Sun-Loving Shrubs and Vines for the Leventritt Garden

Peter Del Tredici, Michael Dosmann, Tom Ward, and Julie Coop

The position of the shrub is distinctly secondary, and the burden of the inferior race is upon it. A tree may be valued for what it is, but a shrub is rated for just what it can do. It must render a service to compensate for its cultivation. This service may be one of beauty, through its flowers; or of use, by its fruit; or its foliage or habit of growth may be especially attractive, or of such a nature as will give it value as a shield or a cover for waste and barren places.

—Harriet Keeler, *Our Native Trees and How to Identify Them*, 1900

The Leventritt Garden adds a new component to the Arboretum's collections—a display of sun-loving shrubs and vines suitable for southern New England. Unlike the main Arboretum collections, which are principally intended for scientific research, the new garden has been designed to demonstrate the horticultural qualities of both species and cultivars. Nonetheless, it will contribute to the Arboretum's scientific mission by adding genera—particularly vines and herbaceous perennials—in botanical families that are important to our research.

Selecting the Plants

Working from fall 2000 through spring 2001, our plant selection committee—the authors, landscape projects manager Laura Tenny Brogna, former assistant education director Ellen Bennett, gardener Bethany Grasso, and intern Stacey Berghammer—generated the list of plants to be included, first establishing our criteria. We agreed to give preference to plants that meet at least two and preferably three of the criteria in any of the three categories, horticultural, botanical, and educational. Many of our selections already exist in the Arboretum's collections, and many more will be acquired from other botanical collections and commercial sources.

Criteria for Horticultural Display

MULTISEASONALITY. In most instances, plants of single-season interest will not be included. To ensure interest year-round, preference will be given to plants with a minimum of two, if not three, seasons of ornamental interest, whether bloom, fruit display, autumn leaf color, or texture.

PROVEN PERFORMANCE. Most shrubs will be selected for outstanding horticultural merit, that is, nursery selections that are superior in size, color, or persistence of bloom; in texture, form, or color of foliage; or form and stature of habit. Choices will be determined by performance in the Arboretum as well as in other botanical gardens and landscapes. These will include the best of the dwarf conifers previously located on this site. Some of the vines will also be chosen for horticultural merit; the genus *Clematis* will be well represented, as will *Lonicera* and *Wisteria*.

Botanical Criteria

GENERA AND SPECIES THAT ARE PART OF IMPORTANT BOTANICAL FAMILIES BUT ARE NOT WELL REPRESENTED IN THE MAIN COLLECTIONS. These include shrubs that do not prosper in the main collections because they lack sun or because small stature or slow growth rate exposes them to damage by dogs, humans, and mowers.

Left to right, top row: Enkianthus perulatus *form and flower; middle row,* Aconitum sinomontanum *(Chinese monkshood),* Elliotia racemosa *(Georgia plume),* Hamamelis x intermedia *'Diane' (hybrid witch hazel); bottom row,* Caragana arborescens *'Nana' (low-growing pea tree) form and flower. Photographs by Peter Del Tredici, Gary Koller, John Alexander III, Robert G. Mayer.*

TOM WARD

From left to right, Viburnum opulus *(European cranberry bush),* V. hupehense *(Hubei viburnum),* V. phleobotrichum, V. dilatatum *(linden viburnum).*

Examples of those that will find a home in the raised beds of the Leventritt Garden are *Buxus* and shrubby members of Fabaceae such as the brooms, *Cytisus* and *Genista.*

Many of the vines will be selected for their botanical value rather than ornamental interest. Structures for growing vines in the Arboretum's main grounds were heretofore limited to the few remaining perimeter fences. The Leventritt Garden will accommodate many vines new to the Arboretum.

Several important botanical families in North Temperate floras are represented primarily by herbaceous plants, including some that were cultivated at the Arboretum in earlier years. The garden provides the opportunity to augment the botanical collections of these families and genera.

Educational Opportunities

These selections will determine the opportunities for learning that the garden will offer. The range of subjects will expand over time; below are some of the areas of interest that our plant selections will support. Orientation and storytelling signs, informational pamphlets, identification labels, and docent tours will be used as interpretive aids.

COMPARISONS OF WILD TAXA WITH THEIR CULTIVATED TAXA. For instance, the flowering of redbuds, *Cercis canadensis* and its cultivars 'Kovey' and 'Alba', can be contrasted in spring. In summer, the differences between species hydrangeas, clethras, and stewartias and their respective cultivars can be studied.

PLANT SOLUTIONS FOR LANDSCAPE PROBLEMS. *Ilex glabra* and *Rhus aromatica* can stop bank erosion. Ericaceous plants grow well in acid soils. *Comptonia peregrina* tolerates poor soils. Vines can create wonderful vertical screens, and for horizontal screens, shrubby hedges are superb.

SPECIAL ORNAMENTAL QUALITIES. For ornamental winter interest, witch hazels lead the list. Buddleias are just one example of a widely adaptable plant that sustains flowering over much of the summer. For fragrance, the daphnes, jasmines, and honeysuckles are prime performers. Plants with colored foliage and bold textures will also be highlighted.

BIODIVERSITY AND BIOGEOGRAPHY. Biogeography—specifically the study of disjunct populations in Asia and North America—has been central to the Arboretum's research for more than a century. It will be demonstrated on the ground in the Leventritt Garden, where the native *Chionanthus virginicus* will be compared to its Asian counterpart, *C. retusus,* as will *Asarum canadensis* with *A. splendens* and *Pachysandra procumbens* with *P. terminalis.*

PLANT CONSERVATION. Another area of long-term interest has been the conservation of endangered plants by growing them *ex situ,*

namely, here at the Arboretum. *Elliottia racemosa, Prunus depressa,* and *Andromeda glaucophylla* head a long list of species in this category; among others to be included are *Amelanchier nantucketensis, Ilex collina,* and *Abeliophylum distichum.* At the other end of the spectrum, plants that thrive too well—often on what were the sites of presently endangered species—will also be available for study, kudzu and greenbriar among them.

Placing the Plants

In autumn 2001, Reed Hilderbrand Landscape Architects submitted a set of concepts for the planting plan that included locations and distributions of small evergreen shrubs as well as small- to medium-sized trees (arrayed for visual effects in spatial and rhythmic patterns) and drawings of microclimate variations, optimum shrub sizes (varying by bed and terrace position), and traffic flow.

The planting design committee—the authors along with Laura Tenny Brogna and Bethany Grasso—began its task by considering the distribution and size constraints of evergreens and small trees. We placed larger plants at the sides and toward the middle of each terrace, and slotted a high proportion of low-growing plants in the lower terraces.

Microclimate variations (sun/shade, dry/mesic soils) in the garden are minor and we assigned them a low priority with a single exception. We designated the lower, northernmost end as a frost pocket. Tender material, if included at all in this garden, will be placed in the uppermost terrace and above the great wall.

With these considerations in mind, the committee began to partition the entire plant list into manageable groups and to locate individual taxa and groups in plan.

Vines were sited in the upper terraces according to their growing requirements and their collections and ornamental value. Because wisterias require a high degree of structural support, they are primarily clustered on and around the pavilion; the remaining plants climb on trellises, columns, and/or wall bases.

Small- to medium-sized trees were included on our list specifically for design effect. We followed the landscape architects' proposals in locating most of them within the terraces or at the garden edges with individuals extending from the ravine area across the terraces. Eastern redbud *(Cercis canadensis)* and a few of its variants were selected as the primary tree candidates. We sited deciduous and evergreen shade trees along Centre Street to serve as sound and visual barriers.

GARY KOLLER

Clockwise from top, Chionanthus virginicus *(white fringetree) flowers,* C. retusus *(Chinese fringetree) flowers and fruit.*

Growth Patterns of Vines for the Leventritt Garden

The plants that we call vines have in common a climbing habit, but how they climb varies widely. The major mechanisms will be represented in the Leventritt Garden.

Adventitious Root Climbers

These plants climb masonry walls or the trunks of trees; they can also grow as groundcovers.

Campsis radicans (trumpet creeper)
Euonymus fortunei (winter creeper)—many cultivars
Hedera (ivy)—two species and many cultivars
Hydrangea anomala subsp. *petiolaris* (climbing hydrangea)
Schizophragma hydrangeoides

Twining Woody Vines

Some of these vines, including *Celastrus, Pueraria, Wisteria,* require heavy posts or trellises to climb on; others do better on a mesh support such as chainlink.

PETER DEL TREDICI

Campsis radicans *(trumpet creeper) at the Biltmore Estate, North Carolina.*

PETER DEL TREDICI

Akebia quinata *on* Cryptomeria fortunei *(Japanese cypress) in China.*

Actinidia (kiwi vine)—four species and several cultivars
Akebia—three species
Aristolochia (dutchman's pipe)—two species
Berchemia scandens (supplejack)
Celastrus (bittersweet vine)—three species
Lonicera (honeysuckle)—five to ten species and cultivars
Pueraria lobata (kudzu)
Schisandra—two or three species
Trachlospermum asiaticum (star jasmine)
Wisteria—four species and many cultivars

Twining Herbaceous Vines

These vines need nylon mesh to climb.

Cocculus carolinus (Carolina moonseed)
Humulus japonicus (Japanese hops)

Menispermum canadense and *dauricum* (moonseeds)
Polygonium aubertii (silver fleece vine)

Vines with Coiling Leaf Petioles

A wall or other flat surface covered with nylon mesh suits these vines.

Clematis—fifteen to twenty species and cultivars

Vines with Coiling Tendrils

Most of these do well on trellises.

Ampelopsis (porcelain vine)—four species
Smilax (greenbriar)—species will be grown as examples
Vitis (grape)—many species and cultivars

Vines with Adhesive Tendrils

These should be grown on stone or masonry.

Bignonia caprioleta (cross vine)
Parthenocissus (Virginia creeper and Boston ivy)

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Berchmia scandens *(supplejack).*

PETER DEL TREDICI

Wisteria *intertwined with* Parthenocissus *at Rockefeller University, New York City.*

Scandant Shrubs (also known as Weavers)

The growth habit is sprawling but with support these can "climb" to some extent.

Clematis—nonclimbing, "shrubby" species
Rosa—many species and cultivars
Tripterygium regelii

Many of these vines can cover large areas and several are very vigorous, even rampant; others—kudzu, *Schisandra, Trachlospermum asiaticum,* Carolina moonseed, silver fleece vine—lack vigor or die back in Boston.

This classification system is taken from "Physiological ecology of mesic, temperate woody vines" by A. H. Teramura, W. G. Gold, and I. N. Forseth, in *The Biology of Vines,* ed. F. E. Putz and H. A. Moody (1991).

TOM WARD

Clockwise from upper left, Daphne x burkwoodii *'Carol Mackii'*, D. cneorum *'Eximia' (garland flower variety)*, D. genkwa, D. altaica.

We selected several broadleaf evergreen shrubs (e.g., *Buxus* spp., *Ilex crenata, Ilex glabra*) to act as green foundations year-round throughout the garden, communicating much the same way as the stone walls do. The chosen plants share many features and characteristics (fine texture, ease of manipulation, similar form and habit). These evergreens were sited linearly in plan.

Next, the remaining shrubs, both deciduous and evergreen, were added to the plan. Because their eventual sizes at maturity limit their placement, we gave the largest shrubs first priority. Some genera on the plant list are heavily represented and prominently featured (for example, *Daphne, Viburnum,* and *Hydrangea*). Members of these genera will form patterns that diffuse across and down the terraces, interspersed with other shrubs. For example, *Viburnum* primarily extends down the ravine and across the eastern terraces, while *Hydrangea* has been massed at the northernmost edge of the garden and then across the western terraces. Species and genera with fewer representatives are integrated according to their growing requirements and aesthetic compatibility with surrounding plants and features. Plants that grow best and look best when sited as individuals (such as Japanese maple) are so treated, and those best used in masses (for example, brooms) are massed.

A few areas have been reserved for specialized plantings. Most of the sixty dwarf conifers have been sited above the garden, adjacent to the bonsai house and the large sugar maple. As a group, these plants tend not to integrate well with plants of different habits and architectural forms, and therefore new plantings of dwarf conifers will also be sited there. In the lower garden terraces, several beds have been prepared with acidic soils for ericaceous plants.

The last group—low shrubs, groundcovers, and herbaceous perennials—will be placed at the time of planting. Large and prominent plants have been sited for specific reasons, but flexibility is valuable when placing smaller plants around these anchors.

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