

Conifer Quarterly

Vol. 21 No. 1

Winter 2004



Dennis Lee calls this dwarf, bluish white pine (right) *Pinus strobus* 'Little Tuck' after Steve Tuckerman who found it. *Tsuga canadensis* 'Gentsch White' grows alongside.

Dennis Lee



Below, silvery *Cedrus atlantica* 'Glauca' contrasts with *Abies firma*.

Read more about Stow Sanctuareum's conifers on page 32.

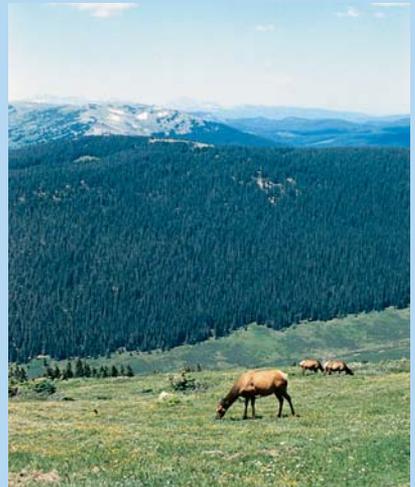


Dennis Lee

The Rocky Mountains' natural beauty kept Denver post-conference tour participants hopping out of the bus to look and take pictures at every stop. Here, elk graze near the road at 11,800 feet elevation and snow-capped mountains are visible in July.

Read more about the tour on page 39.

Anne Brennan



Contents

Featured conifer: *Cedrus*, the true cedars

6 The Hardy Cedar-of-Lebanon

By Tony S. Aiello and Michael S. Dosmann

12 Reader Recommendations

More features

17 Additions to the International Conifer Register

Compiled by Dr. Alan Leslie

22 The Case of Finding My Own Roots

By Chris Daeger

**26 Ohio's Horticultural Gems Draw Members to
2004 National Meeting**

By Charlene Harris

29 Tale of Two Cedars

By Jeff Bowman

32 The Sancturetum of Stow

By Dennis Lee

36 A Collection of Modern Garden Pines: A CD-ROM Review

By Don Howse

**39 2003 Post-Conference Tour Offers Unique Slice of
Colorado's Landscape**

By Anne M. Brennan

Conifer Society voices

2 President's Message

4 Editor's Memo

44 Southeast Region Visits the Mountain State's Best

45 Northeast Meeting Attendees Tour Nurseries and Arboretum

47 Notes from This Year's Seed Exchange

Cover photo: *Cedrus deodara* doesn't seem to mind the early snow in Mary Garr's garden in Fruit Heights, Utah.

The Hardy Cedar-of-Lebanon

Arboretum traces path of five trees from their ancestors in Turkey to their current home in Philadelphia.

Anthony S. Aiello
Curator and Director of Horticulture
Morris Arboretum of the University of
Pennsylvania

Michael S. Dosmann
Graduate Research Assistant
Cornell University

Among the Morris Arboretum's extensive conifer collection are five specimens of hardy cedar-of-Lebanon (*Cedrus libani* ssp. *stenocoma*). They are growing throughout the Arboretum, some tucked away, others in full view, and all of them handsome trees. We had always enjoyed these trees but only began to investigate their background about two years ago.

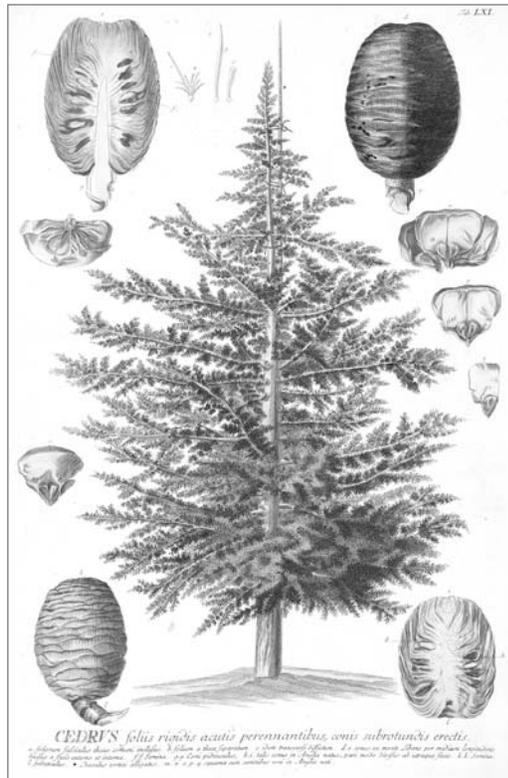
At that time, we knew that our oldest tree grew at John and Lydia Morris's estate and existed at the Arboretum's founding in 1932. In 1944, three trees of the so-called "hardy form" arrived from the Arnold Arboretum in Jamaica Plain, Massachusetts, and a fifth tree was grown from seed that arrived in 1947, collected from two trees of the hardy form at Princeton University. Sometime during

Figure 1 (left). Image of *Cedrus libani* from Trew's *Plantae Selectae*, 1750-1773.

the winter of 2001-'02, we began delving deeper into the Morris Arboretum's plant records to see what additional information we could find. This research yielded the fascinating history of the hardy form of cedar-of-Lebanon and the story of our trees.

Natural selection in Taurus mountains

The genus *Cedrus* has a natural range from North Africa around the Mediterranean Sea into Lebanon, Syria, Cyprus,



and Turkey and west to the Himalayas (Farjon 1990). Depending on the treatment, there are a variable number of species of cedar, but Farjon (1998) recognizes four species. The beautiful long-needled Deodar cedar (*Cedrus deodora*) occurs in a wide range of habitats in the Himalayas of Afghanistan, Pakistan, Kashmir, and Nepal. The Atlas cedar (*C. atlantica*) grows in the Atlas Mountains of Algeria and Morocco, while the Cyprus cedar (*C. brevifolia*) is restricted to that island, and is sometimes listed as a subspecies or variety of *C. libani*.

Cedar-of-Lebanon (*C. libani*) occurs naturally in Lebanon, Syria, and the Taurus mountains of southern Turkey (Figure 1; Farjon 1990). The Turkish plants are classified as *C. libani* ssp. *stenocoma* (Farjon 1998) and usually are called the "hardy cedar-of-Lebanon." Various authors have either given the Turkish population varietal status or have not even recognized them as a separate taxon (Farjon 1990). For example, Volume One of the *Flora of Turkey* (Davis 1965) did not recognize subspecies *stenocoma*, although it is recognized as a variety in the 11th volume of the same work (Guner 2000). The Turkish trees are generally considered to be more upright and conical (not forming the flat 'umbrella' top of other cedars), and to have shorter needles than those from Lebanon (Farjon 1998). The epithet *stenocoma* literally means "narrow hair," referring to pubescent twigs of the Turkish plants. The subspecies *stenocoma* was first described by Schwarz (1944) and then Davis (1949) who both recognized that it was intermediate between the typical cedar-of-

Lebanon and the Atlas cedar.

It is these cedars from Turkey that most interest us and upon which this story hinges. The cedars from Anatolia (Turkey) have long been recognized as having exceptional cold hardiness. True cedars were first described as growing in the Amanus (Nur) and Taurus Mountains of southern Anatolia in 1553 by Pierre Belon in his *De arboribus coniferis*, probably the first treatise on conifers. Belon was a botanist and physician who traveled throughout the Levant in the 1540's, and one can only imagine the experiences and peoples that he encountered. John Gerard referred to Belon when he wrote in his 1597 Herbal:

"The cedar trees grow upon the snowie mountaines, as in Syria on mount Libanus, on which there remaine some euen [even] to this day, saith *Bellonius* planted as it is thought by *Salomon* himselfe: they are likewise found on the mountains *Taurus*, and *Amanus*, in colde and stonie places."

What is most revealing about Gerard's statement is that as early as the 16th century, authors took notice of the population from Anatolia and recognized that these more northern plants possessed greater potential for cold hardiness.

The Hardiness Problem

During the 1800's, *Cedrus libani* was grown throughout Philadelphia and New York but was not hardy in Boston and New England (Wilson 1926). Josiah

Hoopes (1868), a nurseryman from West Chester, in southeastern Pennsylvania, wrote that, “ the cedar of Lebanon is found to be pretty hardy...[and] with us it has succeeded to our entire satisfaction, and we can therefor recommend it without reserve, if proper cultivation and a moderate amount of care be given to it.”

Because this was not so in Boston, Charles Sprague Sargent, famous director of the Arnold Arboretum recognized the potential of the trees from the Taurus Mountains, in south-central Turkey. Sargent hired Mr. Walter Siehe, a German botanical explorer living in Smyrna (Izmar), Turkey, to collect seed from trees in the Taurus Mountains (Wilson 1919). In a letter (Arnold Arboretum Archives) from Siehe to Sargent, dated November 18, 1900, from Mersina, Turkey, Siehe wrote:

“Dr. Bolle...has repeatedly informed me of your desire [to acquire] cedar cones from cold resistant trees of high altitude (1900m). Only a few days ago did I manage to obtain, after several futile attempts, 50 kilos of cones with good seeds. Since it was necessary to make a special trip, use many pack animals, and spend eight days of time for this, I

Figure 2. *Cedrus libani* ssp. *stenocoma* at the Morris Arboretum. This is the tree believed to have been planted in the early 1900's and is one of the seedlings from the 1902 Arnold Arboretum introduction.

am certain that you will not find the fee of 60 Mark German currency too high.”

Apparently Sargent did not find the fee too high because the records at the Arnold Arboretum show that they received cones with ripe seeds from Siehe on February 4, 1902 (Arnold Arboretum Archives, Wilson 1919). We have not yet determined what happened between November 1900 and February 1902. The seeds had a high rate of germination and some of the many plants raised from them had reached 22 ft (6.7 m) by 1917 (Wilson 1919). A severe winter of 1917-18 scorched the leaves and retarded their growth, but did not kill them. There was an *Arnoldia* report in 1946 that the



The Morris Arboretum

cedars were thriving, growing for forty years and withstanding temperatures of -20°F / -29°C (Wyman 1946). Today, some of the most impressive trees growing at the Arnold can be found to either side of the Hunnewell Building and on the slope of Bussey Hill.

History of trees at Morris Arboretum

But what about the trees at the Morris Arboretum? By delving into the arboretum's own records, we realized that all of our hardy cedars-of-Lebanon are derived from the Arnold Arboretum's original plants. These records contained notes from Mr. John Tonkin, (the Morris' gardener and Arboretum superintendent from 1913 to 1961), stating that the oldest cedar of Lebanon came from



The Morris Arboretum

the Arnold Arboretum in the 19-teens. In addition, a cedar is shown in the current location on our 1909 Atlas of Compton, which is a survey of the Morris' gardens and plants. So, from these two pieces of information we have deduced that our old tree is one of the original seedlings from the 1902 batch of Turkish seed (Figure 2). Staff at the Morris have noticed the hardiness of this tree, writing that it showed no visible injuries during the devastatingly cold winters in the early 1930's (Lambert 1936). It has suffered storm damage during the past 25 years, and today it shows a remarkable amount of young vigorous growth for a tree of its age and size.

Our three 1944 cedars (including the one shown in Figure 3) were received as balled and burlapped plants grown from the Arnold Arboretum's original trees, and our 1947 tree was grown from seed of two original “Sargent hardy form” trees at Princeton. So these four plants are only a generation removed from the Turkish collection. Of more recent origin are two trees in our nursery that came via the Arboretum Novy Dvur in the Czech Republic. These were also collected as seed in the Taurus Mountains and were found growing along with *Pinus nigra* and *Abies cilicica*.

Other notable trees

There are two other trees that are well worth mentioning. As students at Purdue University in Indiana, we often ad-

Figure 3. *Cedrus libani* ssp. *stenocoma* at the Morris Arboretum. It was received at the Morris Arboretum in 1944 and grown from seed of the Arnold Arboretum's original plants.

mired the variety 'Purdue Hardy' (*Cedrus libani* ssp. *stenocoma* 'Purdue Hardy') which grows outside Horticulture Hall, in a hardiness zone where it routinely reaches -20°F / -29°C (USDA Hardiness Zone 5a). This 40-year-old specimen stands out, with its graceful form and nearly pendant branches, and like others in the subspecies, it has not become flat-topped. In 1986 Dr. Donald Schuder registered this cultivar with the Royal Horticultural Society on behalf of the Indiana Association of Nurserymen. The cultivar name reflects the tree's cultivated origin and its hardiness, and this wonderful specimen has withstood winter temperatures of -25°F / -32°C with only minimal browning of needles (Flint 1997).

The background on this plant is a bit uncertain, but we do know that it was one of several seedlings germinated from a batch collected by the late Professor Ted Shaw (Dept. of Forestry, Purdue University) in the 1950s. Shaw was on U.S. government assignment to Lebanon to assist with reforestation projects, but he unfortunately did not note where the seeds had been collected. During registration of the cultivar, Don Schuder attempted to find such notation in Shaw's records, but all that could be determined through oral history and tradition at Purdue was that Shaw found the seeds and the cones "Up in the Hills." If the origin is indeed Lebanon, it would be quite a find, as no Lebanese cedar has been successfully grown out of doors north of Zone 6. It is possible that Shaw collected the seeds not during his assignment in Lebanon, but during a tourist trip to Turkey.

At present, 'Purdue Hardy' is not widely available, and various attempts to root mature cuttings have been in vain. In 2001, we tried to root cuttings using Dip-n-Grow (1% IBA and .5% NAA) or 1% KIBA, in 1:1 sand:perlite, supplied with bottom heat. After several months, callus formed on approximately 10% of each treatment, but no roots ever appeared. Several grafted plants can be found in the vicinity of West Lafayette, Indiana, however, and perhaps this worthy selection can be successfully introduced through serial grafting or other means.

Another very noteworthy tree is a Pennsylvania State Champion cedar-of-Lebanon at the Tyler Arboretum, in Media, Pennsylvania (see back cover). This tree is one of the most remarkable conifers in the Delaware Valley and as of 1993 it had a 179-inch (4.5-m) circumference, stood 87 feet (26 m) tall, and had a crown spread of 76 feet (23 m). One can only speculate on its origin, but perhaps the time will come when molecular testing can help solve this piece of the puzzle.

Conclusion

We always say that every plant at the Morris Arboretum has a story, and the story of the hardy cedar-of-Lebanon is an especially intriguing one – it mixes history, geography, plant ecology, horticulture and a love of conifers. When you next visit the Morris Arboretum or Arnold Arboretum, take time to admire these hardy cedars, pause to enjoy their majestic beauty, and think of their fascinating journey from the mountains of Turkey to the Eastern United States. And of course, consider planting one in your garden!

Literature Cited

- Arnold Arboretum Archives of Harvard University, Jamaica Plain, MA.
- Belon, P. 1553. *P. Bellonii Cenomani De arboribus coniferis*. G. Cavellat, Paris.
- Farjon, A. 1990. *Pinaceae*. Koeltz Scientific Books, Königstein, Germany.
- Farjon, A. 1998. *World Checklist and Bibliography of Conifers*. The Royal Botanic Gardens, Kew, London.
- Davis, P.H. 1949. A journey in South-West Anatolia. Part I. *Journal of the Royal Horticultural Society* 74: 104-115.
- Davis, P.H., J. Cullen, and M.J.E. Coode, eds. 1965. *Flora of Turkey and the East Aegean Islands*. Volume 1. Edinburgh University Press, Edinburgh.
- Flint, H.L. 1997. *Landscape Plants for Eastern North America*. 2nd Edition. John Wiley and Sons, New York.
- Gerard, John. 1597. *The Herball, or, Generall historie of plantes*. Imprinted by John Norton, London.
- Guner, A., N. Ozhatay, T. Ekim, K.H.C. Baser, eds. 2000. *Flora of Turkey and the East Aegean Islands*. Volume 11 (Supplement 2). Edinburgh University Press, Edinburgh.
- Hoopes, J. 1868. *The book of evergreens. A practical treatise on the Coniferae, or cone-bearing plants*. Orange Judd & Company, New York.
- Lambert, J. 1936. Winter injury to conifers at the Morris Arboretum. *Morris Arboretum Bulletin* 1 (3): 27-30.
- Schwarz, O. 1944. Anatolica I. *Feddes Repert. Spec. Nov. Regni Veg.* 54 (1): 26-34.
- Trew, Christoph Jacob. 1750-1773. *Plantae Selectae*. [Nuremberg]. Plate

61, Cedrus.

- Wilson, E. H. 1919. The Cedar of Lebanon. *The Garden Magazine*: XXX (5 [December]): 178-183.
- Wilson, E. H. 1926. *Aristocrats of the Garden*. The Stratford Company, Boston. pp. 125-126.
- Wyman, D. 1946. The Garden Club of America tours the Arnold Arboretum, May 15, 1946. *Arnoldia*: 6 (3): 9-12.

Acknowledgements

The authors would like to thank Elinor Goff of the Morris Arboretum, Charlotte Tancin of the Hunt Institute of Botanical Documentation, translator Britt Gardhner, and Carol David of the Arnold Arboretum Library. ▲

About the authors: Anthony S. Aiello has served as Director of Horticulture and Curator of the Living Collection at the Morris Arboretum of the University of Pennsylvania since July of 1999. His interests include trees and shrubs from the northern temperate regions, and in particular conifers, magnolias, maples, hollies, and witchhazels.

Michael S. Dosmann has been an admirer of hardy *Cedrus libani* ever since seeing the fine specimen of *Cedrus libani* 'Purdue Hardy' on the campus of Purdue University. He got involved with this project when he was a Putnam Research Fellow at the Arnold Arboretum, and Tony Aiello began to inquire about the origin of the trees at the Morris. He is a Graduate Research Assistant in the Department of Horticulture, Cornell University, where he is studying the ecophysiology of goldenrain tree (*Koeleria paniculata*).

Reader Recommendations — *Your favorite Cedrus cultivars*



Mary Garr grows this *Cedrus deodara* 'Mountain Beauty' in Fruit Heights, Utah, where its lime-green foliage stands out against her rock garden plants.

Maud Henne says
Cedrus deodara
'Glacial Blue' is the
bluest cultivar she has
in her Charlottesville,
Virginia, garden.



The weeping branch tips of this stately *Cedrus deodara* 'Aurea' are one reason so many conifer collectors love this species.



Cedrus deodara 'Pendula' provides one of many sculptural elements at Dean & Linda Linderman's Birchwood in Leesburg, Virginia.

Reader Recommendations

(continued)



Maud Henne



Maud Henne

Maud Henne shows us the cones of *Cedrus libani* 'Pendula' (top) and *Cedrus deodara*.



Dean Linderman

A trio of *Cedrus atlantica* 'Glauca Pendula' seem to plod across Dean & Linda Linderman's winter landscape in Leesburg, Virginia.

Cedrus deodara in my Central Virginia Garden

by Maud Henne, Charlottesville, VA

Living in Central Virginia's horse and cattle country, I am surrounded by oaks, tulip poplars (*Liriodendron*), pines of various kinds, and Eastern redcedar, which is not a cedar but a juniper, *Juniperus virginiana*. However, once in a while one encounters a mature specimen of *Cedrus deodara*, one of the three true cedars, in a neighborhood laid out some 30 or 40 years ago.

In 1988, my late husband Reinhard Henne's conifer collection was in its early stages. Aware that a regular *Cedrus deodara* would be too large for our backyard woodland garden on a hill, he acquired the cultivar '**Karl Fuchs**' from Guenther Horstmann. Krüssmann, in his *Manual of Cultivated Conifers*, describes 'Karl Fuchs' as a clone from seedlings from Pakistan, the bluest of the Paktia forms. Don Howse describes the cultivar in his Porterhowse catalog as originating from seed collected by Mr. Fuchs in Pakistan and subsequently named by Guenther Horstmann Nurseries in Germany. Estimated size in 10 years: 10 ft (3 m) x 3 ft (1 m).

My little 'Karl Fuchs' was less than 1.5 feet (45 cm) tall when acquired. After three years and a change of location from a flat raised bed to a slope, it began to look comfortable. Fifteen years later, it has reached a height of about 20 feet (6 m) with a much narrower, more open profile than the species – in my eyes a very elegant tree. The color has not been consistently bluish silver/green; it appears more green in spring, then a pale

blue in fall. It seemed to be greener than usual in 2003, possibly due to more cloudy weather and lack of sun. I asked Uwe Horstmann, son of the late Guenther Horstmann and successor in his father's nursery, if 'Karl Fuchs' looks true to its form during Uwe's recent visit here. He said it does. 'Karl Fuchs' is not my only deodar cedar, but it has lived in my garden the longest. It has survived weather extremes including a six-month drought in 2002 and the rainy, wet conditions of 2003 without signs of stress and has not produced any cones.

My other deodar cedars are much younger, having been purchased and planted in 1998 and 1999. I lost '**Pygmea**' and '**Descanso Dwarf**' in 2002, probably due to high humidity, heat and drought as the plants were not yet established. '**Albospica**,' '**Aurea**' and '**Blue Ball**' are alive but will still have to prove themselves. My favorites are:

'**Cream Puff**' – Planted as a five-year-old tree in 1998, it is really taking off and looks absolutely striking with its second flush of creamy-white growth in



Maud Henne

summer. In 10 years it should reach 8 ft (2.4 m) x 4 ft (1.2 m).

'**Silver Mist**' was two or three years old in 1999, but now its shape is starting to improve. Needle color is very consistent silver green in its sunny location. Estimated size in 10 years: 4 ft (1.2 m) x 2 ft (60 cm).

'**Glacial Blue**,' the bluest cedar I have in my collection, was planted in 1999 and is now developing a nice shape (see photo on page 12). In 10 years it should reach 4 ft (1.2 m) x 2 ft (60 cm).

'**Divinely Blue**' is less blue than 'Glacial Blue' in my garden and derives its name from Bill Divine. For me, 'Divinely Blue' shows its best blue on the lower branches while the top branches, exposed to sun and light, look more yellowish and seem to be more prone to pests. I've seen very small white caterpillars with black dots and red heads feasting on the needles and stripping whole branches. I had decided I should move this cultivar to a location that receives less afternoon sun, but then I read in the catalog of Roslyn Nursery (from whom I purchased these two plants) that each will become "a mounding dwarf with pale grey-green new growth over darker blue-green foliage." Maybe it does alright after all.

All in all, I find *Cedrus deodara* very suitable for my climate that sometimes feels like Zone 6 but other times resembles Zone 7. I find this species adaptable to extreme heat, drought and rain, and hardy for some frost. I'm sure to add more dwarf forms to my garden! ▲

Cedrus deodara 'Silver Mist' in Maud Henne's garden.