

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,

who has prepared all the specimens for this great exhibition, is now riveting the segments of the giant trunk together with great iron bolts, so that it will be perfectly solid when it is finally ready for its position in the centre of the collection.

The tree from which this trunk section was cut was one of a few trees left standing of a once magnificent Sequoia-grove, and the stumps about it show that their growth was very large, one not far from this tree being forty feet in diameter. The remains of the old mill which has turned these venerable trees into lumber is still there, but other mills are at work cutting from 125,000 to 130,000 feet every day. It may be said that the Converse Basin tract of Sequoias, which belongs to the King's River Lumber Company, is about ten miles back from the place where this tree was cut, and Mr. Moore, the Superintendent of the company, estimates that there is enough of that one kind of timber on the tract to keep these mills running at their present capacity for fifty years. When the trees which stand high up on the slopes of cañons are felled the logs are cut off into proper lengths. They are then blown apart by dynamite into halves, quarters and eighths, and a powerful steam-engine, with a steel cable, draws this split timber down to a greased tramway of round peeled logs, over which they are shot away to the mill, near the mouth of the cañon. They are then sawed up into lumber of



Stump of *Sequoia gigantea* on land of the King's River Lumber Company

proper sizes and floated down through a V-shaped flume from the mill to the railroad, sixty-two miles away. This flume is supplied by a large reservoir in the mountains. Although when dry the Sequoia is one of the lightest of American woods, it is very heavy when full of sap, and will not float readily until it is seasoned, so that the timber needs to lie some time before it is floated out of the mountain. The lumber looks very much like redwood, and is sold under this name. Indeed, it is only distinguished from redwood by the eye of an expert.

This particular tree was called "Mark Twain," and girthed sixty-two feet at eight feet from the ground and ninety feet at the surface. It was a straight, handsome tree some three hundred feet high, and without a limb for about two hundred feet from the ground. Mr. Moore estimated that it contained four hundred thousand feet of lumber, and the specimen cut, four and a half feet long, weighed over thirty tons. It took two men about three weeks to cut it down. The axemen chopped out deep notches on the opposite sides of the tree, leaving a comparatively narrow strip through the centre untouched. A notch was then cut at one end of this centre-piece on the side toward which the tree was to fall . . . Two long cross-cut saws were then welded together and the workmen began to saw in horizontally opposite the cut last mentioned, and wedges were driven in until the tree toppled over . . . [The illustration] gives some idea of the size of the tree at the ground. Fifty men of the Lumber Company's force are here seen standing out on the sap-wood and bark of the stump, and the tools with which the giant was overthrown lie in the centre, where there is easily room for a hundred more men. Of course, the butt of the log that fell was sawn off above the bevel made by the axes, and in a plane perpendicular to the axis of the log, so that the bottom of the specimen in the museum represents a cut about ten feet from the ground. A section of the log next above this has been secured as a specimen for the British Museum.

Every lover of nature must be rejoiced at the fact that the National Government has taken possession of several of the most extensive groves of Big Trees that remain in California, so that they cannot pass into private hands and be turned into lumber, a fate which has already befallen so many of these oldest and noblest inhabitants of our mountain forests.

[Editorial. *Garden and Forest* 5 (1892): 541-542]

THE FORESTS OF THE NATIONAL DOMAIN.

THE small company of forward-looking people who, in the face of almost universal apathy, had been for years urging the necessity of some rational system of management for the forests on our national domain, felt greatly encouraged ten years ago when President Arthur was moved to mention the subject in one of his annual messages. We have no systematic forest-policy yet, not even the beginning of such a policy, but we are no longer surprised or unduly elated over the fact that men in places of high authority consider the matter worth talking about, at least. President Cleveland, like his immediate predecessors, in his message to Congress, which assembled last month, strongly advised that some adequate protection should be provided for the areas of forest which had been reserved by proclamation, and he also recommended the adoption of