

temperament, are systematically cut out. It may be strongly doubted whether such a policy might safely be applied on soil less moist than that of the Sihlwald; but here, at least, the trees reach the age of sixty years, tall, straight, clean-boled, and in condition to make the best of the last part of the period of maximum growth, which a large number of measurements have shown to occur in general between the ages of seventy and ninety years. A heavy thinning now comes to the assistance of the best specimens of growth, and they are left to profit by it until seven years before the date fixed for their fall. Then begin the regeneration cuttings, whose object is to admit through the leaf-canopy an amount of light, varying with the temperament of each species, whose mission is to give vitality to the seedlings which the trees, stimulated themselves by their more favorable situation, now begin to produce in considerable quantities. To this end the light which falls from above has a powerful auxiliary in that which the system of felling each year in a long narrow strip admits from the side, and so admirable is this double method that the time which elapses between the beginning and the end of a regeneration is but half the average for less favored localities. This applies only to the deciduous trees. The time required by the conifers is much longer, and the incomplete regeneration which they furnish is supplemented by planting in the blanks already mentioned. But for the self-sown seedlings of both classes the amount of light is gradually increased, the trees which shelter them are at length wholly removed, and the cycle of growth repeats itself. . . .

Nancy, France.

*Gifford Pinchot*

[*Garden and Forest* 3 (1890): 374, 386]

*from* NOTES ON THE FOREST FLORA OF JAPAN.—XXIII.

. . . THE most generally planted timber-tree of Japan is the Saké, *Cryptomeria Japonica*, and its wood is more universally used throughout the empire than that of any other Conifer. It is one of the common trees of temple-gardens and roadside plantations, and, when seen at its best, as in the temple-groves at Nikko or Nara, where it rises to the height of a hundred or a hundred and twenty-five feet, with a tall shaft-like stem tapering abruptly from a broad base, covered with bright cinnamon-red bark and crowned with a regular conical dark green head, it is a beautiful and stately tree which has no rival except in the Sequoias of California. Great planted forests of the *Cryptomeria* appear all over Hondo on broken foot-hills and mountain-slopes up to an elevation of nearly three thousand feet above the sea, low valleys and good soil being usually selected for such plantations, as the trees need protection from high winds. The plantations decrease in size and luxuriance in northern Hondo, and the cultivation of the Saké does not appear to be attempted north of Hakkodate where there is a grove of small trees on the slope of the hill above the town. The wood is coarse-grained, with thick layers of annual growth, dark reddish heart-wood and thick pale sap-wood; it is easily worked, strong and durable, and is employed in all sorts of construction. The bark, which is carefully stripped from the trees when they are cut down, is an important article of commerce and is used to cover the roofs of houses. A large round bunch of branchlets covered with their leaves hung over the door of a shop is the familiar sign of the dealer in saké.



Japan owes much of the beauty of its groves and gardens to the *Cryptomeria*. Nowhere is there a more solemn and impressive group of trees than that which surrounds the temples and tombs at Nikko, and the long avenue of this tree, under which the descendants of Ieyasu traveled from the capital of the Shoguns to do honor at the burial-place of the founder of the Tokugawa dynasty, has not its equal in stately grandeur. This avenue, if the story told of its origin is true, can teach a useful lesson, and carries hope to the heart of the planter of trees who will see in it a monument more lasting than those which men sometimes erect in stone or bronze in the effort to perpetuate the memory of their greatness. When the body of Ieyasu was laid in its last resting-place on the Nikko hills his successor in the Shogunate called upon the Daimios of the empire to send each a stone or bronze lantern to decorate the grounds about the mortuary temples. All complied with the order but one man, who, too poor to send a lantern, offered instead to plant trees beside the road, that visitors to the tomb might be protected from the heat of the sun. The offer was fortunately accepted, and so well was the work done that the poor man's offering surpasses in value a thousand-fold those of all his more fortunate contemporaries.

Something of the beauty of this avenue appears in the illustration, although, without the aid of colors, it is impossible to give an idea of the beauty of the *Cryptomeria*. The planted avenue extends practically all the way from Tokyo to Nikko, but it is only when the road reaches the foot-hills that it passes between

rows of Cryptomerias, the lower part being planted, as is the case with the other great highways of Japan, with Pine-trees; nor, as it has often been stated, is this avenue continuous, for whenever a village occurs or a roadside tea-house, which are scattered all along the road, there is a break in the row of trees, and it is only in some particular spots that a long view of continuous trees is obtained. The railroad, which follows parallel and close to the avenue for a considerable distance and then crosses it just before the Nikko station is reached, is a serious injury to it. The trees, as will be seen in the illustration, are planted on high banks made by throwing up the surface-soil from the roadway; they are usually planted in double rows, and often so close together that sometimes two or three trees have grown together by a process of natural grafting. Young trees are constantly put in to fill gaps, and every care apparently is taken to preserve and protect the plantation. How many of the trees originally planted when the avenue was first laid out in the beginning of the seventeenth century are left it is impossible to say, but I suspect that most of those now standing are of much later date. One of the trees close to the upper end of the road which had been injured by fire was cut down during our visit to Nikko. The stump, breast-high above the ground, measured four feet inside the bark, and showed only one hundred and five layers of annual growth. Few of the trees in the avenue were much larger than this, although in the neighborhood of the temples there are a few which girt over twenty feet; these were probably planted when the grounds were first laid out.

The two [most valuable timber-trees in Japan], *Chamæcyparis* and the *Cryptomeria*, are now almost unknown in a wild state. They may, perhaps, be found growing naturally on some of the southern mountains which we did not visit; wherever we went, however, we saw only trees that had been planted by man, although some of the plantations had evidently lived through several centuries.

*C.S.S[argent]*

[*Garden and Forest* 6 (1893): 443]

### A MUSEUM SPECIMEN OF SEQUOIA GIGANTEA.

A section of a trunk of one of the California Big Trees is now almost ready to be set up in the Jesup collection of American woods in the Museum of Natural History in this city. Like the other specimens of this collection, this one is four and a half feet in long, measuring with the grain, but it is rather more than twenty feet in diameter, and when fully prepared the great wheel will be set up on its rim as the beautiful specimen of Redwood is near by. The tree grew on land now owned by the King's River Lumber Company, near Sequoia, Fresno County, California, a long day's ride up the mountain from Visalia. To make transportation possible it was split into twelve sections, the centre-piece being round, and eleven other radiating from it. It is an admirable specimen, with perfect grain and apparently no wind-checks, although through one of the sections there is a narrow decayed tunnel something like eighteen inches long and an inch or two in width. Outside of this, however, the trunk is perfectly solid, and this decay probably came from some injury to the trunk, which may have been bruised by a falling tree; and if we can estimate time by annual rings of growth the accident happened at about the date when the Pilgrims landed at Plymouth. Mr. S. D. Dill,