

North Carolina State University professor and students build teaching arboretum on eight ugly acres, now beautiful and productive.

J. C. Raulston's Living Classroom

by Sandra Ladendorf

It takes more than books and classroom lectures to mold a student into both a skilled plantsperson and practical businessperson in J.C. Raulston's mind. When North Carolina State University was reevaluating all its curricula in the mid-1970's, the professor of horticulture plotted a course for better preparation of graduates.

Today, the arboretum at North Carolina State University serves as a laboratory for most of the university's students in landscape horticulture, parks and recreation, forestry, ornamental horticulture, landscape architecture and the school of design. "Our students need to see tree trunks, flowers and berries—to hold a leaf,

twig, or flower," says Dr. J.C. Raulston, professor of horticulture at NCSU. So, during the past six years, Raulston accumulated more than 4000 different species and cultivars in the arboretum for students to plant, prune, study and propagate.

When the department of horticulture at State was going through re-evaluation, a committee recognized that while the university was

always strong in the areas of flowers and vegetables, the department was weak in ornamentals. A commitment was made to upgrade the curriculum in ornamentals both by increasing the faculty (it has grown from 3 to 11 since 1975) and by improving resources, including an arboretum.

The university provided Raulston with eight acres of land, part of the existing research farm, and tool support—, no



Perennial bed at planting (left) one year later (below). Students do most of the planting and maintenance.



money per se. "It was not at all a site one would choose," Raulston says. "It was flat land with heavy clay soil, and there were ugly views in all directions." But the site was available and had the virtue of being beside a road and therefore easily accessible to the public.

Lean operation

The NCSU arboretum has been a shoestring operation from the beginning—but it is amazing what a talented man can do with a shoestring. With a little money and a lot of creative student labor, Raulston has developed both an active research center and an interesting, attractive community resource.

Today a visitor enters the arboretum through an inviting entrance center, designed and built by Will Hooker when he was a graduate student (he is now teaching at NCSU). The surrounding ugly industrial sites have been screened from view by vines on the chain link fence and plantings of quick growing trees like



J. C. Raulston, admiring *Nandina domestica* cv. *Alba*.

88 tree transplanting machine for large projects, the most exciting of which was the rescue of a 14 foot, 65-year-old, cut-leaf Japanese maple which one class, with Beal's help, dug and successfully transplanted to the arboretum.

The 250-foot perennial bed and the lathhouse are completely managed by volunteers Edith Eddleman and M.K. Ramm. With volunteers, as with students, Raulston gives them a project and then turns them loose, with little supervision, to make that project their own.

Following the original design of the entire arboretum, created by Charlotte landscape architect Fielding Scarborough while he was earning his MLA, student classes have laid out the large curving beds, killed the grass with Roundup, and then planted directly into the clay soil.

Learning by observation

According to Raulston, current research indicates that landscape plantings will do best without any backfill, contrary to traditional practices. He says, "I tell my students the larger the plant is going to become and the more permanent it is, the less useful backfill will be."

All the plantings, like the group of 20 cultivars of nandinas or the collection of 110 magnolia species and hybrids, are heavily mulched and then the beds are kept weed-free with herbicides and occasional hand weeding...the economically feasible way for this garden to operate, since there is only one full-time maintenance person year-round, helped by another worker for the four summer months. Six different pre-emergence herbicides are used for three major applications, in winter, late spring and late summer.

Raulston has created a special environment for the wide variety of plants like rhododendrons and heathers that will not tolerate N.C. native soils, par-

ticularly the heavy clay. It is a large lathhouse with beds with bark—no fancy additives, no complicated soil mixes, just plain bark. He has found that almost all plants thrive in this house.

Among the 1500 species in the lathhouse, *Cornus canadensis*, frequently described as impossible in N.C., is a rampant ground cover. Raulston did note that because the shredded bark drains so quickly, it does require frequent waterings.

Students learn which plants require raised beds for successful Carolina culture. They are also exposed to a number of interesting, rare or unusual plants that are not currently available for landscape use in the Carolinas.

Promoter of new plants

Raulston works closely with the landscape architects and nurserymen of the state. He sees one function of the arboretum as being a testing place for cultivars likely to do well in N.C.

Each year, students propagate and distribute thousands of plants to nurserymen to encourage them to try new cultivars. He also urges nurserymen to come to the arboretum for any cuttings they might want to try. Every time he speaks to landscape designers, he poses them the challenge of using just one new or rare plant in their next designs.

He also encourages them to "think small" and not necessarily always plant large specimens. In his experience, the landscape trade always wants "big" things and usually buys a few very expensive plants. "I'd like to see landscapers use a few of those large plants for a framework, but then add a number of smaller, interesting plants." He points out that you can take a one-quart seedling dogwood and plant it side-by-side with a seven foot balled-and-burlapped one and five years later, the seedling tree will be larger.

Raulston also uses the arboretum to make landscape architects and nurserymen aware of innovations in standard woody plants. Dogwoods are a case in point. The ordinary white dogwood, *Cornus florida*, is a native N.C. plant, the common understory in the deciduous oak and hickory woodlands. It thrives in N.C. Probably every nursery in the state carries *C. florida* and a number of them offer a pink or red variety. However, at the arboretum, Raulston has acquired a number of different cultivars of *C. florida*, including a weeping, a dwarf and a double form—all of which should do very well in N.C. plantings.

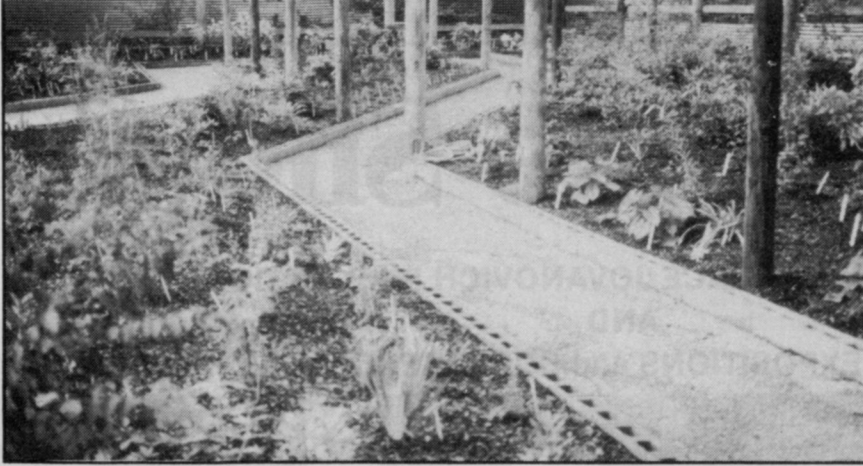
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'Nellie Stevens' holly, Tjuga 'Emerald', and Leyland cypress.

Eight different sets of attractive benches, designed and built by Doug Bethune for his Masters in Landscape Architecture project, are situated throughout the arboretum. Tracy Traer, instructor in landscape horticulture, works with her class each year to develop a model landscape garden. Three are completed and two are in construction this year. When seven have been completed, this program will recycle. The first garden will be torn out and a new one built in its place.

Raulston is skilled in both recruiting volunteers and donations for the arboretum. He has established a Friends of the Arboretum group which provides about \$2000 support each year. Local arborist Archie Beal frequently donates use of his Big John



Lathhouse enables North Carolina landscapers to view 1,500 species not usually found in the state.

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While most arboreta try to grow the perfect, large specimens, Raulston philosophy of plant management is diversity. From rhododendrons to large trees, his intent is to grow them for a few years and when they become too large, remove and replace them with small plants again.

Plans have already been developed with the campus landscape architect to move the entire magnolia collection to a place where these trees can achieve maturity after they have

grown at the arboretum for a few more years, and the dwarf conifer collection may soon be decorating the front of the horticulture building. In the meantime, all of this material has been propagated by students so that small replacements are available.

Education for the market

Raulston works closely with Dr. Ted Bilderback, associate professor of horticulture at the university. Bilderback has been teaching an arboriculture course which he restructured this past year, and it is now presented as a total maintenance course. The depart-

ment has found that maintenance offers the most jobs for its graduates and the most lucrative, so the emphasis has shifted in that direction.

The horticulture department offers a degree in ornamental horticulture and also one in landscape horticulture, but Raulston says that today many of the students opt for a double major, so they are prepared to handle everything from small liner plants to huge trees—including production, sales and maintenance.

The department's staff builds economics into all the teaching programs. For example, in the grounds maintenance course, there is an entire section on figuring the real costs of items like labor and machinery—and teaching the students how to estimate and bid on jobs. In the nursery production course, each student must do a thorough financial work-up on a complete nursery operation—the land, equipment, labor, supplies, sales and marketing costs. Raulston has seen several students take these analyses to banks, receive loans and start their own businesses. The emphasis at NCSU today is on developing skilled plantsmen who are also practical businessmen and women, ready to compete in the real world beyond the university. **WT&T**

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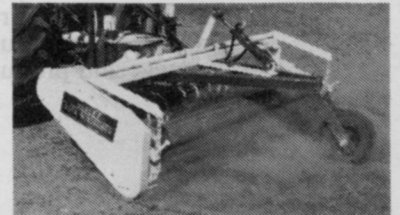
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