The Redwoods of California—Largest of Economic Plants

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It is most appropriate for the Society for Economic Botany to devote a large part of its 1966 convention program to forest trees and their products. Except perhaps for the grasses, forest trees are of greater economic importance than the smaller plants. All trees are plants, and the redwoods of California are the largest of them all. Foresters deal with trees as economic plants, just as the orchardists deal with trees for their economic fruits. Foresters are actually applied economic botanists, interested in the management of forest trees for their wood or fiber. Similarly, the sawmill, like the packing plant or cannery, is the converting plant for preparing raw material for the use of man. To do their job well, foresters must have a good grounding in botany, particularly the intriguing fields of tree physiology and wood anatomy.

My paper is limited to the Coast Redwood (Sequoia sempervirens Endl.), because it is the only one of the two trees commonly known as redwood that is of economic value. Coast Redwood occurs naturally only in a 500-mile irregularly-narrow, discontinuous, north-south strip along the northern California coast. The other species, the Sierra Redwood (Sequoia gigantea Desc.), occurs only in scattered groves in the Sierra Nevada from roughly, 5,000 to 8,000 feet elevation. There were not more than 40,000 or 50,000 acres of this species and, since almost 100% is in public ownership and preserved against cutting, it has no economic importance in the usual sense. But from the standpoint of evoking inspiration, it is unsurpassed.

Coast Redwoods occurred naturally on about 1,910,000 acres. This area includes the many light stands. But for the kind of redwoods, those of very heavy stands of large trees of which we hear so much at present, the area was much smaller, possibly far under 1,000,000 acres. Coast Redwood has been, for more than 100 years, a tree of very great economic importance. Fortunately, commercial redwood forests can be managed on a perpetually productive basis. It is fortunate, also, because of the great appeal to the eye and the spirit that the best and heaviest stands have been preserved in state parks. Viewed from the standpoint of the remaining area of such stands, the 50,000 acres in parks amounts to roughly one-sixth of the remaining old-growth area and close to one-third of the remaining volume of primeval forest. Last year, another 2,100 acres was added. Another 6,000 acres of superlative park-type redwoods, the only kind the public comes to visit, has been held in reserve for many years by their owners pending acquisition by the 50-year-old Save-The-Redwoods League and for transfer to the state for further park additions.

Much misinformation gets into press notices at present in connection with the accelerated drive for a redwood national park and therefore must be viewed critically. One wonders if the present escalation for preservation is motivated by an admitted need for the preservation of more redwood or by ambition for just another unit in the national park system. What has been preserved to date would cost, if it had to be purchased at present prices, $250,000,000. Except for the 6,000 acres mentioned above, none of the remaining stands of primeval redwood are the equal of what is now in the state parks.

Economic Products

The principal products of redwood are lumber and lumber products and, very recently, wood chips for paper and paper
products. As an industry, the production of wood alone has an annual value of well over $150,000,000 for redwood lumber and products alone. To this should be added another $50,000,000 to $75,000,000 for the veneer and paper pulp products. It employs thousands of men and is the mainstay of three counties for payrolls and local taxes. Without it, there would be no common carrier railroad into the region. Since much of the lumber moves part or all the way from mill to market by trucks and trailers, the trucking industry itself is of considerable economic importance locally. Shipping by water, the sole form of transportation before railroads and highways, has dwindled to a much smaller cargo total and is limited to Humboldt Bay and Crescent City harbor.

Lumber, the most important product, includes not only the sawn, dried, raw material but also the products of its accompanying factory, where, whatever lumber is not shipped as such, is re-worked into moldings, paneling, siding of various patterns, ceiling, window sills and frames, gutters and others. Siding is the most important product, followed closely by paneling and trim. In addition, a large volume is worked into cut stock for a host of industrial uses, not the least of which are garden furniture and cores for such things as veneered table tops. Tanks for storing water, wine and chemicals used to be large items. They are still important but not so much as formerly. Cooling towers consume a large volume of lumber.

Since Douglas Fir is an ever present associate in the forest, this wood also goes through the same manufacturing processes, but the amount is under that for redwood and the products include such building materials as framing, flooring, stepping, cross-arms, etc. More and more of the Douglas Fir now goes into veneer and plywood.

The factory department of a sawmill plant deserves more comment. It is the factory that, in large part, makes possible maximum

Fig. 1. A stand of redwood originating from seeds and stump sprouts after the original virgin forest was logged, a century ago. A stump from this logging is shown left of center. When growing on the rich, deep-silt river benches along large streams the growth rate is extraordinary, averaging 2000 board feet per acre per year for the century. Known as "second-growth", it is young stands such as this, and lighter ones on the slopes, upon which the continuity of redwood lumbering is based. When the market for pulp chips improves, the thinning of young stands becomes feasible because the thinnings will be ground to chips.