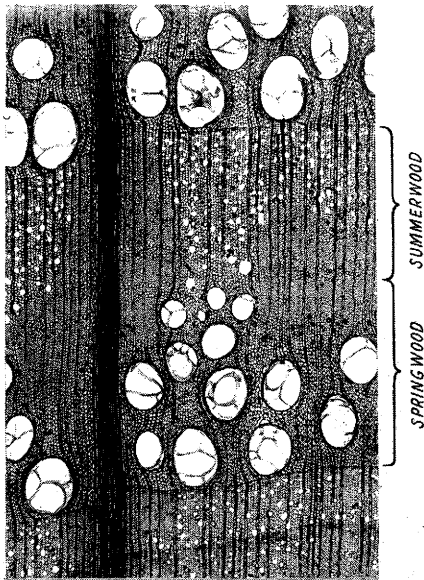
Over 50 species of native oaks assume proportions of trees, and about 25 are used for lumber. After cutting into lumber, there is no means known to the Forest Products Laboratory by which the wood can be identified as to exact species. By examining the wood alone, however, it is easy to separate the oaks into two groups — the white oak group and the red oak group. For most purposes, fortunately, further classification is not necessary. The oaks all average about the same in strength, but the heartwood of the species of the white oak group is much more durable under conditions favorable to decay than that of the species in the red oak group.

The white oak group includes true white oak, post oak, bur oak, swamp white oak, swamp chestnut oak, chestnut oak, overcup oak, and Oregon white oak. The red oak group includes true red oak, pin oak, black oak, turkey oak, southern red oak, swamp red oak, blackjack oak, water oak, willow oak, and laurel oak.

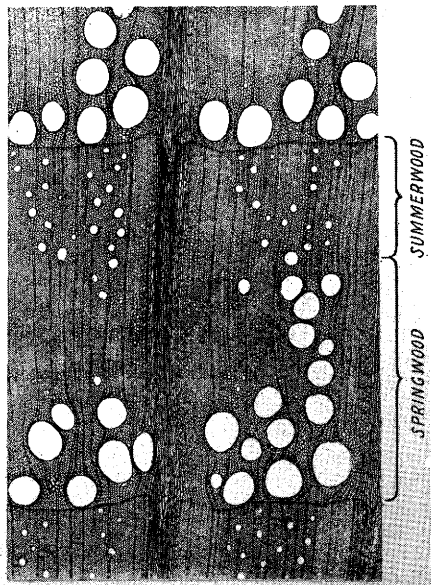
The color of the wood is a ready but not absolutely reliable means of distinguishing the wood of the white oak group from that of the red oak group. The wood of the latter group usually has a distinctly reddish tinge, especially near the knots. The wood of the white oak group is generally a grayish brown, but occasionally a reddish tinge is found in white oak lumber.

For more accurate identification it is necessary to examine the pores of the wood, which appear as tiny holes on a smoothly-cut end surface. They vary in size throughout each growth ring, being larger in the springwood where they are visible to the eye, decreasing in size abruptly toward the summerwood. The large pores in the springwood of the heartwood and inner sapwood of the woods of the white oak group are usually plugged up with a froth-like growth called tyloses, and those of the red oak group are open. This feature, however, is not so reliable for classification as the character of the much smaller pores in the summerwood.

To tell for a certainty whether a piece of oak belongs to the white or red oak group, cut the end grain smoothly with a sharp knife across several growth rings of average width. With a hand lens examine the small pores in the dense summerwood. If the pores are plainly visible as minute rounded openings, and can readily be counted, the wood belongs to the red oak group. If the pores in the summerwood are very small, somewhat angular, and so numerous that it would be exceedingly difficult to count them, the wood belongs to the white oak group.



WHITE OAK  
CROSS SECTION MAGNIFIED 20 TIMES



RED OAK  
CROSS SECTION MAGNIFIED 20 TIMES