

A Guide to *Metasequoia* at the Arnold Arboretum

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M*etasequoia* was not introduced into the West for its potential as an ornamental, nor primarily for its botanical interest. The remnant populations in central China appeared to be on the verge of extinction, and the great concern was to expand its range. Once seeds had germinated and there was confidence that somewhere outside central China favorable growing conditions would be found, interest at the Arboretum turned to finding favorable conditions within its own walls. Early speculation suggested that the species might not be hardy north of Georgia, where the climate of the coastal plain is similar to the tree's native habitat. To determine their cultural requirements, Donald Wyman, then managing horticulturist, planted specimens and groves at a variety of sites. Today our *Metasequoia* population is concentrated in four areas: the wet meadow near the Arborway; the southern slope of Bussey Hill; in the conifer collection; and on Peters Hill.

Of the Arboretum's 13,187 plants, 106 are *Metasequoia glyptostroboides*, .8% of the total. Before the advent of computerized record-keeping in the 1980s, the Arboretum's plant data were recorded in an accessions book and a card catalog. On the card for accession 3-48 is typed,

Metasequoia glyptostroboides. Seeds, received by Dr. E. D. Merrill, Arn.Arb. from Szechuan, China, Jan. 14, 1948. (This is the oldest plant in the U.S.)

Certainly it is the oldest individual in the Arboretum, and the only one derived from the first seedlot. The newcomer wasted no time establishing itself; seedlings were up in two weeks.



The Arboretum's oldest and most unusual specimen of Metasequoia, located in the conifer collection, where soil drainage is good and surrounding trees block strong winds. An early trauma must have caused it to regenerate from basal suckers. It lost some large branches in the April Fool's Day blizzard of 1997, but by the end of the year it was in good condition again. Because of its historical interest and "collections quality," clones of 3-48 have been propagated, and in 1992 three scions were added to the collections.

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When conditions suit them, dawn redwoods grow with astonishing speed. When this specimen was transplanted at age three from poor, dry soil to good soil, it was at the height pointed to by the girl. In the following season it grew 4'4", doubling its height.

Metasequoia proved easy to propagate by cutting, but for many years the Arboretum trees produced no viable seed. Female cones were formed, but male cones were lacking. In 1980 Alan Longman of the Institute of Terrestrial Ecology, Edinburgh, Scotland, in collaboration with Peter Del Tredici, then assistant propagator, undertook an experiment in flower induction. Both male and female cones formed by September, but the success of the gibberellic-acid-induced male cones was overshadowed by coincidence: 1980 turned out to be the year that they were also produced naturally.

The second, much larger shipment of seeds arrived in Jamaica Plain on March 19, 1948. For this 500-gram lot, library and herbarium staff supplemented the greenhouse staff in sorting the very small seeds into hundreds of packets for distribution around the world. Twelve of the plants from these seeds remain on the grounds. When assessed during the past three years, all of the trees dating from 1948 were in "good" condition excepting only one "poor," one "fair," and one "excellent." Happily, the "excellent" tree is the most visible one: It stands on Meadow Road near the Hunnewell Building. At 84 feet it is not notably tall, but few of its



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The "excellent" dawn redwood on Meadow Road, in 1964. Donald Wyman noted, "This is the best of several forms now growing in the Arnold Arboretum." Wyman was a close observer of the species, but not a great fan. In 1970 he wrote, "Although very fast growing, it is not a distinguished ornamental and is definitely too large for the small garden."



The grove of dawn redwoods that terminates Chinese Path on Bussey Hill photographed shortly after they were planted in spring of 1995. They were grown in the Dana Greenhouses from seed sent from China in 1991

cohorts rival it in diameter. Its 130 centimeters (50.7 inches) at breast height is second only to the 134 centimeters (52.3 inches) of the tree on Valley Road near Bussey Brook.

Six dawn redwoods were grown from seeds brought to the Arboretum by the delegation of Chinese botanists who visited in 1979, three located in the wet meadow, the others in the conifer collection. With the exception of one cultivar, 'National', which came from the U.S. National Arboretum in 1962, all other dawn redwoods were planted in 1995. To broaden the genetic base of the *Metasequoia* collection, the Arboretum joined a small consortium organized by John Kuser of Rutgers University to sponsor the collection of seeds from all known wild populations in China. From these seeds came 69 plants from 43 different parent trees. Nineteen form a grove that terminates Chinese Path on Bussey Hill. Three other groves are sited on Peters Hill, one in a low, sunny spot; another, dry and sunny; the third, dry and shady.

Certainly the Rutgers seedlings have greatly expanded the parentage of the Arboretum's collection of *Metasequoia*, but interestingly, investigations of both the two 1948 seedlots and the forty-six 1991 seedlots indicate that the 1948 lots contain fully 80 percent of the genetic variation found in the species overall (Kuser et al.



The grove in spring 1999.

1997). Half a century after Elmer Merrill received the first seed shipment from China, concerns about genetic variation have been put to rest; hardiness has been established across a broad geographical range; propagation has been ensured; the threat of extinction is past: We are free to concentrate on the dawn redwood's very ornamental features.

Bibliography

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Silhouetted by falling snow in the wet meadow, the rightmost Metasequoia is the tallest of the Arboretum's dawn redwoods; in December 1997 it was 102.2 feet in height and 80 centimeters (31 inches) in diameter at breast height; to its left is a bald cypress (Taxodium distichum), planted in 1933. The other dawn redwoods seen here were propagated in 1962. In 1997, all fell within 64 to 75 feet in height.

Chinese Names in Transliteration: A Conversion Table

In 1979, the People's Republic of China officially adopted the Pinyin system for transliterating Chinese ideograms into the Roman alphabet. Prior to that time, most spellings accorded with the Wade-Giles system (although variations are common). In the historical articles in this issue, the original spellings of names and places have been retained; some of them reappear in Part 2 in changed form and it is those that are included below. The older spelling is given in the first column; the newer, Pinyin spelling is on the right.

Canton	Guangzhou	Kuling	Guling
Cheng, Wan-Chun	Chen Wanjun	Kuo, P. Q.	Guo Bingwen
Chun, Woon-Young	Chen Huanyong	Kwantung	Guangdong
Chung, H. H.	Zhong Xinxuan	Mou-tao-chi	Modaoqi/ Moudao
Chungking	Zhongjing	Nanking	Nanjing
Chung-lu	Zhonglu	Peiping, Peking	Beijing
Hsiao-ho	Xiaoho	Shen-lung-chia	Shennongjia
Hsien	Xian	Szechuan	Sichuan
Hsueh, Chi-ju/ C. Y.	Xue Ji Ru	Wan Hsien	Wanxian
Hu, Hsen Hsu	Hu Xiansu	Wang-chia-ying	Wang Zhang
Hupeh	Hubei	Yangtze	Changjiang
Kiangsi	Jiangxi		

Another group of synonyms may be helpful:

Shuisapa Shui-hsa Valley Valley of the Tiger Metasequoia Valley