tion to the reasons we produce individual plant material. The production of disease resistant and drought tolerant material not only represents great selling opportunities but may also be a requirement before we are ready for it if we do not pay attention now.

MT. CUBA CENTER AND THE UNEXPLOITED WEALTH *OF THE PIEDMONT*

RICHARD W. LIGHTY

Mt. Cuba Center for the Study of Piedmont Flora
P.O. Box 3570
Greenville, Delaware 19807

Since World War II we have had a resurgence of interest in new plants from faraway places rivaling that of the Golden Age of Plant Exploration (1840 through 1920). Both eras focused on faraway places—particularly the Orient, and ignored the places easily reached.

But during the 18th century, prior to the opening of the Far East, there had been a frenzy of exploration centered on the eastern coast of North America, involving men like John and William Bartram, Andre Michaux, John Mitchell, and Peter Kalm. These people had friends and patrons in Europe who were avid collectors of minerals, artifacts, animals and plants. The cabinets of curiosity which they assembled served as study collections for these wealthy savants and later as nuclei around which museums, arboretums and zoological gardens were formed. They served also as introduction gardens from which new and useful plants were distributed. Indeed, many of our most useful and widely grown ornamentals came into gardens via this route. Plants like *Phlox paniculata,* the common garden phlox, which exists in hundreds of cultivars, were grown and selected first by amateurs and ultimately by the seed firms and nurseries that were arising to serve the leisure needs of an educated middle class.

But with the opening of Asia by commercial trading companies, such as the Dutch East India Company and the British East India Company, the attention of plantsmen turned from eastern North America, so that our flora was left to the botanists to study. American gardeners regarded European gardens as the source of quality plants, and the incompletely exploited wealth of native American ornamentals was ignored.

We are now seeing renewed interest in our own plants; those of the Coastal Plain, the Piedmont[1], and the mountains. Mt. Cuba

[1] Hilly upland region of the eastern U.S. between the Atlantic coastal plain and the Appalachians, stretching from southeast New York to central Alabama.

Center for the Study of Piedmont Flora is one manifestation of this interest. There are roughly 3000 species of plants occurring naturally in the Piedmont physiographic province, and of these about 1500 have some ornamental potential. Probably fewer than 500 have had any significant use in gardens.

To illustrate this potential I would like to focus on two native plants—one herbaceous and one woody, which have been widely used and whose potential for horticultural variation has been exploited to some degree.

Phlox paniculata occurs over most of the eastern half of the U.S. where it inhabits moist stream valleys in sun or light shade. Its 1-in. flowers are typically lavender or magenta, but white forms and other variants occur occasionally. Its multiple, stout stems rise 3 to 6 ft. from a semiwoody crown. It was among the earliest American plants to reach Europe, having been introduced by 1730, and was quickly and widely distributed as seed. Such a practice, based on a small sample of seed originally introduced, leads to inbreeding and the appearance of many variants. Those that appealed to gardeners were selected and propagated asexually to produce an array of types with different colors, with darker or lighter "eyes", shorter or taller habits, and larger flowers in fuller inflorescences. This selection process was quickened by the advent of nurseries with plant selection programs, and by the demands of gardeners as they vied with one another for more colorful gardens. England was the focus for most of the early efforts, but the Dutch, French, and Germans later got into the act, followed much later by the Americans as our own nursery industry flourished in the service of the estates of our wealthy industrialists. Ironically, most eastern Americans looked on the tall garden phlox as a European plant, although its humble progenitors still flowered just outside their garden gates.

A second native species, exemplifying another stage in the process of the making of a good garden plant, is *Kalmia latifolia*, the mountain laurel. It was introduced to Europe in 1734 and was well-received, although problems of asexual propagation slowed the spread and selection of improved ornamental variants. Over two centuries, a number of natural variants were selected, named and grown in a limited number of collections. In addition, some outstanding types have been produced as selected seedlings of parents with known potential, but these show more variation than is usually acceptable in woody plant cultivars.

Today there are more than forty cultivars of mountain laurel, some of them are dramatically beautiful and, thanks to the technology of tissue culture, these are now becoming available at local retail outlets as well as through mail order houses. I need not dwell on the marketing potential that has been thus released; this group has a good grasp of that. I do want to emphasize that these cultivars represent but the tip of an iceberg of useful variation that can now be

tapped for use by gardeners. Exciting things are happening and I'm sure we will ultimately see in *Kalmia* the same wide range of ornamentally useful variation that we have in *Phlox paniculata*. The point of both these examples is that the variation is out there in the wild and in gardens and has only to be unlocked by vigorous introduction and selection programs, research on cultural and production problems, or by improving our ability to propagate a wealth of known superior forms.

Mt. Cuba Center is being established to systematically explore the Piedmont for variants for use in gardens and in the general landscape. Once found, these variants will be evaluated, not only for their ornamental worth or freedom from pests, but for attributes such as enhanced propagation and production ability, which will make them better nursery items, or to introduce greater garden adaptability, giving them lower maintenance requirements.

For several years we have been looking at *Trillium erectum* as it occurs on the Piedmont and adjacent areas. We have not only found the centers of variability for a number of ornamental characteristics such as flower color, size, and position, but have also isolated clones which propagate rapidly by division. One such clone has a doubling time of one year under our conditions. We are also running preliminary trials on seedling production of trilliums and believe that it may eventually be possible for nurseries to be competitive with those who are wild collecting plants thus decimating our natural stands.

A selection we plan to name and release in the near future is a clone of *Solidago sphacelata* found in Rockingham County, N.C. It has proved to be a tough, reliable, easy-to-propagate deciduous groundcover for sunny, dry sites. Like *Rudbeckia* 'Goldsturm' and *Sedum telephium* 'Autumn Joy', this plant is a candidate for public and commercial landscapes where high visual impact and low maintenance are necessary.

On the woody plant side we are looking at eight *Leucothoe axillaris* selections for a variety of ornamental qualities as well as qualities like easy propagation and reliable production. It occurred to us that most of the named cultivars are strangely colored or variegated forms and that the market could use an elegant green type. Our selection is one with elegantly arching stems, sharp-pointed leaves with an undulate edge, and large quantities of flowers in short racemes.

In addition to selecting superior sorts of new or familiar native ornamentals from the wild, we are looking at American plants that are being offered by small or specialty nurseries. Among those we feel merit much wider use are *Chionanthus pygmaeus*, an endangered species from Florida which is perfectly hardy in Wilmington, Delaware; *Stewartia ovata* forma *grandiflora*, which is available from only a few retail nurseries; and *Ilex verticillata*

'Maryland Beauty', a registered cultivar selected for and presently limited to the Christmas cut-stem trade. Sometimes we discover an outstanding form that is grown only locally and for which we cannot find a cultivar name. One such plant is a compact *Aster novae-angliae* clone with large purple flowers that is seen in many gardens within an area of only a few square miles in one part of Pennsylvania. No doubt it was a local selection passed from hand to hand by gardeners.

Still another aspect of our work is to sort through the available cultivars and selections of specific plant groups such as *Cornus sericea, Juniperus virginiana, Cornus florida,* and *Ilex verticillata,* so as to be able to publish on the horticultural variation in these groups, introduce in a broad way the outstanding but neglected sorts, and identify areas for further work.

Underlying all of our goals is the belief that our native plants are as garden-worthy as those of any region of the world and that the rising interest in naturalistic gardening will put demands on our native flora that should not be met by wild collecting. A public that comes to appreciate native plants will be more inclined to protect them than one which is oblivious to their beauty. In pursuing these ends we believe that nurseries, gardeners, and Mt. Cuba alike can all profit from the enlightened appreciation, production, and use of an enlarged array of ornamental plants.

RALPH SHUGERT: How do you propagate your *Ilex verticillata*?

FRANK GUOIN: Cuttings taken in June-July, no hormone, under mist root in 3 to 4 weeks. They can be potted up immediately after rooting.