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METASEQUOIA BROUGHT UP-TO-DATE

THE history of the discovery of *Metasequoia glyptostroboides* has been retold several times. In short, it is this. In 1941 the genus *Metasequoia* was described by Miki, a Japanese botanist, on the basis of fossil material found in Korea and Japan. Mr. Tsang Wang of the Central Bureau of Forest Research in China, first collected specimens in 1944, not knowing what they were. In 1945, Mr. C. L. Wu, another Chinese botanist, in examining these collected specimens, realized that they represented a genus that was very unusual and probably new. These specimens eventually came into the hands of Dr. W. C. Cheng of the National Central University, Nanking, and Dr. H. H. Hu of Fan Memorial Institute of Biology, Peiping. They were recognized as belonging to the previously described fossil genus *Metasequoia*. To make certain, an expedition was organized in 1946 to collect fresh material which Cheng and Hu later described in 1948 as *Metasequoia glyptostroboides*. To all these Chinese botanists goes the full credit for the discovery of this heretofore "extinct" species. When botanical specimens were examined by Dr. E. D. Merrill, former Director of the Arnold Arboretum, in the latter part of 1946, he became interested in attempting to obtain seeds. Accordingly, a modest grant was sent to Dr. H. H. Hu, who sent out an expedition for this purpose on September 3, 1947. This expedition returned with seeds, the first ones of which arrived at the Arnold Arboretum on January 5, 1947. *Dr. Merrill and the Arnold Arboretum should be given credit for the introduction of this species into modern gardens*, for this first lot of seeds was distributed far and wide throughout the world. Later, additional seed lots were also sent to the Arboretum, as well as to institutions on the Pacific Coast.

Because of great popular interest in the story surrounding the discovery of this species, many articles have appeared concerning it. The best bibliography of these to date appears in "An Ecological Reconnaisance in the Native Home of *Metasequoia glytostroboides*" by Kwei-ling Chu and William S. Cooper in Ecology, Vol. 31, No. 2, April 1950, pp. 260–278.

Metasequoia has exhibited very fast growth. The photograph on page 27 shows how a 28-month-old specimen has grown eight feet from seed in England. Specimens in this country may not have grown quite so fast, although one plant in the Santa Barbara Botanic Garden grew five feet in one year.

As mentioned above, considerable has already been written about this tree and its origin, but requests keep coming in continually for more information concerning it. For detailed facts, the above-mentioned bibliography, and especially the article to which it is attached, will give the complete story. A few points of practical interest here, may help to bring many "up-to-date."

At first it was thought that this species might not be hardy north of Georgia. The climate of the coastal plain in Georgia is very similar to that of the native habitat of this tree. Recent investigations have shown that it is growing in a small section of Szechuan and Hupeh Provinces in China (near Chungking) where the annual rainfall amounts to about 48″, rather evenly distributed throughout the year. Here also very little snow falls, and though there may be some, native reports are to the effect that it does not amount to much. Temperatures on the average apparently do not go much below freezing. Just why this species should be confined to this small area of not over 300 square miles will make a most interesting story when all the facts are known.

Suffice it to say that the atmosphere in this area is reasonably moist and that several soil tests show the soils to be about neutral to only slightly acid. Apparently no accurate records are available on the lower temperatures in the winter, and summer temperatures are not supposed to average over 100° F. The tree has been found to be reseeding itself in moist ravines, in what might be considered the same kind of places where we would expect hemlocks to reseed themselves in this country.

Since its introduction, it has been living out-of-doors unprotected in several places on the Pacific Coast. Here in the East it has survived in Washington, D.C., Philadelphia, New York and Boston, living out-of-doors uninjured the last three winters without protection. All reports are not yet available and many seeds and plants have been distributed, so that some may have been injured within this area. It should be pointed out that these three winters have been comparatively mild ones, and no prolonged sub-zero weather has occurred. It would be advisable not to become too enthusiastic concerning the hardiness of this species, certainly not until we see what happens to older trees when unusually cold winters occur.

Practical plantsmen can have a field day in discussing the possibilities of hardiness. Many variable factors like soil, rainfall, high temperatures, low temperatures, exposure and length of growing season affect the hardiness of a plant. In the case of a new plant, where climatic records of its habitat are meagre (as in this case), one should proceed slowly in drawing conclusions concerning its hardiness on the basis of three mild winters only. However, for those practical plantsmen willing to do some guessing, it will be of much interest to know that Chu and Cooper found the following plants native to the same location as the *Metasequoia*. Incidentally, all of these are hardy in the Arnold Arboretum.

PLATE VIII

Metasequoia glyptostroboides. A 28-month-old specimen grown in a coldhouse at Bramley, Surrey, England, and now 8′ 3″ high.

Akebia trifoliata	Kalopanax pictus
Cercidiphyllum japonicum sinense	Lonicera japonica
Cornus controversa	Morus alba
Corylopsis sinensis	Parthenocissus tricuspidata
Cotoneaster horizontalis	Quercus acutissima
Decaisnea fargesi	" variabilis
Euonymus alata	Rhamnus utilis
Helwingia japonica	Spiraea japonica
Hibiscus syriacus	Styrax japonica
Idesia polycarpa	Viburnum setigerum

However, before said practical plantsmen wax overly enthusiastic concerning hardiness of this new species, the following plants are also growing in the same location. These are not hardy in the Arnold Arboretum.

Actinidia chinensis	Liquidambar formosana
Camellia oleifera	Lonicera pileata
Cunninghamia lanceolata	Nothopanax davidi
Ficus heteromorpha	Nyssa sinensis

The tallest specimens of this tree in China are about 100 feet high. Estimates have been made from borings in the trunk that some of these trees may be 300 years old. It is obviously a rapid-growing tree, certainly while young, but it should also be emphasized that apparently everyone growing it in America has given it optimum growing conditions. The wood is rather brittle, and is not apparently used for any special purpose except for fuel, by the natives in the vicinity of the native stands in China. It apparently grows best in a moist atmosphere, with soils that contain a good deal of moisture. It is obviously loose and open in habit, and may be best suited for growing in groves rather than as individual specimens, although many in this country, at least, will grow it for a long time as single specimens merely because of its interesting history.

It should be remembered that this species is not an evergreen and in this respect certainly not like the giant redwoods of our Pacific Coast. It is deciduous, and in its native habitat does not grow to the great size and age of our native redwoods. The name "Dawn Redwood" is most misleading, intimating a close association (at least to the general public) with the giant redwoods of the Pacific Coast that actually does not exist.

It is easily propagated by cuttings. There are a sufficient number of plants growing in America now, so that even though the seed source may be cut off, commercial propagation of this plant can easily be worked up to supply the demand in a short time. Either soft wood or hard wood cuttings root readily. Although many nurserymen have it in America, there are three, at least, who already list it as availabe in their catalogues. These are:

Rare plant Club, 208 McAllister Avenue, Kentfield, California
Tingle Nursery, Pittsville, Maryland
Verhalen Nursery Company, Scottsville, Texas

These notes should be of value to all those amateurs interested in the latest information concerning this tree.

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