

# The Trees of Tian Mu Shan: A Photo Essay

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Tian Mu Mountain, located approximately 90 kilometers west of the city of Hangzhou, is the tallest mountain in Zhejiang Province, China. Rising 1506 meters above sea level, Tian Mu Shan is well known throughout China for its scenic beauty and for the diversity of its flora. It has a long and rich history, and has been visited by monks, herbalists, poets, botanists, and tourists for close to a thousand years. From a utilitarian point of view, the mountain is noted for exporting four comestible products: "cloud and fog tea," collected from *Camellia sinensis* growing wild on the cool slopes; "dried bamboo," derived from the young shoots of the locally abundant *Phyllostachys pubescens*; "hickory nuts," the sweet seeds of *Carya cathayensis*; and lastly the numerous medicinally important herbal plants that were once widely collected.

The most prominent symbol of Tian Mu Shan's long human history is Kaishan Temple, located two-thirds of the way up the mountain, at 1020 meters. Built by Buddhist monks in 1279, this small temple serves as a focal point for visitors, who often spend the night in order to view the sunrise the following morning. A second temple, Chanyuan, was built in 1665 and is located at the base of the mountain, at 330 meters.

The topography of Tian Mu Shan is diverse enough to support a wide variety of plant associations. The subtropical evergreen forests typical of south China commingle with the warm temperate deciduous forests of the north on the slopes of Tian Mu Shan, resulting in a flora of some 1530 species of vascular plants, one of the richest in the temperate world. Beginning in the 1920s, Chinese

botanists, recognizing the uniqueness of the Tian Mu Shan flora, collected and described many distinct species from the area. Today at least three species are recognized as endemic to the mountain, and a total of thirty species growing within the reserve are included in Volume 1 of the *Plant Red Data Book* of rare, endangered, and threatened plants of China. In 1960, the Chinese government, recognizing the uniqueness of Tian Mu Shan flora, established a 1000-hectare reserve (400 acres) on the south-facing slope of the west peak, designed to preserve and protect the plants.

In addition to its high species diversity, Tian Mu Shan is also famous for its exceptionally large trees. Foremost among them is *Cryptomeria japonica* var. *fortunei*, the cryptomeria, of which there are 398 individuals with diameters greater than one meter. The golden larch, *Pseudolarix amabilis*, also grows wild on Tian Mu Shan, with some 98 individuals larger than half a meter in diameter. Most interesting of all are the large specimens of *Ginkgo biloba*, the ginkgo, growing in isolated valleys and on steep cliffs. According to the only published report on the population, 244 trees were located, with a mean diameter of 45 centimeters and a mean height of 18 meters. Whether these trees are truly wild or are the escaped offspring of trees cultivated by monks has been debated by botanists for years. Researchers have yet to reach a clear consensus on the answer to this question.

In addition to these three rare gymnosperms, exceptionally large specimens of *Torreya grandis*, *Liquidambar formosana*, *Nyssa sinensis*, *Cyclocaria paliurus*, *Litsea*



*Ginkgo biloba* in silhouette at 980 meters elevation.

*auriculata*, and *Emmenopterys henryi* are also common. In the fall of 1989, I had the good fortune to visit Tian Mu Shan in the company of two very able Chinese botanists, Professor Ling Hsieh of the Zhejiang Institute of Forestry and Mr. Yang Guang of the Jiangsu Insti-

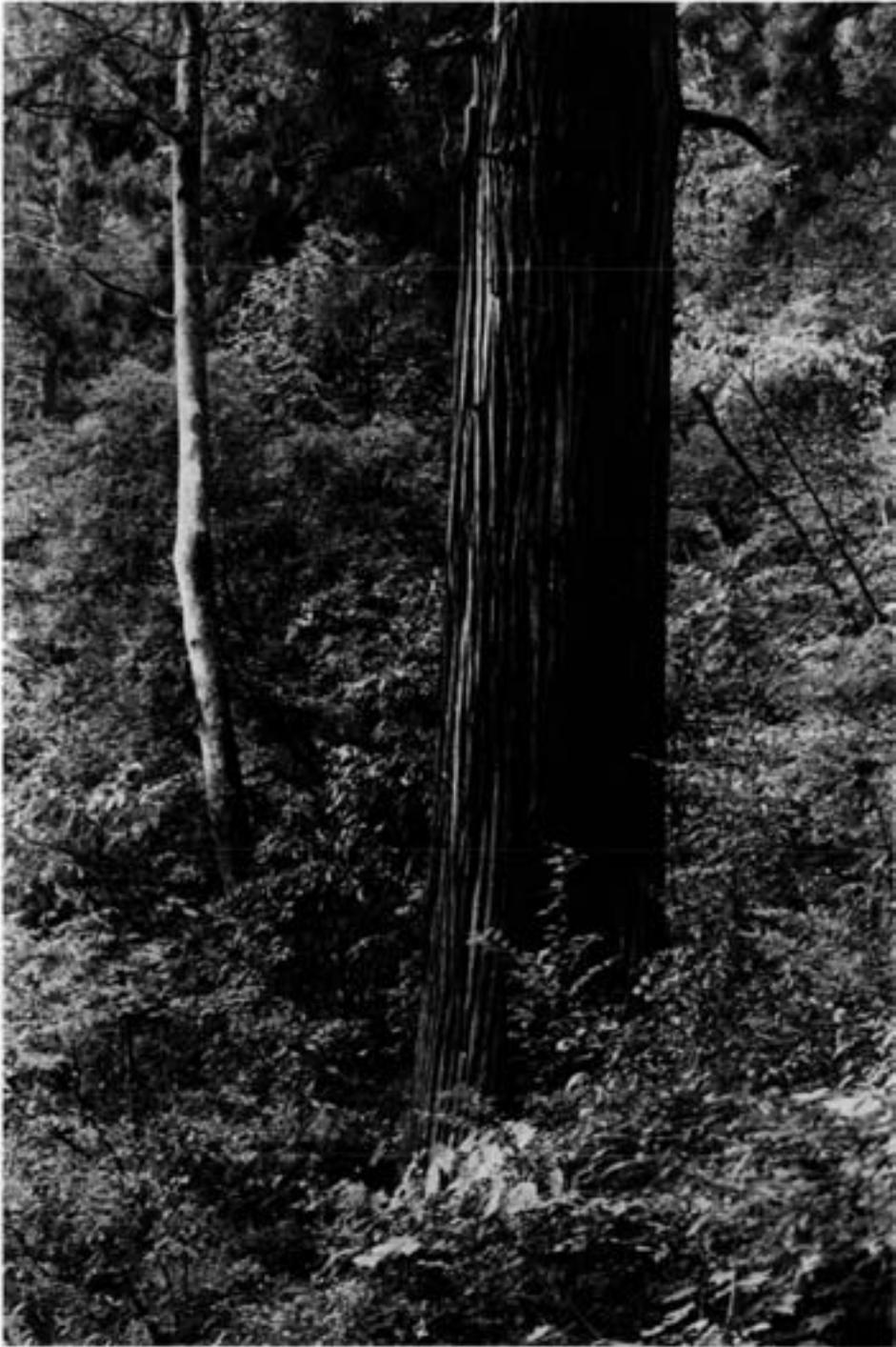
tute of Botany. From October 6 to 15, the three of us tramped up and down the mountain mapping and measuring all the ginkgo trees we could find. It was a memorable time for me and one that I hope is captured in the following photographs.



*Professor Ling and a large specimen of Pseudolarix amabilis, the golden larch, 42 meters tall, with a diameter at breast height of 112 centimeters.*



*Yang Guang with the “living fossil” ginkgo in the Tian Mu Shan reserve. This ancient ovulate tree occupies an area of approximately 20 square meters and consists of 15 stems greater than 10 centimeters in diameter. The largest trunk has a diameter of 110 centimeters. The Chinese describe this tree, perched on the edge of a steep cliff at 950 meters, as “an old dragon trying to fly.” The fence protecting the tree was built in 1980.*



*Cryptomeria japonica* var. *fortunei* is the dominant tree on Tian Mu Shan. Here it is growing in association with a large specimen of *Magnolia denudata*, the yulan magnolia.



*Several Cryptomeria japonica var. fortunei demarcate the stone path that leads to Kaishan Temple. About 300 years old, these trees may well have been planted for the purpose of erosion control.*



Very common on *Tian Mu Shan*, *Liquidambar formosana*, the oriental sweet gum, is a very large tree. Here it is growing amidst a clump of *Phyllostachys pubescens*, a timber-producing species of bamboo.



*At lower elevations on Tian Mu Shan, between 200 and 400 meters, Trachycarpus fortunei, the widely cultivated windmill palm, commonly grows on dry soils in full sun.*