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Donald Egolf's VIBURNUMS

First smitten as an undergraduate, this U.S. National Arboretum breeder has never lost his fascination for this versatile shrub.

by Kathleen Fisher

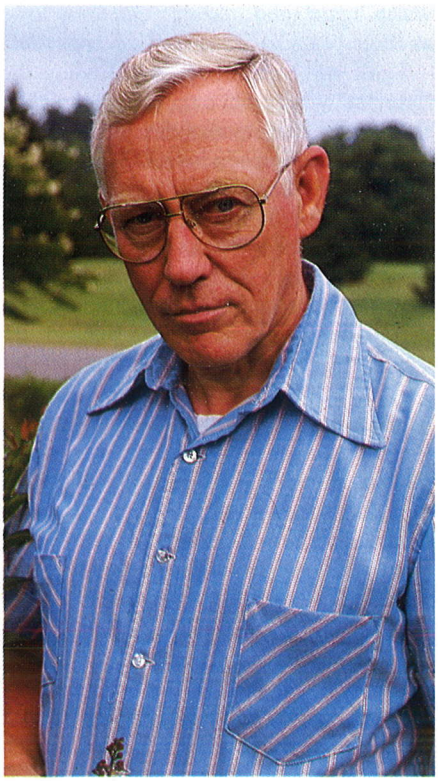
In the movie "The Graduate," college grad Ben Braddock was given a one-word key to a wealthy future. The word was "plastics" and Ben turned tail and ran.

As a graduate student, Donald Egolf was offered a suggestion that could make horticulture richer. The key word was "viburnums," and fortunately, he ran with it.

Some thirty years after a Cornell professor proposed that he consider viburnums as the subject of his master's thesis, Egolf is the international registrar for viburnums, and has released eighteen cultivars of his own. One major wholesaler calls him "one of the best, if not the best, plant breeders in the United States."

It's easy to see why the genus has intrigued him. In spring, there are the waxy blooms that blush in bud and open to snowy white, with a fragrance as heady as gardenia. But it is in autumn, when the flowers of most other shrubs are a hazy memory, that the viburnum truly comes into its glory with brilliant vermillion berries that fade to ebony, and leaves that rival a sugar maple's. Its heavy textured foliage is unscathed by diseases that plague other shrubs.

"The viburnum is probably the most significant of flowering shrubs for temperate climates because of its tremendous variety," says Egolf, leader of the shrub breeding program at the U.S. National Arboretum.



Rick Buettner

OPPOSITE: A parent of many of Egolf's cultivars, *Viburnum plicatum* forma *tomentosum* is known for its showy double file flowers in the spring and red berries in the fall. ABOVE: Dr. Donald Egolf, leader of the shrub breeding program at the U.S. National Arboretum.

Within this variety lies both the promise and problem of viburnums; the problem with the above description is that no one species offers the best of any of these characteristics, and each tends to have a characteristic flaw. *Viburnum carlesii* has stunning fragrance and flowers, but is extremely vulnerable to bacterial leaf spot. *V. dilatatum* has spectacular fruit, but its flowers don't last very long and aren't particularly showy. *V. plicatum* forma *tomentosum* has a striking shape and heavy bloom, but the birds always eat its fruit before it can be admired.

This incredible variety could have been simply an opportunity, rather than a dilemma, for a breeder. But unfortunately, the genus has nine taxonomic sections that can't be crossed with each other. Worse yet, viburnum seed has to be alternately stratified, from warm to cold and back to warm again, and takes a year to as long as three years to germinate.

Egolf will never succeed in finding the "perfect" viburnum: variety is the spice of this genus. But most of the eighteen cultivars he has introduced tend to be more disease-resistant and offer better bloom and more persistent fruit than their parents. Many of them are also smaller and of a more compact habit ideal for today's urban and suburban gardens. Some attain magnificent spreads of twice their height or more.

And Egolf—who can be somewhat objective about viburnums' virtues because he has also developed thirty-six cultivars of four other shrub genera—can exult that viburnums are finally coming into their own after years of neglect by the trade. Viburnums registered by Egolf in 1966 are at last in major production, and Egolf's renown is growing with his seedlings.

"I don't think he's been given all the credit he deserves," said Don Shadow, owner of Shadow Nursery in Winchester, Tennessee, a wholesale nursery that specializes in small flowering trees and shrubs. "He has an uncanny ability to select superior plants. He seems to have a system for selecting out the best plants, from among thousands and thousands, at an early stage. He is one of the best, if not the best, plant breeders in the United States."

Egolf has selected viburnums for the entire nation, not just Washington, D.C., Shadow observed: 'Susquehanna' and 'Onondaga' are good shrubs for the North, while 'Chippewa' and 'Huron' are outstanding performers in Dixie.

Shadow, who has known Egolf for many years, described him as a workaholic and meticulous notetaker who shows up at the arboretum greenhouse—rather than his administrative office—before seven o'clock each morning.

Donald Egolf's work has not gone unrecognized. Among the organizations that have honored him for his shrub breeding are the Chicago Botanic Garden, the Arnold Arboretum, the Pennsylvania Horticultural Society, the Association of American Nurserymen, and the American Horticultural Society.

Egolf never had any doubt that his adult life would center around plants. His father was a farmer in Osterburg in western Pennsylvania, and his mother was a schoolteacher and avid ornamental gardener who filled their yard with colorful annuals and perennials. Egolf tended his own plot from an early age.

"I had the distinction of being born in a log house and going to a one-room schoolhouse all of the years of grade school," he said. In high school, he won numerous prizes for his Future Farmers of America projects; his earnings from raising chickens later enabled him to attend college.

Egolf enrolled in horticulture at Pennsylvania State University, studying the nursery aspects of ornamental floriculture. At Cornell, he quickly became intrigued with the possibilities that lay in recombining the various characteristics of viburnum. He studied plant breeding, floriculture, and cytology, familiarizing himself with the chromosomes of each viburnum species, and initiated his breeding efforts.

To solve the dilemma posed by the genus's nine separate sections, he turned to embryo culture. When such "wide crosses" are attempted, the result is often a seed with an embryo that is doomed because it has no endosperm to nourish it. But by "rescuing" the embryo at an early enough stage and placing it in a sterile medium, the embryo can be maintained and will produce a plant.

Several of his first cultivars—notably 'Cayuga' and 'Mohawk'—were products of embryo culture. Egolf said he has found the process less useful for wide crosses than for reducing the breeding time by at least a year.

After writing his dissertation—again on

Top row Pamela Harper. All others courtesy of the National Arboretum.

ABOVE, LEFT: 'Erie' in autumn
ABOVE, RIGHT: 'Erie' in spring
LEFT: 'Shasta' MIDDLE: 'Chippewa' RIGHT: 'Allegheny'
LOWER, LEFT: 'Mohican'
LOWER, RIGHT: 'Mohawk'

viburnums—he was awarded a Fulbright scholarship to the University of London, and continued his research on the shrubs in England for two years, studying at the John Innes Horticultural Institute and the Edinburgh Botanical Garden and visiting the major gardens of the area.

When he returned from England and was offered a job as a research horticulturist at the arboretum in 1958, he brought a large portion of the Cornell collection, as well as many hybrid seedlings, to the arboretum with him. In 1966, Egolf released ten cultivars, many of which had had their origin in his Cornell work. He has named and released eight since then, the last in 1988.

All of the cultivars have American Indian names, beginning with 'Cayuga', the lake on which Cornell is located, and ending with 'Conoy', which was a major settlement of Indians on the Eastern Shore. His crape myrtle, crab apple, and pyracantha cultivars also have Indian names; the only exceptions are his hibiscus cultivars, which are named after Greek goddesses.

Egolf wanted names that would immediately be recognized as American and would connect the series with the arboretum. He toyed with the names of mountains, rivers, and historical sites before deciding that Indian names had "the greatest latitude and potential" and best carried out the American theme.

"The Europeans are fascinated by the Indian names," says Egolf, who added that European nursery professionals have told him that they consider his 1986 'Eskimo' "the best cultivar introduced in the last decade." Ironically, this all-American, highly desirable viburnum is only now beginning to appear in the U.S. market.

"The Europeans are keener plantsmen, for one thing," says Egolf. "They're always looking for something new, and then they really push nursery production." His 1970 *Pyracantha* 'Mohave' wasn't available in the United States until it had appeared on the cover of two major European nursery catalogs and received certificates of merit at Royal Horticultural Society shows.

In the past, he says, "American growers have been a little reluctant to take on a new introduction." But recently there has been, perhaps not a revolution, but at least an evolution within the trade. "I think the industry is aware that the arboretum is producing superior plants that can expand their market."

Two years is the minimum time between naming of a plant and seeing it appear in home gardens; five years is more common. A botanical description must be published, the name registered, a release signed by the secretary of agriculture, the cultivar evaluated by cooperating researchers around the country, and stock built up by wholesale growers before plants appear in retail markets.

Egolf observes that while the evaluation stage could be cut short, "if you make a misjudgement and put out an inferior plant, it can counter all your good introductions." That period also allows time to raise public awareness of the new plant.

And the public is definitely underaware of viburnums, Egolf believes. They may be familiar with the native plants, of which there are many: arrowwood (*Viburnum dentatum*), American cranberry bush (*V. trilobum*), maple-leaf viburnum (*V. acerifolium*), black haw (*V. prunifolium*), and withe-rod (*V. cassinoides*) are among the

Other Egolf viburnum cultivars and their parent species:

The linden viburnum (*V. dilatatum*), a deciduous, upright, spreading shrub native to eastern Asia, grows to about seven feet high and eight feet wide. It has bright red fruit that remains on the shrub throughout the winter because birds usually do not eat it. However, the showy white flowers have an unpleasant odor, so it is not recommended for planting close to a house.

From *V. dilatatum*, Egolf has developed three cultivars, more than one of which need to be planted for the cross-pollination that assures prolific berry production.

'Iroquois' (1966), a dense, rounded, fast-growing shrub, is usually wider than it is tall. In mid-May it is covered with abundant inflorescences of creamy white flowers. The leaves are large and thick, and turn orange-red to maroon in fall. The red fruits are larger and in more massive bunches that in most *dilatatum* shrubs.

'Catskill' (1966), a compact selection, is also wider than it is high but grows more slowly than 'Iroquois'. The creamy white flowers, in abundant inflorescences, appear in May. By mid-August its fruit ripens to a dark red that persists until mid-winter. The leaves are smaller and rounder than those of *dilatatum* and the foliage turns a pleasing combination of yellow, orange, and red in the fall.

'Erie' (1970) also has a spreading habit and creamy white flowers in mid-May. Its medium green leaves turn red, orange, and yellow before falling in autumn. In late August its fruit ripens to red on top and orange beneath. With the first frost, it turns a colorful coral pink.

'Oneida' (1966) is a *dilatatum* hybrid selected for its abundant May flowers that reappear sporadically throughout the summer. Its glossy, cardinal red fruit ripens in August and persists until late winter. It has an upright growth habit with wide spreading branches. Its leaves, which are not as thick as most viburnums', turn pale yellow and orange-red in fall.

The leatherleaf viburnum (*V. rhytidophyllum*), a native of central and western China that was introduced for cultivation in 1900, attains a height of ten feet. It has strap-shaped, wrinkled, evergreen to semi-evergreen leaves up to eight inches long. Its creamy white flowers appear from April to June and its fruit turns from red to black. It needs good soil and a sheltered location away from wind and drought. Its foliage doesn't hold up well in Northern zones.

Europe's wayfaring tree, the *Viburnum lantana*, is often used for massing, in the shrub border, and for hedges and screens, but it is coarse in the winter. Its berries are red in summer, but shrivel and darken in autumn.

From *V. lantana* seed he received from Poland, Egolf selected 'Mohican' (1966), a medium-sized shrub with a dense, rounded form. Its very dark green, leathery leaves are deciduous to semi-evergreen and provide an effective background for its May inflorescences of yellow-white. The fruit, borne in large clusters, ripens in September or October to a brilliant red that persists for several weeks before turning black. It is hardy as far north as Minnesota and its foliage is resistant to bacterial leaf spot.

Egolf crossed 'Mohican' with *V. rhytidophyllum* for:

'Allegheny' (1966), a medium-sized shrub with dark green, leathery leaves that are deciduous to semi-evergreen and like its parent cultivar, form an excellent background for its creamy May flowers. It is considered superior to its parents because of its dense, rounded form. Its long-lasting fruits are showy red in September and October.

V. sieboldii is the tallest viburnum, averaging eighteen feet tall and fourteen feet wide. Its leaves are outstanding for their leathery texture and evergreen color, but the berries are quickly eaten by birds, leaving only the colorful red pedicles for an autumn display.

Egolf has improved on *V. sieboldii* with:

'Seneca' (1966), whose fruit is less attractive to birds because it stays firm even when ripe. The creamy white flowers are produced in panicles borne on stout, spreading branches. It can grow up to thirty feet tall and wide, and normally has a treelike habit, but by allowing it to develop several branches at its base, can also be trained as a large, spreading shrub.

V. sargentii or Sargent cranberry bush came to this country before the turn of the century from northeast Asia. A medium-sized shrub that can be upright or rounded, it is one of the viburnums that may have yellow berries.

From *V. sargentii*, Egolf has introduced:

'Onondaga' (1966), a rounded shrub six feet high and wide that is distinguished by fine-textured, velvety new foliage of dark maroon that retains a maroon tinge when the leaves mature. Pruning produces an even denser foliage display. As in the species, the flowers are followed by sparsely produced red fruits that are effective August through September.

'Susquehanna' (1966) is distinguished by a heavily branched, corky trunk, and dark green foliage. It has abundant, large, creamy white flowers in late May, and its large fruit clusters mature to a dark, glossy red in September and remain on the shrub well into the winter. It is one of the largest viburnums.

better known. The natives are widely distributed in the wild, are quite hardy, and make valuable additions to bird gardens. But like most other native plants they are rarely available in the trade, nor are they as ornamental as the Asiatic species; their berries are usually blue, while the Asian species are red or, less frequently, yellow.

Interestingly, despite the Indian names, Egolf's hybrids are largely crosses between Asiatic species, or between an Asiatic and a European species. Most native viburnums belong to a section that will not hybridize with the Asiatic species' sections.

Most of the crosses are the result of species brought back from Japan and Korea by such early plant explorers as E.H. Wilson and George Forrest. More recently, arboretum-sponsored exploration of China has extended breeding potential. One find in China's wilderness about nine years ago holds particular excitement for Egolf. *V. macrocephalum* forma *keteleeri* was brought to England and crossed with *carlesii* to produce *V.* × *carlcephalum* in 1932. The Asian parent species disappeared from England during the war, and its offspring is a rather coarse plant that is fairly unexciting in the landscape because of its sparse flowering.

The parent, on the other hand, Egolf calls "an exciting plant: like double file, but its inflorescences are larger and its sterile marginal florets are heavy and waxy. But until recently, I never had it available for breeding work." The first crosses made with *V. macrocephalum* forma *keteleeri* have yet to germinate.

Among his viburnum introductions, Egolf admitted to having a few favorites.

Two of them are descendants of the double file viburnum, *V. plicatum* forma *tomentosum*, which is extremely showy because of its horizontal branching and the way its flat inflorescences march down the branches two by two.

'Shasta' (1978) is probably the most showy of the double file viburnums, he said. While the outer, sterile florets of the parents tend toward yellow, those of 'Shasta' are almost pure white, and the inflorescences are a third larger. It produces a heavy fruit set, and grows to six feet high and twice as wide, with dark green leaves that turn dull purplish-red in autumn.

'Shasta's' self-pollinating seedling, 'Shoshoni' (1986), has even heavier fruit than its parent. It was the first of the double files to have a very compact growth habit. It is only four feet tall, but can spread to six or eight feet across, and blooms and fruits profusely.

Most of Egolf's crosses are the result of species brought back from Japan and Korea by such early plant explorers as E. H. Wilson and George Forrest.

Still a winner after all these years is 'Mohawk', which Egolf selected in 1953 and released in 1966. A selection of *V.* × *burkwoodii*, which is a cross between *carlesii* and the evergreen species *utile*, 'Mohawk' was singled out for its compact growth habit and abundant inflorescences of dark red flower buds that open to white petals with red blotches. 'Mohawk' has a strong spicy clove fragrance and glossy dark green foliage that turns brilliant orange-red in fall. It is resistant to both bacterial leaf spot and powdery mildew.

Two other favorites both resulted from a cross between his early 'Cayuga'—which in turn was a cross between *V.* × *carlcephalum* and *V. carlesii*—and the evergreen *V. utile*.

'Chesapeake' (1980) is a "very significant" introduction, he said, although it is hardy only to Zone 7. It is outstanding for its dense, dwarf growth habit; glossy, dark-green leaves; and berries that are red-orange or dull red, then black. Its pink buds open to pure white.

On the other hand, 'Eskimo', the 1980 *carlesii* hybrid that is such a favorite among Europeans, is quite cold hardy. It is a compact, four-foot evergreen shrub with glossy, dark-green leaves. It is the first three-species hybrid that combines the tubular *V. carlesii*-type flower in a snowball inflorescence.

Egolf believes that 'Conoy' (1988) may be the most outstanding viburnum cultivar to date. It is entirely evergreen in the Washington, D.C. area, becoming semi-evergreen to deciduous farther north. "It's taken a lot more cold than we originally anticipated," he said. Also of the *carlesii* type, it has a dense, dwarf growth habit and heavy flowers and fruit. But while most viburnum fruit ripens from red to black in only a few weeks, 'Conoy' remains red for six to eight weeks.

'Chippewa' and 'Huron' are companions introduced in 1987. They are similar in appearance with rounded shapes; dense branching; heavy-textured, lush, dark green foliage; massive, lacy cream-white flowers; and brilliant red autumn foliage. Planting them together ensures an abundance of persistent, glossy, dark-red fruit.

Two years ago, Egolf's crape myrtle (*Lagerstroemia*) introductions overtook his viburnums. He released five in 1986, nine in 1987, and ten previously, for a total so far of twenty-four, and has three more waiting in the wings this year. Several seedling selections are only a foot high, and have potential as a potted plant for the florists' market. "There are other dwarfs in trade, but they aren't mildew resistant," he said. The new cultivar also promises to have dwarf reliance, meaning that it won't eventually revert to a larger form. Such compact plants can be used in the landscape in the same way as azaleas, for foundation plantings, low hedges, or bedding plants that are cut to the ground each season.

Using *Lagerstroemia fauriei*, a species obtained from Yakishima, Japan, Egolf has bred disease resistance into his crape myrtle cultivars. Many of these hybrids are equally outstanding for their flowers and their bark, which ranges from white to dark brown; several have multi-colored exfoliating bark. Holding promise for the future is a Chinese species, *Lagerstroemia limii*, which, while it produces what Egolf calls "the ugliest flower I've ever seen on a crape myrtle," has stunning orange-red foliage.

Egolf is also understandably proud of his hibiscus introductions. His four *Hibiscus syriacus* are all sterile, triploid cultivars, making them an exciting alternative for gardeners who love the hibiscus's bloom and habit but loathe its messy self-seeding. So far, only the pure white 'Diana' (1970) and 'Helene' (1980), which is white with a red eye, are widely available. 'Minerva' (1986) is lavender; and 'Aphrodite' (1988)—Don Shadow's favorite—is pink.

His crab apples are 'Naragansett' (1986) and 'Adirondack' (1987). The first of his six *Pyracantha* cultivars, 'Shawnee' was released in 1966; the last two, 'Pueblo' and 'Apache' were released in 1987.

Kathleen Fisher is Editor of American Horticulturist.