

TECHNICAL NOTE NUMBER 215

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

THE WHITE PINES

Of the dozen or so botanical species of true white pines grown in the United States, three are of out-standing importance in the lumber industry. They are eastern white pine (*Pinus strobus*), western white pine (*Pinus monticola*), and sugar pine (*Pinus lambertiana*). Eastern white pine grows in the northeastern and north central states. Western white pine is found chiefly in the Inland Empire (northwestern Montana, northern Idaho, and northeastern Washington). Sugar pine grows in commercial quantities in California and southern Oregon.

There is no absolutely positive means of identifying the three white pines one from another microscopically. One familiar with the pines, however, can usually classify the species by growth characteristics.

Sugar pine usually is lighter colored, changes color less on exposure, has more conspicuous resin ducts, and is slightly coarser textured than the other two pines. Western white pine is more like eastern white pine than is sugar pine, but lumbermen can usually distinguish it by the color of its knots which ordinarily are darker around the edges than are the knots of eastern white pine. Pattern makers often claim that they can tell the clear wood of western white pine from the clear wood of eastern white pine by a difference in workability, although both woods have about the same hardness and are equally fine-textured.

Eastern white pine (referred to in the trade as northern pine or simply white pine) is light in weight, soft, even-textured, and is easily worked. It is a wood highly prized for use in millwork, boxes and crates, woodenware, novelties, and patterns. It dries easily,

and does not shrink or swell greatly with changes in moisture content. It is probably the least resinous of all pines.

Western white pine (often referred to as Idaho white pine) has about the same physical characteristics as eastern white pine. The lower grades of western white pine are used locally for boxes and crates. A considerable quantity of the wood is used in the production of matches. The higher grades are shipped to eastern markets and are used for about the same purposes as eastern white pine. It shrinks and swells a little more with changes in moisture content, but on the whole it is as good for most purposes as the eastern pine. Pattern makers usually prefer the eastern white pine on the grounds that it is less resinous, more easily worked, and changes shape less with moisture changes. The western pines, however, have been used quite extensively as pattern woods and have been found satisfactory.

Sugar pine is the largest of the white pines, and most large white pine planks and timbers are cut from this species. A larger percentage of factory and shop material comes from sugar pine than from the other white pines, and less is sold as common lumber. This is probably because a larger percentage of clear cuttings can be obtained from sugar pine than from the other species. Otherwise, the wood is quite comparable to western white pine.

Another species of western pine which is similar in so many respects to the white pines that it is often referred to as a white pine is western yellow pine (*Pinus ponderosa*). This pine is found from the Inland Empire to Arizona and New Mexico. It is the lightest colored of the yellow pines, and the most abundant of the western pines. Commercially it is known under several different names. In the Inland Empire it is sold as "western white," "western soft," or "Pondosa" pine. In California it is known as "California white" pine. The quality of western yellow pine differs considerably with the region

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of growth. In California it grows larger and straighter than it does in Arizona or New Mexico; consequently a greater percentage of the material from California is sold in Select and Factory grades, and more of it comes in competition with the white pines. Most of the lower-grade western yellow pine produced in New Mexico and Arizona is used locally for ties and timbers, or as common lumber. The better grades compete with the upper grades of other pines in distant markets. Western yellow pine can be distinguished from the white pines by the distinct bands of summerwood on the outer circumference of each annual ring, especially in the heartwood.

The red pine of the Lake States (*Pinus resinosa*) is frequently sold as white pine. It is somewhat coarser in grain and texture, with more strongly marked annual rings, and it is somewhat more resinous. Red pine is also known as Norway pine, Canadian red pine, and hard pine.

All the pines mentioned are comparatively easy to dry either by air seasoning or kiln drying. Sugar pine, western yellow pine, and eastern white pine are about as free from tendency to warp and twist with changing moisture content as any of our native woods. Western white pine tends to cup and check somewhat more in drying than the others, and care must be taken to avoid planer splitting, especially in flat-sawed boards.

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