CHOOSING DIFFERENT TYPES OF BARK FOR MOUNTING EPIPHYTIC ORCHIDS

In a recent issue of this newsletter, Walter recounted his use of Cottonwood bark as a mount for epiphytes. The durability of the bark of this very fast-growing tree was surprising, considering the characteristics of the tree's very soft wood. This apparent contradiction intrigued me, and I eventually realized that Cottonwood bark was predictably long-lasting, and that the durability of the bark of trees can, in some instances, be predicted from the appearance of the bark itself. This ability may then permit us to experiment with a variety of barks in an effort to match their characteristics with the requirements of our orchids.

Seeking to match epiphyte and substrate is not merely idle 'tweaking'. It is well-known that in the tropics, some species of trees are particularly good hosts for epiphytes and are commonly laden with great masses of ferns, bromeliads, and orchids, while nearby trees of other species may be devoid of them. Some orchids, too, appear to be limited to one or a few species of trees. In other cases a given species of orchid may occur on different species of trees in different areas, possibly due to differences in the physical characteristics of the bark and its suitability under different environmental conditions. As an example, one as close to home as can be found, I can cite the behavior of *Epidendrum conopseum* at the northernmost locality for an epiphytic orchid in the Americas, Southeastern North Carolina. Last fall I located the plant at two sites in this area. At the first, along a small black-water stream meandering through low pinelands, several large masses of the plant occurred about 30 feet above ground on the trunks of large Tupelo trees (*Nyssa aquatica).* An abundance of other swamp trees occurred with the Tupelo, including many Bald Cypress (*Taxodium distichum*), but the *Epidendrum* was strictly limited to the *Nyssa.* A subsequent search of a lake-side swamp about 20 miles away consequently focussed on *Nyssa* trees. Hours were spent in vain until the orchids were finally found in abundance on the lower trunks and limbs of huge *Taxodium* trees standing in the water of the lake. *Nyssa* trees at this site were completely bare of epidendrums.

Host-specificity of varying degrees is a prominent feature of the ecology of many epiphytic orchids. Hence there is little reason to expect that all plants will respond equally well to being mounted on a piece of cork or tree fern. The real wonder is actually that so many do so well on such a limited number of standard substrates. Perhaps, then, orchids that are notoriously difficult to grow, or merely recalcitrant in a particular collection, might respond favorably if given a suitable piece of bark.

One factor determining the suitability of bark is its durability, because remounting orchids can be traumatic for the plant. I think that it should be possible to identify bark that will last for a number of years. This is possible because of the manner in which bark forms. It is laid-down from the bottom outward, layer beneath layer. Because this process increases the thickness of the bark, and because simultaneously the tree is growing new wood and increasing in diameter within the cylinder of bark, something has to give. Different species of trees deal with this stress in different ways: bark peels, it sheds in flakes or strips, or it furrows. If, in a bark that furrows, the layers remain tightly joined and the bark is also resistant to decay and physical weathering, the furrows will, over a period of years, become progressively deeper: the more durable the bark, the deeper the furrows. Hence it should be possible to select long-lasting bark by choosing bark that is deeply furrowed.

With this in mind, the durability of Cottonwood bark is not surprising, because the bark of old trees is deeply furrowed. Recently, I checked a grove of Rock Chestnut Oak (*Quercus Prinus*), a rather small-growing tree of dry rocky ridgetops. This species is remarkable for its very deeply furrowed bark, and I was able to collect loose pieces from the surface of the trunks without harming these very slow-growing trees. Some of the pieces have furrows 2 inches deep. A couple ideal orchid-sized branches had also been cut by NiMo and conveniently had been left lying on the ground. Only about 4 inches in diameter, these are armored with bark nearly an inch thick. I have already used some of this rough-textured bark for mounting a couple special plants. We will see what happens.

The opportunity to employ a variety of barks opens an intriguing possibility. In cases of particularly recalcitrant orchids, one could search the literature in an effort to identify the species of trees that typically serve as hosts. In some cases these trees will belong to families that include species occurring in the northeastern U.S. Because certain chemical characteristics of plants tend to run in families, it would be worth trying bark from a member of the same family that the orchid favors in the wild. For example, if the orchid commonly occurs on a tree belonging to the Lauraceae, sassafras might be a suitable substitute. Similarly, legumes are among the most important of rainforest trees in the American tropics; Black Locust (*Robinia pseudo-acacia*) is a weedy leguminous tree that is abundant in the Albany area. This species is a good candidate for orchid mounts, having deeply fluted bark and very rot-resistant wood, permitting the use of intact or sectioned branches.

Perhaps with a little detective work and some experimentation, that long-suffering treasure can be restored to health and induced to bloom. Who knows, we might find that, in all the fiddling with light and temperature, the changing of watering and fertilizing regimes, we've all along been barking up the wrong tree.

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