

Pinus bungeana Zuccarini—A Ghostly Pine

Robert G. Nicholson

This attractive, white-barked pine from China, once a favorite of emperors, would be suitable for modern parks, cemeteries, campuses, golf courses, and lawn plantings

When one sits in a garden with peach trees, flowers, and willows, without a single pine in sight, it is like sitting among children and women without any venerable man in the vicinity to whom one may look up.

—Li Li-weng

Despite its chauvinism, Li's assertion does indicate the high regard the Chinese have for pines in the garden. It also hints at the symbolic system that existed in Li's time: plants sited in a garden were not chosen for form, texture, and flower alone, but also as symbols of abstract thought or representatives of human qualities. Pines portrayed hardiness, strength of character, virtue, or stalwart friendship in adverse times. These extraordinary trees had a stately poise, a silent wisdom attained only through longevity; their age often was embodied by their gnarled habits or stout trunks. Along with bamboo and the early-flowering apricot, pines formed a trio of plants known as "the three friends of the cold season," as they lent respite to winter with their evergreen foliage or early flowering.

One pine in particular has for centuries been a favorite species for temple gardens and

courtyard plantings and has come to be known in the West as the lacebark pine, *Pinus bungeana*. It was first described by Joseph Zuccarini (1797–1848) from specimens that Aleksandr von Bunge (1803–1890) had collected in the temple gardens of Beijing; he was the first Westerner to collect the species. The first live material brought to England was a plant that Robert Fortune (1812–1880) had purchased near Shanghai. An Englishman, Fortune travelled to China four times between 1843 and 1861. His interest in China's flora enabled him to supply plants to the leading horticulturists in London. An engaging chronicler of the era, Fortune gives vivid accounts in his books of plant hunting in China during the Imperial Dynasty, a period when "barbarians" were severely limited in their movements and had to resort to subterfuge to slip into restricted areas.

In his book *Yedo and Peking* (1863), Fortune offers an account of a group of lacebark pines seen in a cemetery just west of Beijing. "Near these Royal tombstones," he wrote,

I observed a species of Pine-tree, having a peculiar habit and most striking appearance. It had a thick trunk, which rose from the ground to the height of three or four feet only. At this point, some eight or ten branches sprang out, not branching or bending in the usual way, but rising perpendicularly, as straight as a larch, to the height of 80 or 100 feet. The bark of the main stem and the secondary

Two lacebark pines (Pinus bungeana Zuccarini) near the royal tombstones in Beijing as illustrated in Robert Fortune's Yedo and Peking (1863).

stems was of a milky-white color, peeling like that of *Arbutus*, and the leaves which were chiefly on the top of the tree, were of a lighter green than those of the common Pine. Altogether this tree had a very curious appearance, very symmetrical in form, and the different specimens, which evidently occupied the most honourable place were as like one another as they could possibly be.

In all my wanderings in India, China or Japan, I had never seen a pine tree like this one. What could it be?—Was it new?—And had I at last found something to reward me for my journey to the far north? I went up to a spot where two of these trees were standing, like sentinels, one on each side of a grave. They were both covered with cones and, therefore, were in a fit state for a critical examination of the species. But although unknown in Europe, the species is not new. It proved to be one already known under the name of *Pinus bungeana*. I had formerly met with it in a young state in the county near Shang hae, and had already introduced it into England, although, until now, I had not the slightest idea of its extraordinary appearance when full grown. I would therefore advise those who have young plants in their collection to look carefully after them as the species is doubtless perfectly hardy in our climate and at some future day, it will form a remarkable object in our landscape. One of the trunks, which I measured at three feet from the ground, was 12 feet in circumference.

Since Fortune's day, there have been numerous accounts of the pine in China, generally descriptions of trees seen at temples in Beijing, and always expressing amazement at the white, milky bark. Forsythe Sherfessee, a forestry advisor to the Chinese government in the 1920s, wrote, "It is one of the most remarkable of all trees on account of the dazzling whiteness of its bark, a feature which renders it wholly and strikingly unique. In addition, its form is graceful and picturesque, and its foliage unusually delicate."

Accounts from the wild are much harder to find, testifying to the rarity of the plant. Few western botanists have seen the species in its scattered native range, the provinces of Hopei, Shansi, Shensi, Kansu, Szechuan, Hupeh, and Honan.

E. H. Wilson found the plant in two districts in western Hupeh but considered it very rare.

He reported trees 25 meters tall growing at 1,250 meters in elevation, anchored in mud and sandstone shales. Wilson wrote that "on old trees the bark on the trunk, on the main branches and exposed main roots, is milk-white and exfoliates in flakes of irregular contour."

Joseph Hers, a Belgian who collected in northern China during the 1920s, noted the plant growing "in rather large numbers in the district of Lushih (Honan), always at about 1500 meters altitude, clinging to the rocks and also south west of Taiyuanfu (Shansi) at the same altitude." He recorded that the wood is very brittle, and despite a fine grain and nice color, was used by the Chinese only for coffins. Hers' account of the lacebark pine also told of a brisk trade in wild-collected seedlings of the "white-boned pine" between Shansi and Honan to other provinces.

Two accounts detail the tree's growth in Shansi Province. In 1924, Dr. Harry Smith, a botanist from Uppsala University in Sweden, travelled through the southern and central areas of the province and reported that large areas had been clear-cut and eroded near the more settled areas. Even the cemeteries and temples did not seem to shelter the flora as in other regions of China. One very important exception existed. A temple in the western Mien-shan Mountains at Chieh-Hsiu, had preserved an entire forest of *Pinus bungeana*, numbering about 4,000 trees. The lacebark pine was the chief component of this exotic white forest, but *Cupressus* sp. and *Pinus tabulaeformis* also grew in the dry, stony ground, as did an understory of *Cotoneaster*, *Pyrus*, *Lespedeza*, *Vitex*, *Vitis*, and *Rhamnus*. I can only imagine the images a nature photographer such as Eliot Porter or Ansel Adams might have produced from a forest of white-skinned conifers bedecked with soft, fresh snow. In 1929, T. Tang, on an expedition from the National University of Peking also collected in central and southern Shansi. He recorded *Pinus bungeana* from a number of sites, estimating some trees to be over 100 feet (30 m) tall. In a somewhat ominous aside,



Taken in 1913 at the Imperial Gardens, Beijing, by J. G. Coolidge, this photograph includes a specimen of the lacebark pine (far right). From the Archives of the Arnold Arboretum.

Tang records reckless lumbering, with the lacebark pine being felled and sawed into planks.

Contemporary descriptions of *Pinus bungeana* are somewhat scarce, and its present range would seem to be much less than what it once was, owing mainly to the need for fuel and lumber. Zhiming Zhang of the Beijing Botanical Garden and a former Mercer Fellow at the Arnold Arboretum, wrote to me last summer, in response to my inquiries about the plant, that "*Pinus bungeana*, generally speaking, is widespread in northern China. It appears," he continued,

everywhere as a primary urban tree, which can be found in temples, ancient graveyards, emperors' palaces, gardens and even streets. It ranges naturally about 1200–1850 meters above sea level from Shanxi to Henan Province. I saw a natural forest of it on the western Henan boundary with Shanxi province at the time when I went there for plant collection in 1981. It grows not as well as that in the city. It grows slowly when it is young and faster after ten years or more.

Our experiences with the cultivation of *Pinus bungeana* at the Arnold Arboretum echo those of Mr. Zhang, as the plant grows very slowly from seed. Seed sent from

China and sown in late March of 1986 (AA 1304-85) germinated heavily after a three-month cold stratification, but two years later

stood only three inches high. Seed that was hand delivered by a delegation of visiting Chinese botanists in 1979 (AA 79-566) germinated well, but its progeny now stands at only 27 inches high after nine years's growth in our nursery.

Our plants on the grounds also seem small for their age in comparison to other species of pine. AA 1285-64-B, a plant almost 25 years old, is a four-stemmed specimen measuring only 10 feet high and 9 feet wide, although it has put on 4 feet of growth in the last three years. Our two oldest plants were grown from seed received from the Lushan Botanic Garden in China in 1949. AA 663-49-A is planted in full sun on a rock outcrop. Its nine stems show mottled bark, and it measures 15 feet high by 20 feet wide. Its three-stemmed sibling, AA 663-49-B, is perhaps better sited and measures 26 feet high by 30 feet wide. Clearly, it is not a species for those inclined toward rapid gratification, but for gardeners who can derive pleasure in planting for future generations.

Although the lacebark pine has been in cultivation in the United States for over one hundred years, there are relatively few specimens of note, and it is mainly found on old estates and in botanic gardens. To my knowledge, the premier specimen is in Brookline, Massachusetts, at "Holm Lea," the old estate of Charles Sprague Sargent, first director of



The mosaic bark of the lacebark pine (Pinus bungeana) at "Holm Lea," the estate of Charles Sprague Sargent in Brookline, Massachusetts. Photographed by the author.

the Arnold Arboretum. It is over a century old, stands 65 feet high and 30 feet wide and presents an irregular-oval outline. Its texture is fine, and one can easily see the eleven strongly vertical main trunks. The thickest of these has a 5-foot circumference at breast height, while at ground level, where the trunks converge, the circumference measures 16 feet.

Its bark is a spectacular collage of color, showing irregular splotches of lime green, buff brown, and yellow against a background of silvery gray. It gives the effect of a massive abstract mosaic sculpture.

This vivid bark, however, presents a mystery: why aren't any of the trees in cultivation in the West showing white bark?

I suspect it may be either a function of age, the bark turning white with old age (as our hair does), or the result of something in our soils or our weather that precludes the formation of the white bark and that causes the pines to retain a mosaic pattern throughout their lives. As J. M. Addis reported seeing young trees with white, flaking bark in a Beijing nursery, it looks as though the mystery will continue a bit longer.

The Chinese have used *Pinus bungeana* for specimen planting in courtyards and have also lined avenues with it, letting its white boughs arch together. I suggest that it be considered for lawn plantings, public parks, cemeteries, golf courses, and corporate and college campuses. It has shown a wide range of tolerances, growing in poor alkaline soil and acid brown soils and tolerating temperatures over 100 F and below 0 F. Selective pruning during the early stages of a tree's life would help to show the trunk to best advantage and establish good form.

This amazing tree, a witness to the burials of the Celestial Empire, is still a rarity outside China. Its odyssey from remote windswept mountains in China to royal courtyards, to the estates and botanical gardens of the West is an unrivalled journey. If it proves nothing else, it is that the appreciation of beauty knows no boundaries of time or space.



Plant collector Frank N. Meyer photographed this specimen in Shantung Province in 1907. He stated that "The most noble specimen of a white-barked pine yet seen by me. Growing in the Yen-fu-tse temple [in Chu-fu]. Measures sixteen feet in circumference, six feet above the ground. I estimate its age at fifteen or sixteen centuries, though the Chinese say it is much older. For noble, serene impressiveness, I have not seen a tree yet, that can be compared with this white-barked pine. Photograph from the Archives of the Arnold Arboretum.

We are pleased to report a surplus of *Pinus bungeana* seedlings and are offering trios of two-and-one-half-year-old plants of AA 1304-85 for \$25.00, payable in advance. Orders received by September 30, 1988, will be mailed in the fall, those afterwards in the spring. Send orders, with checks made payable to "Arnold Arboretum," to:

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Pine Distribution
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