Introducing *Cedrus deodara* 'Shalimar'

by GARY L. KOLLER

As my bus sped through the Japanese countryside, I was captivated by the meticulous order of the fields, with their small plots of vegetables set in rows of seemingly mathematical precision. Here and there, near a house or at the edge of a field, I caught glimpses of a conifer that was unfamiliar to me. The tree caught my eye because of its elegant and yet informal silhouette. Upon inquiring I found the plant to be the deodar cedar (*Cedrus deodara*), a tree native to the Himalayan Mountains. That was in 1969 and before I learned how plants “migrated” from their homelands to become rather common elements of alien territories.

The memory of those trees remained with me even though I didn’t see the species again until 1972, when I went to study horticulture at Longwood Gardens in Kennett Square, Pennsylvania. At Longwood a multistemmed specimen stood between the palm display greenhouse and the experimental greenhouses. That specimen was younger and smaller than those I remembered in Japan, but it retained the density of needles and branches and the gracefulness of the pendent branch tips. Soon after my arrival at Longwood I began to look into the background of the deodar. I discovered that the tree can grow much higher than its usual 60 to 80 feet; in its homeland some specimens are said to exceed 200 feet. As a species the deodar is marginally hardy in the Philadelphia area, flourishing during mild winters but suffering wind damage to needles and twigs, or succumbing entirely, during very severe winters.

When I came to the Arnold Arboretum in 1976, I discovered that its collection contained specimens of two deodar forms that are more cold hardy than the tree at Longwood. Called ‘Kingsville’ and ‘Kashmir’ (Fordham 1969), they had been selected by the nursery trade and are commercially available. To call our specimens of these two cultivars

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ornamental would have been generous. Large sections of the limbs were dead; the needles that remained exhibited marginal scorch; and new growth was sparse and lacked vigor. Both specimens were small, and I am sure their sorry state reflected a combination of stresses imposed by recent transplanting, poor siting, dry soils with no supplemental water during the reestablishment period or times of drought, and the plant's own vulnerability to severe winters. It is fair to say that the two more cold-hardy cultivated forms of deodar were barely surviving at the Arnold Arboretum in Jamaica Plain, Massachusetts. Passersby would never have taken a second glance at these pitiful specimens.

The Arboretum also had another deodar cedar, which had been selected from a seed batch as exhibiting greater tolerance to our climatic conditions. The seeds had been obtained in India by Mr. Henry Hosmer, a member of the Friends of the Arnold Arboretum who traveled to India and Afghanistan during the autumn of 1964. According to our records Mr. Hosmer collected the seeds at Shalimar, India, and sent them back from Afghanistan in October 1964. As no town named Shalimar appears on maps of India, it is probable that Hosmer was referring to an old and highly respected garden of that name at Dal Lake, Srinagar, in the Kashmir region. While Cedrus deodara probably does not occur naturally at this location, it is quite likely to be among the planted collections.

In due time seedlings were grown from the Shalimar seeds, and one individual not only survived but thrived. It grew rapidly and during spring 1973 was planted in our permanent collections on the bank immediately northeast of the Hunnewell Building. The tree is approximately 17 feet tall and 15 feet across. It has four trunks, and the largest is 3½ inches in circumference at breast height. The needles are lustrous, green, and free of any signs of damage or environmental stress, although they are somewhat sparse. The tree as a whole is thin, but it appears to be healthy. I attribute its lack of vigor to site conditions rather than to the plant itself.

The successful growth of this individual enticed us to experiment with vegetative propagation to increase the selection. After repeated attempts we succeeded in rooting a quantity of cuttings and placed them in a row in our greenhouse nursery. Seven individuals of the same accession and age were planted in the west greenhouse nursery. In 1982, at ten years of age, they were approximately 9 feet tall. These plants were observed as a group and compared with Cedrus libani var. stenacoma and the deodar cedar cultivars 'Kingsville' and 'Kashmir', which were all grown in nearby sections of the nursery. Each spring our seedling and its vegetatively reproduced progeny looked better and exhibited less winter injury than the other plants. In observing the row of rooted cuttings from 1976 until 1982, we noted the following. In most winters there was little or no damage to needles and none to stems and twigs. During the winters of 1979–80 and 1980–81, which were colder and drier than normal (temperatures
reached -6°F), needle injury was minor, with the terminal ends of the needles turning brown. The plants recovered rapidly the following spring. During winter 1980–81 needles on the lower branches browned, probably as a result of sunlight and heat reflecting off the snow. Also, the terminal leaders of several individuals deteriorated for a distance of 1 to 3 feet. Al Fordham, the former chief plant propagator at the Arboretum, believes this to be due to deodar weevil, for he has observed this insect damaging the other specimens of *Cedrus*.

Our continuing observations support the conclusion that while our cedar is not ironclad in its hardness it appears to be harder here in winter and summer than either ‘Kingsville’ or ‘Kashmir’. Our seedling is therefore worthy of additional testing, and to facilitate that we have decided to add a cultivar name to distinguish this genotype. The name we have chosen is ‘Shalimar’ to commemorate the place where it is believed to have originated.

The next step in evaluating the tree’s potential for popular use is to see whether it can be propagated with relative ease and efficiency, as plants that are very difficult to propagate are rarely successful commercially. The process of learning to propagate difficult and unusual species is one of the activities of the propagation staff at the Arnold Arboretum. We conducted numerous propagation tests on *Cedrus deodara* ‘Shalimar’ in which we managed to kill a large number of cuttings. However, a method of studied trial and error as to time of taking cuttings, hormone applications, soil medium, wounding, and humidity control gradually identified one means of achieving an 83 percent success rate. Our propagation staff recommends taking cuttings during January and selecting shoots from last season’s growth. The cuttings are treated with a quick (5-second) dip of the base in 10,000 ppm IBA dissolved in 50 percent ethanol. Wounding or not wounding the base of the cuttings seems to make no difference in the position, amount, length, or quality of the roots. In all cases roots were initiated at the basal end of the cutting and tended to consist of a few long, coarse strands. The soil medium consisted of equal parts of sand.

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**Cedrus deodara Cuttings Available**

A limited number of *Cedrus deodara* rooted cuttings or scions for grafting are available. We will honor requests for them until April 1, 1983, for a fee of $15.00, for which recipients will be billed. The fee will help to offset the costs of testing, preparing, packaging, and mailing. Requests should indicate whether two rooted cuttings or 25 scions are desired. Please send requests to: Gary L. Koller, Supervisor of the Living Collections, Arnold Arboretum, Jamaica Plain, MA 02130.
and perlite, and the cuttings were given bottom heat of 75° F. The cuttings were placed in closed cases without mist. The ambient air temperature of the greenhouse was maintained at approximately 55° F. Rooting took place in 10 to 12 weeks. Root quality varied, but as long as any roots were evident the plants were potted. Cuttings are normally potted in early spring and put out a new flush of growth almost immediately. The tip of the new growth is weak and droops for some time, but as the plant grows it becomes erect and develops a strong central leader without the aid of staking.

As we introduce Cedrus deodar 'Shalimar', we hope that it will eventually be included in that category of plants that catch the eye and be recognized for its dependability and beauty in northern landscapes.

Reference

Acknowledgments
Drawing of Trillium ovatum, page 141, reprinted, by permission, from Mary E. Parsons, Wild Flowers of California, Roxana E. Ferris, editor; Dover, 1966.

Drawings of Engelmann spruce (page 142), Colorado spruce (page 138), Douglas fir (page 139), Knowlton hornbeam (page 143), and Rocky Mountain maple (page 140) reprinted, by permission, from Robert A. Vines, Trees, Shrubs, and Woody Vines of the Southwest, University of Texas Press, 1960.

Recipes on pages 116 and 117 reprinted, by permission, from Eugene and Mary E. Griffith, Persimmons for Everyone.

Erratum
In our last issue the shading on the map on page 103 was lost in reproduction. It was meant to indicate the contiguous distribution of the spruces of the world, which extends northward to the treeline across the North American and Eurasian land masses.

Back cover: American persimmon tree (Diospyros virginiana). Edward Goodell photo.